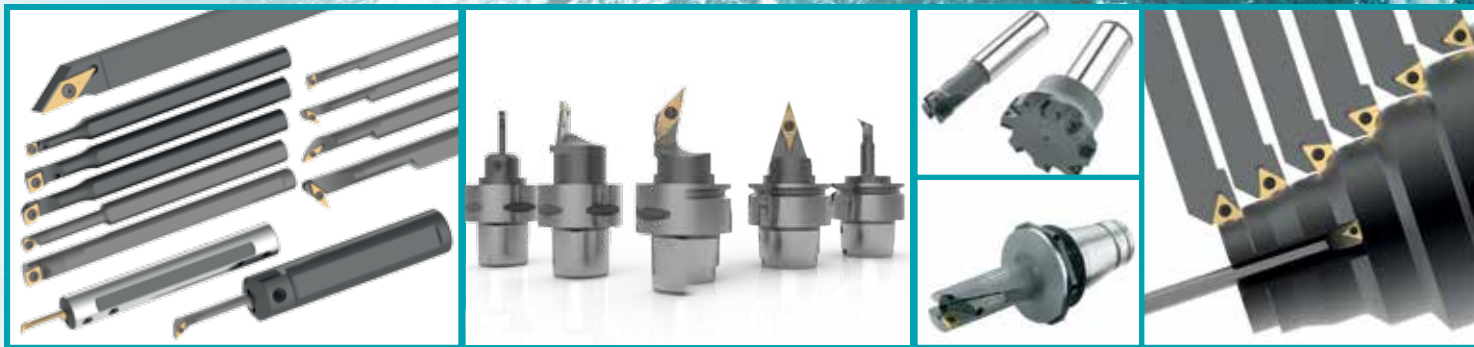


**PERFORMANCE  
INNOVATION  
QUALITY**

**+ Swiss  
Precision  
Cutting  
Tools**



**DENITool®**

INCH PROGRAM 2020



## Swiss Precision Tools Solutions for the Manufacturing Industry

For over 50 years, Denitool® Precision Tools has been known for innovative high-performance Swiss quality products that meet the highest quality standards.

Denitool® offers a wide range of cutting tools and inserts for turning, precision boring, grooving and milling, with a focus on applications with very small dimensional requirements.

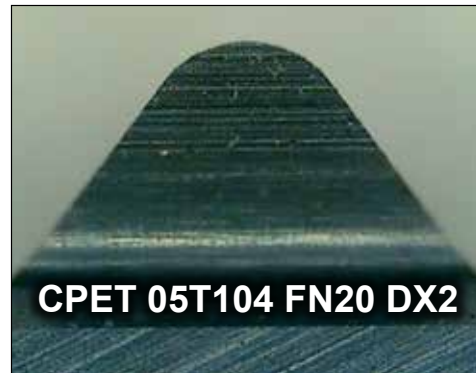
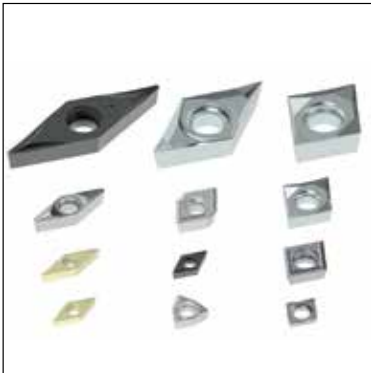
Individual custom-made products, individual inserts, coatings and repairs for carbide boring bars are also part of our customer service capabilities.



Highlights of Denitool® products include optimized inserts and tool holders that provide specific cutting angles for a variety of applications and materials.

The sharp Denitool® inserts are characterized by extremely reduced cutting forces and ensure high-quality surface finishes, dimensional accuracy, and superior tool life at high cutting speeds.

Inserts come in carbide and cermet substrates with standard and special coatings, and some are available with PCD or CBN.



### Important:

- For product availability please refer to the actual pricelist
- All products also available in metric size (see metric catalogue)

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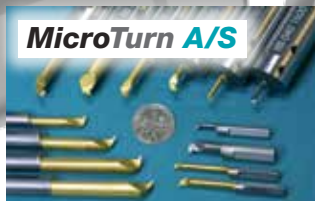


|                                                                                                                   |                                                                                     |
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# TURNING

**MicroTurn A/S**



**MicroTurn D**



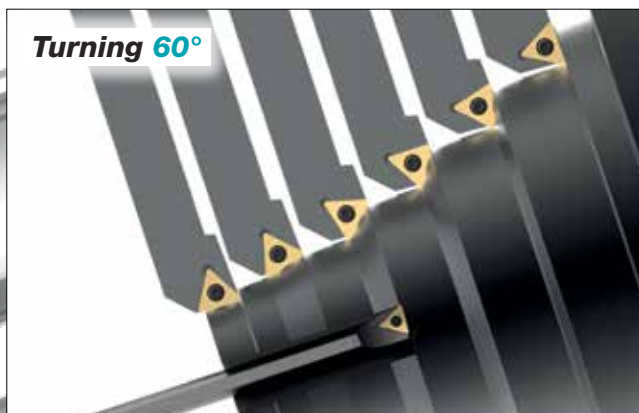
**MiniTools 80°**



**HardTurn 80°**



**Turning 60°**



**MicroCopy G**



**MicroCopy 35°**



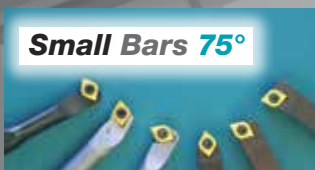
**SwissLine**



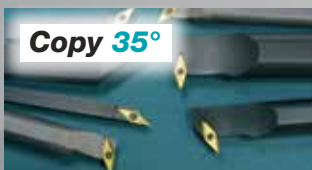
**IsoTools**



**Small Bars 75°**



**Copy 35°**



**MiniCopy 35°**



**MicroCopy D**



**SynTool**







# MicroTurn A/S

The final solution for high precision, internal small diameter part machining



## Micro turning tools for ID turning operations from .110" dia.

These are advanced MicroTools for internal precision operations. PVD coated tips in Denalloy® special alloy are far superior in performance and tool life to any standard carbide tips on the market. Tool holders are equipped for coolant connection and are suitable for right or left hand cutting tips. The precision clamping devices for the cutting tip assure very accurate positioning while replacing the tool.

**Turning & copying:** Denalloy® tips are available for ID operations from .110" dia.

**Grooving:** Denalloy® tips are ideal for ID grooving and face grooving. ID grooving in .149" dia. to cut grooves for O-rings or snap rings as well as relief grooves for ID threads. The cutting width and depth are matched with standard size O-rings and snap rings.

**Threading:** Denalloy® tips are designed for partial profile 55° & 60° threading (metrical thread and DIN ISO 228-1 pipe thread).



## Turning adapter

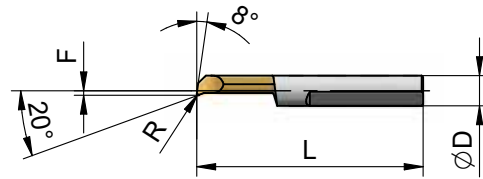
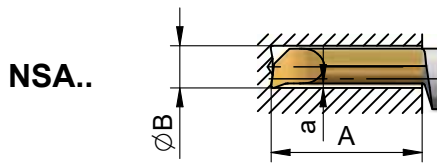
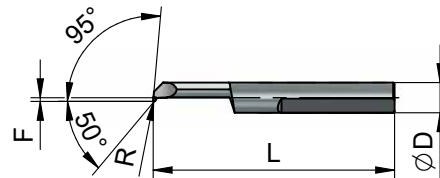
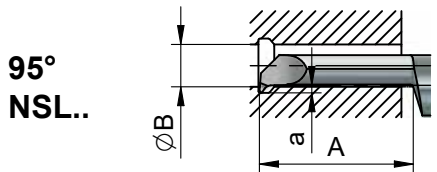


Illustration: right hand execution shown

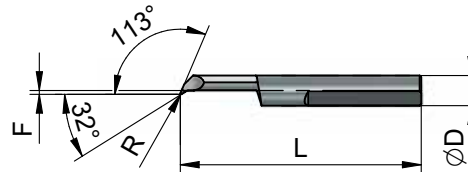
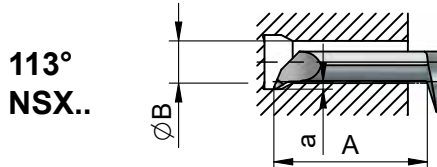
| Article No.      |                  | [ inch ] |        |       |       |                  |       |       |  | Tool holder (R + L)  |
|------------------|------------------|----------|--------|-------|-------|------------------|-------|-------|--|----------------------|
| R                | L                | D        | L      | A     | F     | B <sub>min</sub> | a     | R     |  |                      |
| NSAR 2804 000 10 | NSAL 2804 000 10 |          | 1.181" | .393" |       |                  |       |       |  | HIJ040- . . . . -080 |
| NSAR 2804 000 15 | NSAL 2804 000 15 | .157"    | 1.378" | .590" | .023" | .110"            | .007" | .006" |  |                      |
| NSAR 2804 000 22 | NSAL 2804 000 22 |          | 1.673" | .885" |       |                  |       |       |  |                      |
| NSAR 3804 000 10 | NSAL 3804 000 10 |          | 1.181" | .393" |       |                  |       |       |  |                      |
| NSAR 3804 000 15 | NSAL 3804 000 15 | .157"    | 1.378" | .590" | .059" | .150"            | .011" | .006" |  |                      |
| NSAR 3804 000 22 | NSAL 3804 000 22 |          | 1.673" | .885" |       |                  |       |       |  |                      |

## Copying adapter



| Article No.      |   | [ inch ] |        |        |       |                  |       |       |  | Tool holder (R + L)  |
|------------------|---|----------|--------|--------|-------|------------------|-------|-------|--|----------------------|
| R                | L | D        | L      | A      | F     | B <sub>min</sub> | a     | R     |  |                      |
| NSLR 2804 000 10 |   | .157"    | 1.260" | .393"  | .020" | .110"            | .019" | .004" |  | HIJ040- . . . . -080 |
| NSLR 3804 000 15 |   | .157"    | 1.457" | .590"  | .059" | .150"            | .039" | .004" |  |                      |
| NSLR 4806 000 18 |   | .236"    | 1.575" | .708"  | .059" | .189"            | .039" | .004" |  | HIJ060- . . . . -080 |
| NSLR 5806 000 23 |   | .236"    | 1.772" | .906"  | .090" | .228"            | .051" | .004" |  |                      |
| NSLR 6808 000 30 |   | .315"    | 2.047" | 1.181" | .091" | .268"            | .055" | .004" |  | HIJ080- . . . . -080 |
| NSLR 7808 000 40 |   | .315"    | 2.441" | 1.574" | .130" | .307"            | .055" | .004" |  |                      |

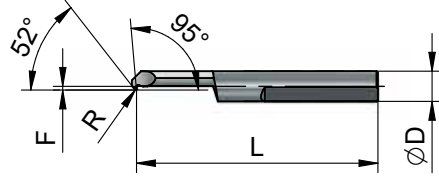
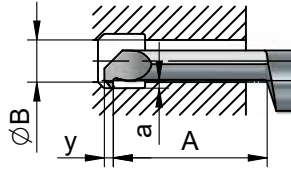
## Copying adapter



| Article No.      |   | [ inch ] |        |        |       |                  |       |       |  | Tool holder (R + L)  |
|------------------|---|----------|--------|--------|-------|------------------|-------|-------|--|----------------------|
| R                | L | D        | L      | A      | F     | B <sub>min</sub> | a     | R     |  |                      |
| NSXR 2804 000 10 |   | .157"    | 1.260" | .393"  | .020" | .110"            | .019" | .004" |  | HIJ040- . . . . -080 |
| NSXR 3804 000 15 |   | .157"    | 1.457" | .590"  | .059" | .150"            | .039" | .004" |  |                      |
| NSXR 4806 000 18 |   | .236"    | 1.575" | .708"  | .059" | .189"            | .039" | .004" |  | HIJ060- . . . . -080 |
| NSXR 5806 000 23 |   | .236"    | 1.772" | .906"  | .090" | .228"            | .051" | .004" |  |                      |
| NSXR 6808 000 30 |   | .315"    | 2.047" | 1.181" | .091" | .268"            | .055" | .004" |  | HIJ080- . . . . -080 |
| NSXR 7808 000 40 |   | .315"    | 2.441" | 1.574" | .130" | .307"            | .055" | .004" |  |                      |

Different dimensions &amp; geometries upon request

## Copying adapter

52°  
NSQ..

| Article No.      |   | [ inch ] |       |        |        |       |                  |       |       |  | Tool holder (R + L)  |
|------------------|---|----------|-------|--------|--------|-------|------------------|-------|-------|--|----------------------|
| R                | L | D        | y     | L      | A      | F     | B <sub>min</sub> | a     | R     |  |                      |
| NSQR 2804 000 10 |   | .157"    | .039" | 1.260" | .394"  | .020" | .110"            | .020" | .004" |  | HIJ040- . . . . -080 |
| NSQR 3804 000 15 |   | .157"    | .039" | 1.457" | .591"  | .059" | .150"            | .039" | .004" |  |                      |
| NSQR 4806 000 18 |   | .236"    | .059" | 1.575" | .709"  | .059" | .189"            | .039" | .004" |  | HIJ060- . . . . -080 |
| NSQR 5806 000 23 |   | .236"    | .079" | 1.772" | .906"  | .091" | .228"            | .051" | .004" |  |                      |
| NSQR 6808 000 30 |   | .315"    | .079" | 2.047" | 1.181" | .091" | .268"            | .055" | .004" |  | HIJ080- . . . . -080 |
| NSQR 7808 000 40 |   | .315"    | .079" | 2.441" | 1.575" | .123" | .307"            | .055" | .004" |  |                      |

## Grooving adapter

NSE..

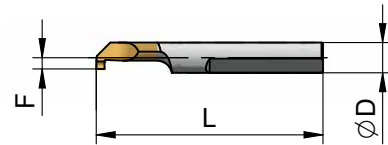
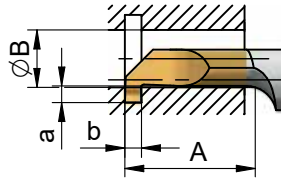
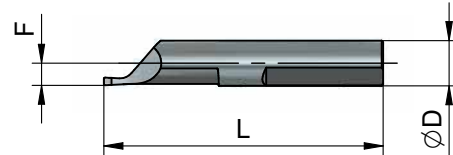
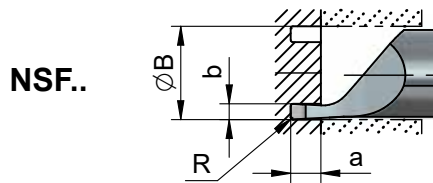


Illustration: right hand execution shown

| Article No.      |                  | [ inch ] |        |        |       |                       |                  |       |  |  | Tool holder (R + L)  |
|------------------|------------------|----------|--------|--------|-------|-----------------------|------------------|-------|--|--|----------------------|
| R                | L                | D        | L      | A      | F     | b <sup>+0.0019"</sup> | B <sub>min</sub> | a     |  |  |                      |
| NSER 3804 110 10 | NSEL 3804 110 10 | .157"    | 1.181" | .393"  | .059" | .043"                 | .150"            | .039" |  |  | HIJ040- . . . . -080 |
| NSER 3804 110 15 | NSEL 3804 110 15 | .157"    | 1.378" | .590"  | .059" | .043"                 | .150"            | .039" |  |  |                      |
| NSER 4806 110 10 | NSEL 4806 110 10 | .236"    | 1.181" | .393"  | .059" | .043"                 | .189"            | .039" |  |  | HIJ060- . . . . -080 |
| NSER 4806 110 18 | NSEL 4806 110 18 | .236"    | 1.496" | .708"  | .059" | .043"                 | .189"            | .039" |  |  |                      |
| NSER 4806 110 25 | NSEL 4806 110 25 | .236"    | 1.771" | .984"  | .059" | .043"                 | .189"            | .039" |  |  |                      |
| NSER 4806 160 10 | NSEL 4806 160 10 | .236"    | 1.200" | .413"  | .059" | .062"                 | .189"            | .055" |  |  |                      |
| NSER 4806 160 18 | NSEL 4806 160 18 | .236"    | 1.515" | .728"  | .059" | .062"                 | .189"            | .055" |  |  |                      |
| NSER 4806 160 25 | NSEL 4806 160 25 | .236"    | 1.791" | 1.003" | .059" | .062"                 | .189"            | .055" |  |  |                      |
| NSER 5806 160 15 | NSEL 5806 160 15 | .236"    | 1.397" | .610"  | .098" | .062"                 | .228"            | .055" |  |  |                      |
| NSER 5806 160 25 | NSEL 5806 160 25 | .236"    | 1.791" | 1.003" | .098" | .062"                 | .228"            | .055" |  |  |                      |
| NSER 5806 160 30 | NSEL 5806 160 30 | .236"    | 1.968" | 1.181" | .098" | .062"                 | .228"            | .055" |  |  |                      |
| NSER 5806 230 15 | NSEL 5806 230 15 | .236"    | 1.378" | .590"  | .098" | .090"                 | .228"            | .074" |  |  |                      |
| NSER 5806 230 24 | NSEL 5806 230 24 | .236"    | 1.732" | .944"  | .098" | .090"                 | .228"            | .074" |  |  |                      |
| NSER 5806 230 30 | NSEL 5806 230 30 | .236"    | 1.968" | 1.181" | .098" | .090"                 | .228"            | .074" |  |  |                      |
| NSER 6808 160 15 | NSEL 6808 160 15 | .315"    | 1.397" | .610"  | .098" | .062"                 | .268"            | .055" |  |  | HIJ080- . . . . -080 |
| NSER 6808 160 25 | NSEL 6808 160 25 | .315"    | 1.791" | 1.003" | .098" | .062"                 | .268"            | .055" |  |  |                      |
| NSER 6808 230 15 | NSEL 6808 230 15 | .315"    | 1.378" | .590"  | .098" | .090"                 | .268"            | .074" |  |  |                      |
| NSER 6808 230 24 | NSEL 6808 230 24 | .315"    | 1.732" | .944"  | .098" | .090"                 | .268"            | .074" |  |  |                      |
| NSER 6808 230 30 | NSEL 6808 230 30 | .315"    | 1.968" | 1.181" | .098" | .090"                 | .268"            | .074" |  |  |                      |
| NSER 7808 160 15 | NSEL 7808 160 15 | .315"    | 1.397" | .610"  | .137" | .062"                 | .307"            | .055" |  |  |                      |
| NSER 7808 160 25 | NSEL 7808 160 25 | .315"    | 1.791" | 1.003" | .137" | .062"                 | .307"            | .055" |  |  |                      |
| NSER 7808 230 15 | NSEL 7808 230 15 | .315"    | 1.378" | .590"  | .137" | .090"                 | .307"            | .074" |  |  |                      |
| NSER 7808 230 24 | NSEL 7808 230 24 | .315"    | 1.732" | .944"  | .137" | .090"                 | .307"            | .074" |  |  |                      |
| NSER 7808 230 30 | NSEL 7808 230 30 | .315"    | 1.968" | 1.181" | .137" | .090"                 | .307"            | .074" |  |  |                      |

Different dimensions &amp; geometries upon request

## Face grooving adapter

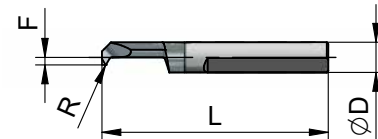
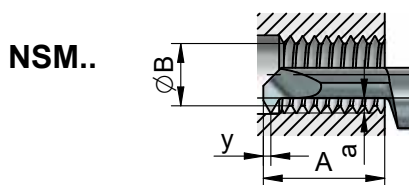


| Article No.      |   | [ inch ] |        |       |       |                                      |                  |       |        | Tool holder (R + L) |
|------------------|---|----------|--------|-------|-------|--------------------------------------|------------------|-------|--------|---------------------|
| R                | L | D        | L      | A     | F     | b <sup>+0.002"</sup> <sub>-0.0</sub> | B <sub>min</sub> | a     | R      |                     |
| NSFR 6206 100 15 |   | .236"    | 1.456" | .590" | .116" | .039"                                | .244"            | .079" | .0059" | HIJ060-...-080      |
| NSFR 6206 150 15 |   | .236"    | 1.456" | .590" | .116" | .059"                                | .244"            | .118" | .0059" |                     |
| NSFR 6206 200 15 |   | .236"    | 1.456" | .590" | .116" | .079"                                | .244"            | .157" | .0059" |                     |
| NSFR 6206 250 15 |   | .236"    | 1.456" | .590" | .116" | .098"                                | .244"            | .197" | .0059" |                     |
| NSFR 6206 300 15 |   | .236"    | 1.456" | .590" | .116" | .118"                                | .244"            | .236" | .0059" |                     |

Different dimensions &amp; geometries upon request

Threading adapter  
Partial profile 60°

## metric thread



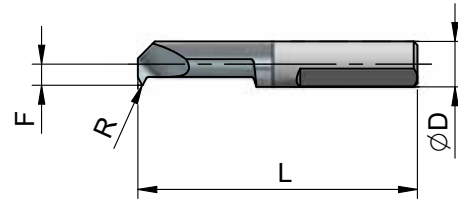
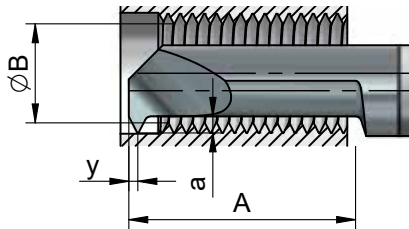
| Article No.          | [ inch ] |        |       |       |                  |                        |                       |       |       |        | Tool holder (R + L)  |
|----------------------|----------|--------|-------|-------|------------------|------------------------|-----------------------|-------|-------|--------|----------------------|
| R                    | D        | L      | A     | F     | B <sub>min</sub> | Lead of thread (range) | Size of thread (max.) | y     | a     | R      |                      |
| NSMR 3104 025 100 08 | .157"    | 1.181" | .314" | .039" | .122"            | 101 - 24               | ≤ M5                  | .019" | .039" | .0007" | HIJ040- . . . . -080 |
| NSMR 4104 025 125 10 | .157"    | 1.260" | .393" | .075" | .161"            | 101 - 20               | ≤ M6                  | .023" | .043" | .0007" |                      |
| NSMR 5706 050 150 13 | .236"    | 1.377" | .511" | .098" | .224"            | 51 - 17                | ≤ M8                  | .027" | .051" | .0015" | HIJ060- . . . . -080 |
| NSMR 7708 075 160 16 | .315"    | 1.496" | .629" | .138" | .303"            | 34 - 16                | ≤ M10                 | .031" | .055" | .0015" | HIJ080- . . . . -080 |

Different dimensions &amp; geometries upon request

## Threading adapter Partial profile 55°

DIN ISO 228-1  
Pipe thread

NSW..

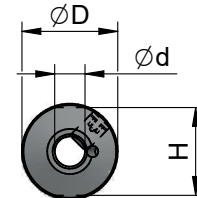
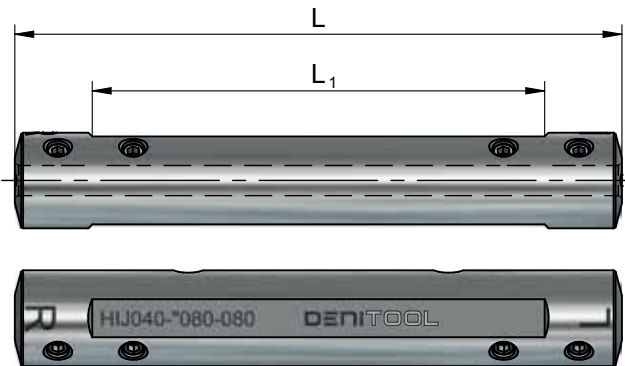


| Article No.          | [ inch ] |        |       |       |                  |                       |   |       |       |        | Tool holder (R + L)  |
|----------------------|----------|--------|-------|-------|------------------|-----------------------|---|-------|-------|--------|----------------------|
| R                    | D        | L      | A     | F     | B <sub>min</sub> | Size of thread (max.) | G | y     | a     | R      |                      |
| NSWR 6006 090 000 15 | .236"    | 1.456" | .590" | .110" | .236"            | ≤ G 1/16"             |   | .023" | .043" | .0019" | HIJ060- . . . . -080 |
| NSWR 7708 090 000 20 | .315"    | 1.653" | .787" | .138" | .303"            | ≤ G 1/8"              |   | .023" | .043" | .0019" | HIJ080- . . . . -080 |

Different dimensions & geometries upon request

## Tool holders for MicroTurn A/S

with internal coolant



R: mount right hand tool  
L: mount left hand tool

| Article No.         | [ inch ] |       |        |                |       |  |  |
|---------------------|----------|-------|--------|----------------|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                     | D        | d     | L      | L <sub>1</sub> | H     |                                                                                       |                                                                                       |
| HIJ040-"080-080 ■   | 1/2"     | .157" | 3.149" | 2.362"         | .461" | T1221 03040                                                                           | T15S                                                                                  |
| HIJ040-"100-080 ■   | 5/8"     | .157" | 3.149" | 2.362"         | .586" | T1221 03060                                                                           | T15S                                                                                  |
| HIJ060-"100-080 ■   | 5/8"     | .236" | 3.149" | 2.362"         | .586" | T1221 04050                                                                           | T20S                                                                                  |
| HIJ080-"100-080 ■   | 5/8"     | .315" | 3.149" | 2.362"         | .586" | T1221 05040                                                                           | T25S                                                                                  |
| HIJ040-"120-080 ■   | 3/4"     | .157" | 3.149" | 2.362"         | .709" | T1221 03060                                                                           | T15S                                                                                  |
| HIJ060-"120-080 ■   | 3/4"     | .236" | 3.149" | 2.362"         | .709" | T1221 04060                                                                           | T20S                                                                                  |
| HIJ080-"120-080 ■   | 3/4"     | .315" | 3.149" | 2.362"         | .709" | T1221 05040                                                                           | T25S                                                                                  |
| HIJ040-2000-080 * ■ | .787"    | .157" | 3.149" | 2.362"         | .748" | T1221 03080                                                                           | T15S                                                                                  |
| HIJ060-2000-080 * ■ | .787"    | .236" | 3.149" | 2.362"         | .748" | T1221 04060                                                                           | T20S                                                                                  |
| HIJ080-2000-080 * ■ | .787"    | .315" | 3.149" | 2.362"         | .748" | T1221 05060                                                                           | T25S                                                                                  |

\* Metric tool holders D: 20 mm

\*\* Tool holders with 3/4" or 20 mm shanks feature 4 clamping surfaces

■ stock item

□ upon request





# *MicroTurn* **D**



## **Micro Turning Tools to bore holes beginning from .189" dia.**

Economic operation with well known Denitool performance thanks to our precision inserts & holders.

The clean cutting action ensures highly stable turning under difficult operating conditions. Good chip control due to our CDGT 0401.. type inserts.

## Boring bars

95°

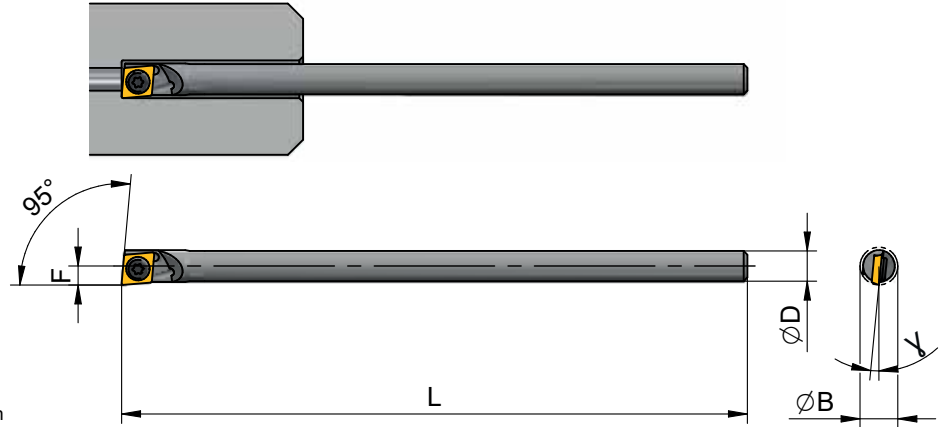


Illustration: right hand execution shown

| Article No.   |               | [inch] |   |        |       |                  |   |      |   |            |          |     |  |  |
|---------------|---------------|--------|---|--------|-------|------------------|---|------|---|------------|----------|-----|--|--|
| R             | L             | D      | d | L      | F     | B <sub>min</sub> | A | Y    | h |            |          |     |  |  |
| S04E SCLDR-04 | S04E SCLDL-04 | .157"  | - | 2.760" | .094" | .189"            | - | 5.5° | - | CD..0401.. | T18.Z30A | T5F |  |  |
| S05E SCLDR-04 | S05E SCLDL-04 | .197"  | - | 2.760" | .114" | .229"            | - | 4°   | - |            |          |     |  |  |
| S06F SCLDR-04 | S06F SCLDL-04 | .236"  | - | 3.150" | .134" | .268"            | - | 3°   | - |            |          |     |  |  |
| A04E SCLDR-04 | A04E SCLDL-04 | .157"  | - | 2.760" | .094" | .189"            | - | 5.5° | - | CD..0401.. | T18.Z30A | T5F |  |  |
| A05E SCLDR-04 | A05E SCLDL-04 | .197"  | - | 2.760" | .114" | .229"            | - | 4°   | - |            |          |     |  |  |
| A06F SCLDR-04 | A06F SCLDL-04 | .236"  | - | 3.150" | .134" | .268"            | - | 3°   | - |            |          |     |  |  |
| E04F SCLDR-04 | E04F SCLDL-04 | .157"  | - | 3.150" | .094" | .189"            | - | 5.5° | - | CD..0401.. | T18.Z30A | T5F |  |  |
| E05F SCLDR-04 | E05F SCLDL-04 | .197"  | - | 3.150" | .114" | .229"            | - | 4°   | - |            |          |     |  |  |
| E06G SCLDR-04 | E06G SCLDL-04 | .236"  | - | 3.740" | .134" | .268"            | - | 3°   | - |            |          |     |  |  |

Reduction bushings for cylindrical bars: please refer to p.15

95°

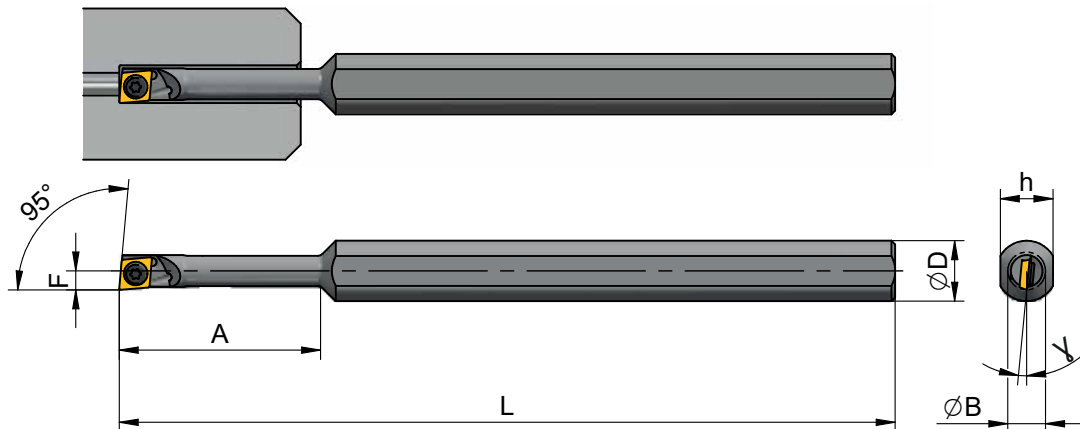
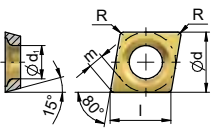
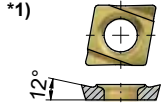
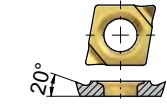
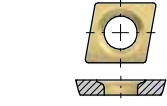


Illustration: right hand execution shown

| Article No.      |                  | [inch] |       |        |       |                  |        |      |       |            |          |     |  |  |
|------------------|------------------|--------|-------|--------|-------|------------------|--------|------|-------|------------|----------|-----|--|--|
| R                | L                | D      | d     | L      | F     | B <sub>min</sub> | A      | Y    | h     |            |          |     |  |  |
| S0405H" SCLDR-04 | S0405H" SCLDL-04 | .312"  | .165" | 3.940" | .094" | .189"            | .630"  | 5.5° | .273" | CD..0401.. | T18.Z30A | T5F |  |  |
| S0505H" SCLDR-04 | S0505H" SCLDL-04 |        | .197" |        | .114" | .229"            | .787"  | 4°   |       |            |          |     |  |  |
| S0605H" SCLDR-04 | S0605H" SCLDL-04 |        | .236" |        | .134" | .268"            | .945"  | 3°   |       |            |          |     |  |  |
| A0405H" SCLDR-04 | A0405H" SCLDL-04 | .312"  | .165" | 3.940" | .094" | .189"            | .630"  | 5.5° | .273" | CD..0401.. | T18.Z30A | T5F |  |  |
| A0505H" SCLDR-04 | A0505H" SCLDL-04 |        | .197" |        | .114" | .229"            | .787"  | 4°   |       |            |          |     |  |  |
| A0605H" SCLDR-04 | A0605H" SCLDL-04 |        | .236" |        | .134" | .268"            | .945"  | 3°   |       |            |          |     |  |  |
| E0405H" SCLDR-04 | E0405H" SCLDL-04 | .312"  | .157" | 3.940" | .094" | .189"            | .945"  | 5.5° | .273" | CD..0401.. | T18.Z30A | T5F |  |  |
| E0505H" SCLDR-04 | E0505H" SCLDL-04 |        | .197" |        | .114" | .229"            | 1.181" | 4°   |       |            |          |     |  |  |
| E0605H" SCLDR-04 | E0605H" SCLDL-04 |        | .236" |        | .134" | .268"            | 1.417" | 3°   |       |            |          |     |  |  |

\*) **Caution** Right hand boring bars require left hand inserts, left hand boring bars require right hand inserts.

## Indexable inserts 80° rhombic

|      | Article No.      | [inch] |       |       |       |       |        |       |        |                | DX 2 | DX 20 | DX 30 | DX 50 | DX 52 | DS 10 | DS 20 |
|---------------------------------------------------------------------------------------|------------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|------|-------|-------|-------|-------|-------|-------|
|                                                                                       |                  | l      | d     | +/-   | s     | +/-   | m      | +/-   | R      | d <sub>1</sub> |      |       |       |       |       |       |       |
| *1)  | CDGT 040100 FR/L | .159"  | .156" | .001" | .039" | .001" | .0434" | .001" | .0"    | .087"          | ■    | ■     | □     | □     |       |       |       |
|                                                                                       | CDGT 040101 FR/L |        |       |       |       |       | .0413" |       | .0039" |                | ■    | ■     | □     | □     |       |       |       |
|                                                                                       | CDGT 040102 FR/L |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | □     | □     |       |       |       |
|                                                                                       | CDGT 040104 FR/L |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | □     | □     |       |       |       |
|      | CDGT 040101 FN   | .159"  | .156" | .001" | .039" | .001" | .0413" | .001" | .0039" | .087"          | ■    | ■     | □     | □     | □     | □     | □     |
|                                                                                       | CDGT 040102 FN   |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | □     | □     | □     | □     | □     |
|                                                                                       | CDGT 040104 FN   |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | □     | □     | □     | □     | □     |
|      | CDGW 040100 FN   | .159"  | .156" | .001" | .039" | .001" | .0434" | .001" | .0"    | .087"          | ■    | ■     | □     | □     |       |       |       |
|                                                                                       | CDGW 040101 FN   |        |       |       |       |       | .0413" |       | .0039" |                | ■    | ■     | □     | □     |       |       |       |
|                                                                                       | CDGW 040102 FN   |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | □     | □     |       |       |       |
|                                                                                       | CDGW 040104 FN   |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | □     | □     |       |       |       |

■ stock item

□ upon request

\*1) Right hand execution shown

**Caution** Right hand boring bars require **left hand (FL)** inserts.  
Left hand boring bars require **right hand (FR)** inserts.

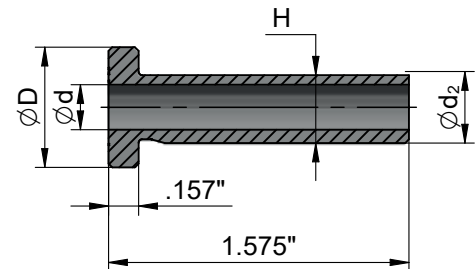
CD04



## Accessories

## Reduction bushings

| Article No. | d     | d <sub>2</sub> | D      | H     |
|-------------|-------|----------------|--------|-------|
| D 0604"     | .157" |                |        |       |
| D 0605"     | .197" | 3/8"           | .630"  | .355" |
| D 0606"     | .236" |                |        |       |
| D 1004"     | .157" |                |        |       |
| D 1005"     | .197" | 5/8"           | .866"  | .605" |
| D 1006"     | .236" |                |        |       |
| D 1204"     | .157" |                |        |       |
| D 1205"     | .197" | 3/4"           | 1.024" | .730" |
| D 1206"     | .236" |                |        |       |



Application advice for cylindrical boring bars:  
please refer to p.170



# *MiniTools* 80°



## Mini tools for ID turning operations

- min. bore dia. .228" with 80° trigon inserts
- min. bore dia. .315" with 80° rhombic inserts

## Boring bars w/ 80° trigon inserts

93°

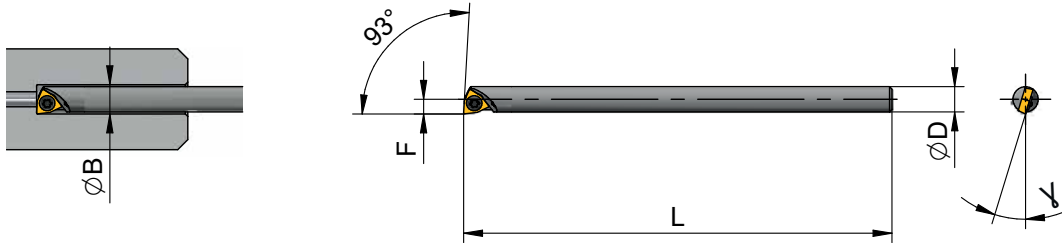


Illustration: right hand execution shown

| Article No.   |               | [inch] |        |       |                  |     |   |  |  |  |  |
|---------------|---------------|--------|--------|-------|------------------|-----|---|--|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| R             | L             | D      | L      | F     | B <sub>min</sub> | γ   | h |  |                                                                                     |                                                                                     |                                                                                     |
| E05F SWUCR-02 | E05F SWUCL-02 | .197"  | 3.150" | .114" | .228"*           | 17° |   |  | WC.. 0201..                                                                         | T20.037                                                                             | T6F                                                                                 |
| E06G SWUCR-02 | E06G SWUCL-02 | .236"  | 3.740" | .154" | .307"            | 12° |   |  | WC.. 0201..                                                                         | T20.037                                                                             | T6F                                                                                 |

\* Caution: Use of - WCGT 020104 FR/L : B<sub>min</sub> = .256" !

Reduction bushings for cylindrical bars: please refer to p.15

Application advice for cylindrical boring bars: please refer to p.170

93°

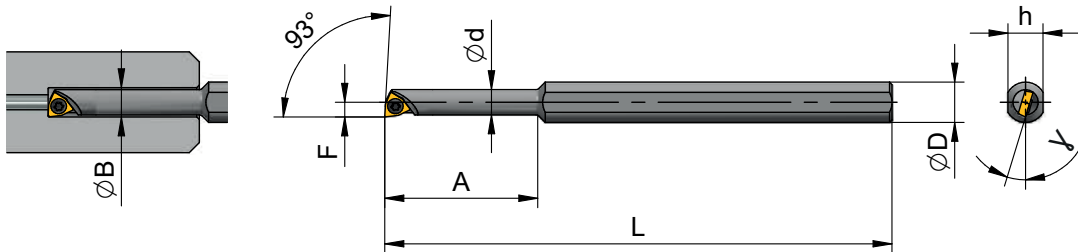


Illustration: right hand execution shown

| Article No.      |                  | [inch] |       |        |       |                  |        |     |       |  |  |  |  |  |
|------------------|------------------|--------|-------|--------|-------|------------------|--------|-----|-------|--|--|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| R                | L                | D      | d     | L      | F     | B <sub>min</sub> | A      | γ   | h     |  |  |                                                                                       |                                                                                       |                                                                                       |
| S0505H" SWUCR-02 | S0505H" SWUCL-02 | .312"  | .197" | 3.940" | .114" | .228"*           | .708"  | 17° | .273" |  |  | WC.. 0201..                                                                           | T20.037                                                                               | T6F                                                                                   |
| S0605H" SWUCR-02 | S0605H" SWUCL-02 | .312"  | .236" | 3.940" | .154" | .307"            | .945"  | 12° | .273" |  |  | WC.. 0201..                                                                           | T20.037                                                                               | T6F                                                                                   |
| A0505H" SWUCR-02 | A0505H" SWUCL-02 | .312"  | .197" | 3.940" | .114" | .228"*           | .708"  | 17° | .273" |  |  | WC.. 0201..                                                                           | T20.037                                                                               | T6F                                                                                   |
| A0605H" SWUCR-02 | A0605H" SWUCL-02 | .312"  | .236" | 3.940" | .154" | .307"            | .945"  | 12° | .273" |  |  | WC.. 0201..                                                                           | T20.037                                                                               | T6F                                                                                   |
| E0505H" SWUCR-02 | E0505H" SWUCL-02 | .312"  | .197" | 3.940" | .114" | .228"*           | 1.181" | 17° | .273" |  |  | WC.. 0201..                                                                           | T20.037                                                                               | T6F                                                                                   |
| E0605H" SWUCR-02 | E0605H" SWUCL-02 | .312"  | .236" | 3.940" | .154" | .307"            | 1.417" | 12° | .273" |  |  | WC.. 0201..                                                                           | T20.037                                                                               | T6F                                                                                   |

\* Caution: Use of - WCGT 020104 FR/L : B<sub>min</sub> = .256" !

S = steel shank

A = steel shank with internal coolant

E = carbide shank with internal coolant



## Boring bars w/ 80° rhombic inserts

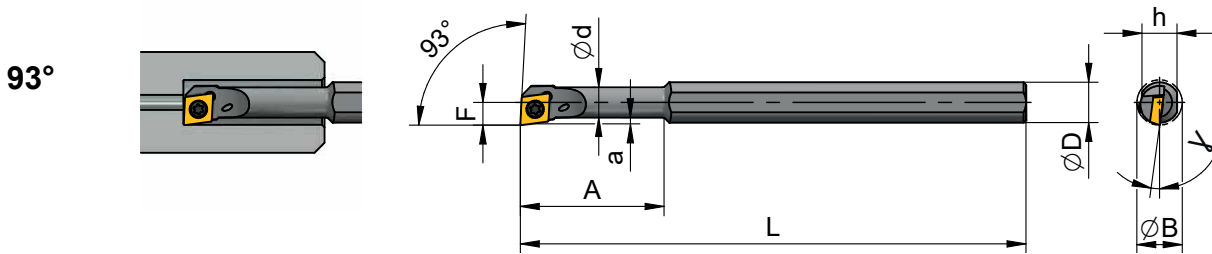


Illustration: right hand execution shown

| Article No.      |                  | [inch] |       |        |       |                  |        |       |    |       |             |  |  |  |
|------------------|------------------|--------|-------|--------|-------|------------------|--------|-------|----|-------|-------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| R                | L                | D      | d     | L      | F     | B <sub>min</sub> | A      | a     | γ  | h     |             |                                                                                     |                                                                                     |                                                                                     |
| S0605H" SCUPR-05 | S0605H" SCUPL-05 | .312"  | .236" | 3.940" | .177" | .315"            | .787"  | .051" | 8° | .273" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| S0806J" SCUPR-05 | S0806J" SCUPL-05 | .375"  | .315" | 4.330" | .236" | .433"            | 1.023" | .070" | 5° | .336" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| S1008K" SCUPR-05 | S1008K" SCUPL-05 | .500"  | .394" | 4.920" | .276" | .512"            | 1.260" | .070" | 5° | .461" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| S1210M" SCUPR-05 | S1210M" SCUPL-05 | .625"  | .472" | 5.910" | .354" | .630"            | 1.575" | .110" | 2° | .586" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| A0605H" SCUPR-05 | A0605H" SCUPL-05 | .312"  | .236" | 3.940" | .177" | .315"            | .787"  | .051" | 8° | .273" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| A0806J" SCUPR-05 | A0806J" SCUPL-05 | .375"  | .315" | 4.330" | .236" | .433"            | 1.023" | .070" | 5° | .336" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| A1008K" SCUPR-05 | A1008K" SCUPL-05 | .500"  | .394" | 4.920" | .276" | .512"            | 1.260" | .070" | 5° | .461" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| A1210M" SCUPR-05 | A1210M" SCUPL-05 | .625"  | .472" | 5.910" | .354" | .630"            | 1.575" | .110" | 2° | .586" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| E0605H" SCUPR-05 | E0605H" SCUPL-05 | .312"  | .236" | 3.940" | .177" | .315"            | 1.102" | .051" | 8° | .273" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| E0806J" SCUPR-05 | E0806J" SCUPL-05 | .375"  | .315" | 4.330" | .236" | .433"            | 1.417" | .070" | 5° | .336" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| E1008K" SCUPR-05 | E1008K" SCUPL-05 | .500"  | .394" | 4.920" | .276" | .512"            | 1.732" | .070" | 5° | .461" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| E1210M" SCUPR-05 | E1210M" SCUPL-05 | .625"  | .472" | 5.910" | .354" | .630"            | 2.165" | .110" | 2° | .586" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |

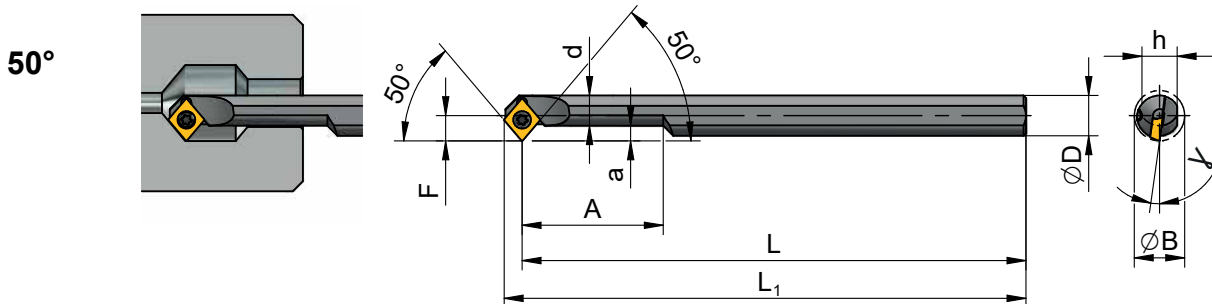


Illustration: right hand execution shown

| Article No.      |                  | [inch] |       |        |                |       |                  |        |       |    |       |  |  |  |
|------------------|------------------|--------|-------|--------|----------------|-------|------------------|--------|-------|----|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| R                | L                | D      | d     | L      | L <sub>1</sub> | F     | B <sub>min</sub> | A      | a     | γ  | h     |                                                                                       |                                                                                       |                                                                                       |
| S0605H" SCMPR-05 | S0605H" SCMPL-05 | .312"  | .236" | 3.940" | 4.079"         | .197" | .374"            | .787"  | .110" | 8° | .273" | CP.. 05T1..                                                                           | T22.045                                                                               | T7F                                                                                   |
| S0806J" SCMPR-05 | S0806J" SCMPL-05 | .375"  | .315" | 4.330" | 4.472"         | .236" | .433"            | 1.023" | .110" | 5° | .336" | CP.. 05T1..                                                                           | T22.045                                                                               | T7F                                                                                   |
| S1008K" SCMPR-05 | S1008K" SCMPL-05 | .500"  | .394" | 4.920" | 5.063"         | .276" | .512"            | 1.260" | .130" | 5° | .461" | CP.. 05T1..                                                                           | T22.050                                                                               | T7F                                                                                   |
| S1210M" SCMPR-05 | S1210M" SCMPL-05 | .625"  | .472" | 5.910" | 6.047"         | .354" | .630"            | 1.575" | .110" | 2° | .586" | CP.. 05T1..                                                                           | T22.050                                                                               | T7F                                                                                   |
| A0605H" SCMPR-05 | A0605H" SCMPL-05 | .312"  | .236" | 3.940" | 4.079"         | .197" | .374"            | .787"  | .110" | 8° | .273" | CP.. 05T1..                                                                           | T22.045                                                                               | T7F                                                                                   |
| A0806J" SCMPR-05 | A0806J" SCMPL-05 | .375"  | .315" | 4.330" | 4.472"         | .236" | .433"            | 1.023" | .110" | 5° | .336" | CP.. 05T1..                                                                           | T22.045                                                                               | T7F                                                                                   |
| A1008K" SCMPR-05 | A1008K" SCMPL-05 | .500"  | .394" | 4.920" | 5.063"         | .276" | .512"            | 1.260" | .130" | 5° | .461" | CP.. 05T1..                                                                           | T22.050                                                                               | T7F                                                                                   |
| A1210M" SCMPR-05 | A1210M" SCMPL-05 | .625"  | .472" | 5.910" | 6.047"         | .354" | .630"            | 1.575" | .110" | 2° | .586" | CP.. 05T1..                                                                           | T22.050                                                                               | T7F                                                                                   |
| E0605H" SCMPR-05 | E0605H" SCMPL-05 | .312"  | .236" | 3.940" | 4.079"         | .197" | .374"            | 1.102" | .110" | 8° | .273" | CP.. 05T1..                                                                           | T22.045                                                                               | T7F                                                                                   |
| E0806J" SCMPR-05 | E0806J" SCMPL-05 | .375"  | .315" | 4.330" | 4.472"         | .236" | .433"            | 1.417" | .110" | 5° | .336" | CP.. 05T1..                                                                           | T22.045                                                                               | T7F                                                                                   |
| E1008K" SCMPR-05 | E1008K" SCMPL-05 | .500"  | .394" | 4.920" | 5.063"         | .276" | .512"            | 1.732" | .130" | 5° | .461" | CP.. 05T1..                                                                           | T22.050                                                                               | T7F                                                                                   |
| E1210M" SCMPR-05 | E1210M" SCMPL-05 | .625"  | .472" | 5.910" | 6.047"         | .354" | .630"            | 2.165" | .110" | 2° | .586" | CP.. 05T1..                                                                           | T22.050                                                                               | T7F                                                                                   |

S = steel shank

A = steel shank with internal coolant

E = carbide shank with internal coolant

## Boring bars w/ 80° rhombic inserts

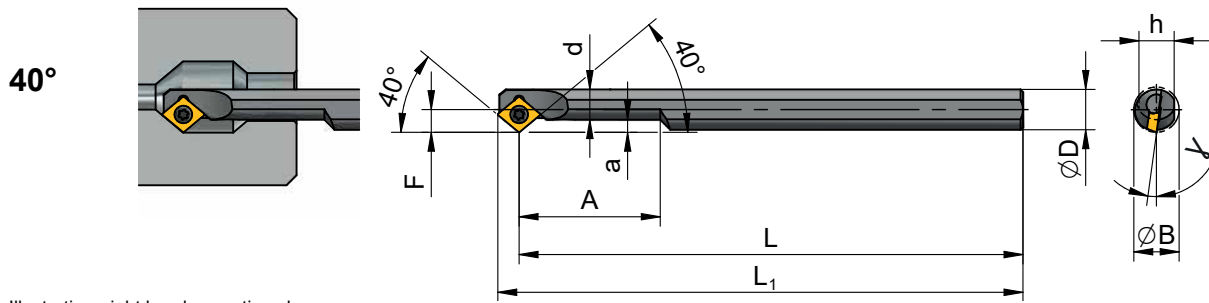


Illustration: right hand execution shown

| Article No.      |                  | [inch] |       |        |                |       |                  |        |       |    |       |             |  |  |  |
|------------------|------------------|--------|-------|--------|----------------|-------|------------------|--------|-------|----|-------|-------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| R                | L                | D      | d     | L      | L <sub>1</sub> | F     | B <sub>min</sub> | A      | a     | γ  | h     |             |                                                                                     |                                                                                     |                                                                                     |
| S0605H" SCXPR-05 | S0605H" SCXPL-05 | .312"  | .236" | 3.940" | 4.102"         | .177" | .335"            | .787"  | .090" | 8° | .273" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| S0806J" SCXPR-05 | S0806J" SCXPL-05 | .375"  | .315" | 4.330" | 4.496"         | .236" | .433"            | 1.023" | .110" | 5° | .336" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| S1008K" SCXPR-05 | S1008K" SCXPL-05 | .500"  | .394" | 4.920" | 5.087"         | .276" | .512"            | 1.260" | .130" | 5° | .461" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| S1210M" SCXPR-05 | S1210M" SCXPL-05 | .625"  | .472" | 5.910" | 6.071"         | .354" | .630"            | 1.575" | .110" | 2° | .586" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| A0605H" SCXPR-05 | A0605H" SCXPL-05 | .312"  | .236" | 3.940" | 4.102"         | .177" | .335"            | .787"  | .090" | 8° | .273" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| A0806J" SCXPR-05 | A0806J" SCXPL-05 | .375"  | .315" | 4.330" | 4.496"         | .236" | .433"            | 1.023" | .110" | 5° | .336" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| A1008K" SCXPR-05 | A1008K" SCXPL-05 | .500"  | .394" | 4.920" | 5.087"         | .276" | .512"            | 1.260" | .130" | 5° | .461" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| A1210M" SCXPR-05 | A1210M" SCXPL-05 | .625"  | .472" | 5.910" | 6.071"         | .354" | .630"            | 1.575" | .110" | 2° | .586" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| E0605H" SCXPR-05 | E0605H" SCXPL-05 | .312"  | .236" | 3.940" | 4.102"         | .177" | .335"            | 1.102" | .090" | 8° | .273" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| E0806J" SCXPR-05 | E0806J" SCXPL-05 | .375"  | .315" | 4.330" | 4.496"         | .236" | .433"            | 1.417" | .110" | 5° | .336" | CP.. 05T1.. | T22.045                                                                             | T7F                                                                                 |                                                                                     |
| E1008K" SCXPR-05 | E1008K" SCXPL-05 | .500"  | .394" | 4.920" | 5.087"         | .276" | .512"            | 1.732" | .130" | 5° | .461" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| E1210M" SCXPR-05 | E1210M" SCXPL-05 | .625"  | .472" | 5.910" | 6.071"         | .354" | .630"            | 2.165" | .110" | 2° | .586" | CP.. 05T1.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |

## Tool holders w/ 80° rhombic inserts

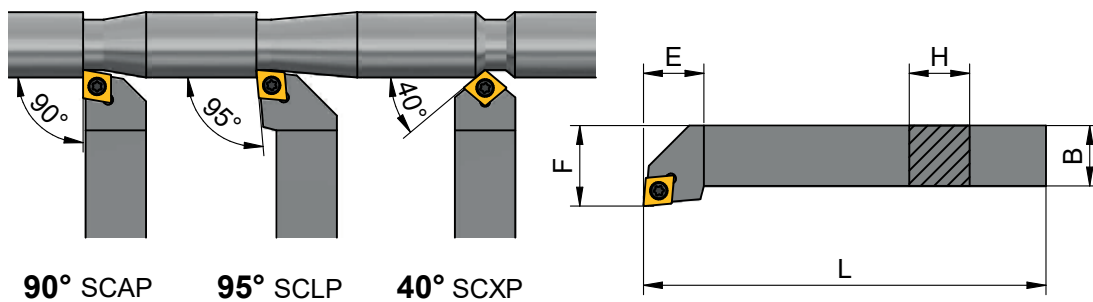
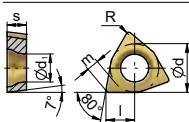
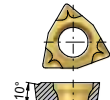
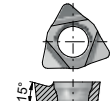
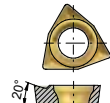
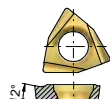
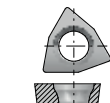
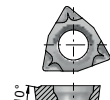


Illustration: right hand execution shown

| Article No.     |                 | [inch] |       |        |       |       |  |  |  |
|-----------------|-----------------|--------|-------|--------|-------|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| R               | L               | H      | B     | L      | E     | F     |                                                                                       |                                                                                       |                                                                                       |
| SCAPR "0505 K05 | SCAPL "0505 K05 | .312"  | .312" | 4.920" | .394" | .344" | CP.. 05T1..                                                                           | T22.050                                                                               | T7F                                                                                   |
| SCAPR "0606 M05 | SCAPL "0606 M05 | .375"  | .375" | 5.910" | .394" | .395" |                                                                                       |                                                                                       |                                                                                       |
| SCAPR "0808 M05 | SCAPL "0808 M05 | .500"  | .500" | 5.910" | .472" | .520" |                                                                                       |                                                                                       |                                                                                       |
| SCLPR "0505 D05 | SCLPL "0505 D05 | .312"  | .312" | 2.360" | .394" | .394" | CP.. 05T1..                                                                           | T22.050                                                                               | T7F                                                                                   |
| SCLPR "0606 E05 | SCLPL "0606 E05 | .375"  | .375" | 2.760" | .394" | .472" |                                                                                       |                                                                                       |                                                                                       |
| SCLPR "0808 F05 | SCLPL "0808 F05 | .500"  | .500" | 3.150" | .472" | .630" |                                                                                       |                                                                                       |                                                                                       |
| SCXPN "0505 K05 |                 | .312"  | .312" | 4.920" | .472" | .162" | CP.. 05T1..                                                                           | T22.050                                                                               | T7F                                                                                   |
| SCXPN "0606 M05 |                 | .375"  | .375" | 5.910" | .472" | .188" |                                                                                       |                                                                                       |                                                                                       |
| SCXPN "0808 M05 |                 | .500"  | .500" | 5.910" | .472" | .250" |                                                                                       |                                                                                       |                                                                                       |

## Indexable inserts 80° trigon

|          | Article No               | [inch] |       |       |       |       |        |       |        |                | DX 2 | DX 20 | DX 30 | DX 50 | DX 52 | DS 10 | DS 20 | DT 55 | DT 255 | DT 355 |   |
|-------------------------------------------------------------------------------------------|--------------------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|------|-------|-------|-------|-------|-------|-------|-------|--------|--------|---|
|                                                                                           |                          | l      | d     | +/-   | s     | +/-   | m      | +/-   | R      | d <sub>1</sub> |      |       |       |       |       |       |       |       |        |        |   |
|          | <b>WCET 020101 FN-20</b> | .090"  | .156" | .001" | .063" | .001" | .0413" | .001" | .0039" | .090"          | ■    | ■     | □     | □     | □     | □     |       |       |        |        |   |
|                                                                                           | <b>WCET 020102 FN-20</b> |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | □     | □     | □     | □     |       |       |        |        |   |
|                                                                                           | <b>WCET 020104 FN-20</b> |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     | □     | □     | □     |       |       |        |        |   |
|          | <b>WCGT 020101 EN</b>    | .090"  | .156" | .001" | .063" | .005" | .0413" | .001" | .0039" | .090"          | ■    | ■     | □     | □     |       |       |       |       |        |        |   |
|                                                                                           | <b>WCGT 020102 EN</b>    |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | ■     | ■     |       |       |       |       | ■      | ■      | ■ |
|                                                                                           | <b>WCGT 020104 EN</b>    |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     | □     |       |       |       |       | ■      | ■      | ■ |
|          | <b>WCGT 020104 FN</b>    | .090"  | .156" | .001" | .063" | .005" | .0347" | .001" | .0157" | .090"          |      |       |       |       |       |       |       |       | ■      | □      | ■ |
|          | <b>WCGT 020101 FN-20</b> | .090"  | .156" | .001" | .063" | .005" | .0413" | .001" | .0039" | .090"          | ■    | ■     | ■     | □     |       |       |       |       |        |        |   |
|                                                                                           | <b>WCGT 020102 FN-20</b> |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | ■     | □     |       |       |       |       |        |        |   |
|                                                                                           | <b>WCGT 020104 FN-20</b> |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     | □     |       |       |       |       |        |        |   |
| *1)<br> | <b>WCGT 020102 FR/L</b>  | .090"  | .156" | .001" | .063" | .005" | .0391" | .001" | .0079" | .090"          | ■    | ■     | ■     | ■     |       |       |       |       | ■      | ■      | ■ |
|         | <b>WCGT 020104 FR/L</b>  |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     | □     |       |       |       |       | ■      | ■      | ■ |
|        | <b>WCGW 0201005 FN</b>   | .090"  | .156" | .001" | .063" | .005" | .0423" | .001" | .0020" | .090"          |      |       |       |       |       |       |       |       | ■      | ■      | □ |
|        | <b>WCMT 020102 EN</b>    | .090"  | .156" | .002" | .063" | .005" | .0391" | .003" | .0079" | .090"          |      |       |       |       |       |       |       |       | ●      | ●      | ● |
|                                                                                           | <b>WCMT 020104 EN</b>    |        |       |       |       |       | .0347" |       | .0157" |                |      |       |       |       |       |       |       |       | ●      | ●      | ● |
|                                                                                           |                          |        |       |       |       |       |        |       |        |                |      |       |       |       |       |       |       |       |        |        |   |

■ stock item

□ upon request

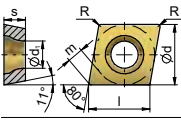
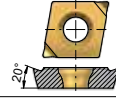
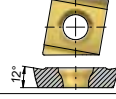
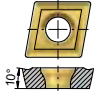
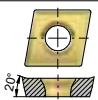
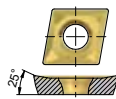
● as long as available

\*1) Right hand execution shown

WC02



## Indexable inserts 80° rhombic

|      | Article No.        | [inch] |       |       |       |        |        |        |        |                |      |      |       |       |       |       |       |       |       |       |       |       |       |        |        |     |     |
|---------------------------------------------------------------------------------------|--------------------|--------|-------|-------|-------|--------|--------|--------|--------|----------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-----|-----|
|                                                                                       |                    | l      | d     | +/-   | s     | +/-    | m      | +/-    | R      | d <sub>1</sub> | DX 2 | P 25 | DX 20 | DP 25 | DX 30 | DP 35 | DX 50 | DP 55 | DX 52 | DX 70 | DS 10 | DS 20 | DT 55 | DT 255 | DT 355 | CBN | PKD |
|      | CPET 05T101 FN-20  | .220"  | .219" | .001" | .078" | .001"  | .0586" | .001"  | .0039" | .098"          | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPET 05T102 FN-20  |        |       |       |       |        | .0564" |        | .0079" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPET 05T104 FN-20  |        |       |       |       |        | .0521" |        | .0157" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
| *1)  | CPET 05T101 FR/L   | .220"  | .219" | .001" | .078" | .001"  | .0586" | .001"  | .0039" | .098"          | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPET 05T102 FR/L   |        |       |       |       |        | .0564" |        | .0079" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPET 05T104 FR/L   |        |       |       |       |        | .0521" |        | .0157" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|      | CPGT 05T101 EN     | .220"  | .219" | .001" | .078" | .005"  | .0586" | .001"  | .0039" | .098"          | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPGT 05T102 EN     |        |       |       |       |        | .0564" |        | .0079" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPGT 05T104 EN     |        |       |       |       |        | .0521" |        | .0157" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|      | CPGT 05T101 FN     | .220"  | .219" | .001" | .078" | .005"  | .0586" | .001"  | .0039" | .098"          | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPGT 05T102 FN     |        |       |       |       |        | .0564" |        | .0079" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPGT 05T104 FN     |        |       |       |       |        | .0521" |        | .0157" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|      | CPGT 05T101 FN-20  | .220"  | .219" | .001" | .078" | .005"  | .0586" | .001"  | .0039" | .098"          | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPGT 05T102 FN-20  |        |       |       |       |        | .0564" |        | .0079" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPGT 05T104 FN-20  |        |       |       |       |        | .0521" |        | .0157" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|     | CPGT 05T101 FN-250 | .220"  | .219" | .001" | .078" | .005"  | .0586" | .001"  | .0039" | .098"          | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPGT 05T102 FN-250 |        |       |       |       |        | .0564" |        | .0079" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|                                                                                       | CPGT 05T104 FN-250 |        |       |       |       |        | .0521" |        | .0157" |                | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
|    | CPGW 05T102        | .220"  | .219" | .001" | .078" | .005"  | .0564" | .001"  | .0079" | .098"          |      |      |       |       |       |       |       |       |       |       |       |       |       |        |        |     | ■   |
|                                                                                       | CPGW 05T104        |        |       |       |       |        | .0521" |        | .0157" |                |      |      |       |       |       |       |       |       |       |       |       |       |       |        |        |     | ■   |
|                                                                                       | CPGW 05T102 FN     | .220"  | .219" | .001" | .078" | .005"  | .0564" | .001"  | .0079" | .098"          | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |
| CPGW 05T104 FN                                                                        |                    |        |       |       |       | .0521" |        | .0157" |        | ■              | ■    | ■    | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■     | ■      | ■      | ■   | ■   |

■ stock item

□ upon request

\*1) Right hand execution shown

CP05



**STOCK ITEM:  
METRIC SIZE**



# *HardTurn* 80°



## **Tools for internal turning operations in hardened materials up to 62 HRC**

High hardness materials have always been a difficult task for any machinist. With HardTurn 80° you have the right tool for your high hardness materials.

The boring bars have high longevity and are stable and completely hard through our unique manufacturing techniques.

Experience precise cuts with CPGT 05T1.. (CPGT 1.81.2.. ) style inserts in hardened metals.

Use inserts coated "DS10" with steels up to 0.8% carbon content and "DS20" for steels with carbon content of 0.8% to 2%. Other coatings may be applied to cut your specific material.



## Boring bars

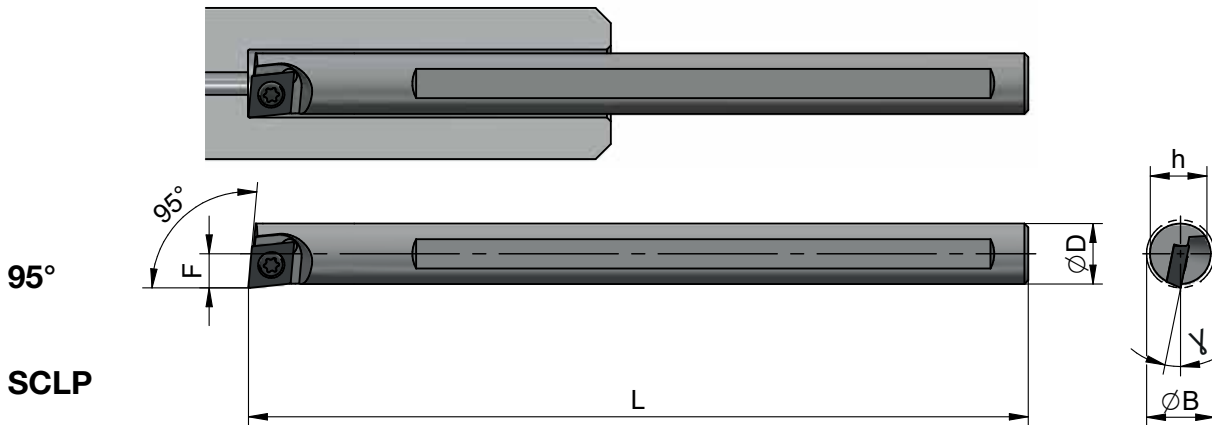


Illustration: right hand execution shown

| Article No.   |               | [inch] |        |        |       |                  |     |       |  |  |  |  |
|---------------|---------------|--------|--------|--------|-------|------------------|-----|-------|--|--|--|--|
| R             | L *)          | D      | D (mm) | L      | F     | B <sub>min</sub> | Y   | h     |  |  |  |  |
| E08H SCLPR-05 | E08H SCLPL-05 | .315"  | 8      | 3.940" | .177" | .343"            | 12° | .295" |  |  |  |  |
| E10J SCLPR-05 | E10J SCLPL-05 | .394"  | 10     | 4.330" | .217" | .421"            | 5°  | .374" |  |  |  |  |
| E12K SCLPR-05 | E12K SCLPL-05 | .472"  | 12     | 4.921" | .256" | .500"            | 4°  | .453" |  |  |  |  |
| E16M SCLPR-05 | E16M SCLPL-05 | .630"  | 16     | 5.906" | .335" | .657"            | 2°  | .610" |  |  |  |  |

\*) Left hand execution upon request

► HardTurn products in INCH SIZE upon request

For boring bars using CD04 refer to p.13

For boring bars using WC02 refer to p.16

E = carbide shank with internal coolant

## Indexable inserts "SuperHard"

|  | Article No.       | [inch] |       |       |       |       |        |       |        |                |  | DS 10<br>DS 20                      |
|--|-------------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|--|-------------------------------------|
|  |                   | l      | d     | +/-   | s     | +/-   | m      | +/    | R      | d <sub>1</sub> |  |                                     |
|  | CDGT 040101 FN    | .159"  | .156" | .001" | .039" | .001" | .0413" | .001" | .0039" | .087"          |  | <input type="checkbox"/>            |
|  | CDGT 040102 FN    |        |       |       |       |       | .0391" |       | .0079" |                |  | <input type="checkbox"/>            |
|  | CDGT 040104 FN    |        |       |       |       |       | .0347" |       | .0157" |                |  | <input type="checkbox"/>            |
|  | CPET 05T101 FN-20 | .220"  | .219" | .001" | .078" | .001" | .059"  | .001" | .0039" | .098"          |  | <input type="checkbox"/>            |
|  | CPET 05T102 FN-20 |        |       |       |       |       | .056"  |       | .0079" |                |  | <input checked="" type="checkbox"/> |
|  | CPET 05T104 FN-20 |        |       |       |       |       | .052"  |       | .0157" |                |  | <input checked="" type="checkbox"/> |
|  | WCET 020101 FN-20 | .090"  | .156" | .001" | .063" | .001" | .0413" | .001" | .0039" | .090"          |  | <input type="checkbox"/>            |
|  | WCET 020102 FN-20 |        |       |       |       |       | .0391" |       | .0079" |                |  | <input type="checkbox"/>            |
|  | WCET 020104 FN-20 |        |       |       |       |       | .0347" |       | .0157" |                |  | <input type="checkbox"/>            |

■ stock item

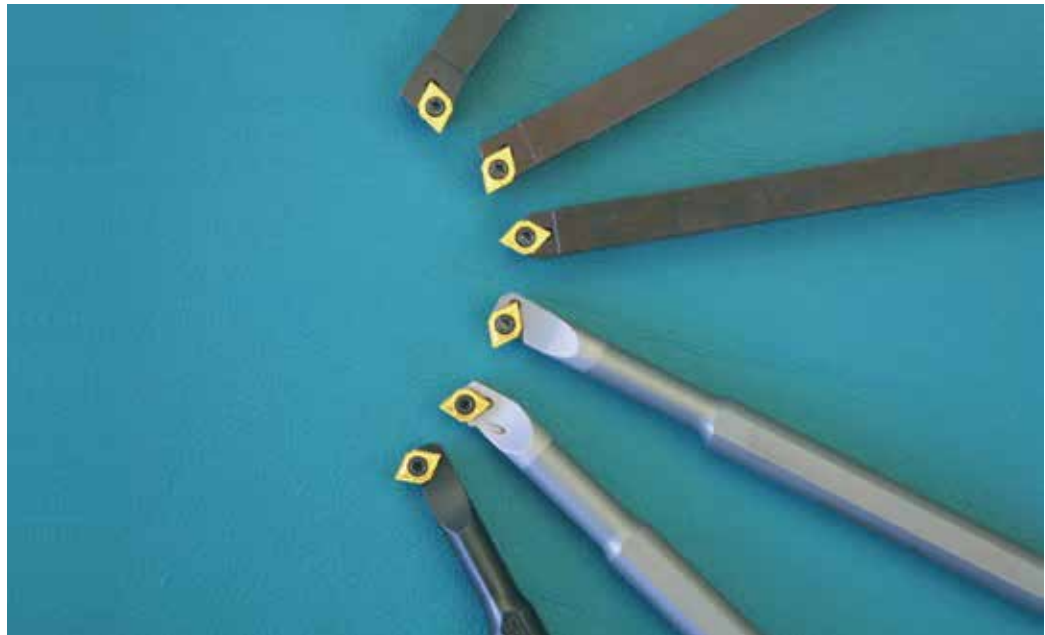
□ upon request



For HardTurn 80° cutting data please refer to page 160 or check QR-Code.



# *SmallBars* 75°



## **Small tools for limited access machining.**

Our 75° rhombic inserts ensure stable turning under finishing and roughing conditions. These boring bars are specifically designed for hard-to-reach parts.

With EPGT 0502.. size inserts, you'll now reach all the back chamfers, see excellent chip control and gain cutting edge life with coolant to the tip.

## Boring bars w/ 75° rhombic inserts

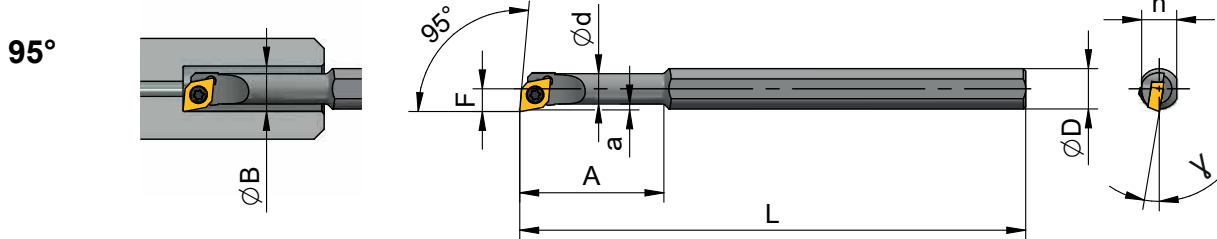


Illustration: right hand execution shown

| Article No.      |                  | [inch] |       |        |       |                  |        |       |     |       |             |         |     |  |
|------------------|------------------|--------|-------|--------|-------|------------------|--------|-------|-----|-------|-------------|---------|-----|--|
| R                | L                | D      | d     | L      | F     | B <sub>min</sub> | A      | a     | γ   | h     |             |         |     |  |
| S0605H" SELPR-05 | S0605H" SELPL-05 | .312"  | .236" | 3.940" | .177" | .315"            | .787"  | .051" | 10° | .273" |             |         |     |  |
| S0806J" SELPR-05 | S0806J" SELPL-05 | .375"  | .315" | 4.330" | .236" | .433"            | 1.024" | .071" | 5°  | .336" | EP.. 0502.. | T22.045 | T7F |  |
| S1008K" SELPR-05 | S1008K" SELPL-05 | .500"  | .394" | 4.921" | .276" | .512"            | 1.260" | .071" | 5°  | .461" |             |         |     |  |
| S1210M" SELPR-05 | S1210M" SELPL-05 | .625"  | .472" | 5.906" | .354" | .630"            | 1.575" | .110" | 2°  | .586" |             |         |     |  |
| A0605H" SELPR-05 | A0605H" SELPL-05 | .312"  | .236" | 3.940" | .177" | .315"            | .787"  | .051" | 10° | .273" |             |         |     |  |
| A0806J" SELPR-05 | A0806J" SELPL-05 | .375"  | .315" | 4.330" | .236" | .433"            | 1.024" | .071" | 5°  | .336" | EP.. 0502.. | T22.045 | T7F |  |
| A1008K" SELPR-05 | A1008K" SELPL-05 | .500"  | .394" | 4.921" | .276" | .512"            | 1.260" | .071" | 5°  | .461" |             |         |     |  |
| A1210M" SELPR-05 | A1210M" SELPL-05 | .625"  | .472" | 5.906" | .354" | .630"            | 1.575" | .110" | 2°  | .586" |             |         |     |  |
| E0605H" SELPR-05 | E0605H" SELPL-05 | .312"  | .236" | 3.940" | .177" | .315"            | 1.102" | .051" | 10° | .273" |             |         |     |  |
| E0806J" SELPR-05 | E0806J" SELPL-05 | .375"  | .315" | 4.330" | .236" | .433"            | 1.417" | .071" | 5°  | .336" | EP.. 0502.. | T22.045 | T7F |  |
| E1008K" SELPR-05 | E1008K" SELPL-05 | .500"  | .394" | 4.921" | .276" | .512"            | 1.732" | .071" | 5°  | .461" |             |         |     |  |
| E1210M" SELPR-05 | E1210M" SELPL-05 | .625"  | .472" | 5.906" | .354" | .630"            | 2.165" | .110" | 2°  | .586" |             |         |     |  |

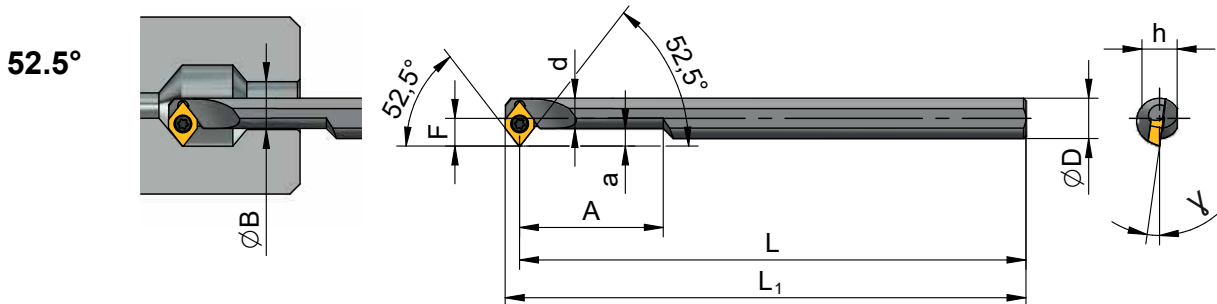


Illustration: right hand execution shown

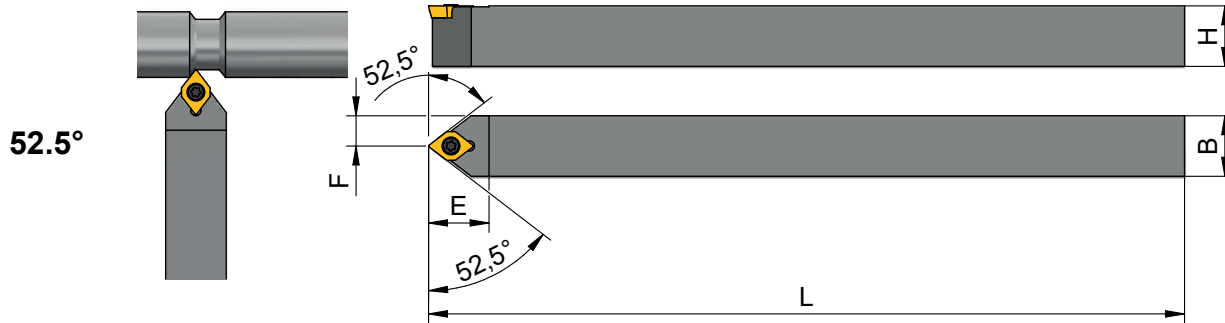
| Article No.      |                  | [inch] |       |        |                |       |                  |        |       |    |       |             |         |     |
|------------------|------------------|--------|-------|--------|----------------|-------|------------------|--------|-------|----|-------|-------------|---------|-----|
| R                | L                | D      | d     | L      | L <sub>1</sub> | F     | B <sub>min</sub> | A      | a     | γ  | h     |             |         |     |
| S0605H" SEXPR-05 | S0605H" SEXPL-05 | .312"  | .236" | 3.937" | 4.055"         | .216" | .374"            | .787"  | .130" | 8° | .273" |             |         |     |
| S0806J" SEXPR-05 | S0806J" SEXPL-05 | .375"  | .276" | 4.330" | 4.449"         | .236" | .433"            | 1.024" | .110" | 5° | .336" | EP.. 0502.. | T22.045 | T7F |
| S1008K" SEXPR-05 | S1008K" SEXPL-05 | .500"  | .335" | 4.921" | 5.039"         | .276" | .512"            | 1.260" | .130" | 5° | .461" |             |         |     |
| S1210M" SEXPR-05 | S1210M" SEXPL-05 | .625"  | .472" | 5.906" | 6.024"         | .354" | .630"            | 1.575" | .110" | 2° | .586" |             |         |     |
| A0605H" SEXPR-05 | A0605H" SEXPL-05 | .312"  | .236" | 3.937" | 4.055"         | .216" | .374"            | .787"  | .130" | 8° | .276" |             |         |     |
| A0806J" SEXPR-05 | A0806J" SEXPL-05 | .375"  | .276" | 4.330" | 4.449"         | .236" | .433"            | 1.024" | .110" | 5° | .336" | EP.. 0502.. | T22.045 | T7F |
| A1008K" SEXPR-05 | A1008K" SEXPL-05 | .500"  | .335" | 4.921" | 5.039"         | .276" | .512"            | 1.260" | .130" | 5° | .461" |             |         |     |
| A1210M" SEXPR-05 | A1210M" SEXPL-05 | .625"  | .472" | 5.906" | 6.024"         | .354" | .630"            | 1.575" | .110" | 2° | .586" |             |         |     |
| E0605H" SEXPR-05 | E0605H" SEXPL-05 | .312"  | .236" | 3.937" | 4.055"         | .216" | .374"            | 1.102" | .130" | 8° | .273" |             |         |     |
| E0806J" SEXPR-05 | E0806J" SEXPL-05 | .375"  | .276" | 4.330" | 4.449"         | .236" | .433"            | 1.417" | .110" | 5° | .336" | EP.. 0502.. | T22.045 | T7F |
| E1008K" SEXPR-05 | E1008K" SEXPL-05 | .500"  | .335" | 4.921" | 5.039"         | .276" | .512"            | 1.732" | .130" | 5° | .461" |             |         |     |
| E1210M" SEXPR-05 | E1210M" SEXPL-05 | .625"  | .472" | 5.906" | 6.024"         | .354" | .630"            | 2.165" | .110" | 2° | .586" |             |         |     |

S = steel shank

A = steel shank with internal coolant

E = carbide shank with internal coolant

## Tool holders w/ 75° rhombic inserts



| Article No.     | [inch] |       |        |       |       |             |  |  |  |
|-----------------|--------|-------|--------|-------|-------|-------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                 | H      | B     | L      | E     | F     |             |                                                                                     |                                                                                     |                                                                                     |
| SEXPN "0505 K05 | .312"  | .312" | 4.921" | .472" | .162" | EP.. 0502.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| SEXPN "0606 M05 | .375"  | .375" | 5.906" | .472" | .188" | EP.. 0502.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |
| SEXPN "0808 M05 | .500"  | .500" | 5.906" | .472" | .250" | EP.. 0502.. | T22.050                                                                             | T7F                                                                                 |                                                                                     |

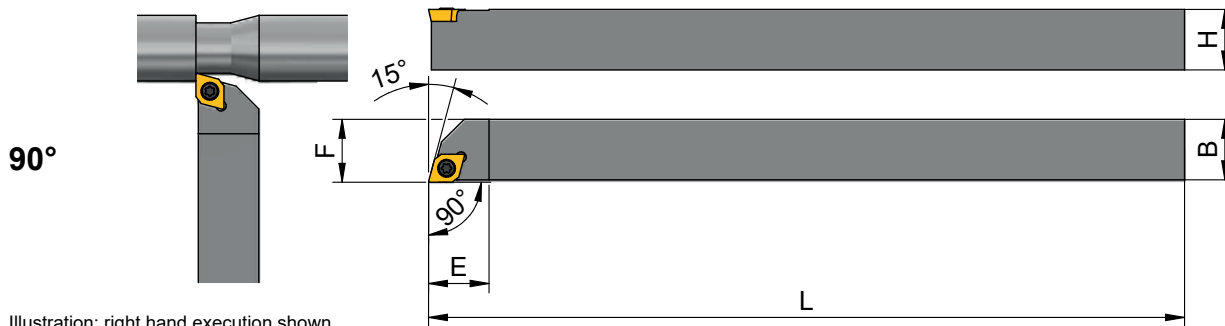


Illustration: right hand execution shown

| Article No.     | [inch]          |       |       |        |       |       |  |  |  |
|-----------------|-----------------|-------|-------|--------|-------|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                 | H               | B     | L     | E      | F     |       |                                                                                       |                                                                                       |                                                                                       |
| R               | L               |       |       |        |       |       |                                                                                       |                                                                                       |                                                                                       |
| SEAPR "0505 K05 | SEAPL "0505 K05 | .312" | .312" | 4.921" | .394" | .344" | EP.. 0502..                                                                           | T22.050                                                                               | T7F                                                                                   |
| SEAPR "0606 M05 | SEAPL "0606 M05 | .375" | .375" | 5.906" | .394" | .395" |                                                                                       |                                                                                       |                                                                                       |
| SEAPR "0808 M05 | SEAPL "0808 M05 | .500" | .500" | 5.906" | .472" | .520" |                                                                                       |                                                                                       |                                                                                       |

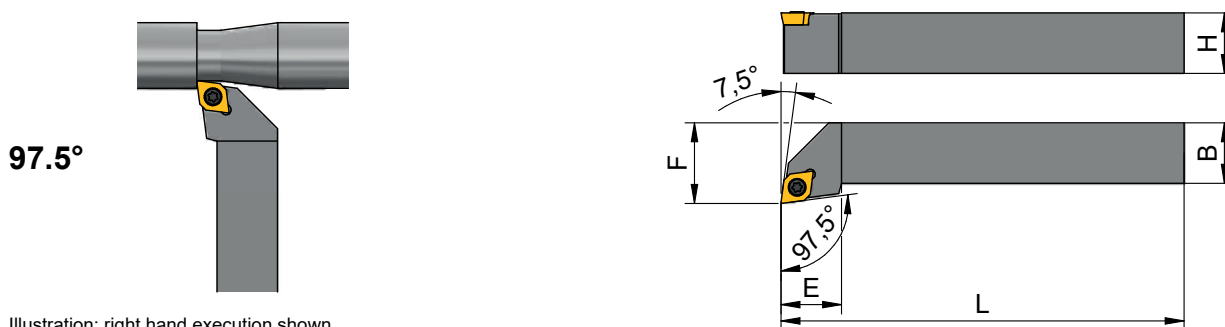
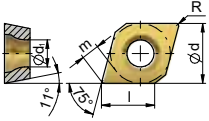
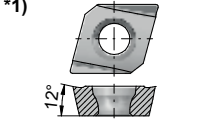
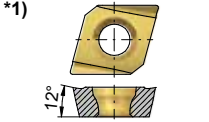


Illustration: right hand execution shown

| Article No.     | [inch]          |       |       |        |       |       |  |  |  |
|-----------------|-----------------|-------|-------|--------|-------|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                 | H               | B     | L     | E      | F     |       |                                                                                       |                                                                                       |                                                                                       |
| R               | L               |       |       |        |       |       |                                                                                       |                                                                                       |                                                                                       |
| SELPR "0505 D05 | SELPL "0505 D05 | .312" | .312" | 2.362" | .394" | .394" | EP.. 0502..                                                                           | T22.050                                                                               | T7F                                                                                   |
| SELPR "0606 E05 | SELPL "0606 E05 | .375" | .375" | 2.756" | .394" | .472" |                                                                                       |                                                                                       |                                                                                       |
| SELPR "0808 F05 | SELPL "0808 F05 | .500" | .500" | 3.150" | .472" | .630" |                                                                                       |                                                                                       |                                                                                       |

## Indexable inserts 75° rhombic

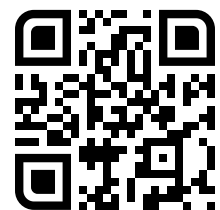
|      | Article No.                                                                      | [inch] |       |       |       |       |        |       |        | DX 2           | DX 20 | DX 30 | DX 50 | DX 52 | DT 55 | DT 255 | DT 355 |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|-------|-------|-------|-------|-------|--------|--------|
|                                                                                       |                                                                                  | l      | d     | +/-   | s     | +/-   | m      | +/-   | r      | d <sub>1</sub> |       |       |       |       |       |        |        |
|      | EPGT 050202 EN<br>EPGT 050204 EN                                                 | .220"  | .219" | .001" | .094" | .005" | .0653" | .001" | .0079" | .098"          | ■     | ■     | ■     | ■     | ■     | ■      | ■      |
|                                                                                       |                                                                                  |        |       |       |       |       | .0602" |       | .0157" |                | ■     | ■     | ■     | ■     | ■     | ■      | ■      |
| *1)  | EPGT 050202 FR<br>EPGT 050202 FL<br>EPGT 050204 FR<br>EPGT 050204 FL             | .220"  | .219" | .001" | .094" | .005" | .0653" | .001" | .0079" | .098"          |       |       |       |       | ■     | ■      | ■      |
|                                                                                       |                                                                                  |        |       |       |       |       | .0653" |       | .0079" |                |       |       |       |       | ■     | ■      | ■      |
|                                                                                       |                                                                                  |        |       |       |       |       | .0602" |       | .0157" |                |       |       |       |       | ■     | ■      | ■      |
|                                                                                       |                                                                                  |        |       |       |       |       | .0602" |       | .0157" |                |       |       |       |       | ■     | ■      | ■      |
| *1)  | EPGT 050202 FR-10<br>EPGT 050202 FL-10<br>EPGT 050204 FR-10<br>EPGT 050204 FL-10 | .220"  | .219" | .001" | .094" | .005" | .0653" | .001" | .0079" | .098"          | ■     | ■     | ■     | ■     |       |        |        |
|                                                                                       |                                                                                  |        |       |       |       |       | .0653" |       | .0079" |                | ■     | ■     | ■     | ■     |       |        |        |
|                                                                                       |                                                                                  |        |       |       |       |       | .0602" |       | .0157" |                | ■     | ■     | ■     | ■     |       |        |        |
|                                                                                       |                                                                                  |        |       |       |       |       | .0602" |       | .0157" |                | ■     | ■     | ■     | ■     |       |        |        |

■ stock item

□ upon request

\*1) Right hand execution shown

EP05







## Primary Application

A versatile and economical tooling solution for your metalcutting needs! An indexable offering adapted for third party holders as well as HSK, PSC, and KM interfaces. For applications which are not possible with conventional monobloc turning tips, this indexable solution with Denitool® inserts will supply cost savings per edge of around 70% compared with traditional monobloc tip configurations.

# Features and Benefits

## Features

### Cutting edge technology

Advantageous geometries with **peripheral chip breaker** designs allow for bidirectional copying.

### Cutting precision

Intended for precision machining in hole diameters beginning from .189". **Extremely sharp** cutting edges for high-quality surface finishes.

### Accurate cutting edges

The boring bar locates precisely into the holder thanks to a locating pin which locks the boring bar into the correct orientation. Precise positioning and **repeatable accuracy** of the cutting edge is guaranteed with every setup.

### Coolant supply

All tool holders and adapters are designed with internal coolant supply to **optimize** the use of your machine.

### Boring bar selection

The program utilizes four different insert types. The long clamping length ensures **excellent stability**.

### Wear resistant insert pockets

**Hardened insert pockets** are 52 HRC for long lasting accuracy and constant preload.

## Benefits

### Cost savings

Cost-effective solutions with 2- or 3-edge inserts. Cost savings per edge **yield ~70%** compared to conventional monobloc tips.

### Carbide inserts

Switching to **SynTool** gives you access to the vast material **cutting capabilities** our expanded insert portfolio offers.

### Time savings

Productivity is **maximized** due to the quick-change capability of the holder and its high positional accuracy.

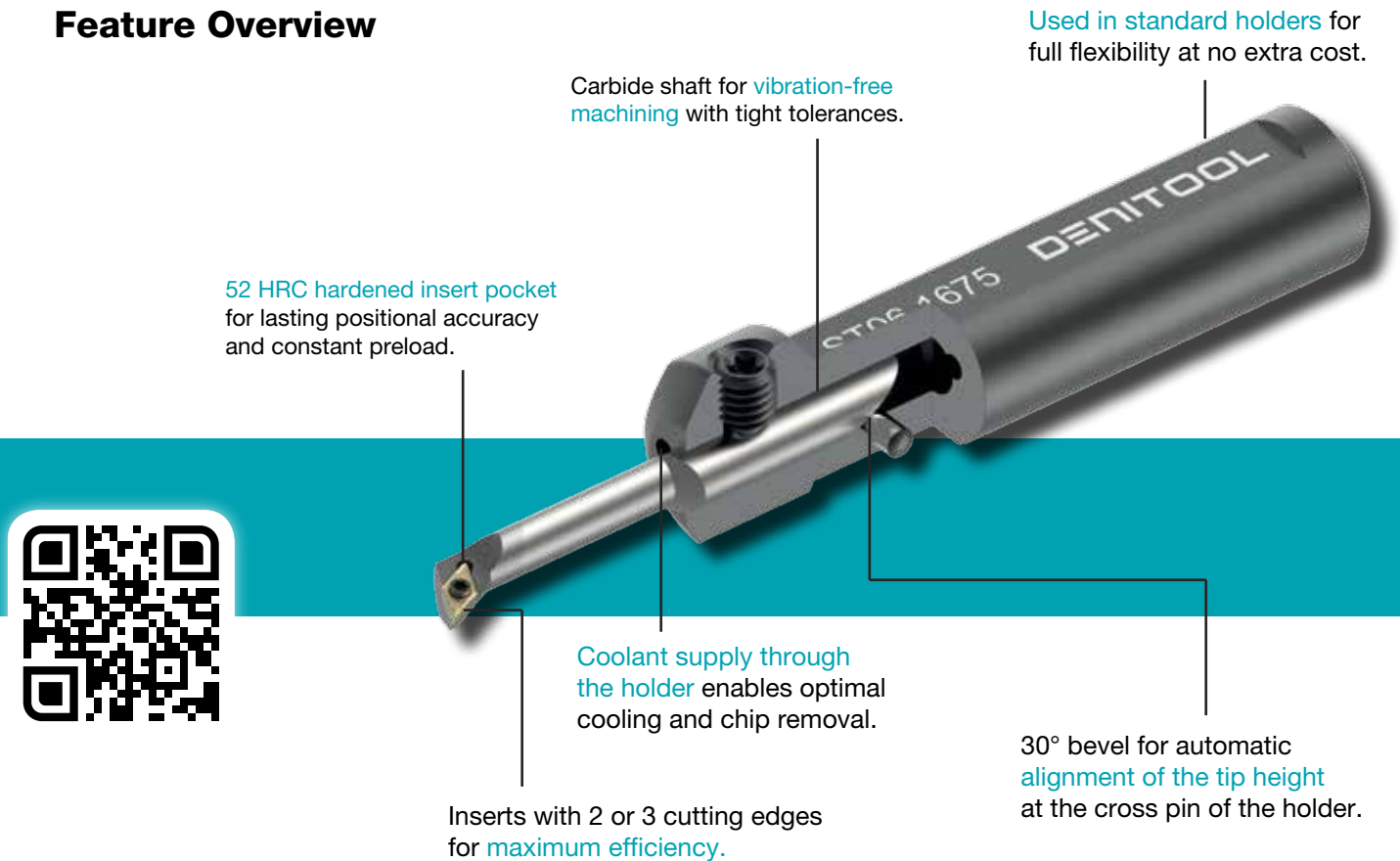
### Exceptional machining results

The 20° positive rake angle gives **excellent** results even in difficult-to-machine materials.

### Tooling synergy

Tool holders are available as bars or with **HSK, KM™ or PSC** interface from **MT-Tools** and the inserts in the well proven Denitool grades.

## Feature Overview



## Adapters



## Carbide Boring Bars

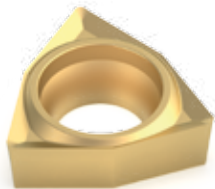
We offer a range of copying geometries as well as a small-diameter boring-selection. The design will automatically align with the tool holders' and adapters' cross pin, ensuring the insert corner becomes level with the cutting plane. All boring bars feature ground carbide shanks and hardened insert pockets, allowing for low-vibration machining in deep holes, together with lasting accuracy and constant preload.



## Indexable Inserts

Selection of industry proven insert grades by Denitool.

### Boring



#### WC 02

- 3 cutting edges
- finishing geometries
- heavy duty geometry
- carbide and cermet

### Profiling



#### GC 04

- 2 cutting edges
- finishing geometries
- copying
- DX70 coating

**Bore diameter**  
is above  $\varnothing .276''$



#### CD 04

- 2 cutting edges
- finishing geometries
- boring in small diameters
- completely ground



#### DC 04

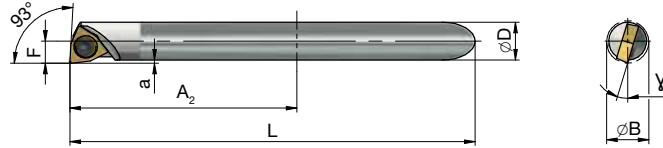
- 2 cutting edges
- finishing geometry
- copying
- DX32 coating

**Bore diameter**  
is below  $\varnothing .276''$

## Carbide shank tips with trigon inserts

WC 02

93°

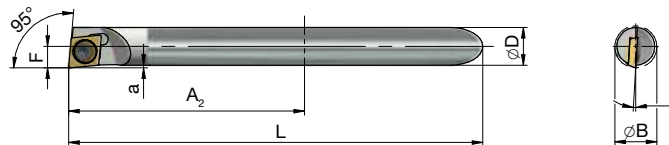


| Article No.    |                                   | [inch] |        |       |                  |        |       |       |             |         |     |
|----------------|-----------------------------------|--------|--------|-------|------------------|--------|-------|-------|-------------|---------|-----|
| R              | L                                 | D      | L      | F     | B <sub>min</sub> | A      | a     | Y     |             |         |     |
| C0520 SWUCR-02 | left hand version<br>upon request | .197"  | 1.717" | .114" | .228"            | .787"  | .012" | 17.0° | WC.. 0201.. | T20.037 | T6F |
| C0525 SWUCR-02 |                                   | .197"  | 1.913" | .114" | .228"            | .984"  | .012" | 17.0° | WC.. 0201.. | T20.037 | T6F |
| C0530 SWUCR-02 |                                   | .197"  | 2.110" | .114" | .228"            | 1.181" | .012" | 17.0° | WC.. 0201.. | T20.037 | T6F |
| C0624 SWUCR-02 |                                   | .236"  | 1.906" | .154" | .307"            | .945"  | .031" | 12.0° | WC.. 0201.. | T20.037 | T6F |
| C0630 SWUCR-02 |                                   | .236"  | 2.142" | .154" | .307"            | 1.181" | .031" | 12.0° | WC.. 0201.. | T20.037 | T6F |
| C0636 SWUCR-02 |                                   | .236"  | 2.378" | .154" | .307"            | 1.417" | .031" | 12.0° | WC.. 0201.. | T20.037 | T6F |

## Carbide shank tips with rhombic inserts

CD 04

95°

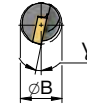
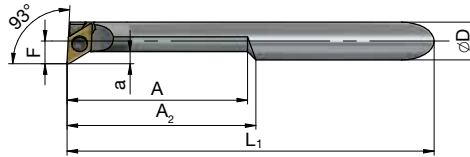


| Article No.    |                                   | [inch] |        |       |                  |        |       |      |             |          |     |
|----------------|-----------------------------------|--------|--------|-------|------------------|--------|-------|------|-------------|----------|-----|
| R              | L                                 | D      | L      | F     | B <sub>min</sub> | A2     | a     | Y    |             |          |     |
| C0416 SCLDR-04 | left hand version<br>upon request | .157"  | 1.327" | .098" | .189"            | .630"  | 0.45  | 5.5° | CD.. 0401.. | T18.Z30A | T5F |
| C0420 SCLDR-04 |                                   | .157"  | 1.484" | .098" | .189"            | .787"  | 0.45  | 5.5° | CD.. 0401.. | T18.Z30A | T5F |
| C0424 SCLDR-04 |                                   | .157"  | 1.642" | .098" | .189"            | .945"  | 0.45  | 5.5° | CD.. 0401.. | T18.Z30A | T5F |
| C0521 SCLDR-04 |                                   | .197"  | 1.764" | .114" | .228"            | .835"  | .012" | 4.0° | CD.. 0401.. | T18.Z30A | T5F |
| C0526 SCLDR-04 |                                   | .197"  | 1.961" | .114" | .228"            | 1.031" | .012" | 4.0° | CD.. 0401.. | T18.Z30A | T5F |
| C0531 SCLDR-04 |                                   | .197"  | 2.157" | .114" | .228"            | 1.228" | .012" | 4.0° | CD.. 0401.. | T18.Z30A | T5F |
| C0625 SCLDR-04 |                                   | .236"  | 1.972" | .134" | .268"            | 1.012" | .012" | 3.0° | CD.. 0401.. | T18.Z30A | T5F |
| C0631 SCLDR-04 |                                   | .236"  | 2.209" | .134" | .268"            | 1.248" | .012" | 3.0° | CD.. 0401.. | T18.Z30A | T5F |
| C0637 SCLDR-04 |                                   | .236"  | 2.445" | .134" | .268"            | 1.484" | .012" | 3.0° | CD.. 0401.. | T18.Z30A | T5F |

## Carbide shank tips with rhombic inserts

DC 04

93°

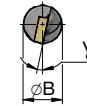
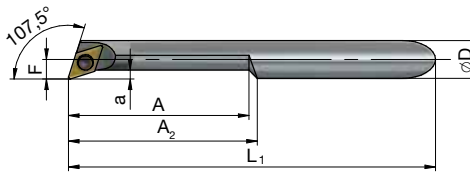


Article No.

| R              | L              | [inch]         |        |                  |       |       |       |       |       |             |         |     |  |
|----------------|----------------|----------------|--------|------------------|-------|-------|-------|-------|-------|-------------|---------|-----|--|
| D              | L <sub>1</sub> | A <sub>2</sub> | F      | B <sub>min</sub> | A     | a     | Y     |       |       |             |         |     |  |
| C0520 SDUCR-04 |                | .197"          | 1.717" | .787"            | .118" | .220" | .744" | .059" | 12.0° | DC.. 04T0.. | T16.035 | T5F |  |
| C0525 SDUCR-04 |                | .197"          | 1.913" | .984"            | .118" | .220" | .941" | .059" | 12.0° | DC.. 04T0.. | T16.035 | T5F |  |

DC 04

107.5°

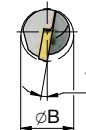
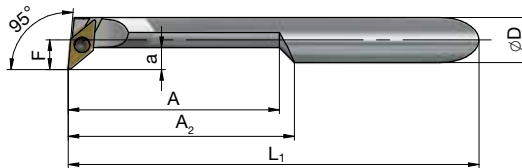


Article No.

| R              | L              | [inch]         |        |                  |       |       |       |       |       |             |         |     |  |
|----------------|----------------|----------------|--------|------------------|-------|-------|-------|-------|-------|-------------|---------|-----|--|
| D              | L <sub>1</sub> | A <sub>2</sub> | F      | B <sub>min</sub> | A     | a     | Y     |       |       |             |         |     |  |
| C0520 SDQCR-04 |                | .197"          | 1.717" | .787"            | .102" | .205" | .744" | .043" | 12.0° | DC.. 04T0.. | T16.035 | T5F |  |
| C0525 SDQCR-04 |                | .197"          | 1.913" | .984"            | .102" | .205" | .941" | .043" | 12.0° | DC.. 04T0.. | T16.035 | T5F |  |

GC 04

95°

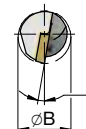
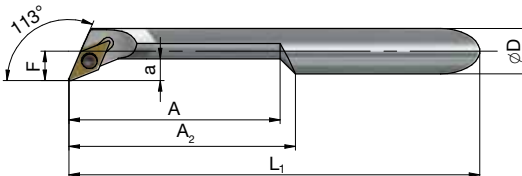


Article No.

| R              | L              | [inch]         |        |                  |       |       |        |       |       |             |         |     |  |
|----------------|----------------|----------------|--------|------------------|-------|-------|--------|-------|-------|-------------|---------|-----|--|
| D              | L <sub>1</sub> | A <sub>2</sub> | F      | B <sub>min</sub> | A     | a     | Y      |       |       |             |         |     |  |
| C0624 SGLCR-04 |                | .236"          | 1.906" | .945"            | .154" | .276" | .866"  | .114" | 10.0° | GC.. 04T0.. | T16.035 | T5F |  |
| C0630 SGLCR-04 |                | .236"          | 2.142" | 1.181"           | .154" | .276" | 1.102" | .114" | 10.0° | GC.. 04T0.. | T16.035 | T5F |  |

GC 04

113°



Article No.

| R              | L              | [inch]         |        |                  |       |       |        |       |       |             |         |     |  |
|----------------|----------------|----------------|--------|------------------|-------|-------|--------|-------|-------|-------------|---------|-----|--|
| D              | L <sub>1</sub> | A <sub>2</sub> | F      | B <sub>min</sub> | A     | a     | Y      |       |       |             |         |     |  |
| C0624 SGXCR-04 |                | .236"          | 1.906" | .945"            | .154" | .276" | .866"  | .114" | 10.0° | GC.. 04T0.. | T16.035 | T5F |  |
| C0630 SGXCR-04 |                | .236"          | 2.142" | 1.181"           | .154" | .276" | 1.102" | .114" | 10.0° | GC.. 04T0.. | T16.035 | T5F |  |

## Indexable inserts



|  | Article No.       | [inch] |       |       |       |       |        |       |        |                | DX 2 | DX 20 | DX 30 | DX 32 | DX 50 | DX 70 | DT 55 | DT 255 | DT 355 |
|--|-------------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|------|-------|-------|-------|-------|-------|-------|--------|--------|
|  |                   | l      | d     | +/-   | s     | +/-   | m      | +/-   | R      | d <sub>1</sub> |      |       |       |       |       |       |       |        |        |
|  | WCET 020101 FN-20 | .090"  | .156" | .001" | .063" | .001" | .0413" | .001" | .0039" | .090"          | ■    | ■     | □     |       | □     |       |       |        |        |
|  | WCET 020102 FN-20 |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | □     |       | □     |       |       |        |        |
|  | WCET 020104 FN-20 |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     |       | □     |       |       |        |        |
|  | WCGT 020101 EN    | .090"  | .156" | .001" | .063" | .005" | .0413" | .001" | .0039" | .090"          | ■    | ■     | □     |       | □     |       |       |        |        |
|  | WCGT 020102 EN    |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | ■     |       | ■     |       | ■     | ■      | ■      |
|  | WCGT 020104 EN    |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     |       | □     |       | ■     | ■      | ■      |
|  | WCGT 020101 FN-20 | .090"  | .156" | .001" | .063" | .005" | .0413" | .001" | .0039" | .090"          | ■    | ■     | □     |       | □     |       |       |        |        |
|  | WCGT 020102 FN-20 |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | □     |       | □     |       |       |        |        |
|  | WCGT 020104 FN-20 |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     |       | □     |       |       |        |        |
|  | CDGT 040100 FL    | .159"  | .156" | .001" | .039" | .001" | .0434" | .001" | .0"    | .087"          | ■    | ■     | □     |       |       |       |       |        |        |
|  | CDGT 040101 FL    |        |       |       |       |       | .0413" |       | .0039" |                | ■    | ■     | □     |       |       |       |       |        |        |
|  | CDGT 040102 FL    |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | ■     |       |       |       |       |        |        |
|  | CDGT 040104 FL    |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     |       |       |       |       |        |        |
|  | CDGT 040101 FN    | .159"  | .156" | .001" | .039" | .001" | .0413" | .001" | .0039" | .087"          | ■    | ■     | □     |       |       |       |       |        |        |
|  | CDGT 040102 FN    |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | □     |       |       |       |       |        |        |
|  | CDGT 040104 FN    |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | □     |       |       |       |       |        |        |
|  |                   |        |       |       |       |       |        |       |        |                | ■    | ■     | □     |       |       |       |       |        |        |
|  | CDGW 040100 FN    | .159"  | .156" | .001" | .039" | .001" | .0434" | .001" | .0"    | .087"          | ■    | ■     | ■     |       |       |       |       |        |        |
|  | CDGW 040101 FN    |        |       |       |       |       | .0413" |       | .0039" |                | ■    | ■     | □     |       |       |       |       |        |        |
|  | CDGW 040102 FN    |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | ■     |       |       |       |       |        |        |
|  | CDGW 040104 FN    |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     |       |       |       |       |        |        |
|  | DCGT 04T001-20    | .149"  | .122" | .001" | .047" | .002" | .0665" | .001" | .0039" | .067"          | ■    |       |       | ■     |       |       |       |        |        |
|  | DCGT 04T002-20    |        |       |       |       |       | .0620" |       | .0079" |                | ■    |       |       | ■     |       |       |       |        |        |
|  | GCGT 04T0005 FL   | .173"  | .122" | .001" | .047" | .002" | .0953" | .001" | .0020" | .067"          | ■    |       |       |       |       | ■     |       |        |        |
|  | GCGT 04T001 FL    |        |       |       |       |       | .0921" |       | .0039" |                | ■    |       |       |       |       | ■     |       |        |        |
|  | GCGT 04T002 FL    |        |       |       |       |       | .0857" |       | .0079" |                | ■    |       |       |       |       | ■     |       |        |        |
|  | GCGT 04T001-20    | .173"  | .122" | .001" | .047" | .002" | .0921" | .001" | .0039" | .067"          | ■    |       |       |       |       | ■     |       |        |        |
|  | GCGT 04T002-20    |        |       |       |       |       | .0857" |       | .0079" |                | ■    |       |       |       |       | ■     |       |        |        |
|  | GCGW 04T001       | .173"  | .122" | .001" | .047" | .002" | .0921" | .001" | .0039" | .067"          | ■    |       |       |       |       | ■     |       |        |        |
|  | GCGW 04T002       |        |       |       |       |       | .0857" |       | .0079" |                | ■    |       |       |       |       | ■     |       |        |        |

■ stock item  
□ upon request

For more insert options please refer to the **MicroTurn D**, **MiniTools 80°** or **MicroCopy G** insert selection or the QR-codes.

WC02



CD04



DC04

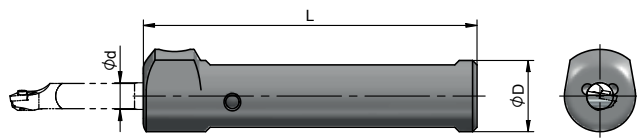


GC04

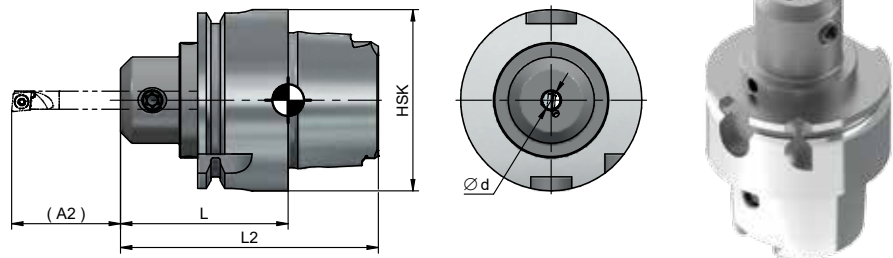




## Tool holders

| Article No.      | d     | D     | D <sub>[mm]</sub> | L [inch] | SynTool Adapters and boring bars compatible to Sandvik® CoroTurn® XS and SIMTEK® simturn® AX |
|------------------|-------|-------|-------------------|----------|----------------------------------------------------------------------------------------------|
| <b>ST04 1065</b> | .157" | .394" | 10                | 2.559"   |            |
| <b>ST04 1270</b> |       | .472" | 12                | 2.756"   |                                                                                              |
| <b>ST04 1675</b> |       | .630" | 16                | 2.953"   |                                                                                              |
| <b>ST04 2084</b> |       | .787" | 20                | 3.307"   |                                                                                              |
| <b>ST05 1065</b> | .197" | .394" | 10                | 2.559"   |                                                                                              |
| <b>ST05 1270</b> |       | .472" | 12                | 2.756"   |                                                                                              |
| <b>ST05 1675</b> |       | .630" | 16                | 2.953"   |                                                                                              |
| <b>ST05 2084</b> |       | .787" | 20                | 3.307"   |                                                                                              |
| <b>ST06 1270</b> | .236" | .472" | 12                | 2.756"   |                                                                                              |
| <b>ST06 1675</b> |       | .630" | 16                | 2.953"   |                                                                                              |
| <b>ST06 2084</b> |       | .787" | 20                | 3.307"   |                                                                                              |
|                  |       |       |                   |          | upon request                                                                                 |

## HSK-T40 Adapter



| Article No.         | HSK *)  | [inch]<br>Ød | L      | L <sub>2</sub> |  |  |
|---------------------|---------|--------------|--------|----------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>MT HT4D ST04</b> | HSK-T40 | .157"        | 1.457" | 2.218"         | T60.075                                                                              | T15H                                                                                 |
| <b>MT HT4D ST05</b> | HSK-T40 | .197"        | 1.654" | 2.441"         |                                                                                      |                                                                                      |
| <b>MT HT4D ST06</b> | HSK-T40 | .236"        | 1.654" | 2.441"         |                                                                                      |                                                                                      |

\*) ASME B5.62M, ISO 12164-3 HSK-T40

SynTool Adapter and boring bars compatible to Sandvik® CoroTurn® XS and SIMTEK® simturn® AX

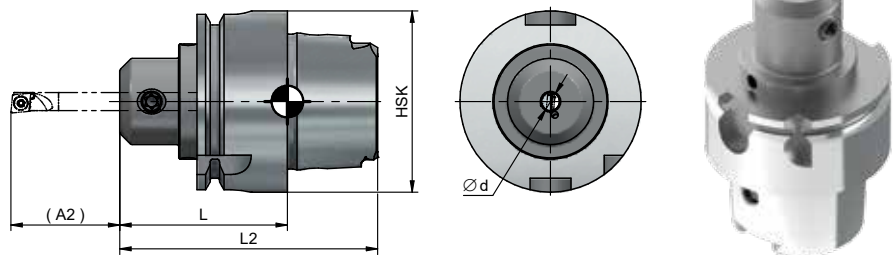
ICTM standard

## HSK-A40 Adapter

## Machine Compatibility:

Bumotec® s191H

List is not exhaustive.

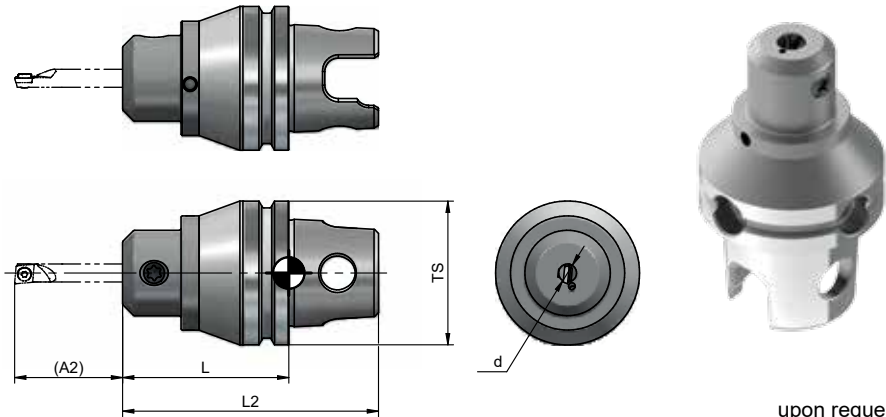


| Article No.         | HSK *)  | [inch]<br>Ød | L      | L <sub>2</sub> |  |  |
|---------------------|---------|--------------|--------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>MT HA4D ST04</b> | HSK-A40 | .157"        | 1.457" | 2.218"         | T60.075                                                                               | T15H                                                                                  |
| <b>MT HA4D ST05</b> | HSK-A40 | .197"        | 1.654" | 2.441"         |                                                                                       |                                                                                       |
| <b>MT HA4D ST06</b> | HSK-A40 | .236"        | 1.654" | 2.441"         |                                                                                       |                                                                                       |

\*) ASME B5.62M, ISO 12164-1 HSK-A40

SynTool Adapter and boring bars compatible to Sandvik® CoroTurn® XS and SIMTEK® simturn® AX

## KM32TS™ Adapter



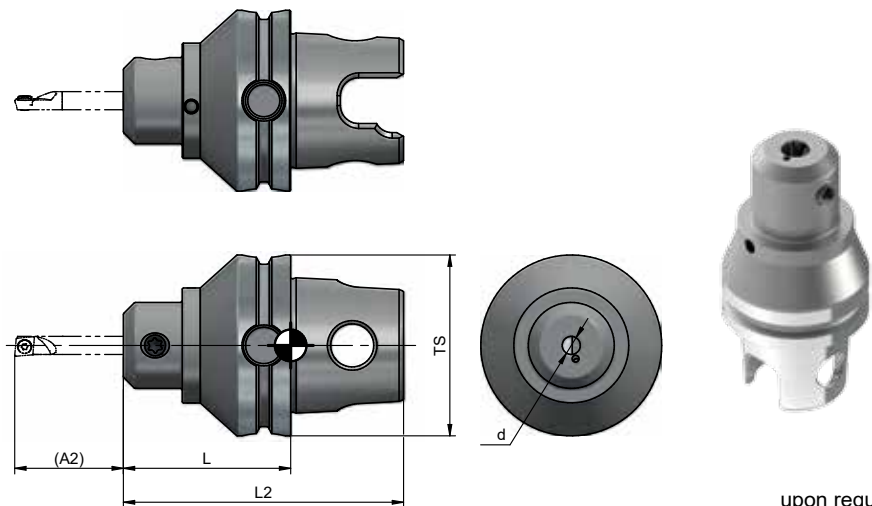
upon request

| Article No.  | TS * | [inch]<br>Ød | L      | L <sub>2</sub> |  |  |
|--------------|------|--------------|--------|----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| MT TS3D ST04 | TS32 | .157"        | 1.457" | 2.240"         | T60.075                                                                             | T15H                                                                                |
| MT TS3D ST05 | TS32 | .197"        | 1.654" | 2.044"         |                                                                                     |                                                                                     |
| MT TS3D ST06 | TS32 | .236"        | 1.654" | 2.044"         |                                                                                     |                                                                                     |

\*) Modular taper shank ISO 26622-1 - TS 32

SynTool Adapter and boring bars compatible to Sandvik® CoroTurn® XS and SIMTEK® simturn® AX

## KM40TS™ Adapter



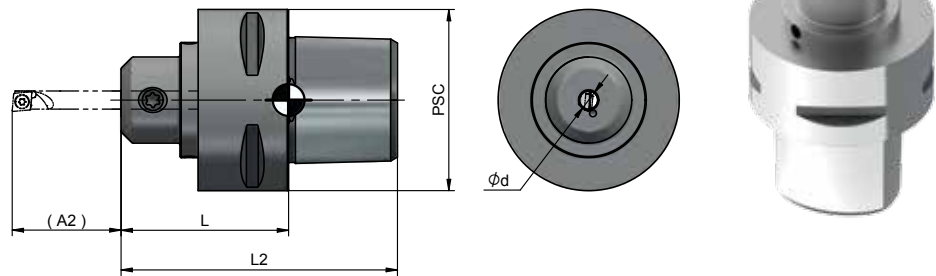
upon request

| Article No.  | TS *) | [inch]<br>Ød | L      | L <sub>2</sub> |  |  |
|--------------|-------|--------------|--------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| MT TS4D ST04 | TS40  | .157"        | 1.457" | 2.437"         | T60.075                                                                               | T15H                                                                                  |
| MT TS4D ST05 | TS40  | .197"        | 1.654" | 2.241"         |                                                                                       |                                                                                       |
| MT TS4D ST06 | TS40  | .236"        | 1.654" | 2.241"         |                                                                                       |                                                                                       |

\*) Modular taper shank ISO 26622-1 - TS 40

SynTool Adapter and boring bars compatible to Sandvik® CoroTurn® XS and SIMTEK® simturn® AX

## PSC 40 Adapter



| Article No.         | PSC *) | [inch]<br>Ød | L      | L <sub>2</sub> |  |  |
|---------------------|--------|--------------|--------|----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>MT PC4D ST04</b> | PSC 40 | .157"        | 1.457" | 2.402"         | T60.075                                                                             | T15H                                                                                |
| <b>MT PC4D ST05</b> | PSC 40 | .197"        | 1.654" | 2.598"         |                                                                                     |                                                                                     |
| <b>MT PC4D ST06</b> | PSC 40 | .236"        | 1.654" | 2.598"         |                                                                                     |                                                                                     |

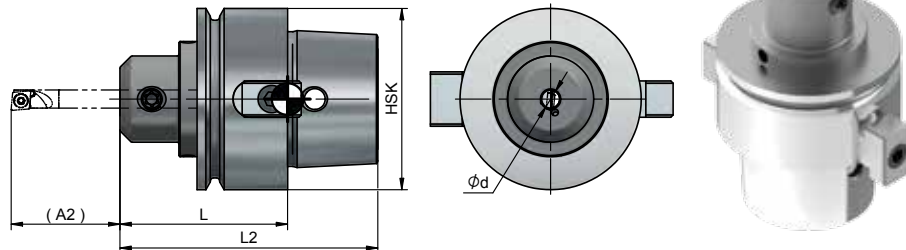
\*) POLYGON-SHANK ISO 26623-1 - PSC 40

SynTool Adapter and boring bars compatible to Sandvik® CoroTurn® XS and SIMTEK® simturn® AX

## Willemin-Macodel® - HSK-E40 Adapter

## Machine Compatibility:

Willemin-Macodel® 408 MT  
 Willemin-Macodel® 508 MT  
 Willemin-Macodel® 508 MT2



| Article No.         | HSK *)  | [inch]<br>Ød | L      | L <sub>2</sub> |  |  |
|---------------------|---------|--------------|--------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>MT HE4W ST04</b> | HSK-E40 | .157"        | 1.457" | 2.244"         | T60.075                                                                               | T15H                                                                                  |
| <b>MT HE4W ST05</b> | HSK-E40 | .197"        | 1.654" | 2.441"         |                                                                                       |                                                                                       |
| <b>MT HE4W ST06</b> | HSK-E40 | .236"        | 1.654" | 2.441"         |                                                                                       |                                                                                       |

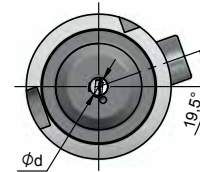
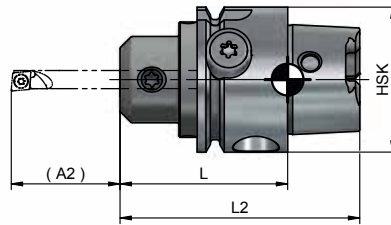
\*) ISO 12164, DIN 69893-5 - HSK-E40

SynTool Adapter and boring bars compatible to Sandvik® CoroTurn® XS and SIMTEK® simturn® AX

Willemin-Macodel®  
 machine-specific connection

Chiron® FZ08 MT Precision<sup>+</sup> - HSK-A32 Adapter

## Machine Compatibility:

Chiron® FZ08 MT Precision<sup>+</sup>

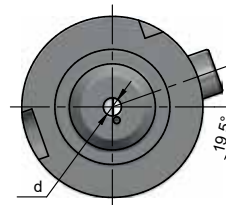
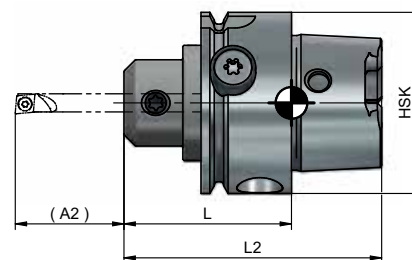
| Article No.    | HSK *)  | [inch]<br>Ød | L      | L <sub>2</sub> |  |  |
|----------------|---------|--------------|--------|----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| MT HA3C ST04 A | HSK-A40 | .157"        | 1.457" | 2.087"         | T60.075                                                                             | T15H                                                                                |
| MT HA3C ST05 A | HSK-A40 | .197"        | 1.654" | 2.283"         |                                                                                     |                                                                                     |
| MT HA3C ST06 A | HSK-A40 | .236"        | 1.654" | 2.283"         |                                                                                     |                                                                                     |

\*) ISO 12164-1 HSK-A32 / Chiron Precision<sup>+</sup>

SynTool Adapter and boring bars compatible to Sandvik® CoroTurn® XS and SIMTEK® simturn® AX

Chiron®  
machine-specific connectionChiron® FZ08 MT Precision<sup>+</sup> - HSK-A40 Adapter

## Machine Compatibility:

Chiron® FZ08 MT Precision<sup>+</sup>

| Article No.    | HSK *)  | [inch]<br>Ød | L      | L <sub>2</sub> |  |  |
|----------------|---------|--------------|--------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| MT HA4C ST04 A | HSK-A40 | .157"        | 1.457" | 2.218"         | T60.075                                                                               | T15H                                                                                  |
| MT HA4C ST05 A | HSK-A40 | .197"        | 1.654" | 2.441"         |                                                                                       |                                                                                       |
| MT HA4C ST06 A | HSK-A40 | .236"        | 1.654" | 2.441"         |                                                                                       |                                                                                       |

\*) ISO 12164-1 HSK-A40 / Chiron® Precision<sup>+</sup>

SynTool Adapter and boring bars compatible to Sandvik® CoroTurn® XS and SIMTEK® simturn® AX

Chiron®  
machine-specific connection



# *MicroCopy* **D**



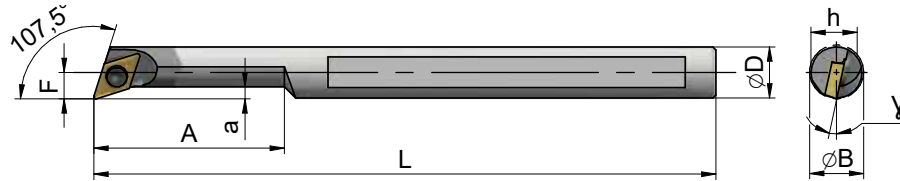
**Micro copying tools for ID turning operations in min. bore dia. 0.205" with 55° rhombic inserts DC 04**



Scale 1:1

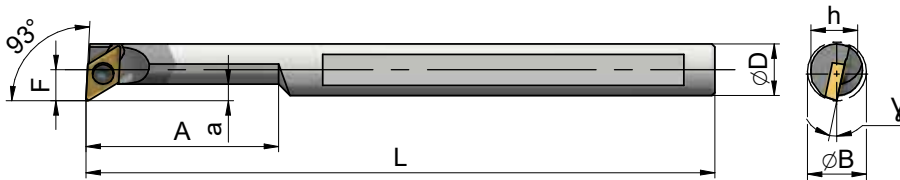
## Boring bars

107.5°



| Article No.   |   | [inch] |        |       |                  |       |       |     |       |  |  |  |
|---------------|---|--------|--------|-------|------------------|-------|-------|-----|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| R             | L | D      | L      | F     | B <sub>min</sub> | A     | a     | Y   | h     |                                                                                     |                                                                                     |                                                                                     |
| E05D SDQCR-04 |   | .197"  | 2.362" | .102" | .205"            | .709" | .043" | 12° | .177" | DC.. 04T0..                                                                         | T16.035                                                                             | T5F                                                                                 |

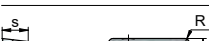
93°

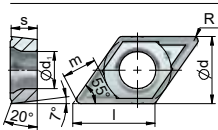


| Article No.   |   | [inch] |        |       |                  |       |       |     |       |  |  |  |
|---------------|---|--------|--------|-------|------------------|-------|-------|-----|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| R             | L | D      | L      | F     | B <sub>min</sub> | A     | a     | γ   | h     |                                                                                     |                                                                                     |                                                                                     |
| E05D SDUCR-04 |   | .197"  | 2.362" | .118" | .221"            | .709" | .059" | 12° | .177" | DC.. 04T0..                                                                         | T16.035                                                                             | T5F                                                                                 |

E: carbide shank with internal coolant

## Indexable inserts

| Article No.                                                                         |                       | [inch] |       |       |       |       |       |       |        |                | DX 2 | DX 32 |
|-------------------------------------------------------------------------------------|-----------------------|--------|-------|-------|-------|-------|-------|-------|--------|----------------|------|-------|
|                                                                                     |                       | l      | d     | +/-   | s     | +/-   | m     | +/-   | R      | d <sub>1</sub> |      |       |
|  | <b>DCGT 04T001-20</b> | .149"  | .122" | .001" | .047" | .002" | .067" | .001" | .0039" | .067"          | ■    | ■     |
|                                                                                     | <b>DCGT 04T002-20</b> |        |       |       |       |       | .062" |       | .0079" |                | ■    | ■     |



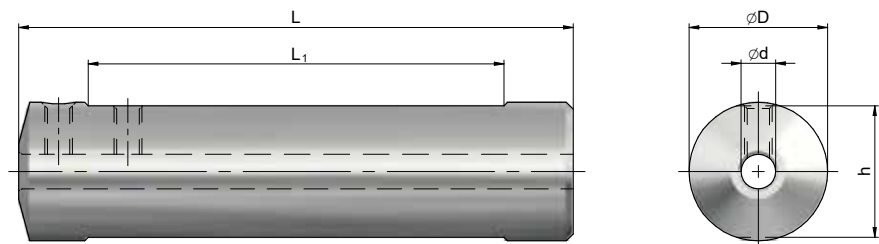
DC04



DX32: Universal grade for aluminum alloys, steel and superalloys

■ stock item

## Reduction bushing



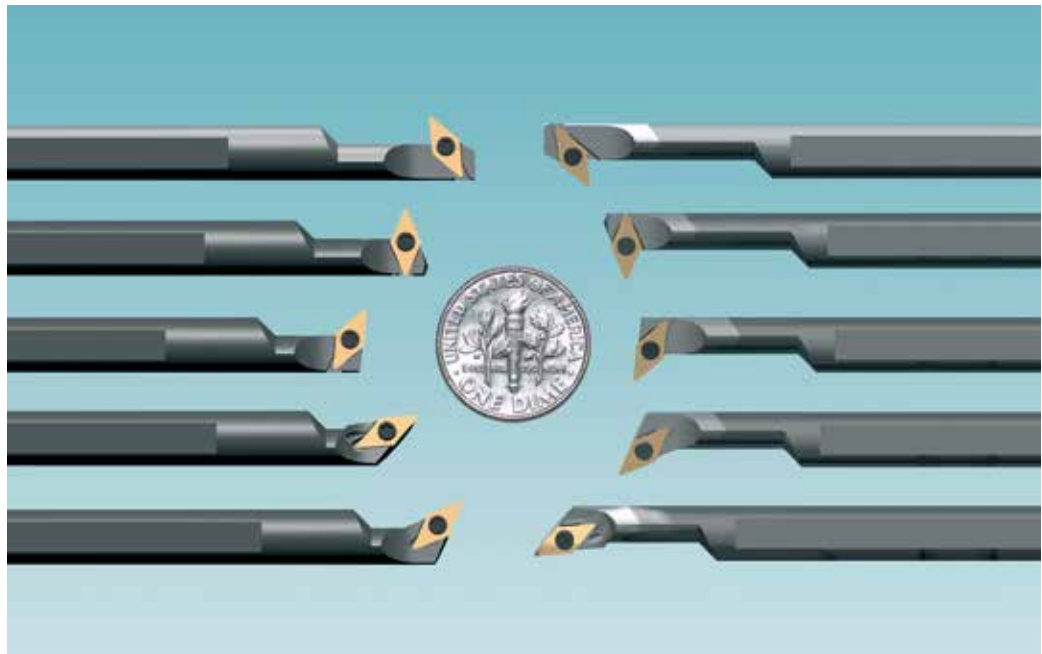
Reduction Dia 3/4" → Dia .197" (= 5mm)

| Article No.     | [inch] |       |        |                |       |  |  |
|-----------------|--------|-------|--------|----------------|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                 | D      | d     | L      | L <sub>1</sub> | h     |                                                                                       |                                                                                       |
| DAG050-"120-080 | 3/4"   | .197" | 3.150" | 2.362"         | .711" | T1221 04050                                                                           | T20S                                                                                  |





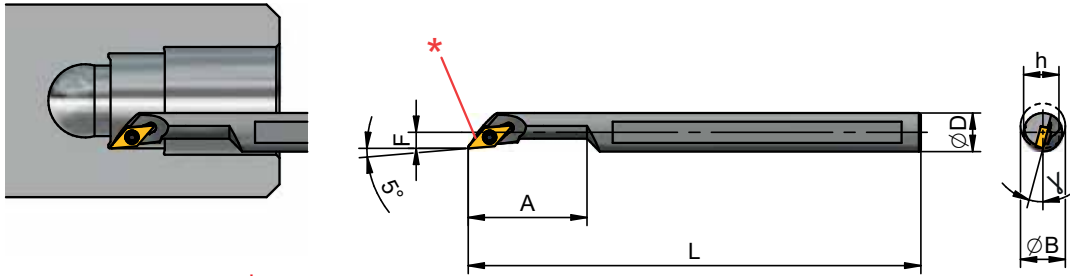
# *MicroCopy* **G**



**Micro copying tools for ID turning operations  
min. bore dia. 0.236" with 45° rhombic inserts GC 04**

## Boring bars

5°



\* Caution: Do not use secondary cutting edge for machining!

Illustration: right hand execution shown

| Article No.    |   | [inch] |        |       |                  |       |    |     |       |  |  |  |
|----------------|---|--------|--------|-------|------------------|-------|----|-----|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| R              | L | D      | L      | F     | B <sub>min</sub> | A     | a  | γ   | h     |                                                                                     |                                                                                     |                                                                                     |
| A06E SGO CR-04 |   | .236"  | 2.756" | .098" | .236"            | .394" | -- | 15° | .216" | GC.. 04T0..                                                                         | T16.035                                                                             | T5F                                                                                 |
| E06E SGO CR-04 |   | .236"  | 2.756" | .098" | .236"            | .709" | -- | 15° | .216" | GC.. 04T0..                                                                         | T16.035                                                                             | T5F                                                                                 |

A: steel shank with internal coolant

E: carbide shank with internal coolant

Different dimensions &amp; geometries upon request

113°

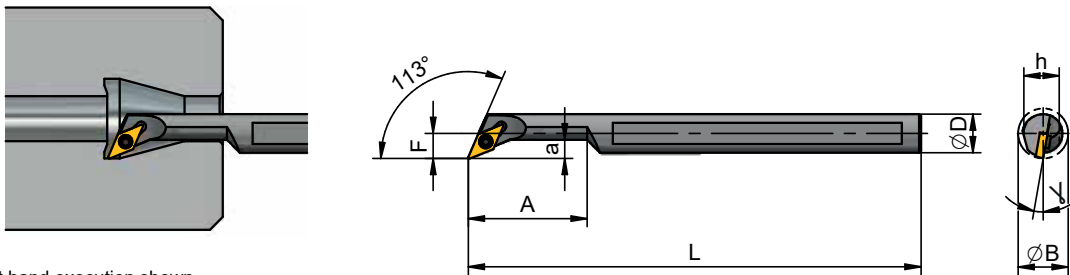


Illustration: right hand execution shown

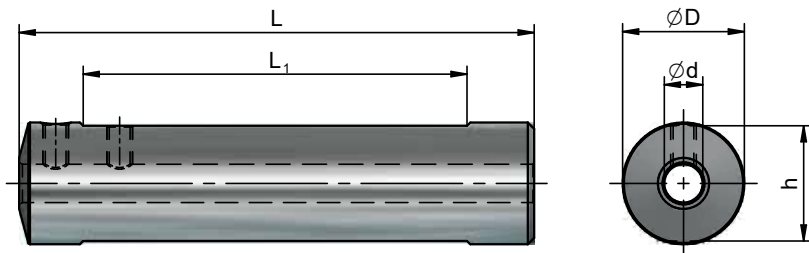
| Article No.   |   | [inch] |        |       |                  |       |       |     |       |  |  |  |
|---------------|---|--------|--------|-------|------------------|-------|-------|-----|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| R             | L | D      | L      | F     | B <sub>min</sub> | A     | a     | l   | h     |                                                                                       |                                                                                       |                                                                                       |
| A06E SGXCR-04 |   | .236"  | 2.756" | .154" | .276"            | .394" | .114" | 10° | .216" | GC.. 04T0..                                                                           | T16.035                                                                               | T5F                                                                                   |
| E06E SGXCR-04 |   | .236"  | 2.756" | .154" | .276"            | .709" | .114" | 10° | .216" | GC.. 04T0..                                                                           | T16.035                                                                               | T5F                                                                                   |

A: steel shank with internal coolant

E: carbide shank with internal coolant

Different dimensions &amp; geometries upon request

## Reduction bushing



Reduction Dia 3/4" → Dia .236" (= 6mm)

| Article No.     |  | [inch] |       |        |                |       |             |      |
|-----------------|--|--------|-------|--------|----------------|-------|-------------|------|
|                 |  | D      | d     | L      | L <sub>1</sub> | h     |             |      |
| DAG060-"120-080 |  | 3/4"   | .236" | 3.150" | 2.362"         | .711" |             |      |
|                 |  |        |       |        |                |       | T1221 04050 | T20S |

## Boring bars

95°

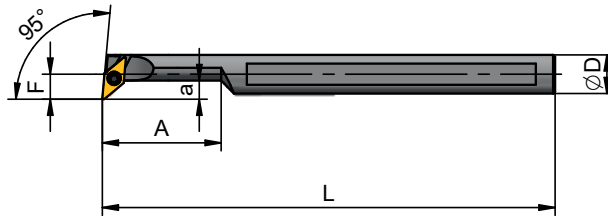
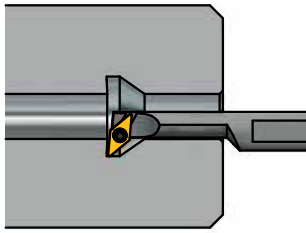


Illustration: right hand execution shown

| Article No.   |   | [inch] |        |       |                  |       |       |     |       |             |         |     |  |  |
|---------------|---|--------|--------|-------|------------------|-------|-------|-----|-------|-------------|---------|-----|--|--|
| R             | L | D      | L      | F     | B <sub>min</sub> | A     | a     | Y   | h     |             |         |     |  |  |
| A06E SGLCR-04 |   | .236"  | 2.756" | .154" | .276"            | .394" | .114" | 10° | .216" | GC.. 04T0.. | T16.035 | T5F |  |  |
| E06E SGLCR-04 |   | .236"  | 2.756" | .154" | .276"            | .709" | .114" | 10° | .216" | GC.. 04T0.. | T16.035 | T5F |  |  |

A: steel shank with internal coolant

E: carbide shank with internal coolant

Different dimensions &amp; geometries upon request

67.5°

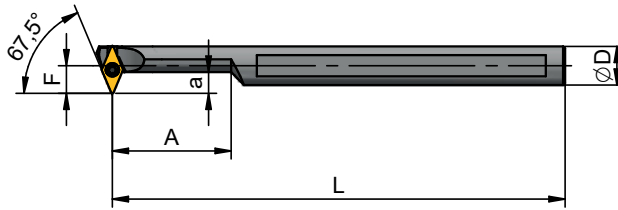
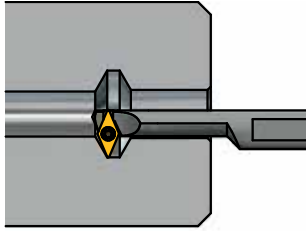


Illustration: right hand execution shown

| Article No.   |   | [inch] |        |                |       |                  |       |       |     |       |             |         |     |  |
|---------------|---|--------|--------|----------------|-------|------------------|-------|-------|-----|-------|-------------|---------|-----|--|
| R             | L | D      | L      | L <sub>1</sub> | F     | B <sub>min</sub> | A     | a     | Y   | h     |             |         |     |  |
| A06E SGVCR-04 |   | .236"  | 2.756" | 2.854"         | .169" | .303"            | .394" | .130" | 10° | .216" | GC.. 04T0.. | T16.035 | T5F |  |
| E06E SGVCR-04 |   | .236"  | 2.756" | 2.854"         | .169" | .303"            | .709" | .130" | 10° | .216" | GC.. 04T0.. | T16.035 | T5F |  |

A: steel shank with internal coolant

E: carbide shank with internal coolant

Different dimensions &amp; geometries upon request

40°

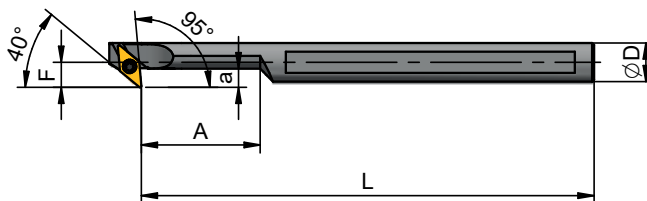
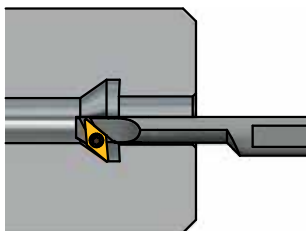


Illustration: right hand execution shown

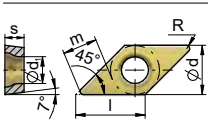
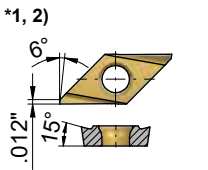
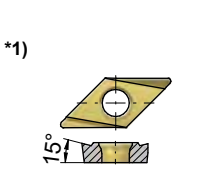
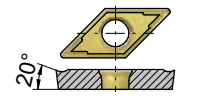
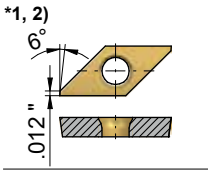
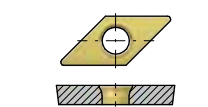
| Article No.   |   | [inch] |        |                |       |                  |       |       |     |       |             |         |     |  |
|---------------|---|--------|--------|----------------|-------|------------------|-------|-------|-----|-------|-------------|---------|-----|--|
| R             | L | D      | L      | L <sub>1</sub> | F     | B <sub>min</sub> | A     | a     | Y   | h     |             |         |     |  |
| A06E SGQCR-04 |   | .236"  | 2.756" | 2.953"         | .154" | .276"            | .394" | .114" | 10° | .216" | GC.. 04T0.. | T16.035 | T5F |  |
| E06E SGQCR-04 |   | .236"  | 2.756" | 2.953"         | .154" | .276"            | .709" | .114" | 10° | .216" | GC.. 04T0.. | T16.035 | T5F |  |

A: steel shank with internal coolant

E: carbide shank with internal coolant

Different dimensions &amp; geometries upon request

## Indexable inserts

|             | Article No.                        | [mm]  |       |       |       |       |       |       |        |                | DX 2 |  |  | DX 70 |  |  |  |
|----------------------------------------------------------------------------------------------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|----------------|------|--|--|-------|--|--|--|
|                                                                                              |                                    | l     | d     | +/-   | s     | +/-   | m     | +/-   | R      | d <sub>1</sub> |      |  |  |       |  |  |  |
| *1, 2)<br>  | GCGT 04T000 FL<br>GCGT 04T000 FR   | .173" | .122" | .001" | .047" | .002" | .089" | .001" | .0"    | .067"          | ■    |  |  | ■     |  |  |  |
|                                                                                              |                                    |       |       |       |       |       | .089" |       | .0"    |                | ■    |  |  | ■     |  |  |  |
| *1)<br>     | GCGT 04T0005 FL<br>GCGT 04T0005 FR | .173" | .122" | .001" | .047" | .002" | .095" | .001" | .002"  | .067"          | ■    |  |  | ■     |  |  |  |
|                                                                                              |                                    |       |       |       |       |       | .095" |       | .002"  |                | ■    |  |  | ■     |  |  |  |
|                                                                                              | GCGT 04T001 FL<br>GCGT 04T001 FR   |       |       |       |       |       | .092" |       | .0039" |                | ■    |  |  | ■     |  |  |  |
|                                                                                              |                                    |       |       |       |       |       | .092" |       | .0039" |                | ■    |  |  | ■     |  |  |  |
|                                                                                              | GCGT 04T002 FL<br>GCGT 04T002 FR   |       |       |       |       |       | .086" |       | .0079" |                | ■    |  |  | ■     |  |  |  |
|                                                                                              |                                    |       |       |       |       |       | .086" |       | .0079" |                | ■    |  |  | ■     |  |  |  |
|             | GCGT 04T001-20<br>GCGT 04T002-20   | .173" | .122" | .001" | .047" | .002" | .092" | .001" | .0039" | .067"          | ■    |  |  | ■     |  |  |  |
|                                                                                              |                                    |       |       |       |       |       | .086" |       | .0079" |                | ■    |  |  | ■     |  |  |  |
| *1, 2)<br> | GCGW 04T000 FL<br>GCGW 04T000 FR   | .173" | .122" | .001" | .047" | .002" | .089" | .001" | .0"    | .067"          | ■    |  |  | ■     |  |  |  |
|                                                                                              |                                    |       |       |       |       |       | .089" |       | .0"    |                | ■    |  |  | ■     |  |  |  |
|           | GCGW 04T001<br>GCGW 04T002         | .173" | .122" | .001" | .047" | .002" | .092" | .001" | .0039" | .067"          | ■    |  |  | ■     |  |  |  |
|                                                                                              |                                    |       |       |       |       |       | .086" |       | .0079" |                | ■    |  |  | ■     |  |  |  |

■ stock item

□ upon request

\*1) Right hand execution shown

\*2) Suitable for tools with 95° angle. Other geometries upon request.

DX70: Universal grade for aluminum alloys, steel and superalloys

GC04





# *MicroCopy* 35°



**Micro copying tools for ID turning operations  
min. bore dia. 0.315" with 35° rhombic inserts VC 05**

## Boring bars

5°

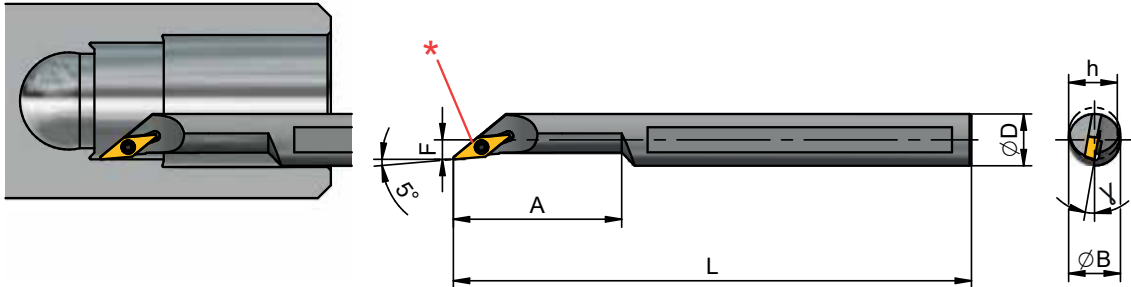


Illustration: right hand execution shown

\* Caution:

Do not use secondary cutting edge for machining!

| Article No.   |   | [inch] |        |       |                  |        |    |     |       |             |         |     |
|---------------|---|--------|--------|-------|------------------|--------|----|-----|-------|-------------|---------|-----|
| R             | L | d      | L      | F     | B <sub>min</sub> | A      | a  | γ   | h     |             |         |     |
| A08F SVOCR-05 |   | .315"  | 3.150" | .118" | .315"            | .590"  | -- | 10° | .295" | VC.. 0501.. | T16.035 | T5F |
| E08F SVOCR-05 |   | .315"  | 3.150" | .118" | .315"            | 1.024" | -- | 10° | .295" | VC.. 0501.. | T16.035 | T5F |

A: steel shank with internal coolant

E: carbide shank with internal coolant

Different dimensions &amp; geometries upon request

113°

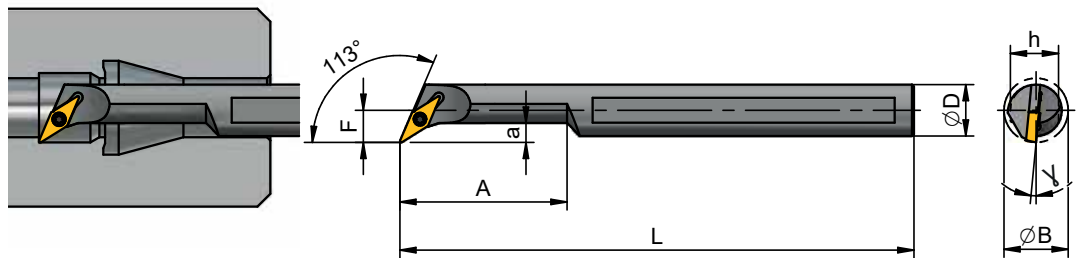


Illustration: right hand execution shown

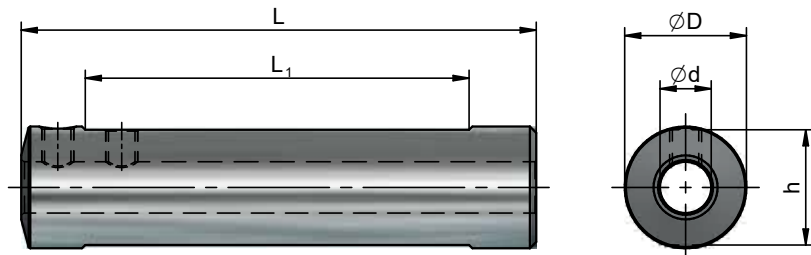
| Article No.   |   | [inch] |        |       |                  |        |       |      |       |             |         |     |
|---------------|---|--------|--------|-------|------------------|--------|-------|------|-------|-------------|---------|-----|
| R             | L | d      | L      | F     | B <sub>min</sub> | A      | a     | γ    | h     |             |         |     |
| A08F SVXCR-05 |   | .315"  | 3.150" | .197" | .362"            | .590"  | .118" | 5.5° | .295" | VC.. 0501.. | T16.045 | T5F |
| E08F SVXCR-05 |   | .315"  | 3.150" | .197" | .362"            | 1.024" | .118" | 5.5° | .295" | VC.. 0501.. | T16.045 | T5F |

A: steel shank with internal coolant

E: carbide shank with internal coolant

Different dimensions &amp; geometries upon request

## Reduction bushing



Reduction Dia 3/4" → Dia .315" (= 8mm)

| Article No.     |      | [inch] |                |        |       |             |      |  |
|-----------------|------|--------|----------------|--------|-------|-------------|------|--|
| D               | d    | L      | L <sub>1</sub> | h      |       |             |      |  |
| DAG080-"120-080 | 3/4" | .315"  | 3.150"         | 2.362" | .711" | T1221 05040 | T25S |  |



## Boring bars

95°

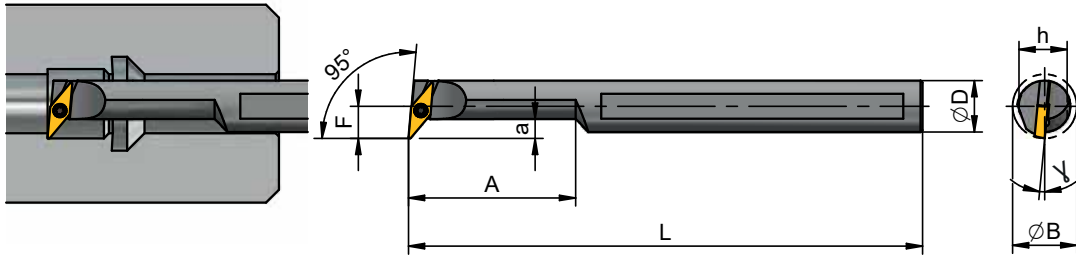


Illustration: right hand execution shown

| Article No.   |   | [inch] |        |       |                  |        |       |      |       |             |         |     |  |  |
|---------------|---|--------|--------|-------|------------------|--------|-------|------|-------|-------------|---------|-----|--|--|
| R             | L | d      | L      | F     | B <sub>min</sub> | A      | a     | γ    | h     |             |         |     |  |  |
| A08F SVLCR-05 |   | .315"  | 3.150" | .197" | .362"            | .590"  | .118" | 5.5° | .295" | VC.. 0501.. | T16.045 | T5F |  |  |
| E08F SVLCR-05 |   | .315"  | 3.150" | .197" | .362"            | 1.024" | .118" | 5.5° | .295" | VC.. 0501.. | T16.045 | T5F |  |  |

A: steel shank with internal coolant

E: carbide shank with internal coolant

Different dimensions &amp; geometries upon request

67.5°

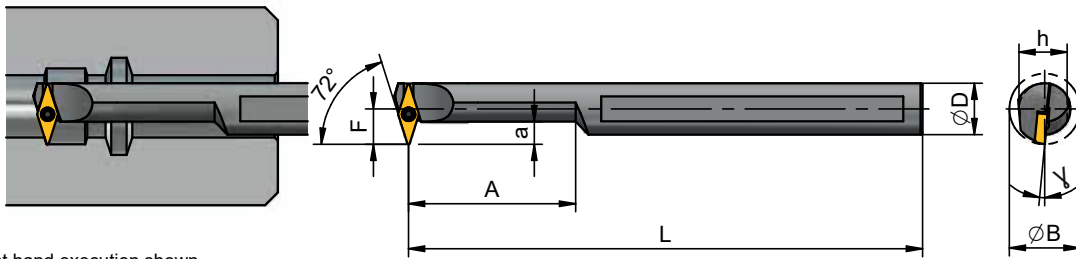


Illustration: right hand execution shown

| Article No.   |   | [inch] |        |                |       |                  |        |       |      |       |             |         |     |  |
|---------------|---|--------|--------|----------------|-------|------------------|--------|-------|------|-------|-------------|---------|-----|--|
| R             | L | d      | L      | L <sub>1</sub> | F     | B <sub>min</sub> | A      | a     | γ    | h     |             |         |     |  |
| A08F SVVCR-05 |   | .315"  | 3.150" | 3.248"         | .217" | .382"            | .590"  | .138" | 5.5° | .295" | VC.. 0501.. | T16.045 | T5F |  |
| E08F SVVCR-05 |   | .315"  | 3.150" | 3.248"         | .217" | .382"            | 1.024" | .138" | 5.5° | .295" | VC.. 0501.. | T16.045 | T5F |  |

A: steel shank with internal coolant

E: carbide shank with internal coolant

Different dimensions &amp; geometries upon request

40°

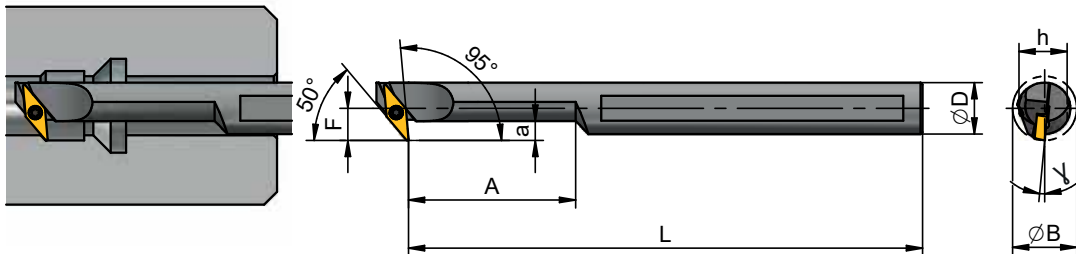


Illustration: right hand execution shown

| Article No.   |   | [inch] |        |                |       |                  |        |       |      |       |             |         |     |  |
|---------------|---|--------|--------|----------------|-------|------------------|--------|-------|------|-------|-------------|---------|-----|--|
| R             | L | d      | L      | L <sub>1</sub> | F     | B <sub>min</sub> | A      | a     | γ    | h     |             |         |     |  |
| A08F SVQCR-05 |   | .315"  | 3.150" | 3.346"         | .197" | .362"            | .590"  | .118" | 5.5° | .295" | VC.. 0501.. | T16.045 | T5F |  |
| E08F SVQCR-05 |   | .315"  | 3.150" | 3.346"         | .197" | .362"            | 1.024" | .118" | 5.5° | .295" | VC.. 0501.. | T16.045 | T5F |  |

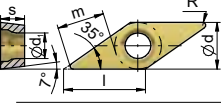
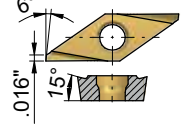
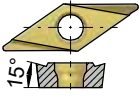
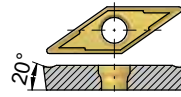
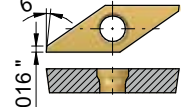
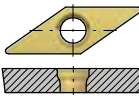
A: steel shank with internal coolant

E: carbide shank with internal coolant

Different dimensions &amp; geometries upon request

## Indexable inserts



|             | Article No.                                                                                                                                                  | [inch] |       |       |       |       |       |       |        | DX 2           | DX 70 |  |   |  |
|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|--------|----------------|-------|--|---|--|
|                                                                                              |                                                                                                                                                              | l      | d     | +/-   | s     | +/-   | m     | +/-   | R      | d <sub>1</sub> |       |  |   |  |
| *1, 2)<br>  | <b>VCGT 050100 FL</b><br><b>VCGT 050100 FR</b>                                                                                                               | .213"  | .122" | .001" | .063" | .002" | .122" | .001" | .0"    | .067"          | ■     |  | ■ |  |
|                                                                                              |                                                                                                                                                              |        |       |       |       |       | .122" |       | .0"    |                | ■     |  | ■ |  |
| *1)<br>     | <b>VCGT 0501005 FL</b><br><b>VCGT 0501005 FR</b><br><br><b>VCGT 050101 FL</b><br><b>VCGT 050101 FR</b><br><br><b>VCGT 050102 FL</b><br><b>VCGT 050102 FR</b> | .213"  | .122" | .001" | .063" | .002" | .137" | .001" | .0020" | .067"          | ■     |  | ■ |  |
|                                                                                              |                                                                                                                                                              |        |       |       |       |       | .137" |       | .0020" |                | ■     |  | ■ |  |
|                                                                                              |                                                                                                                                                              |        |       |       |       |       | .133" |       | .0039" |                | ■     |  | ■ |  |
|                                                                                              |                                                                                                                                                              |        |       |       |       |       | .133" |       | .0039" |                | ■     |  | ■ |  |
|                                                                                              |                                                                                                                                                              |        |       |       |       |       | .123" |       | .0079" |                | ■     |  | ■ |  |
|                                                                                              |                                                                                                                                                              |        |       |       |       |       | .123" |       | .0079" |                | ■     |  | ■ |  |
|             | <b>VCGT 050101-20</b><br><br><b>VCGT 050102-20</b>                                                                                                           | .213"  | .122" | .001" | .063" | .002" | .133" | .001" | .0039" | .067"          | ■     |  | ■ |  |
|                                                                                              |                                                                                                                                                              |        |       |       |       |       | .123" |       | .0079" |                | ■     |  | ■ |  |
| *1, 2)<br> | <b>VCGW 050100 FL</b><br><b>VCGW 050100 FR</b>                                                                                                               | .213"  | .122" | .001" | .063" | .002" | .122" | .001" | .0"    | .067"          | ■     |  | ■ |  |
|                                                                                              |                                                                                                                                                              |        |       |       |       |       | .122" |       | .0"    |                | ■     |  | ■ |  |
|           | <b>VCGW 050101</b><br><br><b>VCGW 050102</b>                                                                                                                 | .213"  | .122" | .001" | .063" | .002" | .133" | .001" | .0039" | .067"          | ■     |  | ■ |  |
|                                                                                              |                                                                                                                                                              |        |       |       |       |       | .123" |       | .0079" |                | ■     |  | ■ |  |

■ stock item

□ upon request

\*1) Right hand execution shown

\*2) Suitable for tools with 95° angle. Other geometries upon request.

DX70: Universal grade for steel, superalloys and aluminum

VC05





# *MiniCopy* 35°



**Mini copying tools for ID turning operations in min. bore dia. 0.492" with 35° rhombic inserts VC 07**

Any part or material can be machined with the wide range of lead angles and the comprehensive selection of indexable inserts.

## Boring bars w/ 35° rhombic inserts

5°

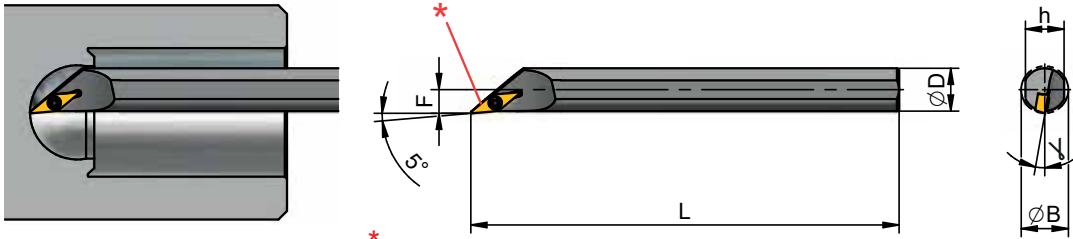


Illustration: right hand execution shown

\* Caution: Do not use secondary cutting edge for machining!

| Article No.    |                | [inch] |        |       |                  |    |    |     |       |             |         |     |
|----------------|----------------|--------|--------|-------|------------------|----|----|-----|-------|-------------|---------|-----|
| R              | L              | D      | L      | F     | B <sub>min</sub> | A  | a  | γ   | h     |             |         |     |
| S06H" SVOCR-07 | S06H" SVOCL-07 | .375"  | 3.940" | .206" | .433"            | -- | -- | 10° | .336" | VC.. 0702.. | T20.055 | T6F |
| S08K" SVOCR-07 | S08K" SVOCL-07 | .500"  | 4.920" | .270" | .512"            | -- | -- | 8°  | .461" |             |         |     |
| S10M" SVOCR-07 | S10M" SVOCL-07 | .625"  | 5.910" | .335" | .669"            | -- | -- | 6°  | .586" |             |         |     |
| A06H" SVOCR-07 | A06H" SVOCL-07 | .375"  | 3.940" | .206" | .433"            | -- | -- | 10° | .336" | VC.. 0702.. | T20.055 | T6F |
| A08K" SVOCR-07 | A08K" SVOCL-07 | .500"  | 4.920" | .270" | .512"            | -- | -- | 8°  | .461" |             |         |     |
| A10M" SVOCR-07 | A10M" SVOCL-07 | .625"  | 5.910" | .335" | .669"            | -- | -- | 6°  | .586" |             |         |     |
| E06H" SVOCR-07 | E06H" SVOCL-07 | .375"  | 3.940" | .206" | .433"            | -- | -- | 10° | .336" | VC.. 0702.. | T20.055 | T6F |
| E08K" SVOCR-07 | E08K" SVOCL-07 | .500"  | 4.920" | .270" | .512"            | -- | -- | 8°  | .461" |             |         |     |
| E10M" SVOCR-07 | E10M" SVOCL-07 | .625"  | 5.910" | .335" | .669"            | -- | -- | 6°  | .586" |             |         |     |

113°

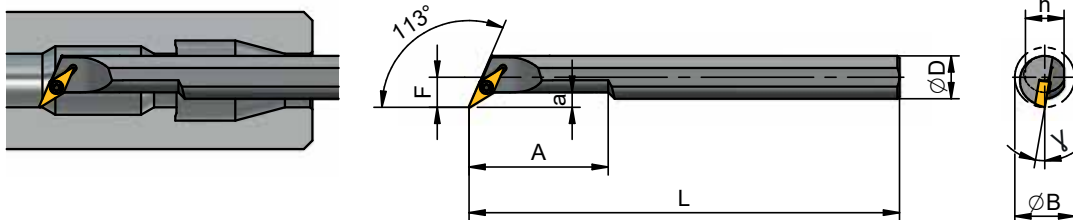


Illustration: right hand execution shown

| Article No.    |                | [inch] |        |       |                  |        |       |     |       |             |         |     |
|----------------|----------------|--------|--------|-------|------------------|--------|-------|-----|-------|-------------|---------|-----|
| R              | L              | D      | L      | F     | B <sub>min</sub> | A      | a     | γ   | h     |             |         |     |
| S06H" SVXCR-07 | S06H" SVXCL-07 | .375"  | 3.940" | .276" | .492"            | .866"  | .118" | 10° | .336" | VC.. 0702.. | T20.055 | T6F |
| S08K" SVXCR-07 | S08K" SVXCL-07 | .500"  | 4.920" | .354" | .610"            | 1.102" | .118" | 8°  | .461" |             |         |     |
| S10M" SVXCR-07 | S10M" SVXCL-07 | .625"  | 5.910" | .433" | .689"            | 1.417" | .118" | 6°  | .586" |             |         |     |
| A06H" SVXCR-07 | A06H" SVXCL-07 | .375"  | 3.940" | .276" | .492"            | .866"  | .118" | 10° | .336" | VC.. 0702.. | T20.055 | T6F |
| A08K" SVXCR-07 | A08K" SVXCL-07 | .500"  | 4.920" | .354" | .610"            | 1.102" | .118" | 8°  | .461" |             |         |     |
| A10M" SVXCR-07 | A10M" SVXCL-07 | .625"  | 5.910" | .433" | .689"            | 1.417" | .118" | 6°  | .586" |             |         |     |
| E06H" SVXCR-07 | E06H" SVXCL-07 | .375"  | 3.940" | .276" | .492"            | 1.260" | .118" | 10° | .336" | VC.. 0702.. | T20.055 | T6F |
| E08K" SVXCR-07 | E08K" SVXCL-07 | .500"  | 4.920" | .354" | .610"            | 1.575" | .118" | 8°  | .461" |             |         |     |
| E10M" SVXCR-07 | E10M" SVXCL-07 | .625"  | 5.910" | .433" | .689"            | 2.165" | .118" | 6°  | .586" |             |         |     |

S = steel shank

A = steel shank with internal coolant

E = carbide shank with internal coolant

## Boring bars w/ 35° rhombic inserts

95°

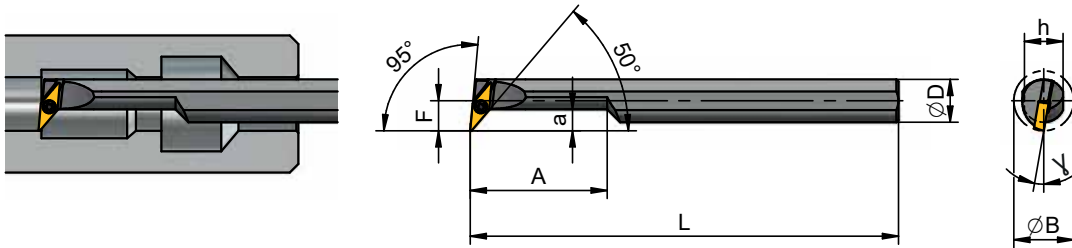


Illustration: right hand execution shown

| Article No.    |                | [inch] |        |       |                  |        |       |     |       |  |  |  |
|----------------|----------------|--------|--------|-------|------------------|--------|-------|-----|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| R              | L              | D      | L      | F     | B <sub>min</sub> | A      | a     | γ   | h     |                                                                                     |                                                                                     |                                                                                     |
| S06H" SVLCR-07 | S06H" SVLCL-07 | .375"  | 3.940" | .276" | .492"            | .866"  | .197" | 10° | .336" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |
| S08K" SVLCR-07 | S08K" SVLCL-07 | .500"  | 4.920" | .354" | .610"            | 1.102" | .197" | 8°  | .461" |                                                                                     |                                                                                     |                                                                                     |
| S10M" SVLCR-07 | S10M" SVLCL-07 | .625"  | 5.910" | .433" | .689"            | 1.417" | .197" | 6°  | .586" |                                                                                     |                                                                                     |                                                                                     |
| A06H" SVLCR-07 | A06H" SVLCL-07 | .375"  | 3.940" | .276" | .492"            | .866"  | .197" | 10° | .336" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |
| A08K" SVLCR-07 | A08K" SVLCL-07 | .500"  | 4.920" | .354" | .610"            | 1.102" | .197" | 8°  | .461" |                                                                                     |                                                                                     |                                                                                     |
| A10M" SVLCR-07 | A10M" SVLCL-07 | .625"  | 5.910" | .433" | .689"            | 1.417" | .197" | 6°  | .586" |                                                                                     |                                                                                     |                                                                                     |
| E06H" SVLCR-07 | E06H" SVLCL-07 | .375"  | 3.940" | .276" | .492"            | 1.260" | .197" | 10° | .336" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |
| E08K" SVLCR-07 | E08K" SVLCL-07 | .500"  | 4.920" | .354" | .610"            | 1.575" | .197" | 8°  | .461" |                                                                                     |                                                                                     |                                                                                     |
| E10M" SVLCR-07 | E10M" SVLCL-07 | .625"  | 5.910" | .433" | .689"            | 2.165" | .197" | 6°  | .586" |                                                                                     |                                                                                     |                                                                                     |

72.5°

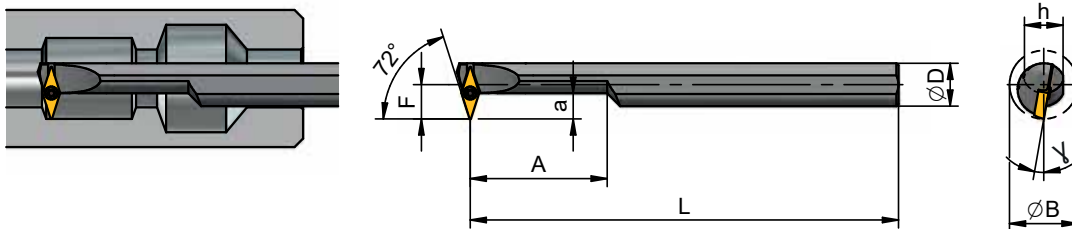


Illustration: right hand execution shown

| Article No.    |                | [inch] |        |                |       |                  |        |       |     |       |             |         |     |
|----------------|----------------|--------|--------|----------------|-------|------------------|--------|-------|-----|-------|-------------|---------|-----|
| R              | L              | D      | L      | L <sub>1</sub> | F     | B <sub>min</sub> | A      | a     | γ   | h     |             |         |     |
| S06H" SVVCR-07 | S06H" SVVCL-07 | .375"  | 3.940" | 4.060"         | .315" | .532"            | .866"  | .236" | 10° | .336" | VC.. 0702.. | T20.055 | T6F |
| S08K" SVVCR-07 | S08K" SVVCL-07 | .500"  | 4.920" | 5.080"         | .354" | .610"            | 1.102" | .197" | 8°  | .461" |             |         |     |
| S10M" SVVCR-07 | S10M" SVVCL-07 | .625"  | 5.910" | 6.060"         | .433" | .689"            | 1.417" | .197" | 6°  | .586" |             |         |     |
| A06H" SVVCR-07 | A06H" SVVCL-07 | .375"  | 3.940" | 4.060"         | .315" | .532"            | .866"  | .236" | 10° | .336" | VC.. 0702.. | T20.055 | T6F |
| A08K" SVVCR-07 | A08K" SVVCL-07 | .500"  | 4.920" | 5.080"         | .354" | .610"            | 1.102" | .197" | 8°  | .461" |             |         |     |
| A10M" SVVCR-07 | A10M" SVVCL-07 | .625"  | 5.910" | 6.060"         | .433" | .689"            | 1.417" | .197" | 6°  | .586" |             |         |     |
| E06H" SVVCR-07 | E06H" SVVCL-07 | .375"  | 3.940" | 4.060"         | .315" | .532"            | 1.260" | .236" | 10° | .336" | VC.. 0702.. | T20.055 | T6F |
| E08K" SVVCR-07 | E08K" SVVCL-07 | .500"  | 4.920" | 5.080"         | .354" | .610"            | 1.575" | .197" | 8°  | .461" |             |         |     |
| E10M" SVVCR-07 | E10M" SVVCL-07 | .625"  | 5.910" | 6.060"         | .433" | .689"            | 2.165" | .197" | 6°  | .586" |             |         |     |

S = steel shank

A = steel shank with internal coolant

E = carbide shank with internal coolant

## Boring bars w/ 35° rhombic inserts

50°

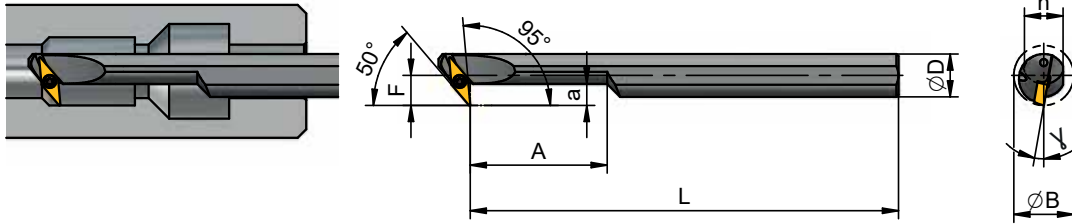


Illustration: right hand execution shown

| Article No.    |                | [inch] |        |                |       |                  |        |       |     |       |             |  |  |  |
|----------------|----------------|--------|--------|----------------|-------|------------------|--------|-------|-----|-------|-------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|
| R              | L              | D      | L      | L <sub>1</sub> | F     | B <sub>min</sub> | A      | a     | γ   | h     |             |                                                                                     |                                                                                     |  |
| S06H" SVQCR-07 | S06H" SVQCL-07 | .375"  | 3.940" | 4.210"         | .315" | .492"            | .866"  | .197" | 10° | .336" | VC.. 0702.. | T20.055                                                                             | T6F                                                                                 |  |
| S08K" SVQCR-07 | S08K" SVQCL-07 | .500"  | 4.920" | 5.200"         | .354" | .610"            | 1.102" | .197" | 8°  | .461" |             |                                                                                     |                                                                                     |  |
| S10M" SVQCR-07 | S10M" SVQCL-07 | .625"  | 5.910" | 6.220"         | .433" | .689"            | 1.417" | .197" | 6°  | .586" |             |                                                                                     |                                                                                     |  |
| A06H" SVQCR-07 | A06H" SVQCL-07 | .375"  | 3.940" | 4.210"         | .315" | .492"            | .866"  | .197" | 10° | .336" | VC.. 0702.. | T20.055                                                                             | T6F                                                                                 |  |
| A08K" SVQCR-07 | A08K" SVQCL-07 | .500"  | 4.920" | 5.200"         | .354" | .610"            | 1.102" | .197" | 8°  | .461" |             |                                                                                     |                                                                                     |  |
| A10M" SVQCR-07 | A10M" SVQCL-07 | .625"  | 5.910" | 6.220"         | .433" | .689"            | 1.417" | .197" | 6°  | .586" |             |                                                                                     |                                                                                     |  |
| E06H" SVQCR-07 | E06H" SVQCL-07 | .375"  | 3.940" | 4.210"         | .315" | .492"            | 1.260" | .197" | 10° | .336" | VC.. 0702.. | T20.055                                                                             | T6F                                                                                 |  |
| E08K" SVQCR-07 | E08K" SVQCL-07 | .500"  | 4.920" | 5.200"         | .354" | .610"            | 1.575" | .197" | 8°  | .461" |             |                                                                                     |                                                                                     |  |
| E10M" SVQCR-07 | E10M" SVQCL-07 | .625"  | 5.910" | 6.220"         | .433" | .689"            | 2.165" | .197" | 6°  | .586" |             |                                                                                     |                                                                                     |  |

S = steel shank

A = steel shank with internal coolant

E = carbide shank with internal coolant

Different angles upon request

## Tool holders w/ 35° rhombic inserts

113°

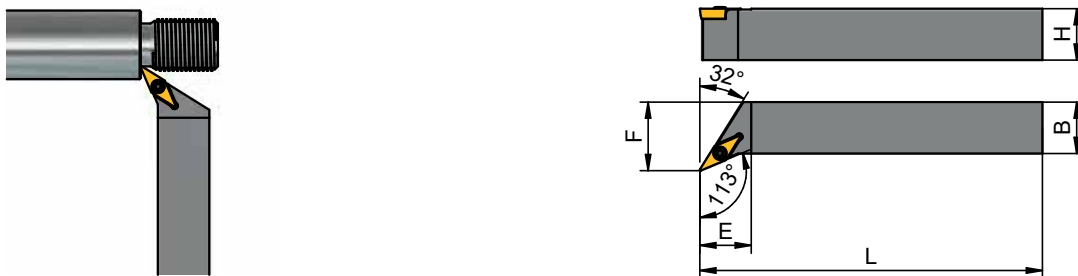


Illustration: right hand execution shown

| Article No.     | R               | L               | [inch] |       |        |       |       |             |         |     |
|-----------------|-----------------|-----------------|--------|-------|--------|-------|-------|-------------|---------|-----|
|                 |                 |                 | H      | B     | L      | E     | F     |             |         |     |
| SVXCR "0505 D07 | SVXCL "0505 D07 | SVXCL "0505 D07 | .312"  | .312" | 2.360" | .472" | .394" | VC.. 0702.. | T20.055 | T6F |
| SVXCR "0606 E07 | SVXCL "0606 E07 | SVXCL "0606 E07 | .375"  | .375" | 2.760" | .472" | .472" |             |         |     |
| SVXCR "0808 F07 | SVXCL "0808 F07 | SVXCL "0808 F07 | .500"  | .500" | 3.150" | .472" | .630" |             |         |     |



**Tool holders w/ 35° rhombic inserts**

**95°**

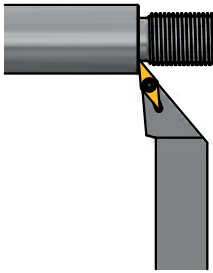
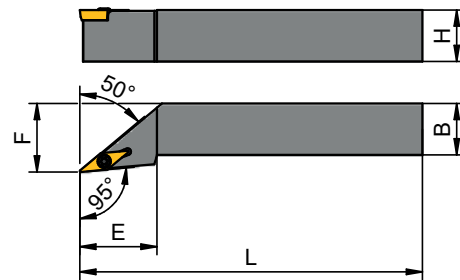


Illustration: right hand execution shown



| Article No.     |                 | [inch] |       |        |       |       |             |         |     |
|-----------------|-----------------|--------|-------|--------|-------|-------|-------------|---------|-----|
| R               | L               | H      | B     | L      | E     | F     |             |         |     |
| SVLCR "0505 D07 | SVLCL "0505 D07 | .312"  | .312" | 2.360" | .591" | .394" | VC.. 0702.. | T20.055 | T6F |
| SVLCR "0606 E07 | SVLCL "0606 E07 | .375"  | .375" | 2.760" | .591" | .472" |             |         |     |
| SVLCR "0808 F07 | SVLCL "0808 F07 | .500"  | .500" | 3.150" | .709" | .630" |             |         |     |

**90°**

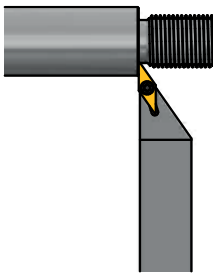
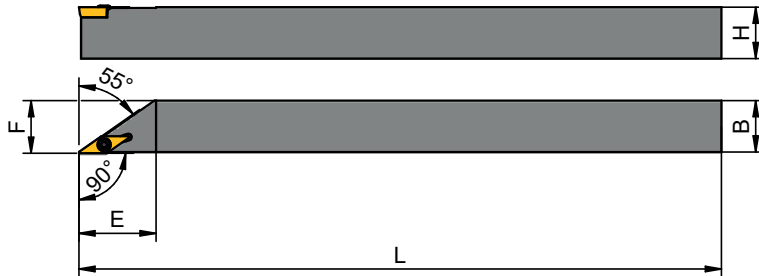
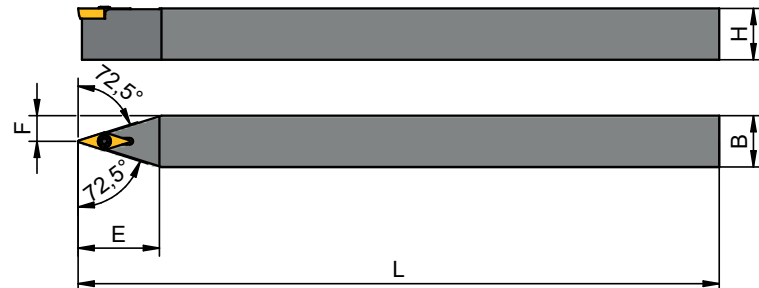
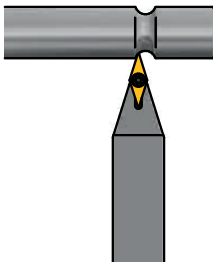


Illustration: right hand execution shown



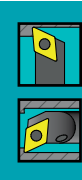
| Article No.     |                 | [inch] |       |        |       |       |             |         |     |
|-----------------|-----------------|--------|-------|--------|-------|-------|-------------|---------|-----|
| R               | L               | H      | B     | L      | E     | F     |             |         |     |
| SVGCR "0505 K07 | SVGCL "0505 K07 | .312"  | .312" | 4.920" | .591" | .324" | VC.. 0702.. | T20.055 | T6F |
| SVGCR "0606 M07 | SVGCL "0606 M07 | .375"  | .375" | 5.910" | .591" | .387" |             |         |     |
| SVGCR "0808 M07 | SVGCL "0808 M07 | .500"  | .500" | 5.910" | .709" | .512" |             |         |     |

**72.5°**



| Article No.     |  | [inch] |       |        |       |       |             |         |     |
|-----------------|--|--------|-------|--------|-------|-------|-------------|---------|-----|
| N               |  | H      | B     | L      | E     | F     |             |         |     |
| SVVCN "0505 K07 |  | .312"  | .312" | 4.920" | .591" | .162" | VC.. 0702.. | T20.055 | T6F |
| SVVCN "0606 M07 |  | .375"  | .375" | 5.910" | .591" | .188" |             |         |     |
| SVVCN "0808 M07 |  | .500"  | .500" | 5.910" | .748" | .250" |             |         |     |

## Indexable inserts 35° rhombic



|        | Article No.                                                                                                                                                                      | [inch] |       |       |       |       |       |        |        | DX 2           | DX 20 | DX 30 | DX 32 | DX 50 | DX 52 | CBN | PKD |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|-------|--------|--------|----------------|-------|-------|-------|-------|-------|-----|-----|
|        |                                                                                                                                                                                  | l      | d     | +/-   | s     | +/-   | m     | +/-    | R      | d <sub>1</sub> |       |       |       |       |       |     |     |
| *1, 2) | <br><b>VCGT 070200-08 FR</b><br><b>VCGT 070200-08 FL</b>                                                                                                                         | .273"  | .156" | .001" | .094" | .002" | .133" | .001"  | .0"    | .091"          | ■     | ■     | ■     |       | □     |     |     |
|        |                                                                                                                                                                                  |        |       |       |       |       |       |        |        |                | ■     | ■     | ■     |       | □     |     |     |
| *1, 2) | <br><b>VCGT 0702003-08 FR</b><br><b>VCGT 0702005-08 FR</b>                                                                                                                       | .273"  | .156" | .001" | .094" | .002" | .132" | .001"  | .0012" | .091"          | ■     | □     | □     |       | □     |     |     |
|        |                                                                                                                                                                                  |        |       |       |       |       | .131" |        | .0020" |                | ■     | □     | □     |       | □     |     |     |
| *1)    | <br><b>VCGT 070201-08 FR</b><br><b>VCGT 070201-08 FL</b><br><br><b>VCGT 070202-08 FR</b><br><b>VCGT 070202-08 FL</b><br><br><b>VCGT 070204-08 FR</b><br><b>VCGT 070204-08 FL</b> | .273"  | .156" | .001" | .094" | .002" | .172" | .001"  | .0039" | .091"          | ■     | ■     | □     |       | □     |     |     |
|        |                                                                                                                                                                                  |        |       |       |       | .172" |       | .0039" |        |                | ■     | ■     | □     |       | □     |     |     |
|        |                                                                                                                                                                                  |        |       |       |       | .163" |       | .0079" |        |                | ■     | ■     | ■     |       | □     |     |     |
|        |                                                                                                                                                                                  |        |       |       |       | .163" |       | .0079" |        |                | ■     | ■     | ■     |       | □     |     |     |
|        |                                                                                                                                                                                  |        |       |       |       | .145" |       | .0157" |        |                | ■     | ■     | ■     |       | □     |     |     |
|        |                                                                                                                                                                                  |        |       |       |       | .145" |       | .0157" |        |                | ■     | ■     | ■     |       | □     |     |     |
|        | <br><b>VCGT 070201-12</b><br><b>VCGT 070202-12</b><br><b>VCGT 070204-12</b>                                                                                                      | .273"  | .156" | .001" | .094" | .002" | .172" | .001"  | .0039" | .091"          | ■     | ■     | ■     |       | □     | □   |     |
|        |                                                                                                                                                                                  |        |       |       |       | .163" |       | .0079" |        |                | ■     | ■     | ■     |       | ■     | □   |     |
|        |                                                                                                                                                                                  |        |       |       |       | .145" |       | .0157" |        |                | ■     | ■     | ■     |       | ■     | □   |     |
|        | <br><b>VCGT 070201-25</b><br><b>VCGT 070202-25</b><br><b>VCGT 070204-25</b>                                                                                                      | .273"  | .156" | .001" | .094" | .002" | .172" | .001"  | .0039" | .091"          | ■     | ■     | ■     |       | □     | □   |     |
|        |                                                                                                                                                                                  |        |       |       |       | .163" |       | .0079" |        |                | ■     | ■     | ■     |       | ■     | □   |     |
|        |                                                                                                                                                                                  |        |       |       |       | .145" |       | .0157" |        |                | ■     | ■     | ■     |       | ■     | □   |     |
|        | <br><b>VCGT 070202 FN-18M</b><br><b>VCGT 070204 FN-18M</b><br><i>M: Top face polished</i>                                                                                        | .273"  | .156" | .001" | .094" | .002" | .163" | .001"  | .0079" | .091"          | ■     |       |       | ■     |       |     |     |
|        |                                                                                                                                                                                  |        |       |       |       | .145" |       | .0157" |        |                | ■     |       |       | ■     |       |     |     |
| *1, 2) | <br><b>VCGW 070200 FR</b><br><b>VCGW 070200 FL</b>                                                                                                                               | .273"  | .156" | .001" | .094" | .002" | .132" | .001"  | .0"    | .091"          | ■     | ■     | □     |       | □     |     |     |
|        |                                                                                                                                                                                  |        |       |       |       |       |       |        |        |                | ■     | ■     | □     |       | □     |     |     |
|        | <br><b>VCGW 070201</b><br><b>VCGW 070202</b><br><b>VCGW 070204</b>                                                                                                               | .273"  | .156" | .001" | .094" | .002" | .172" | .001"  | .0039" | .091"          | ■     | ■     | ■     |       | □     |     | □   |
|        |                                                                                                                                                                                  |        |       |       |       | .163" |       | .0079" |        |                | ■     | ■     | ■     |       | ■     | □   | □   |
|        |                                                                                                                                                                                  |        |       |       |       | .145" |       | .0157" |        |                | ■     | ■     | ■     |       | ■     | □   | □   |

■ stock item

□ upon request

\*1) Right hand execution shown

\*2) Suitable for tools with 90° angle. Other geometries upon request.



VC07



# Copy 35°



Copying tools for turning operations with min. bore dia. 0.787"  
with 35° rhombic inserts VC 13

## Boring bars w/ 35° rhombic inserts

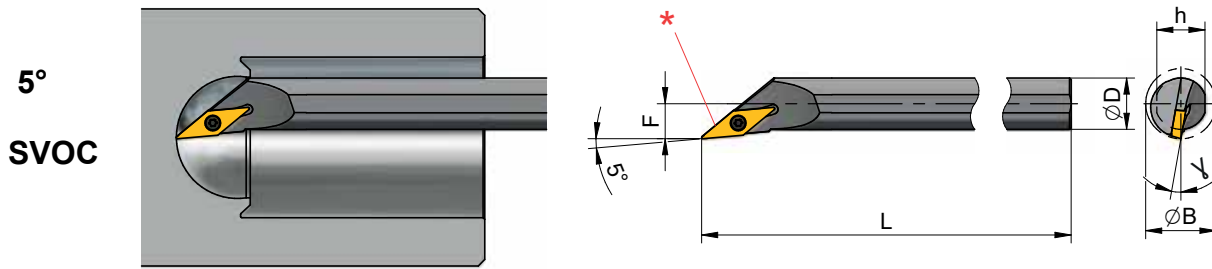


Illustration: right hand execution shown

\* Caution:

Do not use secondary cutting edge for machining!

| Article No.           |                       | [inch] |         |       |                  |   |   |     |  |  |  |
|-----------------------|-----------------------|--------|---------|-------|------------------|---|---|-----|--|--|--|
| R                     | L                     | D      | L       | F     | B <sub>min</sub> | A | a | γ   |  |  |  |
| <b>S10Q" SVOCR-13</b> | <b>S10Q" SVOCL-13</b> | .625"  | 7.090"  | .433" | .787"            | - | - | 10° |  |  |  |
| <b>S12R" SVOCR-13</b> | <b>S12R" SVOCL-13</b> | .750"  | 7.870"  | .492" | .906"            | - | - | 8°  |  |  |  |
| <b>S16S" SVOCR-13</b> | <b>S16S" SVOCL-13</b> | 1.0"   | 9.840"  | .650" | 1.181"           | - | - | 5°  |  |  |  |
| <b>A10Q" SVOCR-13</b> | <b>A10Q" SVOCL-13</b> | .625"  | 7.090"  | .433" | .787"            | - | - | 10° |  |  |  |
| <b>A12R" SVOCR-13</b> | <b>A12R" SVOCL-13</b> | .750"  | 7.870"  | .492" | .906"            | - | - | 8°  |  |  |  |
| <b>A16S" SVOCR-13</b> | <b>A16S" SVOCL-13</b> | 1.0"   | 9.840"  | .650" | 1.181"           | - | - | 5°  |  |  |  |
| <b>E10R" SVOCR-13</b> | <b>E10R" SVOCL-13</b> | .625"  | 7.870"  | .433" | .787"            | - | - | 10° |  |  |  |
| <b>E12S" SVOCR-13</b> | <b>E12S" SVOCL-13</b> | .750"  | 9.840"  | .492" | .906"            | - | - | 8°  |  |  |  |
| <b>E16T" SVOCR-13</b> | <b>E16T" SVOCL-13</b> | 1.0"   | 11.810" | .650" | 1.181"           | - | - | 5°  |  |  |  |

**113°**  
**SVXC**

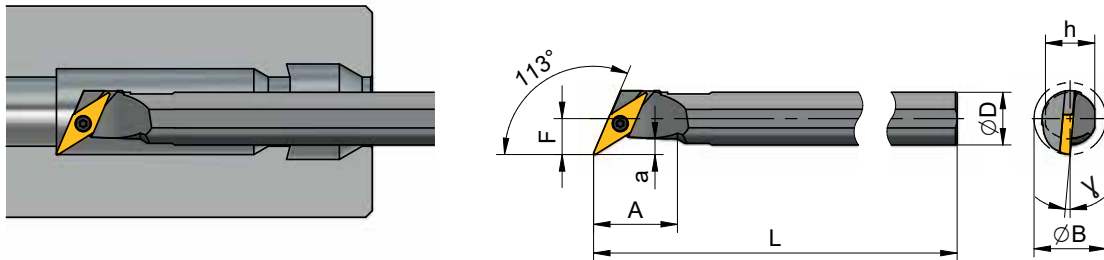


Illustration: right hand execution shown

| Article No.           |                       | [inch] |         |       |                  |        |       |    |                 |              |                         |
|-----------------------|-----------------------|--------|---------|-------|------------------|--------|-------|----|-----------------|--------------|-------------------------|
| R                     | L                     | D      | L       | F     | B <sub>min</sub> | A      | a     | γ  |                 |              |                         |
| <b>S10Q" SVXCR-13</b> | <b>S10Q" SVXCL-13</b> | .625"  | 7.090"  | .433" | .827"            | .984"  | .157" | 5° |                 |              |                         |
| <b>S12R" SVXCR-13</b> | <b>S12R" SVXCL-13</b> | .750"  | 7.870"  | .512" | .984"            | 1.102" | .157" | 5° |                 |              |                         |
| <b>S16S" SVXCR-13</b> | <b>S16S" SVXCL-13</b> | 1.0"   | 9.840"  | .669" | 1.260"           | -      | .157" | 2° |                 |              |                         |
| <b>S20T" SVXCR-13</b> | <b>S20T" SVXCL-13</b> | 1.250" | 11.810" | .866" | 1.575"           | -      | .236" | 0° | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. T30.090 T8F |
| <b>A10Q" SVXCR-13</b> | <b>A10Q" SVXCL-13</b> | .625"  | 7.090"  | .433" | .827"            | .984"  | .157" | 5° |                 |              |                         |
| <b>A12R" SVXCR-13</b> | <b>A12R" SVXCL-13</b> | .750"  | 7.870"  | .512" | .984"            | 1.102" | .157" | 5° |                 |              |                         |
| <b>A16S" SVXCR-13</b> | <b>A16S" SVXCL-13</b> | 1.0"   | 9.840"  | .669" | 1.260"           | -      | .157" | 2° |                 |              |                         |
| <b>A20T" SVXCR-13</b> | <b>A20T" SVXCL-13</b> | 1.250" | 11.810" | .866" | 1.575"           | -      | .236" | 0° | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. T30.090 T8F |
| <b>E10R" SVXCR-13</b> | <b>E10R" SVXCL-13</b> | .625"  | 7.870"  | .433" | .827"            | .984"  | .157" | 5° |                 |              |                         |
| <b>E12S" SVXCR-13</b> | <b>E12S" SVXCL-13</b> | .750"  | 9.840"  | .512" | .984"            | 1.102" | .157" | 5° |                 |              |                         |
| <b>E16T" SVXCR-13</b> | <b>E16T" SVXCL-13</b> | 1.0"   | 11.810" | .669" | 1.260"           | -      | .157" | 2° |                 |              |                         |

S = steel shank

A = steel shank with internal coolant

E = carbide shank with internal coolant

## Boring bars w/ 35° rhombic inserts

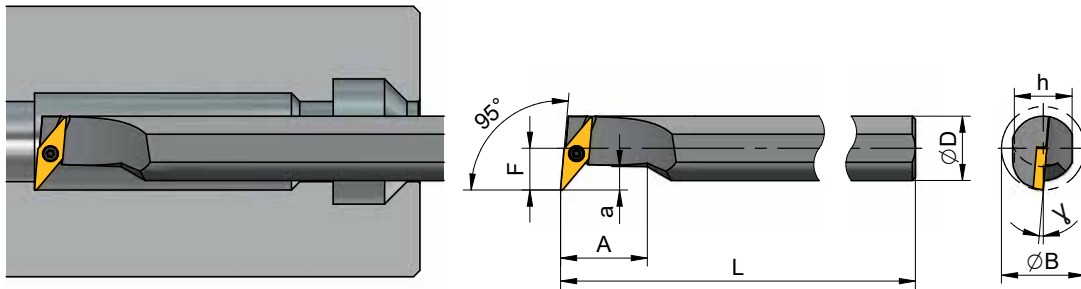
95°  
SVLC

Illustration: right hand execution shown

| Article No.    |                | [inch] |         |       |                  |        |       |    |                 |  |  |  |  |  |
|----------------|----------------|--------|---------|-------|------------------|--------|-------|----|-----------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| R              | L              | D      | L       | F     | B <sub>min</sub> | A      | a     | γ  | Anvil           |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| S12R" SVLCR-13 | S12R" SVLCL-13 | .750"  | 7.870"  | .512" | .984"            | .984"  | .276" | 5° | -               | -                                                                                 | VC.. 1303..                                                                         | T30.090                                                                             | T8F                                                                                 |                                                                                     |
| S16S" SVLCR-13 | S16S" SVLCL-13 | 1.0"   | 9.840"  | .669" | 1.260"           | 1.181" | .276" | 2° | -               | -                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| S20T" SVLCR-13 | S20T" SVLCL-13 | 1.250" | 11.810" | .866" | 1.575"           | -      | .236" | 0° | U1010 VC13N 318 | TU 45 30 110                                                                      | VC.. 1303..                                                                         | T30.090                                                                             | T8F                                                                                 |                                                                                     |
| A12R" SVLCR-13 | A12R" SVLCL-13 | .750"  | 7.870"  | .512" | .984"            | .984"  | .276" | 5° | -               | -                                                                                 | VC.. 1303..                                                                         | T30.090                                                                             | T8F                                                                                 |                                                                                     |
| A16S" SVLCR-13 | A16S" SVLCL-13 | 1.0"   | 9.840"  | .669" | 1.260"           | 1.181" | .276" | 2° | -               | -                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| A20T" SVLCR-13 | A20T" SVLCL-13 | 1.250" | 11.810" | .866" | 1.575"           | -      | .236" | 0° | U1010 VC13N 318 | TU 45 30 110                                                                      | VC.. 1303..                                                                         | T30.090                                                                             | T8F                                                                                 |                                                                                     |
| E12S" SVLCR-13 | E12S" SVLCL-13 | .750"  | 9.840"  | .512" | .984"            | .984"  | .276" | 5° | -               | -                                                                                 | VC.. 1303..                                                                         | T30.090                                                                             | T8F                                                                                 |                                                                                     |
| E16T" SVLCR-13 | E16T" SVLCL-13 | 1.0"   | 11.810" | .669" | 1.260"           | 1.181" | .276" | 2° | -               | -                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

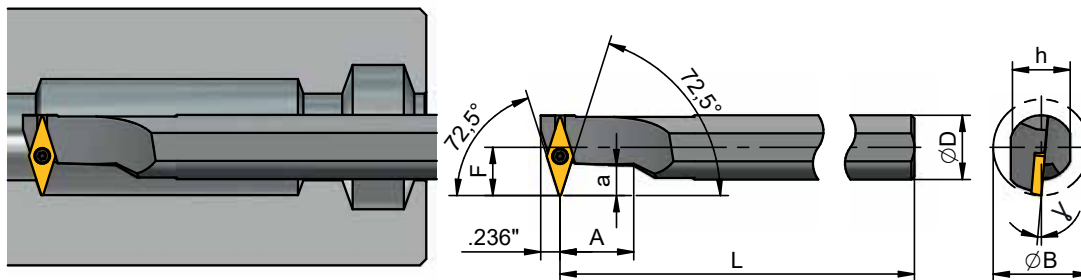
72.5°  
SVVC

Illustration: right hand execution shown

| Article No.    |                | [inch] |         |       |                  |        |       |    |                 |  |  |  |  |  |
|----------------|----------------|--------|---------|-------|------------------|--------|-------|----|-----------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| R              | L              | D      | L       | F     | B <sub>min</sub> | A      | a     | γ  | Anvil           |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| S12R" SVVCR-13 | S12R" SVVCL-13 | .750"  | 7.870"  | .591" | 1.063"           | .866"  | .354" | 5° | -               | -                                                                                   | VC.. 1303..                                                                           | T30.090                                                                               | T8F                                                                                   |                                                                                       |
| S16S" SVVCR-13 | S16S" SVVCL-13 | 1.0"   | 9.840"  | .669" | 1.260"           | .866"  | .354" | 2° | -               | -                                                                                   |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| S20T" SVVCR-13 | S20T" SVVCL-13 | 1.250" | 11.810" | .866" | 1.575"           | 1.142" | .394" | 0° | U1010 VC13N 318 | TU 45 30 110                                                                        | VC.. 1303..                                                                           | T30.090                                                                               | T8F                                                                                   |                                                                                       |
| A12R" SVVCR-13 | A12R" SVVCL-13 | .750"  | 7.870"  | .591" | 1.063"           | .866"  | .354" | 5° | -               | -                                                                                   | VC.. 1303..                                                                           | T30.090                                                                               | T8F                                                                                   |                                                                                       |
| A16S" SVVCR-13 | A16S" SVVCL-13 | 1.0"   | 9.840"  | .669" | 1.260"           | .866"  | .354" | 2° | -               | -                                                                                   |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| A20T" SVVCR-13 | A20T" SVVCL-13 | 1.250" | 11.810" | .866" | 1.575"           | 1.142" | .394" | 0° | U1010 VC13N 318 | TU 45 30 110                                                                        | VC.. 1303..                                                                           | T30.090                                                                               | T8F                                                                                   |                                                                                       |
| E12S" SVVCR-13 | E12S" SVVCL-13 | .750"  | 9.840"  | .591" | 1.063"           | .866"  | .354" | 5° | -               | -                                                                                   | VC.. 1303..                                                                           | T30.090                                                                               | T8F                                                                                   |                                                                                       |
| E16T" SVVCR-13 | E16T" SVVCL-13 | 1.0"   | 11.810" | .669" | 1.260"           | .866"  | .354" | 2° | -               | -                                                                                   |                                                                                       |                                                                                       |                                                                                       |                                                                                       |

S = steel shank

A = steel shank with internal coolant

E = carbide shank with internal coolant

## Boring bars w/ 35° rhombic inserts

50°

SVQC

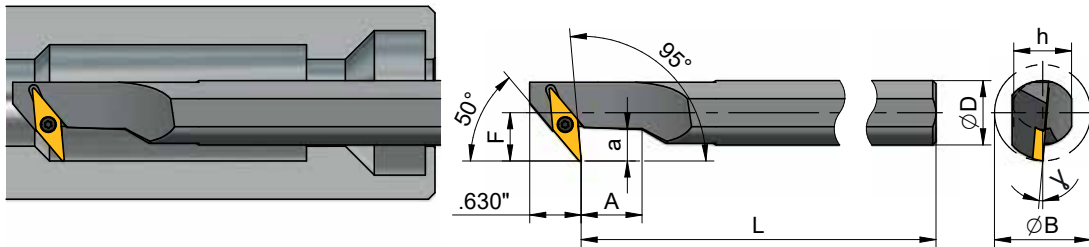


Illustration: right hand execution shown

| Article No.    |                | [inch] |         |       |                  |       |       |    |                 | Anvil        |             |             |         |     |
|----------------|----------------|--------|---------|-------|------------------|-------|-------|----|-----------------|--------------|-------------|-------------|---------|-----|
| R              | L              | D      | L       | F     | B <sub>min</sub> | A     | a     | γ  |                 |              |             |             |         |     |
| S12R" SVQCR-13 | S12R" SVQCL-13 | .750"  | 7.870"  | .591" | 1.063"           | .748" | .354" | 5° | -               | -            | -           | VC.. 1303.. | T30.090 | T8F |
| S16S" SVQCR-13 | S16S" SVQCL-13 | 1.0"   | 9.840"  | .787" | 1.378"           | .748" | .394" | 2° | -               | -            | -           | VC.. 1303.. | T30.090 | T8F |
| S20T" SVQCR-13 | S20T" SVQCL-13 | 1.250" | 11.810" | .984" | 1.693"           | .984" | .512" | 0° | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090     | T8F     | T8F |
| A12R" SVQCR-13 | A12R" SVQCL-13 | .750"  | 7.870"  | .591" | 1.063"           | .748" | .354" | 5° | -               | -            | -           | VC.. 1303.. | T30.090 | T8F |
| A16S" SVQCR-13 | A16S" SVQCL-13 | 1.0"   | 9.840"  | .787" | 1.378"           | .748" | .394" | 2° | -               | -            | -           | VC.. 1303.. | T30.090 | T8F |
| A20T" SVQCR-13 | A20T" SVQCL-13 | 1.250" | 11.810" | .984" | 1.693"           | .984" | .512" | 0° | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090     | T8F     | T8F |
| E12S" SVQCR-13 | E12S" SVQCL-13 | .750"  | 9.840"  | .591" | 1.063"           | .748" | .354" | 5° | -               | -            | -           | VC.. 1303.. | T30.090 | T8F |
| E16T" SVQCR-13 | E16T" SVQCL-13 | 1.0"   | 11.810" | .787" | 1.378"           | .748" | .394" | 2° | -               | -            | -           | VC.. 1303.. | T30.090 | T8F |

S = steel shank

A = steel shank with internal coolant

E = carbide shank with internal coolant

Different angles upon request

## Tool holders w/ 35° rhombic inserts

113°

SVXC

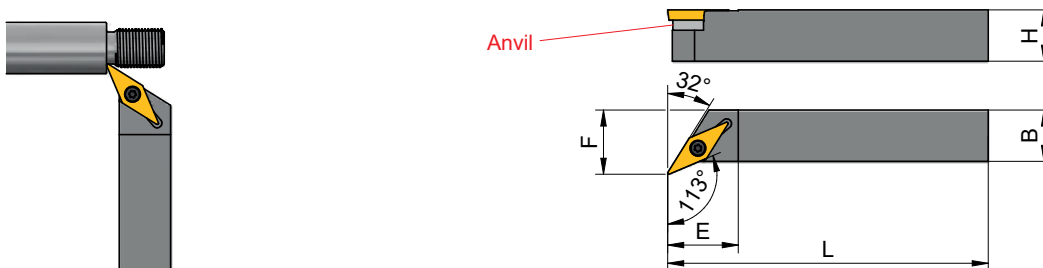


Illustration: right hand execution shown

| Article No.     |                 | [inch] |       |        |       |        |  | Anvil           |              |             |         |     |     |
|-----------------|-----------------|--------|-------|--------|-------|--------|--|-----------------|--------------|-------------|---------|-----|-----|
| R               | L               | H      | B     | L      | E     | F      |  |                 |              |             |         |     |     |
| SVXCR "0808 G13 | SVXCL "0808 G13 | .500"  | .500" | 3.540" | .748" | .709"  |  | -               | -            | VC.. 1303.. | T30.090 | T8F | T8F |
| SVXCR "1010 H13 | SVXCL "1010 H13 | .625"  | .625" | 3.940" | .866" | .787"  |  | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090 | T8F | T8F |
| SVXCR "1212 K13 | SVXCL "1212 K13 | .750"  | .750" | 4.920" | .866" | .984"  |  | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090 | T8F | T8F |
| SVXCR "1616 M13 | SVXCL "1616 M13 | 1.0"   | 1.0"  | 5.910" | .866" | 1.260" |  | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090 | T8F | T8F |



## Tool holders w/ 35° rhombic inserts

95°

SVLC

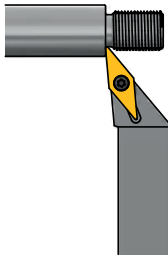
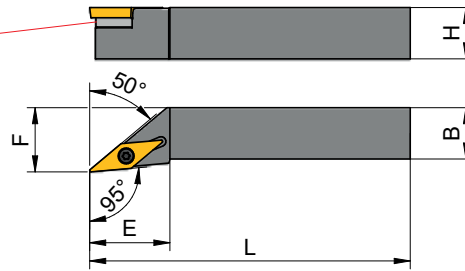


Illustration: right hand execution shown

Anvil



| Article No.     |                 | [inch] |       |        |        |        |                 |              |             |         |     |
|-----------------|-----------------|--------|-------|--------|--------|--------|-----------------|--------------|-------------|---------|-----|
| R               | L               | H      | B     | L      | E      | F      |                 |              |             |         |     |
| SVLCR "0808 G13 | SVLCL "0808 G13 | .500"  | .500" | 3.540" | .984"  | .630"  | -               | -            | VC.. 1303.. | T30.090 | T8F |
| SVLCR "1010 H13 | SVLCL "1010 H13 | .625"  | .625" | 3.940" | .984"  | .787"  | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090 | T8F |
| SVLCR "1212 K13 | SVLCL "1212 K13 | .750"  | .750" | 4.920" | 1.102" | .984"  | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090 | T8F |
| SVLCR "1616 M13 | SVLCL "1616 M13 | 1.0"   | 1.0"  | 5.910" | 1.181" | 1.260" | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090 | T8F |

90°

SVGC

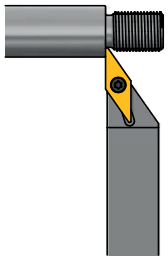
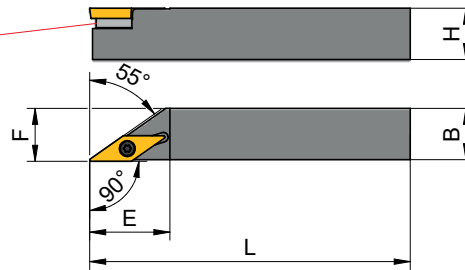


Illustration: right hand execution shown

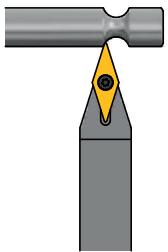
Anvil



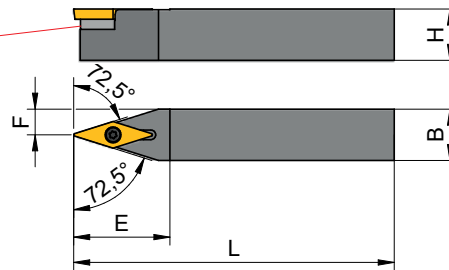
| Article No.     |                 | [inch] |       |        |       |       |                 |              |             |         |     |
|-----------------|-----------------|--------|-------|--------|-------|-------|-----------------|--------------|-------------|---------|-----|
| R               | L               | H      | B     | L      | E     | F     |                 |              |             |         |     |
| SVGCR "0606 M13 | SVGCL "0606 M13 | .375"  | .375" | 5.910" | .984" | .395" | -               | -            | VC.. 1303.. | T30.090 | T8F |
| SVGCR "0808 M13 | SVGCL "0808 M13 | .500"  | .500" | 5.910" | .984" | .520" | -               | -            | VC.. 1303.. | T30.090 | T8F |
| SVGCR "1010 H13 | SVGCL "1010 H13 | .625"  | .625" | 3.940" | .984" | .645" | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090 | T8F |

72.5°

SVVC

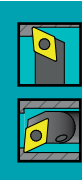


Anvil



| Article No.     |  | [inch] |       |        |        |       |                 |              |             |         |     |
|-----------------|--|--------|-------|--------|--------|-------|-----------------|--------------|-------------|---------|-----|
| N               |  | H      | B     | L      | E      | F     |                 |              |             |         |     |
| SVVCN "0808 M13 |  | .500"  | .500" | 5.910" | 1.181" | .250" | -               | -            | VC.. 1303.. | T30.090 | T8F |
| SVVCN "1010 H13 |  | .625"  | .625" | 3.940" | 1.181" | .313" | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090 | T8F |
| SVVCN "1212 K13 |  | .750"  | .750" | 4.920" | 1.181" | .375" | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090 | T8F |
| SVVCN "1616 M13 |  | 1.0"   | 1.0"  | 5.910" | 1.181" | .500" | U1010 VC13N 318 | TU 45 30 110 | VC.. 1303.. | T30.090 | T8F |

## Indexable inserts 35° rhombic



|                             | Article No.                | [inch] |       |       |       |       |       |       |        | DX 2           | DC 15 | DX 20 | DX 30 | DX 32 | DX 50 | DX 52 | DT 10 | DT 210 | DT 310 | CBN | PKD |
|-----------------------------|----------------------------|--------|-------|-------|-------|-------|-------|-------|--------|----------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-----|-----|
|                             |                            | l      | d     | +/-   | s     | +/-   | m     | +/-   | R      | d <sub>1</sub> |       |       |       |       |       |       |       |        |        |     |     |
|                             | <b>VCGT 130301</b>         | .512"  | .313" | .001" | .125" | .005" | .353" | .001" | .0039" | .134"          | ■     | ■     | ■     | ■     | □     | □     |       |        |        |     |     |
|                             | <b>VCGT 130302</b>         |        |       |       |       |       | .345" |       | .0079" |                | ■     | ■     | ■     | ■     | □     | □     |       |        |        |     |     |
|                             | <b>VCGT 130304</b>         |        |       |       |       |       | .327" |       | .0157" |                | ■     | ■     | ■     | ■     | □     | □     |       |        |        |     |     |
|                             | <b>VCGT 130308</b>         |        |       |       |       |       | .290" |       | .0315" |                | ■     | ■     | ■     | ■     | □     | □     | ■     | ■      | ■      |     |     |
| *1, 2)<br>                  | <b>VCGT 130300 FR/L-10</b> | .512"  | .313" | .001" | .125" | .005" | .331" | .001" | .0"    | .134"          | ■     | ■     | ■     | ■     | □     |       |       |        |        |     |     |
| *1)<br>                     | <b>VCGT 130301 FR/L-10</b> | .512"  | .313" | .001" | .125" | .005" | .353" | .001" | .0039" | .134"          | ■     | □     | □     | □     |       |       |       |        |        |     |     |
|                             | <b>VCGT 130302 FR/L-10</b> |        |       |       |       |       | .345" |       | .0079" |                | ■     | ■     | ■     | ■     | □     |       |       |        |        |     |     |
|                             | <b>VCGT 130304 FR/L-10</b> |        |       |       |       |       | .327" |       | .0157" |                | ■     | ■     | ■     | ■     | □     |       |       |        |        |     |     |
|                             | <b>VCGT 130308 FR/L-15</b> |        |       |       |       |       | .290" |       | .0315" |                | ■     | ■     | ■     | ■     | □     |       |       |        |        |     |     |
|                             | <b>VCGT 130302 EN-18M</b>  | .512"  | .313" | .001" | .125" | .005" | .345" | .001" | .0079" | .134"          | ■     |       |       |       |       |       |       |        |        |     |     |
|                             | <b>VCGT 130304 EN-18M</b>  |        |       |       |       |       | .327" |       | .0157" |                | ■     |       |       |       |       |       |       |        |        |     |     |
|                             | <b>VCGT 130302 FN-18M</b>  | .512"  | .313" | .001" | .125" | .005" | .345" | .001" | .0079" | .134"          | ■     |       |       | ■     |       |       |       |        |        |     |     |
|                             | <b>VCGT 130304 FN-18M</b>  |        |       |       |       |       | .327" |       | .0157" |                | ■     |       |       | ■     |       |       |       |        |        |     |     |
| <i>M: Top face polished</i> |                            |        |       |       |       |       |       |       |        |                |       |       |       |       |       |       |       |        |        |     |     |
|                             | <b>VCGT 130301-25</b>      | .512"  | .313" | .001" | .125" | .005" | .354" | .001" | .0039" | .134"          | ■     | □     | ■     | ■     | □     | □     |       |        |        |     |     |
|                             | <b>VCGT 130302-25</b>      |        |       |       |       |       | .345" |       | .0079" |                | ■     | □     | ■     | ■     | □     | □     |       |        |        |     |     |
|                             | <b>VCGT 130304-25</b>      |        |       |       |       |       | .327" |       | .0157" |                | ■     | □     | ■     | ■     | □     | □     |       |        |        |     |     |
|                             | <b>VCGT 130308-25</b>      |        |       |       |       |       | .290" |       | .0315" |                | ■     | □     | ■     | ■     | □     | □     |       |        |        |     |     |
|                             | <b>VCGT 130302 FN-25M</b>  |        |       |       |       |       | .345" |       | .0079" |                | ■     |       |       |       |       |       |       |        |        |     |     |
|                             | <b>VCGT 130304 FN-25M</b>  |        |       |       |       |       | .327" |       | .0157" |                | ■     |       |       |       |       |       |       |        |        |     |     |
|                             | <b>VCGT 130301 FN-250</b>  | .512"  | .313" | .001" | .125" | .005" | .354" | .001" | .0039" | .134"          | ■     | □     | □     |       |       |       |       |        |        |     |     |
|                             | <b>VCGT 130302 FN-250</b>  |        |       |       |       |       | .345" |       | .0079" |                | ■     | □     | □     | □     |       |       |       |        |        |     |     |
|                             | <b>VCGT 130304 FN-250</b>  |        |       |       |       |       | .327" |       | .0157" |                | ■     | □     | □     | □     |       |       |       |        |        |     |     |
|                             | <b>VCGT 130308 FN-250</b>  |        |       |       |       |       | .290" |       | .0315" |                | ■     | □     | □     | □     |       |       |       |        |        |     |     |
| *1, 2)<br>                  | <b>VCGW 130300 FR/L</b>    | .512"  | .313" | .001" | .125" | .005" | .331" | .001" | .0"    | .134"          | ■     | ■     | ■     | ■     | □     |       |       |        |        |     |     |
|                             | <b>VCGW 130301</b>         | .512"  | .313" | .001" | .125" | .005" | .354" | .001" | .0039" | .134"          | ■     | □     | □     | □     |       |       |       |        |        | □   | □   |
|                             | <b>VCGW 130302</b>         |        |       |       |       |       | .345" |       | .0079" |                | ■     | ■     | ■     | ■     | □     |       |       |        |        |     |     |
|                             | <b>VCGW 130304</b>         |        |       |       |       |       | .327" |       | .0157" |                | ■     | ■     | ■     | ■     | □     |       |       |        |        |     | □   |
|                             | <b>VCGW 130308</b>         |        |       |       |       |       | .290" |       | .0315" |                | ■     | ■     | ■     | ■     | □     |       |       |        |        |     |     |

■ stock item

□ upon request

\*1) Right hand execution shown

\*2) Suitable for tools with 90° angle. Other geometries upon request.

VC13





**STOCK ITEM:  
METRIC SIZE**

# SwissLine®

by Denitool®

Turning tools for Swiss type machines with optimized application-specific chip control

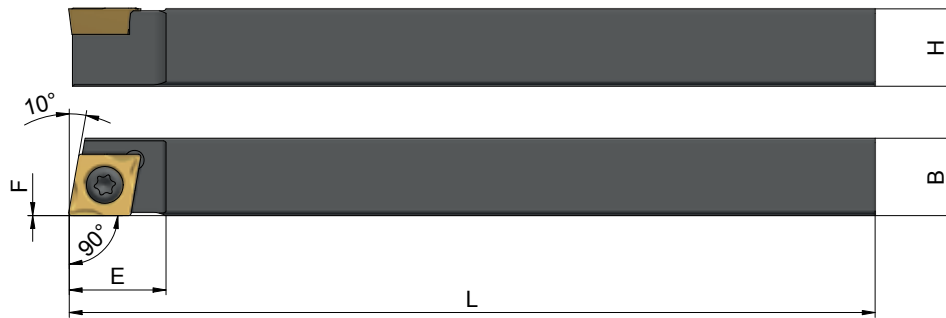


- Economic operation with well known Denitool® performance thanks to precision inserts & holders
- The precision cut ensures extremely stable turning under different operating conditions
- Quick pre-adjustment after each tool change due to the smart auxiliary scale

## External Tool holders

90°

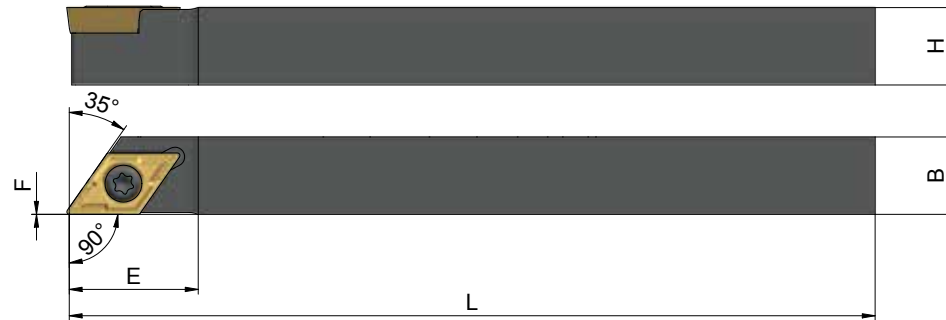
SCAC



| Article No.    |   | [inch] |       |        |       |       |             |         |      |
|----------------|---|--------|-------|--------|-------|-------|-------------|---------|------|
| R              | L | H      | B     | L      | E     | F     |             |         |      |
| SCACR 1212 K09 |   | .472"  | .472" | 4.921" | .787" | .000" | CC.. 09T3.. | T35.084 | T15H |
| SCACR 1616 K09 |   | .630"  | .630" | 4.921" | .787" | .000" | CC.. 09T3.. | T35.084 | T15H |

90°

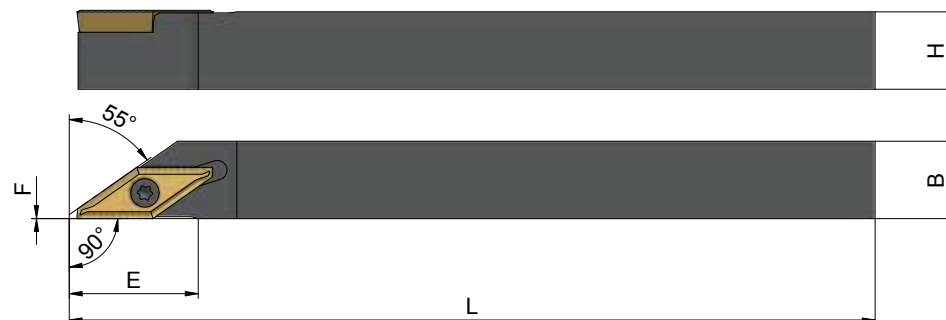
SDAC



| Article No.    |   | [inch] |       |        |       |       |             |         |      |
|----------------|---|--------|-------|--------|-------|-------|-------------|---------|------|
| R              | L | H      | B     | L      | E     | F     |             |         |      |
| SDACR 1212 K11 |   | .472"  | .472" | 4.921" | .787" | .000" | DC.. 11T3.. | T35.084 | T15H |
| SDACR 1616 K11 |   | .630"  | .630" | 4.921" | .787" | .000" | DC.. 11T3.. | T35.084 | T15H |

90°

SVAC

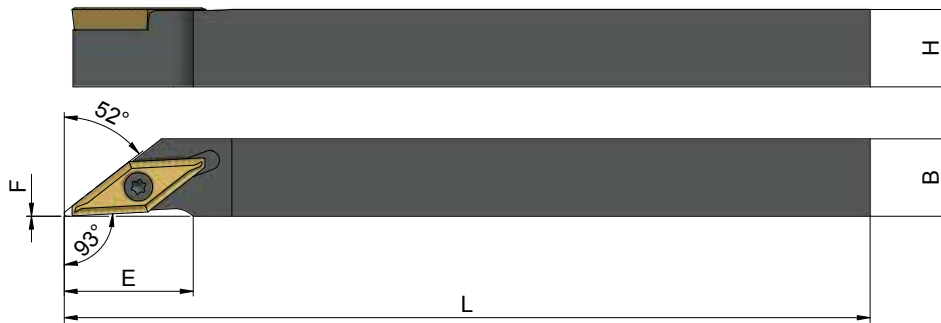


| Article No.    |   | [inch] |       |        |       |       |             |         |     |
|----------------|---|--------|-------|--------|-------|-------|-------------|---------|-----|
| R              | L | H      | B     | L      | E     | F     |             |         |     |
| SVACR 1212 K13 |   | .472"  | .472" | 4.921" | .787" | .000" | VC.. 1303.. | T30.090 | T8F |
| SVACR 1616 K13 |   | .630"  | .630" | 4.921" | .787" | .000" | VC.. 1303.. | T30.090 | T8F |

Different dimensions &amp; geometries upon request

## External Tool holders

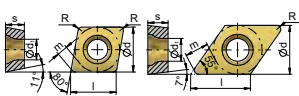
93°  
SVJC

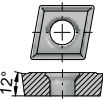
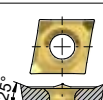
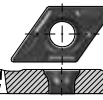
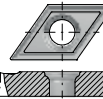
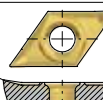


| Article No.    |   | [inch] |       |        |       |       |                                                                                     |                                                                                     |                                                                                     |
|----------------|---|--------|-------|--------|-------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| R              | L | H      | B     | L      | E     | F     |  |  |  |
| SVJCR 1212 K13 |   | .472"  | .472" | 4.921" | .787" | .000" | VC.. 1303..                                                                         | T30.090                                                                             | T8F                                                                                 |
| SVJCR 1616 K13 |   | .630"  | .630" | 4.921" | .787" | .000" | VC.. 1303..                                                                         | T30.090                                                                             | T8F                                                                                 |

Different dimensions &amp; geometries upon request

## Indexable inserts



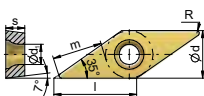
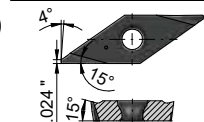
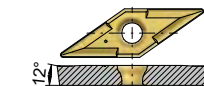
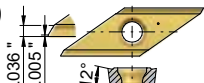
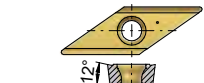
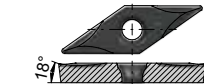
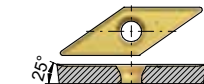
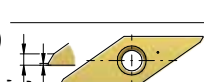
| Article No.                                                                                                                                                                                             | [inch] |       |       |       |       |       |       |        |                 | DX 2 | DX 20 | DX 30 | DX 32 | DT 55 | DT 255 | DT 355 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|--------|-----------------|------|-------|-------|-------|-------|--------|--------|
|                                                                                                                                                                                                         | I      | Ød    | +/-   | s     | +/-   | m     | +/-   | R      | Ød <sub>1</sub> |      |       |       |       |       |        |        |
| <br><b>CCGT 09T302 FN-18M</b><br><b>CCGT 09T304 FN-18M</b><br><i>M: Top face polished</i>                            | .382"  | .375" | .001" | .156" | .005" | .100" | .001" | .0079" | .173"           | ■    |       |       | ■     |       |        |        |
| <br><b>CCGT 09T304 EN</b>                                                                                            | .382"  | .375" | .001" | .156" | .005" | .096" | .001" | .0157" | .173"           |      |       |       |       | ■     | □      | □      |
| <br><b>CCGT 09T301 FN-250</b><br><b>CCGT 09T302 FN-250</b><br><b>CCGT 09T304 FN-250</b><br><b>CCGT 09T308 FN-250</b> | .382"  | .375" | .001" | .156" | .005" | .102" | .001" | .0039" | .173"           | ■    | □     | □     |       |       |        |        |
|                                                                                                                                                                                                         |        |       |       |       |       | .100" |       | .0079" |                 | ■    | ■     | □     |       |       |        |        |
|                                                                                                                                                                                                         |        |       |       |       |       | .096" |       | .0157" |                 | ■    | ■     | □     |       |       |        |        |
|                                                                                                                                                                                                         |        |       |       |       |       | .087" |       | .0315" |                 | ■    | □     | □     |       |       |        |        |
| <br><b>DCGT 11T302-15</b><br><b>DCGT 11T304-15</b>                                                                   | .457"  | .375" | .001" | .156" | .005" | .210" | .001" | .0079" | .173"           | ■    |       |       | ■     |       |        |        |
|                                                                                                                                                                                                         |        |       |       |       |       | .200" |       | .0157" |                 | ■    |       |       | ■     |       |        |        |
| <br><b>DCGT 11T302 EN</b>                                                                                            | .457"  | .375" | .001" | .156" | .005" | .209" | .001" | .0079" | .173"           |      |       |       |       | ■     | □      | □      |
| <br><b>DCGT 11T301 FN-250</b><br><b>DCGT 11T302 FN-250</b><br><b>DCGT 11T304 FN-250</b><br><b>DCGT 11T308 FN-250</b> | .457"  | .375" | .001" | .156" | .005" | .214" | .001" | .0039" | .173"           | ■    | ■     | □     |       |       |        |        |
|                                                                                                                                                                                                         |        |       |       |       |       | .209" |       | .0079" |                 | ■    | ■     | □     |       |       |        |        |
|                                                                                                                                                                                                         |        |       |       |       |       | .200" |       | .0157" |                 | ■    | ■     | □     |       |       |        |        |
|                                                                                                                                                                                                         |        |       |       |       |       | .182" |       | .0315" |                 | ■    | ■     | □     |       |       |        |        |

■ stock item

□ upon request

Other grades &amp; geometries see p.76

## Indexable inserts

|     | Article No.                                                                         | [inch]                                                                  |       |       |       |       |       |       |        |                 | DX 2  | DC 15 | DX 20 | DX 30 | DX 32 | DX 50 | DX 52 | DT 10 | DT 210 | DT 310 |   |
|-----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|--------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|---|
|     |                                                                                     | l                                                                       | ∅d    | +/-   | s     | +/-   | m     | +/-   | R      | ∅d <sub>1</sub> |       |       |       |       |       |       |       |       |        |        |   |
| *2) |    | VCGT 130300 FR-01W<br>VCGT 130301 FR-01W<br>VCGT 130302 FR-01W          | .512" | .313" | .001" | .125" | .005" | .287" | .001"  | .0"             | .134" | ■     |       |       | ■     |       |       |       |        |        |   |
|     |                                                                                     |                                                                         |       |       |       |       | .285" |       | .0039" |                 | ■     |       |       | ■     |       |       |       |       |        |        |   |
|     |                                                                                     |                                                                         |       |       |       |       | .284" |       | .0079" |                 | ■     |       |       | ■     |       |       |       |       |        |        |   |
| *2) |    | VCGT 130300 FR-15W<br>VCGT 130301 FR-15W<br>VCGT 130302 FR-15W          | .512" | .313" | .001" | .125" | .005" | .331" | .001"  | .0"             | .134" | ■     |       |       | ■     |       |       |       |        |        |   |
|     |                                                                                     |                                                                         |       |       |       |       | .329" |       | .0039" |                 | ■     |       |       | ■     |       |       |       |       |        |        |   |
|     |                                                                                     |                                                                         |       |       |       |       | .328" |       | .0079" |                 | ■     |       |       | ■     |       |       |       |       |        |        |   |
|     |    | VCGT 130301<br>VCGT 130302<br>VCGT 130304                               | .512" | .313" | .001" | .125" | .005" | .354" | .001"  | .0039"          | .134" | ■     | ■     | ■     | ■     | □     | □     |       | ■      | ■      | ■ |
|     |                                                                                     |                                                                         |       |       |       |       | .345" |       | .0079" |                 | ■     | ■     | ■     | ■     | □     | □     |       | ■     | ■      | ■      |   |
|     |                                                                                     |                                                                         |       |       |       |       | .327" |       | .0157" |                 | ■     | ■     | ■     | ■     | □     | □     |       | ■     | ■      | ■      |   |
| *2) |    | VCGT 130300 FR-10                                                       | .512" | .313" | .001" | .125" | .005" | .331" | .001"  | .0"             | .134" | ■     |       | ■     | ■     | □     |       |       |        |        |   |
|     |    | VCGT 130301 FR-10<br>VCGT 130302 FR-10<br>VCGT 130304 FR-10             | .512" | .313" | .001" | .125" | .005" | .354" | .001"  | .0039"          | .134" | □     |       | □     | □     |       |       |       |        |        |   |
|     |                                                                                     |                                                                         |       |       |       |       | .345" |       | .0079" |                 | ■     |       | ■     | ■     |       |       |       |       |        |        |   |
|     |                                                                                     |                                                                         |       |       |       |       | .327" |       | .0157" |                 | ■     |       | ■     | ■     |       |       |       |       |        |        |   |
|     |  | VCGT 130302 FN-18M<br>VCGT 130304 FN-18M<br><i>M: Top face polished</i> | .512" | .313" | .001" | .125" | .005" | .345" | .001"  | .0079"          | .134" | ■     |       |       | ■     |       |       |       |        |        |   |
|     |                                                                                     |                                                                         |       |       |       |       | .327" |       | .0157" |                 | ■     |       |       | ■     |       |       |       |       |        |        |   |
|     |  | VCGT 130301-25<br>VCGT 130302-25<br>VCGT 130304-25                      | .512" | .313" | .001" | .125" | .005" | .354" | .001"  | .0039"          | .134" | ■     | □     | ■     | ■     |       | □     | □     |        |        |   |
|     |                                                                                     |                                                                         |       |       |       |       | .345" |       | .0079" |                 | ■     | □     | ■     | ■     |       | □     | □     |       |        |        |   |
|     |                                                                                     |                                                                         |       |       |       |       | .327" |       | .0157" |                 | ■     | □     | ■     | ■     |       | □     | □     |       |        |        |   |
|     |  | VCGT 130302 FN-25M<br>VCGT 130304 FN-25M<br><i>M: Top face polished</i> |       |       |       |       |       | .345" |        | .0079"          |       | ■     |       |       |       |       |       |       |        |        |   |
|     |                                                                                     |                                                                         |       |       |       |       | .327" |       | .0157" |                 | ■     |       |       |       |       |       |       |       |        |        |   |
| *1) |  | VCGW 130300 FR                                                          | .512" | .313" | .001" | .125" | .005" | .331" | .001"  | .0"             | .134" | ■     |       | ■     | ■     | □     |       |       |        |        |   |

■ stock item

□ auf Anfrage / upon request / sur demande

Other grades &amp; geometries see p.59

\*1) Suitable only for tools with angle = 90°

\*2) Best surface quality on tools with angle = 93°

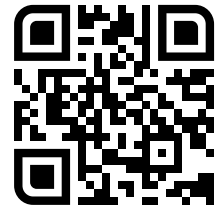
CC09



DC11

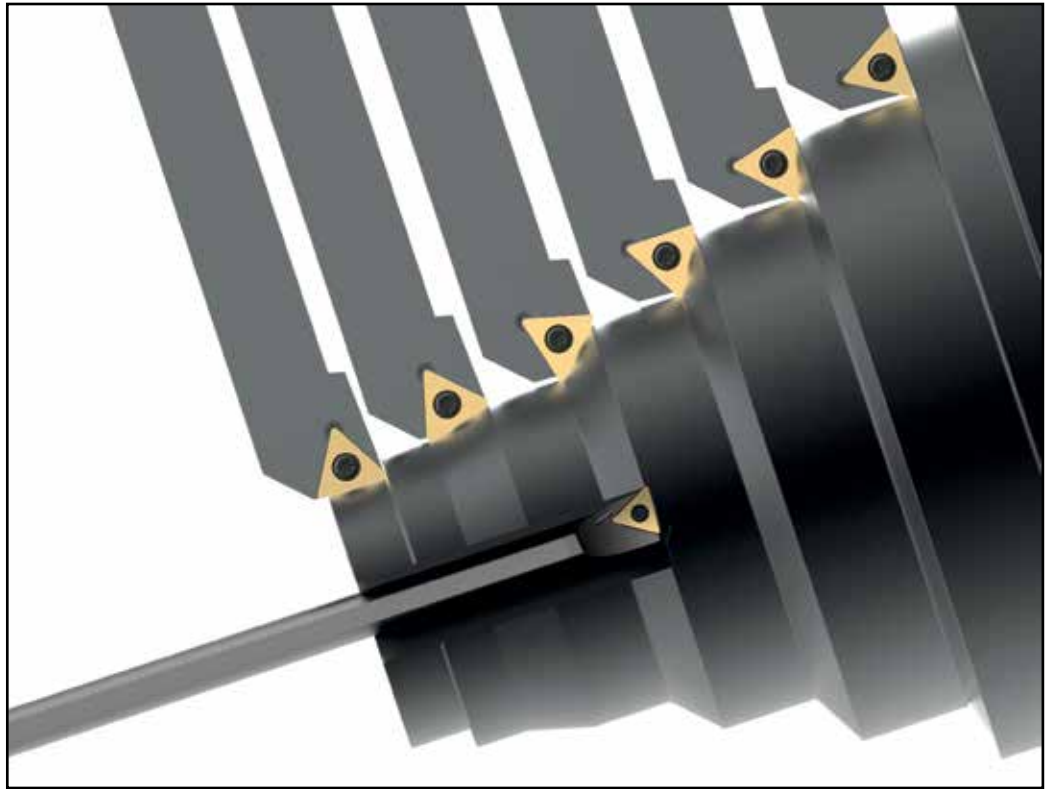


VC13





# *Turning* 60°



**Turning tools with advanced insert configurations  
for hard-to-machine operations**



## Boring bars w/ 60° triangle inserts

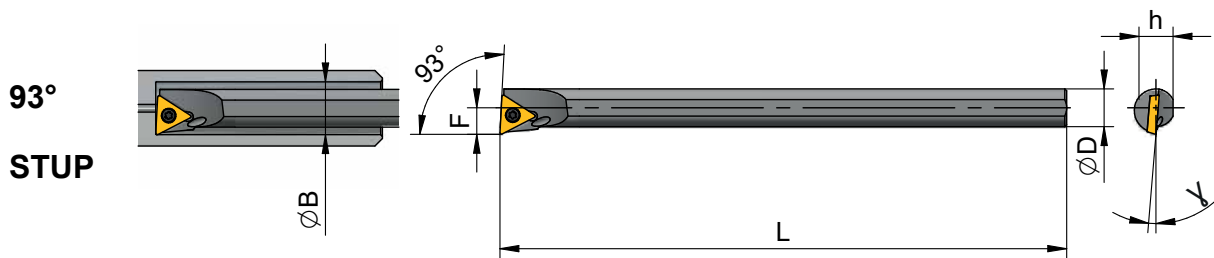


Illustration: right hand execution shown

| Article No. |          |       |          | [inch] |         |       |        |    |       |  |  |  |
|-------------|----------|-------|----------|--------|---------|-------|--------|----|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| R           |          | L     |          | D      | L       | F     | B      | γ  | h     |                                                                                     |                                                                                     |                                                                                     |
| S06H"       | STUPR-11 | S06H" | STUPL-11 | .375"  | 3.937"  | .276" | .512"  | 5° | .336" | TP.. 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| S08K"       | STUPR-11 | S08K" | STUPL-11 | .500"  | 4.921"  | .354" | .630"  | 3° | .461" | TP.. 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| S10Q"       | STUPR-11 | S10Q" | STUPL-11 | .625"  | 7.086"  | .433" | .787"  | 2° | .586" | TP.. 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| S10Q"       | STUPR-16 | S10Q" | STUPL-16 | .625"  | 7.086"  | .433" | .787"  | 4° | .586" | TP.. 16T3..                                                                         | T35.084                                                                             | T15H                                                                                |
| S12R"       | STUPR-16 | S12R" | STUPL-16 | .750"  | 7.874"  | .512" | .945"  | 2° | .711" | TP.. 16T3..                                                                         | T35.084                                                                             | T15H                                                                                |
| S16S"       | STUPR-16 | S16S" | STUPL-16 | 1.0"   | 9.842"  | .669" | 1.181" | 0° | .921" | TP.. 16T3..                                                                         | T35.084                                                                             | T15H                                                                                |
| A06H"       | STUPR-11 | A06H" | STUPL-11 | .375"  | 3.937"  | .276" | .512"  | 5° | .336" | TP.. 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| A08K"       | STUPR-11 | A08K" | STUPL-11 | .500"  | 4.921"  | .354" | .630"  | 3° | .461" | TP.. 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| A10Q"       | STUPR-11 | A10Q" | STUPL-11 | .625"  | 7.086"  | .433" | .787"  | 2° | .586" | TP.. 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| A10Q"       | STUPR-16 | A10Q" | STUPL-16 | .625"  | 7.086"  | .433" | .787"  | 4° | .586" | TP.. 16T3..                                                                         | T35.084                                                                             | T15H                                                                                |
| A12R"       | STUPR-16 | A12R" | STUPL-16 | .750"  | 7.874"  | .512" | .945"  | 2° | .711" | TP.. 16T3..                                                                         | T35.084                                                                             | T15H                                                                                |
| A16S"       | STUPR-16 | A16S" | STUPL-16 | 1.0"   | 9.842"  | .669" | 1.181" | 0° | .921" | TP.. 16T3..                                                                         | T35.084                                                                             | T15H                                                                                |
| E06M"       | STUPR-11 | E06M" | STUPL-11 | .375"  | 5.906"  | .276" | .512"  | 5° | .336" | TP.. 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| E08Q"       | STUPR-11 | E08Q" | STUPL-11 | .500"  | 7.086"  | .354" | .630"  | 3° | .461" | TP.. 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| E10R"       | STUPR-11 | E10R" | STUPL-11 | .625"  | 7.874"  | .433" | .787"  | 2° | .586" | TP.. 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| E10R"       | STUPR-16 | E10R" | STUPL-16 | .625"  | 7.874"  | .433" | .787"  | 4° | .586" | TP.. 16T3..                                                                         | T35.084                                                                             | T15H                                                                                |
| E12S"       | STUPR-16 | E12S" | STUPL-16 | .750"  | 9.842"  | .512" | .945"  | 2° | .711" | TP.. 16T3..                                                                         | T35.084                                                                             | T15H                                                                                |
| E16T"       | STUPR-16 | E16T" | STUPL-16 | 1.0"   | 11.811" | .669" | 1.181" | 0° | .921" | TP.. 16T3..                                                                         | T35.084                                                                             | T15H                                                                                |

Right hand boring bars require left hand inserts and vice versa

S = steel shank

A = steel shank with internal coolant

E = carbide shank with internal coolant

## Tool holders w/ 60° triangle inserts

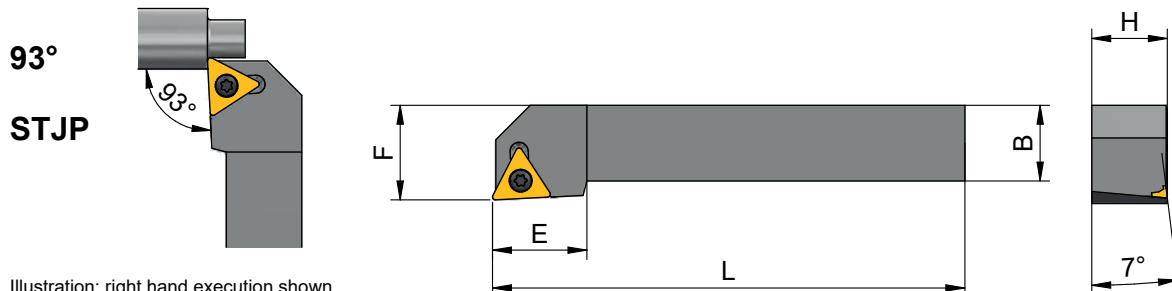
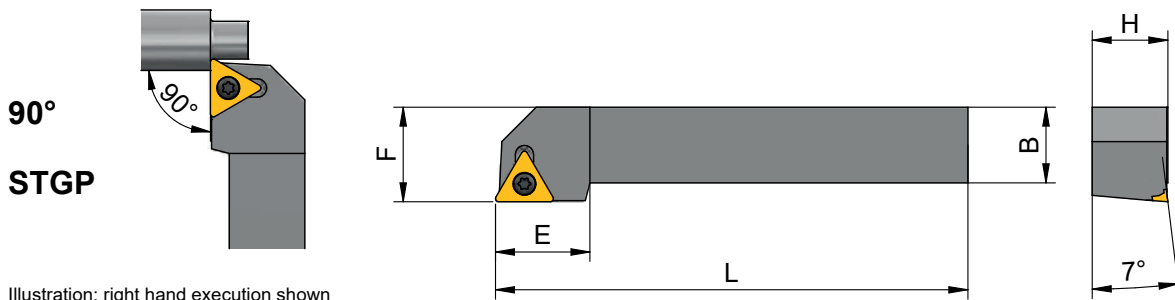


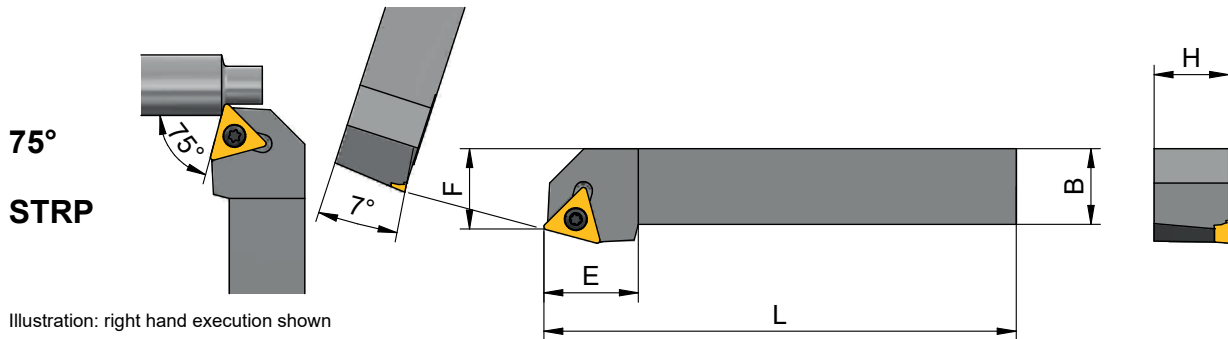
Illustration: right hand execution shown

| Article No.     |                 | [inch] |       |        |       |       |             |         |      |
|-----------------|-----------------|--------|-------|--------|-------|-------|-------------|---------|------|
| R               | L               | H      | B     | L      | E     | F     |             |         |      |
| STJPR "1212 K16 | STJPL "1212 K16 | .750"  | .750" | 4.921" | .984" | .984" | TP.. 16T3.. | T35.084 | T15H |

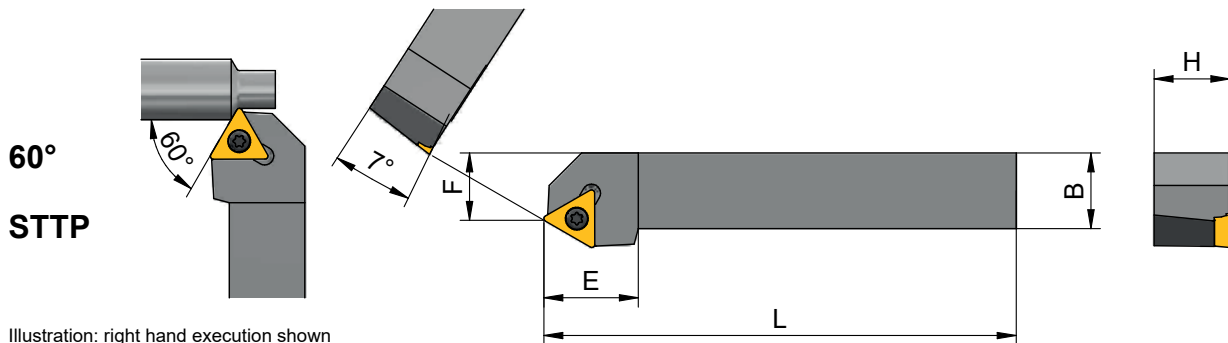
**Tool holders w/ 60° triangle inserts**



| Article No.     |  | [inch] |       |        |       |        |             |         |      |
|-----------------|--|--------|-------|--------|-------|--------|-------------|---------|------|
| R               |  | H      | B     | L      | E     | F      |             |         |      |
| STGPR "1010 H16 |  | .625"  | .625" | 3.937" | .984" | .787"  | TP.. 16T3.. | T35.084 | T15H |
| STGPR "1212 K16 |  | .750"  | .750" | 4.921" | .984" | .984"  | TP.. 16T3.. | T35.084 | T15H |
| STGPR "1616 K16 |  | 1.0"   | 1.0"  | 5.906" | .984" | 1.260" | TP.. 16T3.. | T35.084 | T15H |



| Article No.     |  | [inch] |       |        |       |       |             |         |      |
|-----------------|--|--------|-------|--------|-------|-------|-------------|---------|------|
| R               |  | H      | B     | L      | E     | F     |             |         |      |
| STRPR "1212 K16 |  | .750"  | .750" | 4.921" | .984" | .837" | TP.. 16T3.. | T35.084 | T15H |



| Article No.     |  | [inch] |       |        |       |       |             |         |      |
|-----------------|--|--------|-------|--------|-------|-------|-------------|---------|------|
| R               |  | H      | B     | L      | E     | F     |             |         |      |
| STTPR "1212 K16 |  | .750"  | .750" | 4.921" | .984" | .701" | TP.. 16T3.. | T35.084 | T15H |

**Different dimensions & geometries upon request**

**45°**

**STSP**

Illustration: right hand execution shown

| Article No.            | R | [inch] |       |        |       |       |             |         |      |
|------------------------|---|--------|-------|--------|-------|-------|-------------|---------|------|
|                        |   | H      | B     | L      | E     | F     |             |         |      |
| <b>STSPR "1212 K16</b> |   | .750"  | .750" | 4.921" | .984" | .584" | TP.. 16T3.. | T35.084 | T15H |

**15°**

**STKP**

Illustration: right hand execution shown

| Article No.            | R | [inch] |       |        |       |       |             |         |      |
|------------------------|---|--------|-------|--------|-------|-------|-------------|---------|------|
|                        |   | H      | B     | L      | E     | F     |             |         |      |
| <b>STKPR "1212 K16</b> |   | .750"  | .750" | 4.921" | .984" | .435" | TP.. 16T3.. | T35.084 | T15H |

**0°**

**STFP**

Illustration: right hand execution shown

| Article No.            | R | [inch] |       |        |       |       |             |         |      |
|------------------------|---|--------|-------|--------|-------|-------|-------------|---------|------|
|                        |   | H      | B     | L      | E     | F     |             |         |      |
| <b>STFPR "1212 K16</b> |   | .750"  | .750" | 4.921" | .984" | .984" | TP.. 16T3.. | T35.084 | T15H |

**Different dimensions & geometries upon request**

## Indexable inserts 60° triangle

|     | Article No.                                                                                                                         | [inch] |       |        |       |       |       |        |        |                | DX 2 | DX 20 | DX 30 | DX 50 | DX 52 |  |  |  |  | P 25 | DP 25 | DP 35 | DP 55 |   |
|-----|-------------------------------------------------------------------------------------------------------------------------------------|--------|-------|--------|-------|-------|-------|--------|--------|----------------|------|-------|-------|-------|-------|--|--|--|--|------|-------|-------|-------|---|
|     |                                                                                                                                     | l      | d     | +/-    | s     | +/-   | m     | +/-    | R      | d <sub>1</sub> |      |       |       |       |       |  |  |  |  |      |       |       |       |   |
|     | <b>TPGT 16T304 EN</b><br><b>TPGT 16T308 EN</b>                                                                                      | .650"  | .375" | .001"  | .156" | .051" | .547" | .001"  | .0157" | .171"          |      |       |       |       |       |  |  |  |  |      | ■     | ■     | □     | □ |
|     |                                                                                                                                     |        |       |        |       |       | .531" |        | .0315" |                |      |       |       |       |       |  |  |  |  |      | ■     | ■     | □     | □ |
|     | <b>TPGT 16T304-25</b><br><b>TPGT 16T308-25</b>                                                                                      | .650"  | .375" | .001"  | .156" | .051" | .547" | .001"  | .0157" | .171"          | ■    | ■     | □     | □     | □     |  |  |  |  |      |       |       |       |   |
|     |                                                                                                                                     |        |       |        |       |       | .531" |        | .0315" |                | ■    | ■     | □     | □     | □     |  |  |  |  |      |       |       |       |   |
| *1) | <b>TPHT 110202 ER/L</b><br><b>TPHT 110204 ER/L</b><br><b>TPHT 110208 ER/L</b><br><b>TPHT 16T304 ER/L</b><br><b>TPHT 16T308 ER/L</b> | .433"  | .250" | .0005" | .094" | .001" | .368" | .0005" | .0079" | .112"          |      |       |       |       |       |  |  |  |  |      | ■     | ■     | ■     | □ |
|     |                                                                                                                                     |        |       |        |       |       | .359" |        | .0157" |                |      |       |       |       |       |  |  |  |  |      | ■     | ■     | ■     | □ |
|     |                                                                                                                                     |        |       |        |       |       | .344" |        | .0315" |                |      |       |       |       |       |  |  |  |  |      | ■     | ■     | □     | □ |
|     |                                                                                                                                     | .650"  | .375" | .0005" | .156" | .001" | .547" | .0005" | .0157" | .171"          |      |       |       |       |       |  |  |  |  |      | ■     | ■     | □     | □ |
|     |                                                                                                                                     |        |       |        |       |       | .531" |        | .0315" |                |      |       |       |       |       |  |  |  |  |      | ■     | ■     | □     | □ |
| *1) | <b>TPHT 110202 FR/L</b><br><b>TPHT 110204 FR/L</b><br><b>TPHT 110208 FR/L</b><br><b>TPHT 16T304 FR/L</b><br><b>TPHT 16T308 FR/L</b> | .433"  | .250" | .0005" | .094" | .001" | .368" | .0005" | .0079" | .112"          | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     |                                                                                                                                     |        |       |        |       |       | .359" |        | .0157" |                | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     |                                                                                                                                     |        |       |        |       |       | .344" |        | .0315" |                | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     |                                                                                                                                     | .650"  | .375" | .0005" | .156" | .001" | .547" | .0005" | .0157" | .171"          | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     |                                                                                                                                     |        |       |        |       |       | .531" |        | .0315" |                | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     | <b>TPHW 110202 EN</b><br><b>TPHW 110204 EN</b><br><b>TPHW 110208 EN</b><br><b>TPHW 16T304 EN</b><br><b>TPHW 16T308 EN</b>           | .433"  | .250" | .0005" | .094" | .001" | .368" | .0005" | .0079" | .112"          |      |       |       |       |       |  |  |  |  |      | ■     | ■     | □     | ■ |
|     |                                                                                                                                     |        |       |        |       |       | .359" |        | .0157" |                |      |       |       |       |       |  |  |  |  |      | ■     | ■     | □     | ■ |
|     |                                                                                                                                     |        |       |        |       |       | .344" |        | .0315" |                |      |       |       |       |       |  |  |  |  |      | ■     | □     | □     | ■ |
|     |                                                                                                                                     | .650"  | .375" | .0005" | .156" | .001" | .547" | .0005" | .0157" | .171"          |      |       |       |       |       |  |  |  |  |      | ■     | ■     | □     | ■ |
|     |                                                                                                                                     |        |       |        |       |       | .531" |        | .0315" |                |      |       |       |       |       |  |  |  |  |      | ■     | ■     | □     | ■ |
|     | <b>TPHW 110202 FN</b><br><b>TPHW 110204 FN</b><br><b>TPHW 110208 FN</b><br><b>TPHW 16T304 FN</b><br><b>TPHW 16T308 FN</b>           | .433"  | .250" | .0005" | .094" | .001" | .368" | .0005" | .0079" | .112"          | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     |                                                                                                                                     |        |       |        |       |       | .359" |        | .0157" |                | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     |                                                                                                                                     |        |       |        |       |       | .344" |        | .0315" |                | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     |                                                                                                                                     | .650"  | .375" | .0005" | .156" | .001" | .547" | .0005" | .0157" | .171"          | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     |                                                                                                                                     |        |       |        |       |       | .531" |        | .0315" |                | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     | <b>TPMW 16T304 FN</b><br><b>TPMW 16T308 FN</b>                                                                                      | .650"  | .375" | .002"  | .156" | .051" | .547" | .003"  | .0157" | .171"          | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |
|     |                                                                                                                                     |        |       |        |       |       | .531" |        | .0315" |                | ■    | ■     | □     | □     |       |  |  |  |  |      |       |       |       |   |

\*1) Right hand execution shown

■ stock item

□ upon request

TP11



TP16





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## Boring bars

95°

SCLC

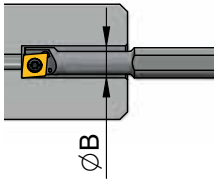
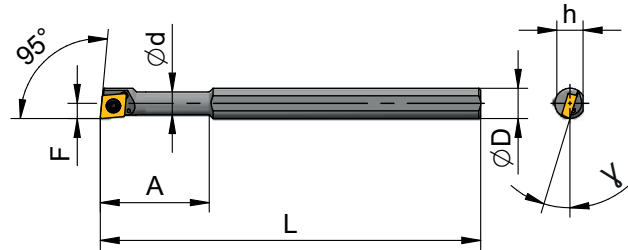


Illustration: right hand execution shown



| Article No.      |                  | [inch] |       |        |       |                  |        |     |       |             |         |     |  |  |
|------------------|------------------|--------|-------|--------|-------|------------------|--------|-----|-------|-------------|---------|-----|--|--|
| R                | L                | D      | d     | L      | F     | B <sub>min</sub> | A      | γ   | h     |             |         |     |  |  |
| A0605H" SCLCR-06 | A0605H" SCLCL-06 | .313"  | .236" | 3.937" | .157" | .335"            | .787"  | 17° | .273" | CC.. 0602.. | T25.055 | T7F |  |  |
| A0806J" SCLCR-06 | A0806J" SCLCL-06 | .375"  | .315" | 4.331" | .236" | .433"            | 1.024" | 15° | .336" | CC.. 0602.. | T25.055 | T7F |  |  |
| A1008K" SCLCR-06 | A1008K" SCLCL-06 | .500"  | .394" | 4.921" | .276" | .512"            | 1.260" | 13° | .461" | CC.. 0602.. | T25.055 | T7F |  |  |
| A1210M" SCLCR-06 | A1210M" SCLCL-06 | .625"  | .472" | 5.906" | .354" | .630"            | 1.575" | 10° | .586" | CC.. 0602.. | T25.055 | T7F |  |  |
| E0605H" SCLCR-06 | E0605H" SCLCL-06 | .313"  | .236" | 3.937" | .157" | .335"            | 1.260" | 17° | .273" | CC.. 0602.. | T25.055 | T7F |  |  |
| E0806J" SCLCR-06 | E0806J" SCLCL-06 | .375"  | .315" | 4.331" | .236" | .433"            | 1.417" | 15° | .336" | CC.. 0602.. | T25.055 | T7F |  |  |
| E1008K" SCLCR-06 | E1008K" SCLCL-06 | .500"  | .394" | 4.921" | .276" | .512"            | 1.732" | 13° | .461" | CC.. 0602.. | T25.055 | T7F |  |  |
| E1210M" SCLCR-06 | E1210M" SCLCL-06 | .625"  | .472" | 5.906" | .354" | .630"            | 2.283" | 10° | .586" | CC.. 0602.. | T25.055 | T7F |  |  |

95°

SCLC

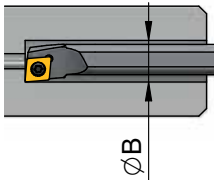
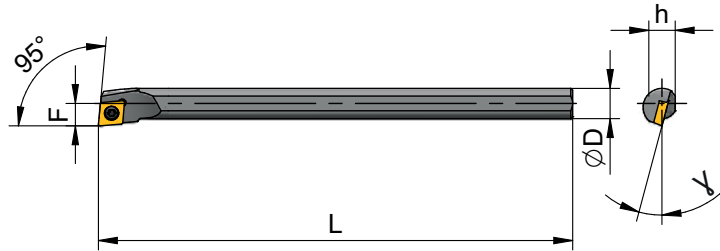


Illustration: right hand execution shown



| Article No.    |                | [inch] |         |       |                  |     |       |             |         |      |  |  |
|----------------|----------------|--------|---------|-------|------------------|-----|-------|-------------|---------|------|--|--|
| R              | L              | D      | L       | F     | B <sub>min</sub> | γ   | h     |             |         |      |  |  |
| A05F" SCLCR-06 | A05F" SCLCL-06 | .313"  | 3.150"  | .236" | .433"            | 13° | .273" | CC.. 0602.. | T25.055 | T7F  |  |  |
| A06H" SCLCR-06 | A06H" SCLCL-06 | .375"  | 3.937"  | .276" | .512"            | 8°  | .336" | CC.. 0602.. | T25.055 | T7F  |  |  |
| A08K" SCLCR-06 | A08K" SCLCL-06 | .500"  | 4.921"  | .354" | .630"            | 6°  | .461" | CC.. 0602.. | T25.055 | T7F  |  |  |
| A10M" SCLCR-06 | A10M" SCLCL-06 | .625"  | 5.906"  | .433" | .787"            | 5°  | .586" | CC.. 0602.. | T25.055 | T7F  |  |  |
| A10M" SCLCR-09 | A10M" SCLCL-09 | .625"  | 5.906"  | .433" | .827"            | 7°  | .586" | CC.. 09T3.. | T35.084 | T15H |  |  |
| A12Q" SCLCR-09 | A12Q" SCLCL-09 | .750"  | 7.087"  | .512" | .984"            | 7°  | .711" | CC.. 09T3.. | T35.084 | T15H |  |  |
| A16R" SCLCR-09 | A16R" SCLCL-09 | 1.0"   | 7.874"  | .669" | 1.240"           | 6°  | .921" | CC.. 09T3.. | T35.084 | T15H |  |  |
| E05K" SCLCR-06 | E05K" SCLCL-06 | .313"  | 4.921"  | .236" | .433"            | 13° | .273" | CC.. 0602.. | T25.055 | T7F  |  |  |
| E06M" SCLCR-06 | E06M" SCLCL-06 | .375"  | 5.906"  | .276" | .512"            | 8°  | .336" | CC.. 0602.. | T25.055 | T7F  |  |  |
| E08Q" SCLCR-06 | E08Q" SCLCL-06 | .500"  | 7.087"  | .354" | .630"            | 6°  | .416" | CC.. 0602.. | T25.055 | T7F  |  |  |
| E10R" SCLCR-06 | E10R" SCLCL-06 | .625"  | 7.874"  | .433" | .787"            | 5°  | .586" | CC.. 0602.. | T25.055 | T7F  |  |  |
| E10R" SCLCR-09 | E10R" SCLCL-09 | .625"  | 7.874"  | .433" | .827"            | 7°  | .586" | CC.. 09T3.. | T35.084 | T15H |  |  |
| E12S" SCLCR-09 | E12S" SCLCL-09 | .750"  | 9.843"  | .512" | .984"            | 7°  | .711" | CC.. 09T3.. | T35.084 | T15H |  |  |
| E16T" SCLCR-09 | E16T" SCLCL-09 | 1.0"   | 11.811" | .669" | 1.240"           | 6°  | .921" | CC.. 09T3.. | T35.084 | T15H |  |  |

A = steel shank with internal coolant    E = carbide shank with internal coolant



## Boring bars

107.5°

SDQC

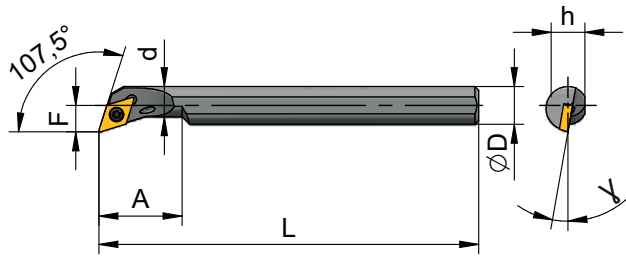
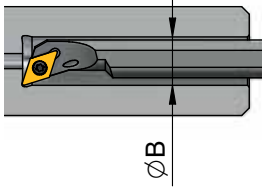


Illustration: right hand execution shown

| Article No.      |                  | [inch] |       |        |       |                  |        |     |       |             |         |     |
|------------------|------------------|--------|-------|--------|-------|------------------|--------|-----|-------|-------------|---------|-----|
| R                | L                | D      | d     | L      | F     | B <sub>min</sub> | A      | γ   | h     |             |         |     |
| A0806H" SDQCR-07 | A0806H" SDQCL-07 | .375"  | .315" | 3.937" | .276" | .472"            | .866"  | 10° | .336" | DC.. 0702.. | T25.055 | T7F |
| A1008K" SDQCR-07 | A1008K" SDQCL-07 | .500"  | .394" | 4.921" | .354" | .591"            | 1.102" | 8°  | .461" | DC.. 0702.. | T25.055 | T7F |
| A1210M" SDQCR-07 | A1210M" SDQCL-07 | .625"  | .472" | 5.906" | .433" | .709"            | 1.417" | 6°  | .586" | DC.. 0702.. | T25.055 | T7F |

107.5°

SDQC

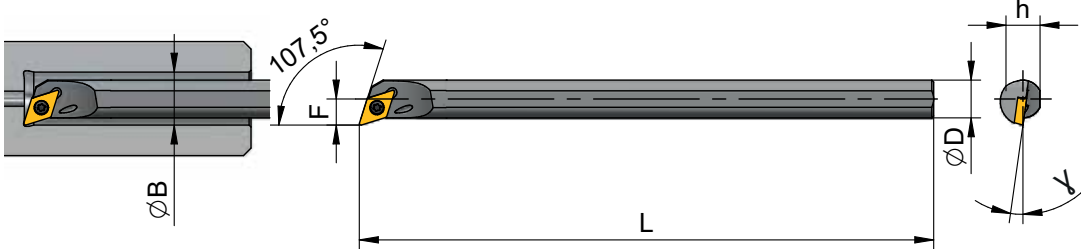


Illustration: right hand execution shown

| Article No.    |                | [inch] |         |       |                  |    |       |             |         |      |  |  |
|----------------|----------------|--------|---------|-------|------------------|----|-------|-------------|---------|------|--|--|
| R              | L              | D      | L       | F     | B <sub>min</sub> | γ  | h     |             |         |      |  |  |
| A06H" SDQCR-07 | A06H" SDQCL-07 | .375"  | 3.937"  | .276" | .551"            | 8° | .336" | DC.. 0702.. | T25.055 | T7F  |  |  |
| A08K" SDQCR-07 | A08K" SDQCL-07 | .500"  | 4.921"  | .354" | .669"            | 6° | .461" | DC.. 0702.. | T25.055 | T7F  |  |  |
| A10M" SDQCR-07 | A10M" SDQCL-07 | .625"  | 5.906"  | .433" | .827"            | 6° | .586" | DC.. 0702.. | T25.055 | T7F  |  |  |
| A12Q" SDQCR-07 | A12Q" SDQCL-07 | .750"  | 7.087"  | .512" | .984"            | 5° | .711" | DC.. 0702.. | T25.055 | T7F  |  |  |
| A12Q" SDQCR-11 | A12Q" SDQCL-11 | .750"  | 7.087"  | .512" | .984"            | 8° | .711" | DC.. 11T3.. | T35.084 | T15H |  |  |
| A16R" SDQCR-11 | A16R" SDQCL-11 | 1.0"   | 7.874"  | .669" | 1.240"           | 6° | .921" | DC.. 11T3.. | T35.084 | T15H |  |  |
| E06M" SDQCR-07 | E06M" SDQCL-07 | .375"  | 5.906"  | .276" | .551"            | 8° | .336" | DC.. 0702.. | T25.055 | T7F  |  |  |
| E08Q" SDQCR-07 | E08Q" SDQCL-07 | .500"  | 7.087"  | .354" | .669"            | 6° | .461" | DC.. 0702.. | T25.055 | T7F  |  |  |
| E10R" SDQCR-07 | E10R" SDQCL-07 | .625"  | 7.874"  | .433" | .827"            | 6° | .586" | DC.. 0702.. | T25.055 | T7F  |  |  |
| E12S" SDQCR-07 | E12S" SDQCL-07 | .750"  | 9.843"  | .512" | .984"            | 5° | .711" | DC.. 0702.. | T25.055 | T7F  |  |  |
| E12S" SDQCR-11 | E12S" SDQCL-11 | .750"  | 9.843"  | .512" | .984"            | 8° | .711" | DC.. 11T3.. | T35.084 | T15H |  |  |
| E16T" SDQCR-11 | E16T" SDQCL-11 | 1.0"   | 11.811" | .669" | 1.240"           | 6° | .921" | DC.. 11T3.. | T35.084 | T15H |  |  |

A = steel shank with internal coolant    E = carbide shank with internal coolant

93°  
SDUC

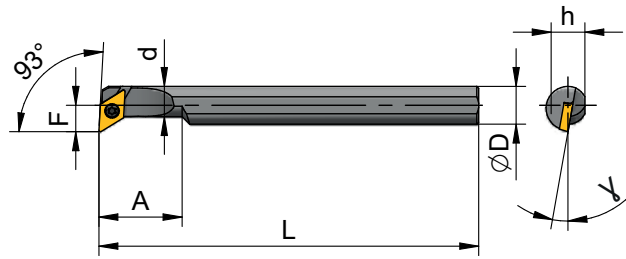
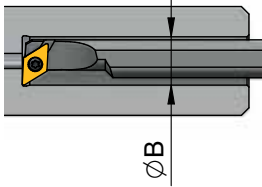


Illustration: right hand execution shown

| Article No.      |                  | [inch] |       |        |       |                  |        |     |       |             |         |     |
|------------------|------------------|--------|-------|--------|-------|------------------|--------|-----|-------|-------------|---------|-----|
| R                | L                | D      | d     | L      | F     | B <sub>min</sub> | A      | γ   | h     |             |         |     |
| A0806H" SDUCR-07 | A0806H" SDUCL-07 | .375"  | .315" | 3.937" | .276" | .472"            | .866"  | 10° | .336" | DC.. 0702.. | T25.055 | T7F |
| A1008K" SDUCR-07 | A1008K" SDUCL-07 | .500"  | .394" | 4.921" | .354" | .591"            | 1.102" | 8°  | .461" | DC.. 0702.. | T25.055 | T7F |
| A1210M" SDUCR-07 | A1210M" SDUCL-07 | .625"  | .472" | 5.906" | .433" | .709"            | 1.417" | 6°  | .586" | DC.. 0702.. | T25.055 | T7F |

93°  
SDUC

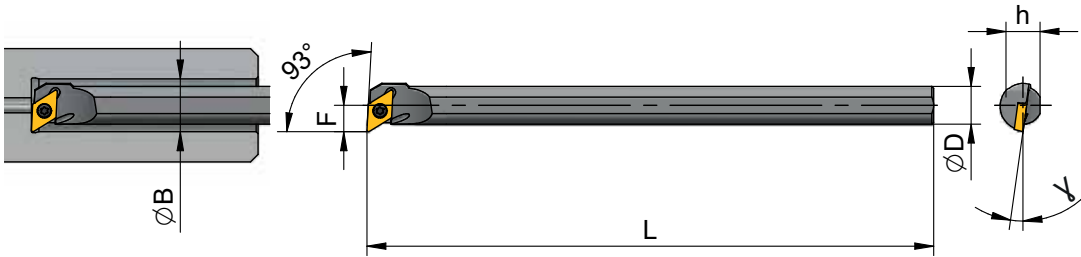


Illustration: right hand execution shown

| Article No.    |                | [inch] |         |       |                  |    |       |             |         |      |  |  |
|----------------|----------------|--------|---------|-------|------------------|----|-------|-------------|---------|------|--|--|
| R              | L              | D      | L       | F     | B <sub>min</sub> | γ  | h     |             |         |      |  |  |
| A06H" SDUCR-07 | A06H" SDUCL-07 | .375"  | 3.937"  | .276" | .551"            | 8° | .336" | DC.. 0702.. | T25.055 | T7F  |  |  |
| A08K" SDUCR-07 | A08K" SDUCL-07 | .500"  | 4.921"  | .354" | .669"            | 6° | .461" | DC.. 0702.. | T25.055 | T7F  |  |  |
| A10M" SDUCR-07 | A10M" SDUCL-07 | .625"  | 5.906"  | .433" | .827"            | 6° | .586" | DC.. 0702.. | T25.055 | T7F  |  |  |
| A12Q" SDUCR-07 | A12Q" SDUCL-07 | .750"  | 7.087"  | .512" | .984"            | 5° | .711" | DC.. 0702.. | T25.055 | T7F  |  |  |
| A12Q" SDUCR-11 | A12Q" SDUCL-11 | .750"  | 7.087"  | .512" | .984"            | 8° | .711" | DC.. 11T3.. | T35.084 | T15H |  |  |
| A16R" SDUCR-11 | A16R" SDUCL-11 | 1.0"   | 7.874"  | .669" | 1.240"           | 6° | .921" | DC.. 11T3.. | T35.084 | T15H |  |  |
| E06M" SDUCR-07 | E06M" SDUCL-07 | .375"  | 5.906"  | .276" | .551"            | 8° | .336" | DC.. 0702.. | T25.055 | T7F  |  |  |
| E08Q" SDUCR-07 | E08Q" SDUCL-07 | .500"  | 7.087"  | .354" | .669"            | 6° | .461" | DC.. 0702.. | T25.055 | T7F  |  |  |
| E10R" SDUCR-07 | E10R" SDUCL-07 | .625"  | 7.874"  | .433" | .827"            | 6° | .586" | DC.. 0702.. | T25.055 | T7F  |  |  |
| E12S" SDUCR-07 | E12S" SDUCL-07 | .750"  | 9.843"  | .512" | .984"            | 5° | .711" | DC.. 0702.. | T25.055 | T7F  |  |  |
| E12S" SDUCR-11 | E12S" SDUCL-11 | .750"  | 9.843"  | .512" | .984"            | 8° | .711" | DC.. 11T3.. | T35.084 | T15H |  |  |
| E16T" SDUCR-11 | E16T" SDUCL-11 | 1.0"   | 11.811" | .669" | 1.240"           | 6° | .921" | DC.. 11T3.. | T35.084 | T15H |  |  |

A = steel shank with internal coolant    E = carbide shank with internal coolant

## Boring bar

93°

SDXC

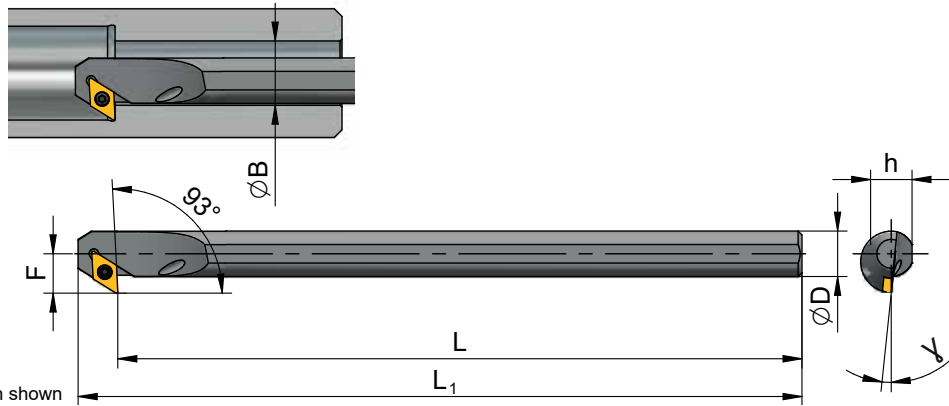


Illustration: right hand execution shown

| Article No.    |                | [inch] |         |                |       |                  |    |       |             |         |      |  |
|----------------|----------------|--------|---------|----------------|-------|------------------|----|-------|-------------|---------|------|--|
| R              | L              | D      | L       | L <sub>1</sub> | F     | B <sub>min</sub> | γ  | h     |             |         |      |  |
| A08K" SDXCR-07 | A08K" SDXCL-07 | .500"  | 4.921"  | 5.354"         | .413" | .669"            | 6° | .461" | DC.. 0702   | T25.055 | T7F  |  |
| A10M" SDXCR-07 | A10M" SDXCL-07 | .625"  | 5.906"  | 6.339"         | .492" | .827"            | 4° | .586" | DC.. 0702   | T25.055 | T7F  |  |
| A12Q" SDXCR-11 | A12Q" SDXCL-11 | .750"  | 7.087"  | 7.677"         | .787" | 1.220"           | 6° | .711" | DC.. 11T3.. | T35.084 | T15H |  |
| A16R" SDXCR-11 | A16R" SDXCL-11 | 1.0"   | 7.874"  | 8.543"         | .886" | 1.417"           | 4° | .921" | DC.. 11T3.. | T35.084 | T15H |  |
| E08Q" SDXCR-07 | E08Q" SDXCL-07 | .500"  | 7.087"  | 7.520"         | .413" | .669"            | 6° | .461" | DC.. 0702   | T25.055 | T7F  |  |
| E10R" SDXCR-07 | E10R" SDXCL-07 | .625"  | 7.874"  | 8.307"         | .492" | .827"            | 4° | .586" | DC.. 0702   | T25.055 | T7F  |  |
| E12S" SDXCR-11 | E12S" SDXCL-11 | .750"  | 9.843"  | 10.433"        | .787" | 1.220"           | 6° | .711" | DC.. 11T3.. | T35.084 | T15H |  |
| E16T" SDXCR-11 | E16T" SDXCL-11 | 1.0"   | 11.811" | 12.402"        | .886" | 1.417"           | 4° | .921" | DC.. 11T3.. | T35.084 | T15H |  |

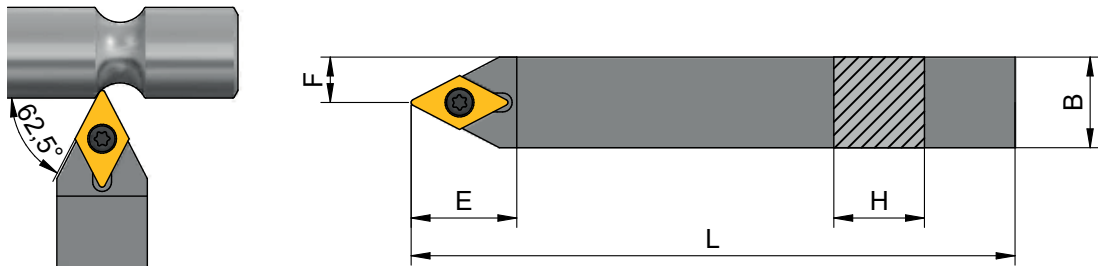
A = steel shank with internal coolant

E = carbide shank with internal coolant

## External Tool holders

62.5°

SDNC



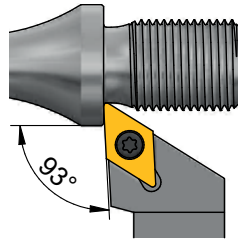
| Article No.    | [inch] |       |        |       |       |                 | Anvil       |      |             |         |      |  |
|----------------|--------|-------|--------|-------|-------|-----------------|-------------|------|-------------|---------|------|--|
|                | H      | B     | L      | E     | F     |                 |             |      |             |         |      |  |
| SDNCN"0505 D07 | .313"  | .313" | 2.362" | .551" | .157" |                 |             |      | DC.. 0702.. | T25.055 | T7F  |  |
| SDNCN"0606 E07 | .375"  | .375" | 2.756" | .551" | .197" |                 |             |      | DC.. 0702.. | T25.055 | T7F  |  |
| SDNCN"0808 F07 | .500"  | .500" | 3.150" | .551" | .236" |                 |             |      | DC.. 0702.. | T25.055 | T7F  |  |
| SDNCN"1010 H11 | .625"  | .625" | 3.937" | .827" | .315" | U1107 DC11N 318 | TU50 35 079 | T35S | DC.. 11T3.. | T35.110 | T15H |  |
| SDNCN"1212 K11 | .750"  | .750" | 4.921" | .827" | .394" | U1107 DC11N 318 | TU50 35 079 | T35S | DC.. 11T3.. | T35.110 | T15H |  |
| SDNCN"1616 M11 | 1.0"   | 1.0"  | 5.906" | .827" | .492" | U1107 DC11N 318 | TU50 35 079 | T35S | DC.. 11T3.. | T35.110 | T15H |  |

## External Tool holders

93°

SDJC

Illustration: right hand execution shown

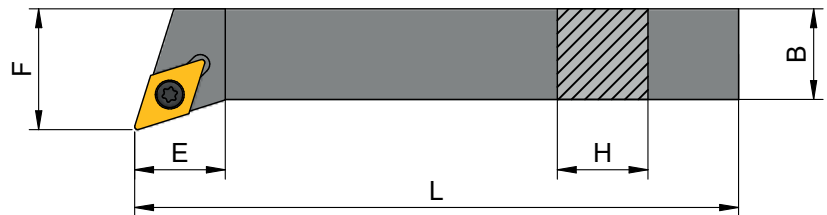
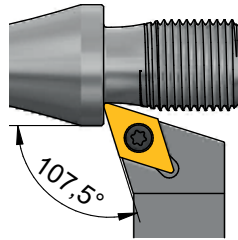


| Article No.     |                 | [inch] |       |        |       |        |                 | Anvil       |      |             |             |         |     |  |
|-----------------|-----------------|--------|-------|--------|-------|--------|-----------------|-------------|------|-------------|-------------|---------|-----|--|
| R               | L               | H      | B     | L      | E     | F      |                 |             |      |             |             |         |     |  |
| SDJCR "0505 D07 | SDJCL "0505 D07 | .313"  | .313" | 2.362" | .512" | .394"  |                 |             |      |             | DC.. 0702.. | T25.055 | T7F |  |
| SDJCR "0606 E07 | SDJCL "0606 E07 | .375"  | .375" | 2.756" | .512" | .472"  |                 |             |      |             | DC.. 0702.. | T25.055 | T7F |  |
| SDJCR "0808 F07 | SDJCL "0808 F07 | .500"  | .500" | 3.150" | .571" | .630"  |                 |             |      |             | DC.. 0702.. | T25.055 | T7F |  |
| SDJCR "1010 H11 | SDJCL "1010 H11 | .625"  | .625" | 3.937" | .787" | .787"  | U1107 DC11N 318 | TU50 35 079 | T35S | DC.. 11T3.. | T35.110     | T15H    |     |  |
| SDJCR "1212 K11 | SDJCL "1212 K11 | .750"  | .750" | 4.921" | .807" | .984"  | U1107 DC11N 318 | TU50 35 079 | T35S | DC.. 11T3.. | T35.110     | T15H    |     |  |
| SDJCR "1616 M11 | SDJCL "1616 M11 | 1.0"   | 1.0"  | 5.906" | .846" | 1.260" | U1107 DC11N 318 | TU50 35 079 | T35S | DC.. 11T3.. | T35.110     | T15H    |     |  |

107.5°

SDHC

Illustration: right hand execution shown

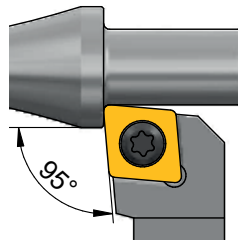


| Article No.     |                 | [inch] |       |        |       |        |                 | Anvil       |      |             |             |         |     |  |
|-----------------|-----------------|--------|-------|--------|-------|--------|-----------------|-------------|------|-------------|-------------|---------|-----|--|
| R               | L               | H      | B     | L      | E     | F      |                 |             |      |             |             |         |     |  |
| SDHCR "0606 E07 | SDHCL "0606 E07 | .375"  | .375" | 2.756" | .394" | .472"  |                 |             |      |             | DC.. 0702.. | T25.055 | T7F |  |
| SDHCR "0808 F07 | SDHCL "0808 F07 | .500"  | .500" | 3.150" | .472" | .630"  |                 |             |      |             | DC.. 0702.. | T25.055 | T7F |  |
| SDHCR "1010 H11 | SDHCL "1010 H11 | .625"  | .625" | 3.937" | .413" | .787"  | U1107 DC11N 318 | TU50 35 079 | T35S | DC.. 11T3.. | T35.110     | T15H    |     |  |
| SDHCR "1212 K11 | SDHCL "1212 K11 | .750"  | .750" | 4.921" | .551" | .984"  | U1107 DC11N 318 | TU50 35 079 | T35S | DC.. 11T3.. | T35.110     | T15H    |     |  |
| SDHCR "1616 M11 | SDHCL "1616 M11 | 1.0"   | 1.0"  | 5.906" | .787" | 1.260" | U1107 DC11N 318 | TU50 35 079 | T35S | DC.. 11T3.. | T35.110     | T15H    |     |  |

95°

SCLC

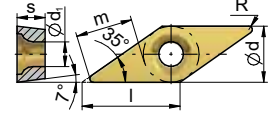
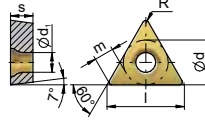
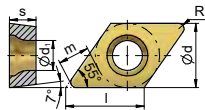
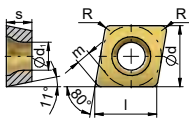
Illustration: right hand execution shown

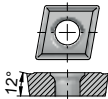
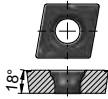
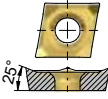
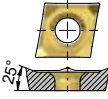
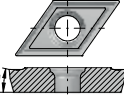
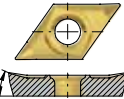
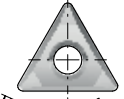
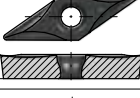
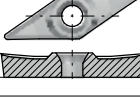


| Article No.     |                 | [inch] |       |        |       |       |                 | Anvil       |      |             |             |         |      |  |
|-----------------|-----------------|--------|-------|--------|-------|-------|-----------------|-------------|------|-------------|-------------|---------|------|--|
| R               | L               | H      | B     | L      | E     | F     |                 |             |      |             |             |         |      |  |
| SCLCR "0505 D06 | SCLCL "0505 D06 | .313"  | .313" | 2.362" | .354" | .394" |                 |             |      |             | CC.. 0602.. | T25.055 | T7F  |  |
| SCLCR "0606 E06 | SCLCL "0606 E06 | .375"  | .375" | 2.756" | .354" | .472" |                 |             |      |             | CC.. 0602.. | T25.055 | T7F  |  |
| SCLCR "0808 F09 | SCLCL "0808 F09 | .500"  | .500" | 3.150" | .591" | .630" |                 |             |      |             | CC.. 09T3.. | T35.110 | T15H |  |
| SCLCR "1010 H09 | SCLCL "1010 H09 | .625"  | .625" | 3.937" | .669" | .787" | U1206 CC09N 238 | TU50 35 079 | T35S | CC.. 09T3.. | T35.110     | T15H    |      |  |
| SCLCR "1212 K09 | SCLCL "1212 K09 | .750"  | .750" | 4.921" | .669" | .984" | U1206 CC09N 238 | TU50 35 079 | T35S | CC.. 09T3.. | T35.110     | T15H    |      |  |



## Indexable inserts



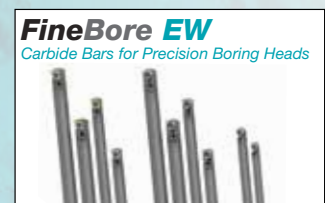
|                                                                                     | Article No.                                                                                                      | [inch] |       |       |       |       |        |       |        |                | DX 2 | DX 20 | DX 30 | DX 32 | DT 55 | DT 255 | DT 355 |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|------|-------|-------|-------|-------|--------|--------|
|                                                                                     |                                                                                                                  | l      | d     | +/-   | s     | +/-   | m      | +/-   | r      | d <sub>1</sub> |      |       |       |       |       |        |        |
|    | <b>CCGT 09T304 EN</b>                                                                                            | .382"  | .375" | .001" | .156" | .005" | .0954" | .001" | .0157" | .173"          |      |       |       |       | ■     | □      | □      |
|    | <b>CCGT 09T302 FN-18M</b><br><b>CCGT 09T304 FN-18M</b><br><i>M: Top face polished</i>                            | .382"  | .375" | .001" | .156" | .005" | .0998" | .001" | .0079" | .173"          | ■    |       |       | ■     |       |        |        |
|    | <b>CCGT 060201 FN-250</b><br><b>CCGT 060202 FN-250</b><br><b>CCGT 060204 FN-250</b>                              | .252"  | .250" | .001" | .094" | .005" | .0671" | .001" | .0039" | .110"          | ■    | □     | □     |       |       |        |        |
|                                                                                     | <b>CCGT 09T301 FN-250</b><br><b>CCGT 09T302 FN-250</b><br><b>CCGT 09T304 FN-250</b><br><b>CCGT 09T308 FN-250</b> | .382"  | .375" | .001" | .156" | .005" | .1019" | .001" | .0039" | .173"          | □    | □     | □     |       |       |        |        |
|                                                                                     | <b>CCGT 120402 FN-250</b><br><b>CCGT 120404 FN-250</b><br><b>CCGT 120408 FN-250</b>                              | .508"  | .500" | .001" | .187" | .005" | .1345" | .001" | .0079" | .217"          | ■    | □     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .0650" |       | .0079" |                | ■    | ■     | ■     |       |       |        |        |
|    | <b>CCGT 09T301 FN-250</b><br><b>CCGT 09T302 FN-250</b><br><b>CCGT 09T304 FN-250</b><br><b>CCGT 09T308 FN-250</b> | .382"  | .375" | .001" | .156" | .005" | .1019" | .001" | .0039" | .173"          | □    | □     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .0998" |       | .0079" |                | ■    | ■     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .0954" |       | .0157" |                | ■    | ■     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .0867" |       | .0315" |                | ■    | □     | □     |       |       |        |        |
|  | <b>DCGT 11T302 EN</b>                                                                                            | .457"  | .375" | .001" | .156" | .005" | .2093" | .001" | .0079" | .173"          |      |       |       |       | ■     | □      | □      |
|                                                                                     | <b>DCGT 11T302-15</b><br><b>DCGT 11T304-15</b>                                                                   | .457"  | .375" | .001" | .156" | .005" | .2093" | .001" | .0079" | .173"          | ■    |       |       | ■     |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .2001" |       | .0157" |                | ■    |       |       | ■     |       |        |        |
|                                                                                     | <b>DCGT 070201 FN-250</b><br><b>DCGT 070202 FN-250</b><br><b>DCGT 070204 FN-250</b>                              | .303"  | .250" | .001" | .094" | .005" | .1411" | .001" | .0079" | .110"          | ■    | □     | □     |       |       |        |        |
|  | <b>DCGT 11T301 FN-250</b><br><b>DCGT 11T302 FN-250</b><br><b>DCGT 11T304 FN-250</b><br><b>DCGT 11T308 FN-250</b> | .457"  | .375" | .001" | .156" | .005" | .2139" | .001" | .0039" | .173"          | □    | □     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .2093" |       | .0079" |                | ■    | ■     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .2001" |       | .0157" |                | ■    | ■     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .1817" |       | .0315" |                | ■    | ■     | □     |       |       |        |        |
|  | <b>TCGT 110202 FN-250</b><br><b>TCGT 110204 FN-250</b>                                                           | .433"  | .250" | .001" | .094" | .005" | .3681" | .001" | .0079" | .110"          | ■    | □     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .3591" |       | .0157" |                | ■    | □     | □     |       |       |        |        |
|                                                                                     | <b>TCGT 16T302 FN-250</b><br><b>TCGT 16T304 FN-250</b><br><b>TCGT 16T308 FN-250</b>                              | .650"  | .375" | .001" | .156" | .005" | .5547" | .001" | .0079" | .173"          | ■    | □     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .5469" |       | .0157" |                | ■    | □     | □     |       |       |        |        |
|  | <b>VCGT 110302 FN-18M</b><br><b>VCGT 110304 FN-18M</b><br><i>M: Top face polished</i>                            | .433"  | .250" | .001" | .125" | .005" | .2724" | .001" | .0079" | .110"          | ■    |       |       | ■     |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .2541" |       | .0157" |                | ■    |       |       | ■     |       |        |        |
|                                                                                     | <b>VCGT 110302 FN-250</b><br><b>VCGT 110304 FN-250</b><br><b>VCGT 110308 FN-250</b>                              | .433"  | .250" | .001" | .125" | .005" | .2724" | .001" | .0079" | .114"          | ■    | □     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .2541" |       | .0157" |                | ■    | □     | □     |       |       |        |        |
|  | <b>VCGT 110302 FN-250</b><br><b>VCGT 110304 FN-250</b><br><b>VCGT 110308 FN-250</b>                              | .433"  | .250" | .001" | .125" | .005" | .2724" | .001" | .0079" | .114"          | ■    | □     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .2541" |       | .0157" |                | ■    | □     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .2174" |       | .0315" |                | ■    | □     | □     |       |       |        |        |
|                                                                                     |                                                                                                                  |        |       |       |       |       | .2174" |       | .0315" |                | ■    | □     | □     |       |       |        |        |

■ stock item

□ upon request



# MILLING







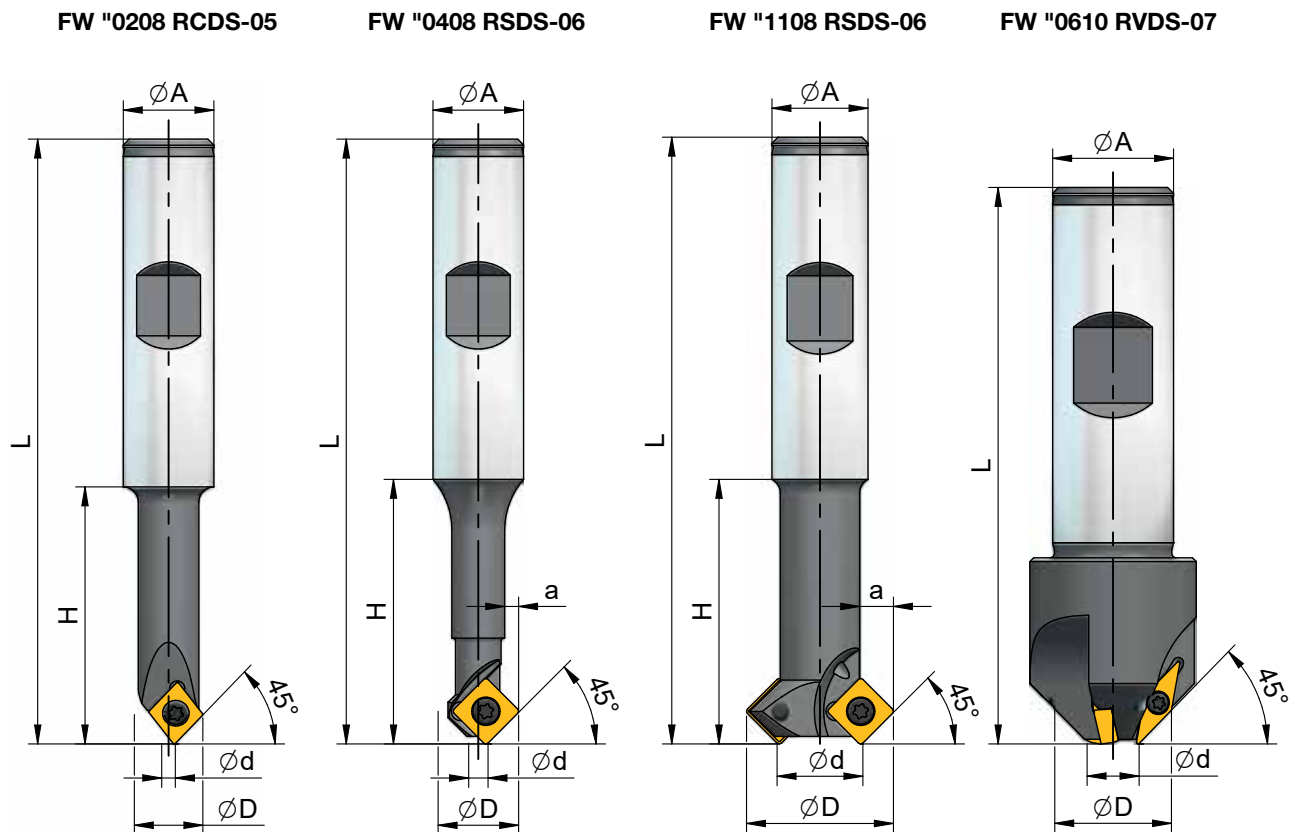
# **MicroCut *F***

## *Chamfer Mills*



**Miniature chamfer milling solution for bore dia. .079" up and corner radii starting at radius .039"**

# Miniature Chamfer Mill



| Article No.             | [inch]           |                  |          |        |        |       |   |     |  |  |
|-------------------------|------------------|------------------|----------|--------|--------|-------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                         | $\phi D_{(max)}$ | $\phi d_{(min)}$ | $\phi A$ | L      | H      | a     | Z |                                                                                                                                                                                                                                                                                                                                                         |                                                                                       |                                                                                       |
| <b>FW "0208 RCDS-05</b> | .374" *          | .079" *          | .500"    | 3.150" | 1.378" | -     | 1 | CP.. 05T1..                                                                                                                                                                                                                                                                                                                                             | T22.045                                                                               | T7F                                                                                   |
| <b>FW "0408 RSDS-06</b> | .433" **         | .154" **         | .500"    | 3.150" | 1.102" | .059" | 1 | SC.. 0602..                                                                                                                                                                                                                                                                                                                                             | T25.055                                                                               | T7F                                                                                   |
| <b>FW "1108 RSDS-06</b> | .768" **         | .449" **         | .500"    | 3.150" | 1.299" | .154" | 2 | SC.. 0602..                                                                                                                                                                                                                                                                                                                                             | T25.055                                                                               | T7F                                                                                   |
| <b>FW "0610 RVDS-07</b> | .618" *          | .270" *          | .625"    | 2.874" | -      | -     | 3 | VC.. 0702                                                                                                                                                                                                                                                                                                                                               | T20.055                                                                               | T6F                                                                                   |

Z Number of teeth

\* Insert with  $r=0.2\text{mm}$  ( $r=.008"$ )

\*\* Insert with  $r=0.4\text{mm}$  ( $r=.016"$ )

Additional executions upon request



## Indexable inserts

|         | Article No.       | [inch] |       |       |       |       |        |       |        | DX 2           | P 25 | DC 15 | DX 20 | DP 25 | DX 30 | DP 32 | DX 35 | DP 50 | DX 55 | DX 52 | DP 57 | DX 70 | DT 55 | DT 255 | DT 355 |
|---------|-------------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
|         |                   | l      | d     | +/-   | s     | +/-   | m      | +     | R      | d <sub>1</sub> |      |       |       |       |       |       |       |       |       |       |       |       |       |        |        |
| <br>12° | CPET 05T102 FR    | .220"  | .219" | .001" | .076" | .001" | .0564" | .001" | .0079" | .098"          | ■    |       | ■     |       | ■     |       | ■     |       | □     |       |       |       |       |        |        |
|         | CPET 05T104 FR    |        |       |       |       |       | .0521" |       | .0157" |                | ■    |       | ■     |       | ■     |       | ■     |       | □     |       |       |       |       |        |        |
| <br>10° | CPGT 05T102 EN    | .220"  | .219" | .001" | .076" | .005" | .0564" | .001" | .0079" | .098"          | ■    | ■     |       |       | ■     |       | ■     |       | □     |       |       |       | ■     | ■      | ■      |
|         | CPGT 05T104 EN    |        |       |       |       |       | .0521" |       | .0157" |                | ■    | ■     |       | ■     |       | ■     |       | ■     |       | □     |       | ■     | ■     | ■      | ■      |
| <br>10° | CPGT 05T102 FN    | .220"  | .219" | .001" | .076" | .005" | .0564" | .001" | .0079" | .098"          | ■    |       | ■     |       | ■     |       | ■     |       | □     |       |       |       |       |        |        |
|         | CPGT 05T104 FN    |        |       |       |       |       | .0521" |       | .0157" |                | ■    |       | ■     |       | ■     |       | ■     |       | □     |       |       |       |       |        |        |
| <br>20° | CPGT 05T102 FN-20 | .220"  | .219" | .001" | .076" | .005" | .0564" | .001" | .0079" | .098"          | ■    |       | ■     |       | ■     |       | ■     |       | □     |       |       |       |       |        |        |
|         | CPGT 05T104 FN-20 |        |       |       |       |       | .0521" |       | .0157" |                | ■    |       | ■     |       | ■     |       | ■     |       | □     |       |       |       |       |        |        |
| <br>10° | CPGW 05T102 FN    | .220"  | .219" | .001" | .076" | .005" | .0564" | .001" | .0079" | .098"          | ■    |       | ■     |       | ■     |       | ■     |       | □     |       |       |       |       |        |        |
|         | CPGW 05T104 FN    |        |       |       |       |       | .0521" |       | .0157" |                | ■    |       | ■     |       | ■     |       | ■     |       | □     |       |       |       |       |        |        |
| <br>15° | SCGT 060202 EN    | .250"  | .250" | .002" | .094" | .005" | .0485" | .001" | .0079" | .110"          | ■    | ■     |       |       |       |       |       |       |       |       |       |       |       |        |        |
|         | SCGT 060204 EN    |        |       |       |       |       | .0455" |       | .0157" |                | ■    | ■     |       |       |       |       |       |       |       |       |       |       |       |        |        |
| <br>15° | SCGT 060202 FN    | .250"  | .250" | .002" | .094" | .005" | .0485" | .001" | .0079" | .110"          | ■    |       |       |       | ■     |       |       |       |       |       |       |       |       |        |        |
|         | SCGT 060204 FN    |        |       |       |       |       | .0455" |       | .0157" |                | ■    |       |       |       | ■     |       |       |       |       |       |       |       |       |        |        |
| <br>25° | SCGT 060202 FN-25 | .250"  | .250" | .002" | .094" | .005" | .0453" | .003" | .0157" | .110"          | ■    |       | ■     |       | ■     |       | □     |       |       |       |       |       |       |        |        |
|         |                   |        |       |       |       |       |        |       |        |                |      |       |       |       |       |       |       |       |       |       |       |       |       |        |        |
| <br>12° | VCGT 070202-08 FR | .272"  | .156" | .001" | .094" | .002" | .1634" | .001" | .0079" | .087"          | ■    |       | ■     |       | ■     |       | □     |       |       |       |       |       |       |        |        |
|         | VCGT 070204-08 FR |        |       |       |       |       | .1453" |       | .0157" |                | ■    |       | ■     |       | ■     |       | □     |       |       |       |       |       |       |        |        |
| <br>12° | VCGT 070202-12    | .272"  | .156" | .001" | .094" | .002" | .1634" | .001" | .0079" | .087"          | ■    |       | ■     |       | ■     |       | □     |       | □     |       |       |       |       |        |        |
|         | VCGT 070204-12    |        |       |       |       |       | .1453" |       | .0157" |                | ■    |       | ■     |       | ■     |       | □     |       | □     |       |       |       |       |        |        |
| <br>25° | VCGT 070202-25    | .272"  | .156" | .001" | .094" | .002" | .1634" | .001" | .0079" | .087"          | ■    |       | ■     |       | ■     |       | □     |       | □     |       |       |       |       |        |        |
|         | VCGT 070204-25    |        |       |       |       |       | .1453" |       | .0157" |                | ■    |       | ■     |       | ■     |       | □     |       | □     |       |       |       |       |        |        |
| <br>12° | VCGW 070202       | .272"  | .156" | .001" | .094" | .002" | .1634" | .001" | .0079" | .087"          | ■    |       | ■     |       | ■     |       | □     |       |       |       |       |       |       |        |        |
|         | VCGW 070204       |        |       |       |       |       | .1453" |       | .0157" |                | ■    |       | ■     |       | ■     |       | □     |       |       |       |       |       |       |        |        |

■ stock item  
□ upon request

CP05



SC06



VC07





# *MicroMill*



**The modular milling family unlocks your machines' full potential.**

**Small and versatile**

Specifically designed to reach the most narrow and deepest parts of a workpiece.

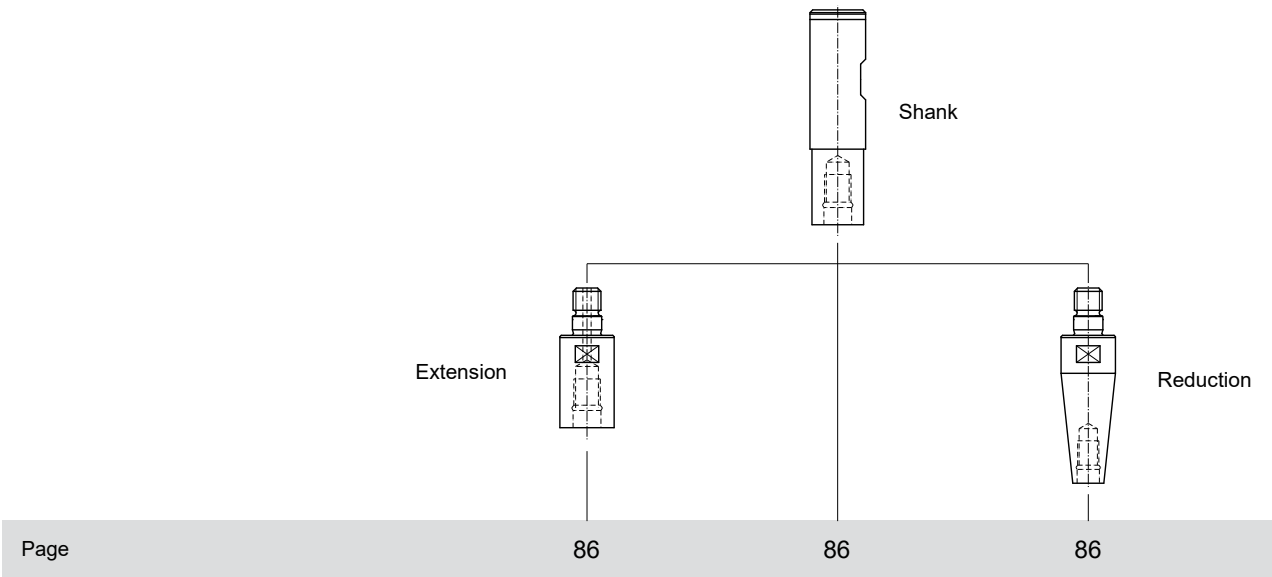
**Comprehensive**

The insert selection is designed to be able to machine as many materials as possible.

**Extensive**

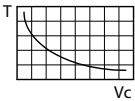
Whether milling, drilling, slotting, chamfering or boring, everything is possible.

Program Overview



|      |    |    |    |    |    |    |
|------|----|----|----|----|----|----|
|      |    |    |    |    |    |    |
|      | MM | MD | MC | MT | FA | MS |
| Page | 83 | 83 | 84 | 84 | 85 | 85 |

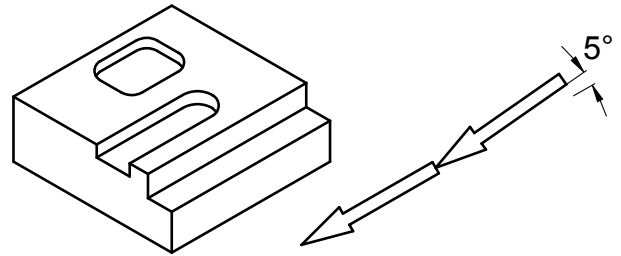
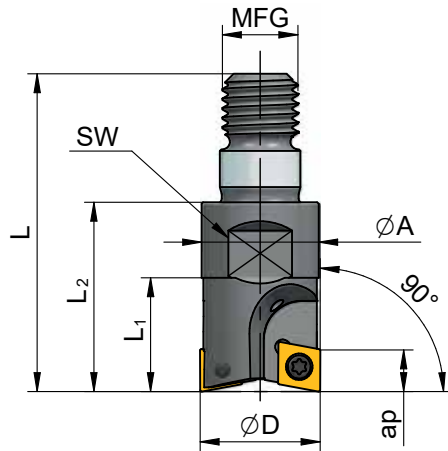
|      |      |      |     |
|------|------|------|-----|
|      |      |      |     |
|      | CPGT | SCGT | NFL |
| Page | 88   | 88   | 89  |



DENITool®  
Grades & Coatings

|      |    |     |
|------|----|-----|
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|------|----|-----|

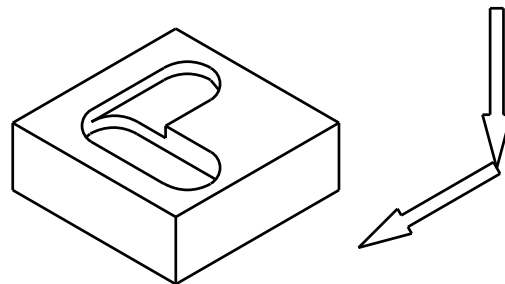
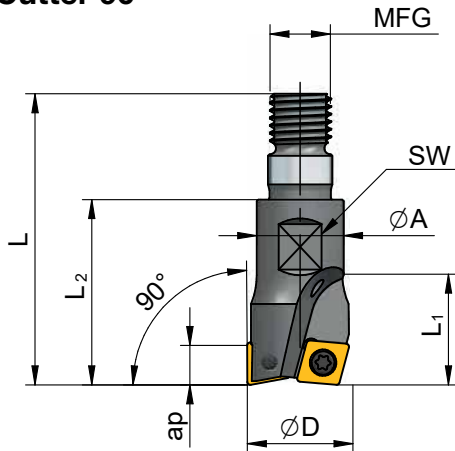
## Mini Cutter 90°



| Article No.            | [inch] |       |       |        |                |                |             |   |       |  |  |  |
|------------------------|--------|-------|-------|--------|----------------|----------------|-------------|---|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                        | øD     | øA    | ap    | L      | L <sub>1</sub> | L <sub>2</sub> | MFG<br>[mm] | z | SW    |                                                                                     |                                                                                     |                                                                                     |
| <b>MM 0812 RCAS-05</b> | .315"  | .453" | .197" | 1.535" | .394"          | .984"          | 8 x 1       | 1 | .394" | CP.. 05T1..                                                                         | T22.045                                                                             | T7F                                                                                 |
| <b>MM 1012 RCAS-05</b> | .394"  | .453" | .197" | 1.535" | .591"          | .984"          | 8 x 1       | 1 | .394" | CP.. 05T1..                                                                         | T22.045                                                                             | T7F                                                                                 |
| <b>MM 1212 RCAS-05</b> | .472"  | .453" | .197" | 1.535" | .591"          | .984"          | 8 x 1       | 1 | .394" | CP.. 05T1..                                                                         | T22.045                                                                             | T7F                                                                                 |
| <b>MM 1616 RCAS-05</b> | .630"  | .610" | .197" | 1.654" | .591"          | .984"          | 10 x 1.25   | 2 | .512" | CP.. 05T1..                                                                         | T22.045                                                                             | T7F                                                                                 |
| <b>MM 2020 RCAS-05</b> | .787"  | .768" | .197" | 1.654" | .591"          | .984"          | 10 x 1.25   | 2 | .669" | CP.. 05T1..                                                                         | T22.045                                                                             | T7F                                                                                 |

MFG: "metric fine thread"

## Drilling Cutter 90°

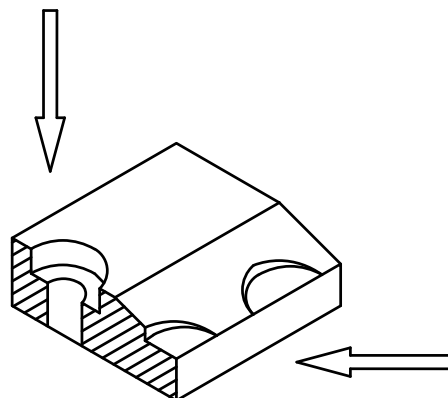
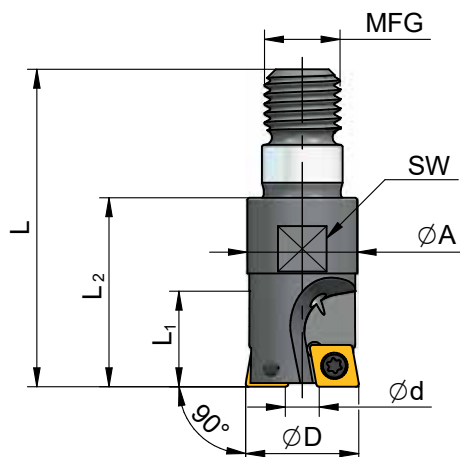


| Article No.            | [inch] |       |       |        |                |                |           |   |   |       |             |         |     |
|------------------------|--------|-------|-------|--------|----------------|----------------|-----------|---|---|-------|-------------|---------|-----|
|                        | ØD     | ØA    | ap    | L      | L <sub>1</sub> | L <sub>2</sub> | MFG [mm]  | z | k | SW    |             |         |     |
| <b>MD 1412 RCAS-05</b> | .551"  | .453" | .197" | 1.535" | .591"          | .984"          | 8 x 1     | 2 | 1 | .394" | CP.. 05T1.. | T22.045 | T7F |
| <b>MD 1616 RCAS-05</b> | .630"  | .610" | .197" | 1.654" | .591"          | .984"          | 10 x 1.25 | 2 | 1 | .512" | CP.. 05T1.. | T22.045 | T7F |
| <b>MD 2020 RCAS-05</b> | .787"  | .768" | .197" | 1.654" | .591"          | .984"          | 10 x 1.25 | 2 | 1 | .669" | CP.. 05T1.. | T22.045 | T7F |





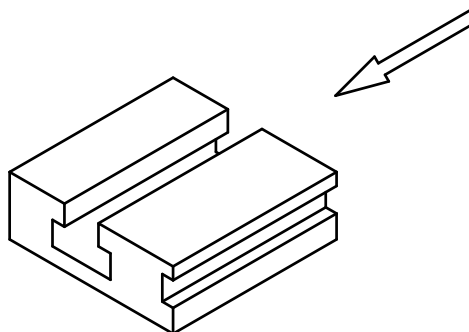
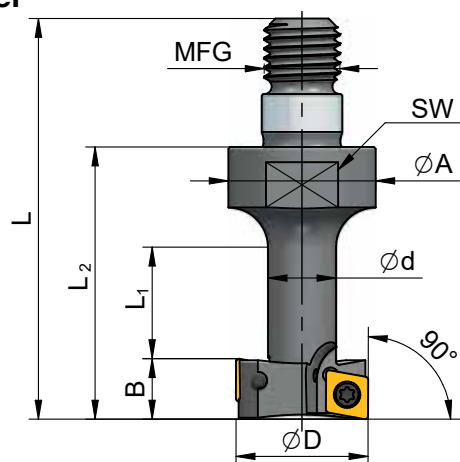
## Countersink Cutter



| Article No.     | [inch] |       |        |        |                |                |             |   |       |             |         |     |
|-----------------|--------|-------|--------|--------|----------------|----------------|-------------|---|-------|-------------|---------|-----|
|                 | ØD     | Ød    | ØA     | L      | L <sub>1</sub> | L <sub>2</sub> | MFG<br>[mm] | z | SW    |             |         |     |
| MC 1012 RCMS-05 | .394"  | .079" | .453"  | 1.535" | .591"          | .984"          | 8 x 1       | 1 | .394" | CP.. 05T1.. | T22.045 | T7F |
| MC 1112 RCMS-05 | .433"  | .079" | .453"  | 1.535" | .591"          | .984"          | 8 x 1       | 1 | .394" | CP.. 05T1.. | T22.045 | T7F |
| MC 1516 RCMS-05 | .591"  | .197" | .571"  | 1.654" | .591"          | .984"          | 10 x 1.25   | 2 | .512" | CP.. 05T1.. | T22.045 | T7F |
| MC 1816 RCMS-05 | .709"  | .315" | .610"  | 1.654" | .591"          | .984"          | 10 x 1.25   | 2 | .512" | CP.. 05T1.. | T22.045 | T7F |
| MC 2020 RCMS-05 | .787"  | .394" | .768"  | 1.654" | .591"          | .984"          | 10 x 1.25   | 2 | .669" | CP.. 05T1.. | T22.045 | T7F |
| MC 2625 RCMS-05 | 1.024" | .630" | 1.004" | 2.047" | .591"          | .984"          | 16 x 1.5    | 2 | .866" | CP.. 05T1.. | T22.045 | T7F |

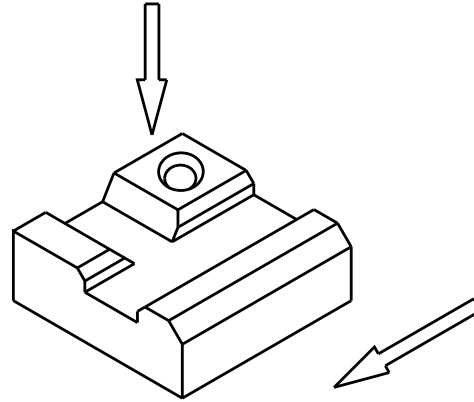
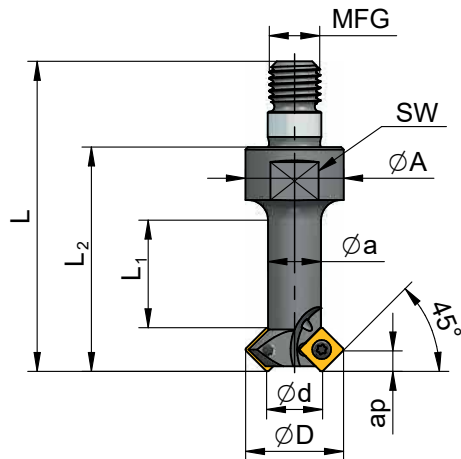
MFG: "metric fine thread"

## T - Cutter



| Article No.     | [inch] |       |       |       |        |                |                |             |   |   |       |             |         |     |
|-----------------|--------|-------|-------|-------|--------|----------------|----------------|-------------|---|---|-------|-------------|---------|-----|
|                 | ØD     | Ød    | ØA    | B     | L      | L <sub>1</sub> | L <sub>2</sub> | MFG<br>[mm] | z | k | SW    |             |         |     |
| MT 1720 RCAS-05 | .689"  | .354" | .768" | .315" | 2.087" | .709"          | 1.417"         | 10 x 1.25   | 2 | 1 | .669" | CP.. 05T1.. | T22.045 | T7F |
| MT 2020 RCAS-05 | .807"  | .394" | .768" | .354" | 2.224" | .807"          | 1.555"         | 10 x 1.25   | 2 | 1 | .669" | CP.. 05T1.. | T22.045 | T7F |
| MT 2325 RCAS-05 | .925"  | .512" | .965" | .394" | 2.776" | .925"          | 1.713"         | 16 x 1.5    | 2 | 1 | .866" | CP.. 05T1.. | T22.045 | T7F |

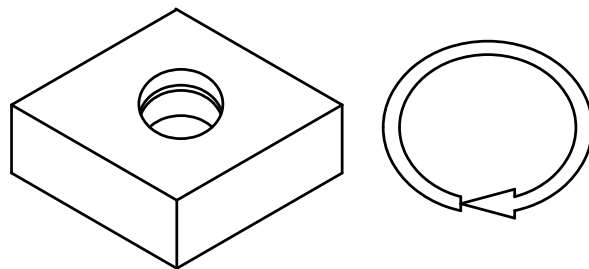
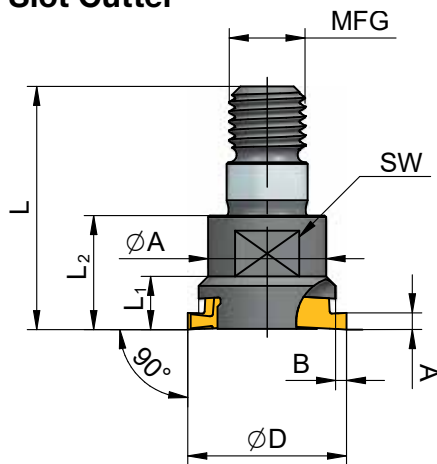
## Chamfer Cutter 45°



| Article No.            | [inch] |        |        |       |       |        |                |                |             |   |        |             |         |      |
|------------------------|--------|--------|--------|-------|-------|--------|----------------|----------------|-------------|---|--------|-------------|---------|------|
|                        | ØD     | Ød     | ØA     | ap    | Øa    | L      | L <sub>1</sub> | L <sub>2</sub> | MFG<br>[mm] | z | SW     |             |         |      |
| <b>FA 0216 RSDS-06</b> | .433"  | .157"  | .610"  | .157" | .276" | 2.205" | .803"          | 1.535"         | 10 x 1.25   | 1 | .512"  | SC.. 0602.. | T25.055 | T7F  |
| <b>FA 1120 RSDS-06</b> | .768"  | .449"  | .768"  | .157" | .413" | 2.421" | 1.0"           | 1.752"         | 10 x 1.25   | 2 | .669"  | SC.. 0602.. | T25.055 | T7F  |
| <b>FA 1616 RSDS-09</b> | 1.142" | .630"  | .610"  | .197" | --    | 1.909" | --             | 1.240"         | 10 x 1.25   | 2 | .512"  | SC.. 09T3.. | T40.082 | T15H |
| <b>FA 2020 RSDS-09</b> | 1.299" | .787"  | .768"  | .197" | --    | 2.106" | --             | 1.437"         | 10 x 1.25   | 2 | .669"  | SC.. 09T3.. | T40.082 | T15H |
| <b>FA 2525 RSDS-09</b> | 1.496" | .984"  | .965"  | .197" | --    | 2.697" | --             | 1.634"         | 16 x 1.5    | 2 | .866"  | SC.. 09T3.. | T40.082 | T15H |
| <b>FA 3232 RSDS-09</b> | 1.772" | 1.260" | 1.260" | .197" | --    | 2.894" | --             | 1.831"         | 16 x 1.5    | 3 | 1.063" | SC.. 09T3.. | T40.082 | T15H |

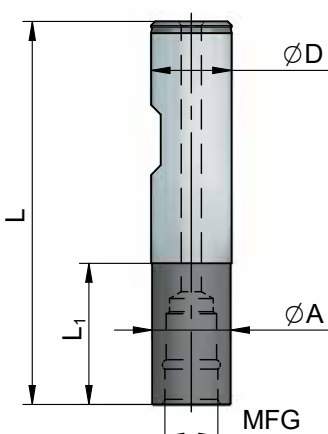
MFG: "metric fine thread"

## Slot Cutter

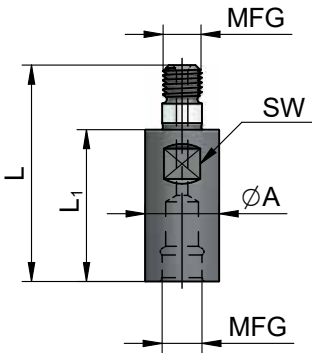


| Article No.            | [inch] |       |                   |                   |        |                |                |             |   |       |       |         |     |
|------------------------|--------|-------|-------------------|-------------------|--------|----------------|----------------|-------------|---|-------|-------|---------|-----|
|                        | ØD     | ØA    | A <sub>max.</sub> | B <sub>max.</sub> | L      | L <sub>1</sub> | L <sub>2</sub> | MFG<br>[mm] | z | SW    |       |         |     |
| <b>MS 1212 RNAS-00</b> | .472"  | .453" | .053"             | .039"             | 2.441" | 1.260"         | 1.890"         | 8 x 1       | 2 | .394" | NFL-0 | T30.090 | T8F |
| <b>MS 2116 RNAS-01</b> | .827"  | .610" | .106"             | .075"             | 1.260" | --             | .591"          | 10 x 1.25   | 2 | .512" | NFL-1 | T30.090 | T8F |
| <b>MS 3325 RNAS-01</b> | 1.299" | .965" | .106"             | .075"             | 1.850" | --             | .787"          | 16 x 1.5    | 3 | .866" | NFL-1 | T30.090 | T8F |

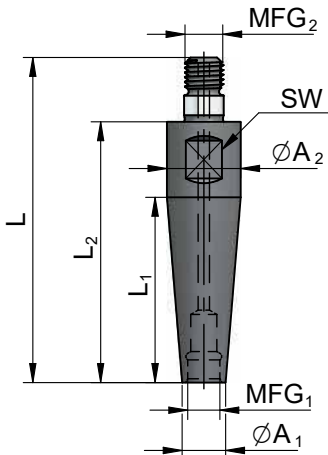
## Weldon Shank

|    | Article No. | [inch] |        |        |                |             |
|-------------------------------------------------------------------------------------|-------------|--------|--------|--------|----------------|-------------|
|                                                                                     |             | øD     | øA     | L      | L <sub>1</sub> | MFG<br>[mm] |
|  | WS "08045-W | .500"  | -      | 1.772" | -              | 8 x 1.0     |
|                                                                                     | WS "08060-W | .500"  | .453"  | 2.362" | 0.591"         | 8 x 1.0     |
|                                                                                     | WS "10050-W | .625"  | -      | 1.969" | -              | 10 x 1.25   |
|                                                                                     | WS "10075-W | .625"  | .610"  | 2.953" | 1.063"         | 10 x 1.25   |
|                                                                                     | WS "12055-W | .750"  | -      | 2.165" | -              | 10 x 1.25   |
|                                                                                     | WS "12095-W | .750"  | .750"  | 3.740" | 1.772"         | 10 x 1.25   |
|                                                                                     | WS "16065-W | 1.0"   | -      | 2.559" | -              | 16 x 1.50   |
|                                                                                     | WS "16115-W | 1.0"   | 1.0"   | 4.528" | 2.323"         | 16 x 1.50   |
|                                                                                     | WS "20085-W | 1.250" | -      | 3.346" | -              | 16 x 1.50   |
|                                                                                     | WS "20160-W | 1.250" | 1.240" | 6.299" | 3.937"         | 16 x 1.50   |

## Extension

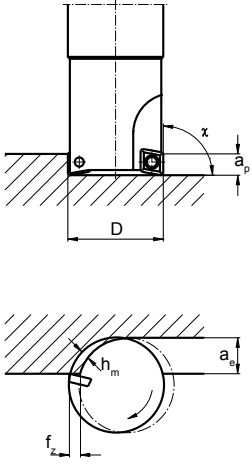
|  | Article No. | [inch] |        |                |             | SW     |
|------------------------------------------------------------------------------------|-------------|--------|--------|----------------|-------------|--------|
|                                                                                    |             | øA     | L      | L <sub>1</sub> | MFG<br>[mm] |        |
|     | VH 12025    | .453"  | 1.535" | .984"          | 8 x 1       | .394"  |
|                                                                                    | VH 16030    | .610"  | 1.850" | 1.181"         | 10 x 1.25   | .512"  |
|                                                                                    | VH 20040    | .768"  | 2.244" | 1.575"         | 10 x 1.25   | .669"  |
|                                                                                    | VH 25050    | .965"  | 3.031" | 1.969"         | 16 x 1.5    | .866"  |
|                                                                                    | VH 32050    | 1.260" | 3.031" | 1.969"         | 16 x 1.5    | 1.063" |

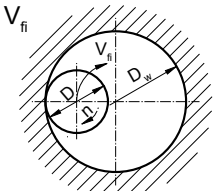
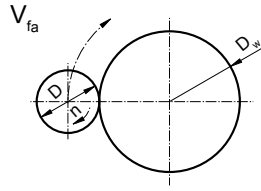
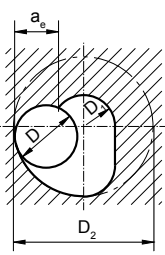
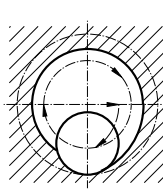
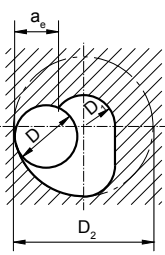
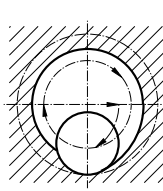
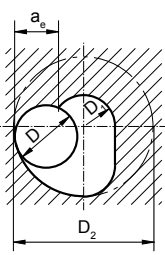
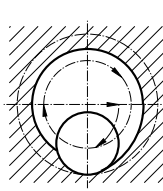
## Reduction

|  | Article No. | [inch]          |                 |        |                |                |                          |                          |        |
|-------------------------------------------------------------------------------------|-------------|-----------------|-----------------|--------|----------------|----------------|--------------------------|--------------------------|--------|
|                                                                                     |             | øA <sub>1</sub> | øA <sub>2</sub> | L      | L <sub>1</sub> | L <sub>2</sub> | MFG <sub>1</sub><br>[mm] | MFG <sub>2</sub><br>[mm] | SW     |
|      | KR 1220     | .453"           | .787"           | 3.386" | 1.929"         | 2.717"         | 8 x 1                    | 10 x 1.25                | .669"  |
|                                                                                     | KR 1625     | .610"           | .984"           | 4.016" | 2.165"         | 2.953"         | 10 x 1.25                | 16 x 1.5                 | .866"  |
|                                                                                     | KR 2032     | .768"           | 1.260"          | 4.685" | 2.835"         | 3.622"         | 10 x 1.25                | 16 x 1.5                 | 1.063" |

MFG: "metric fine thread"

## Cutting strategies

|  | $a_e / D$        | Feed/tooth $f_z$ (inch)        |        |        |        |        |        |        |        |        |
|-----------------------------------------------------------------------------------|------------------|--------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                                                                   |                  | 0.0020                         | 0.0031 | 0.0039 | 0.0063 | 0.0079 | 0.0118 | 0.0157 | 0.0197 | 0.0236 |
|                                                                                   |                  | Mean depth of cut $h_m$ (inch) |        |        |        |        |        |        |        |        |
|                                                                                   | 0.020 ( $1/50$ ) |                                |        |        | 0.0008 | 0.0012 | 0.0016 | 0.0024 | 0.0028 | 0.0031 |
|                                                                                   | 0.025 ( $1/40$ ) |                                |        | 0.0012 | 0.0012 | 0.0020 | 0.0020 | 0.0024 | 0.0031 | 0.0035 |
|                                                                                   | 0.040 ( $1/25$ ) |                                |        |        | 0.0012 | 0.0016 | 0.0024 | 0.0031 | 0.0039 | 0.0047 |
|                                                                                   | 0.050 ( $1/20$ ) |                                |        | 0.0008 | 0.0012 | 0.0016 | 0.0028 | 0.0035 | 0.0043 | 0.0051 |
|                                                                                   | 0.100 ( $1/10$ ) |                                | 0.0008 | 0.0012 | 0.0020 | 0.0024 | 0.0035 | 0.0047 | 0.0063 |        |
|                                                                                   | 0.200 ( $2/10$ ) | 0.0008                         | 0.0012 | 0.0016 | 0.0028 | 0.0035 | 0.0051 | 0.0067 |        |        |
|                                                                                   | 0.300 ( $3/10$ ) | 0.0012                         | 0.0016 | 0.0020 | 0.0031 | 0.0039 | 0.0063 |        |        |        |
|                                                                                   | 0.400 ( $4/10$ ) | 0.0012                         | 0.0020 | 0.0024 | 0.0035 | 0.0047 |        |        |        |        |

|          |            | Formula                                                 | Unit       |                                                                                      |                                                                                       |
|----------|------------|---------------------------------------------------------|------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| $v_{fi}$ | fpt-prog'd | $(1 - \frac{D}{D_w}) \cdot \text{rpm} \cdot \text{fpt}$ | [inch/min] |   |   |
| $v_{fa}$ | fpt-prog'd | $(1 + \frac{D}{D_w}) \cdot \text{rpm} \cdot \text{fpt}$ | [inch/min] |                                                                                      |                                                                                       |
| $a_e$    | woc        |                                                         | [inch]     |  |  |
| $n$      | rpm        | $\frac{\text{sfm}}{D} \cdot .262$                       | [rpm]      |                                                                                      |                                                                                       |
| $v_c$    | sfm        | $\text{rpm} \cdot D \cdot .262$                         | [fpm]      |  |  |
| $v_f$    | ipm        | $\text{rpm} \cdot k \cdot \text{fpt}$                   | [inch/min] |                                                                                      |                                                                                       |
| $v_f$    | ipm        | $\text{rpm} \cdot z \cdot \text{fpt}$                   | [inch/min] |  |  |
| $f_z$    | fpt        | $\frac{\text{ipm}}{z} \cdot \text{rpm}$                 | [inch]     |                                                                                      |                                                                                       |

n Speed (rpm)

 $v_c$  Speed $v_f$  Feed (ipm) $v_{fa}$  Programmed feed external cutting $v_{fi}$  Programmed feed internal cutting $f_z$  Feed (fpt)

k Effective number of teeth

 $h_m$  Average (mean) fpt

z Number of teeth

 $a_p$  Axial depth of cut ( $\text{DOC}_p$ ) $a_e$  Radial depth of cut ( $\text{DOC}_e$ )

D Tool diameter

 $D_w$  Work piece diameter $D_1$  Bore diameter starting $D_2$  Bore diameter finished

## Indexable inserts



|  | Article No.                                          | [inch] |       |       |       |       |        |       |        |                | DX 2<br>P 25 | DC 15 | DX 20 | DP 25 | DX 30 | DX 32 | DP 35 | DX 50 | DP 55 | DX 52 | DP 57 | DX 70 | DT 55 | DT 255 | DT 355 |
|--|------------------------------------------------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
|  |                                                      | l      | d     | +/-   | s     | +/-   | m      | +     | R      | d <sub>1</sub> |              |       |       |       |       |       |       |       |       |       |       |       |       |        |        |
|  | <b>CPET 05T102 FR</b><br><b>CPET 05T104 FR</b>       | .220"  | .219" | .001" | .076" | .001" | .0564" | .001" | .0079" | .098"          | ■            |       | ■     | ■     |       |       | ■     | □     |       |       |       |       |       |        |        |
|  |                                                      |        |       |       |       |       | .0521" |       | .0157" |                | ■            |       | ■     | ■     |       |       | ■     | □     |       |       |       |       |       |        |        |
|  | <b>CPGT 05T102 EN</b><br><b>CPGT 05T104 EN</b>       | .220"  | .219" | .001" | .076" | .005" | .0564" | .001" | .0079" | .098"          | ■            | ■     |       | ■     |       | ■     | ■     | □     |       | ■     | ■     | ■     | ■     | ■      | ■      |
|  | <b>CPGT 05T102 FN</b><br><b>CPGT 05T104 FN</b>       | .220"  | .219" | .001" | .076" | .005" | .0564" | .001" | .0079" | .098"          | ■            |       | ■     | ■     |       |       | ■     | □     |       |       |       |       |       |        |        |
|  |                                                      |        |       |       |       |       | .0521" |       | .0157" |                | ■            |       | ■     | ■     |       |       | ■     | □     |       |       |       |       |       |        |        |
|  | <b>CPGT 05T102 FN-20</b><br><b>CPGT 05T104 FN-20</b> | .220"  | .219" | .001" | .076" | .005" | .0564" | .001" | .0079" | .098"          | ■            |       | ■     | ■     |       |       | ■     | □     |       |       |       |       |       |        |        |
|  |                                                      |        |       |       |       |       | .0521" |       | .0157" |                | ■            |       | ■     | ■     |       |       | ■     | □     |       |       |       |       |       |        |        |
|  | <b>CPGW 05T102 FN</b><br><b>CPGW 05T104 FN</b>       | .220"  | .219" | .001" | .076" | .005" | .0564" | .001" | .0079" | .098"          | ■            |       | ■     | ■     |       |       |       | □     |       |       |       |       |       |        |        |
|  |                                                      |        |       |       |       |       | .0521" |       | .0157" |                | ■            |       | ■     | ■     |       |       |       | □     |       |       |       |       |       |        |        |
|  | <b>SCGT 060202 EN</b><br><b>SCGT 060204 EN</b>       | .250"  | .250" | .002" | .094" | .005" | .0485" | .001" | .0079" | .110"          | ■            | ■     |       |       |       |       |       |       |       |       |       |       |       |        |        |
|  | <b>SCGT 060202 FN</b><br><b>SCGT 060204 FN</b>       | .250"  | .250" | .002" | .094" | .005" | .0485" | .001" | .0079" | .110"          | ■            |       |       |       |       | ■     |       |       |       |       |       |       |       |        |        |
|  |                                                      |        |       |       |       |       | .0455" |       | .0157" |                | ■            | ■     |       |       |       |       |       |       |       |       |       |       |       |        |        |
|  | <b>SCGT 060202 FN-25</b>                             | .250"  | .250" | .002" | .094" | .005" | .0453" | .003" | .0157" | .110"          | ■            |       | ■     | ■     |       |       |       | □     |       |       |       |       |       |        |        |
|  |                                                      |        |       |       |       |       |        |       |        |                |              |       |       |       |       |       |       |       |       |       |       |       |       |        |        |
|  | <b>SCGT 09T302 EN</b><br><b>SCGT 09T304 EN</b>       | .375"  | .375" | .001" | .156" | .005" | .0744" | .001" | .0079" | .173"          | ■            |       | ■     |       | □     |       |       | □     |       |       |       |       |       |        |        |
|  |                                                      |        |       |       |       |       | .0647" |       | .0157" |                | ■            |       | ■     |       | □     |       |       | □     |       |       |       |       |       |        |        |
|  | <b>SCGT 09T302 FN-25</b>                             | .375"  | .375" | .001" | .156" | .005" | .0744" | .001" | .0079" | .173"          | ■            |       | ■     |       |       |       |       |       |       |       |       |       |       |        |        |
|  |                                                      |        |       |       |       |       |        |       |        |                |              |       |       |       |       |       |       |       |       |       |       |       |       |        |        |

■ stock item

□ upon request

CP05



SC06

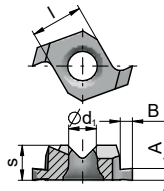
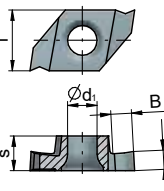
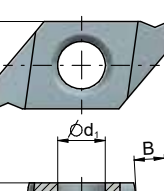


SC09



## Indexable inserts for circlip grooves according to DIN 472

DENITool® Indexable inserts are standardized for circlip grooves according to DIN 471 and DIN 472. Special forms will also be manufactured according to a customer design print. The inserts are individually precision-ground on all sides (see also p.98).

| Insert type                                                                                     | Article No.        | [inch]    |       |       |       |       | P 20 | DX 2 | DP 25 | DX 20 | DP 35 | DX 30 |
|-------------------------------------------------------------------------------------------------|--------------------|-----------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
|                                                                                                 |                    | A ±.0004" | B     | s     | l     | d     |      |      |       |       |       |       |
| <b>0</b><br>   | NFL 0 1 115 070 ST | .045"     | .028" | .157" | .236" | .134" | ■    |      | □     |       | □     |       |
|                                                                                                 | NFL 0 1 115 070 GE | .045"     | .028" | .157" | .236" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 0 1 115 070 AL | .045"     | .028" | .157" | .236" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 0 1 135 100 ST | .045"     | .039" | .157" | .236" | .134" | ■    |      | □     |       | □     |       |
|                                                                                                 | NFL 0 1 135 100 GE | .045"     | .039" | .157" | .236" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 0 1 135 100 AL | .045"     | .039" | .157" | .236" | .134" |      | ■    |       | □     |       | □     |
| <b>1</b><br>  | NFL 1 1 115 070 ST | .045"     | .028" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|                                                                                                 | NFL 1 1 115 070 GE | .045"     | .028" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 115 070 AL | .045"     | .028" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 135 100 ST | .053"     | .039" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|                                                                                                 | NFL 1 1 135 100 GE | .053"     | .039" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 135 100 AL | .053"     | .039" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 165 110 ST | .065"     | .043" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|                                                                                                 | NFL 1 1 165 110 GE | .065"     | .043" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 165 110 AL | .065"     | .043" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 190 140 ST | .075"     | .055" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|                                                                                                 | NFL 1 1 190 140 GE | .075"     | .055" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 190 140 AL | .075"     | .055" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 220 160 ST | .087"     | .063" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|                                                                                                 | NFL 1 1 220 160 GE | .087"     | .063" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 220 160 AL | .087"     | .063" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 270 190 ST | .106"     | .075" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|                                                                                                 | NFL 1 1 270 190 GE | .106"     | .075" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 1 1 270 190 AL | .106"     | .075" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
| <b>2</b><br> | NFL 2 1 320 210 ST | .126"     | .083" | .236" | .394" | .217" | ■    |      | □     |       | □     |       |
|                                                                                                 | NFL 2 1 320 210 GE | .126"     | .083" | .236" | .394" | .217" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 2 1 320 210 AL | .126"     | .083" | .236" | .394" | .217" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 2 1 420 250 ST | .165"     | .098" | .236" | .394" | .217" | ■    |      | □     |       | □     |       |
|                                                                                                 | NFL 2 1 420 250 GE | .165"     | .098" | .236" | .394" | .217" |      | ■    |       | □     |       | □     |
|                                                                                                 | NFL 2 1 420 250 AL | .165"     | .098" | .236" | .394" | .217" |      | ■    |       | □     |       | □     |

Illustrations show left-hand inserts for right-hand cutters

- stock item  
□ upon request

## Indexable inserts:

- **ST** - for cutting steel P20  $\alpha = 12^\circ$
- **GE** - for cutting cast iron K10  $\alpha = 6^\circ$
- **AL** - for cutting aluminum K10  $\alpha = 23^\circ$

Special geometries upon request

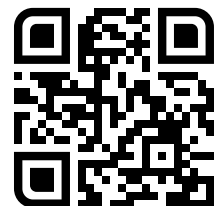
NFL 0



NFL 1



NFL 2







# CounterSink *T*

## Countersink Cutters



**Denitool® Countersink cutters have an optimized placement and design of the cutting edge.**

**Smooth machining.**

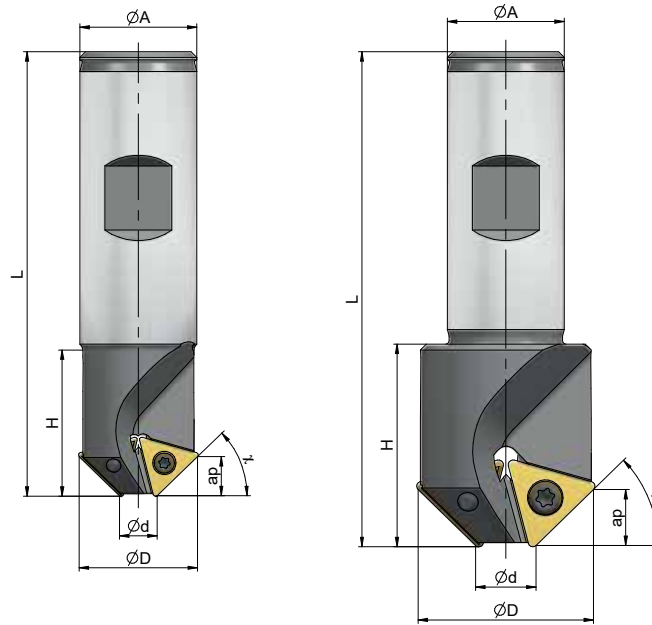
The vibration free running and the soft cut avoid subsequent burr operations.

FW "0612 RTDS-11      with insert TPHW 110204 EN DP55  
for sink operations dia. 0.273" - 0.798"

FW "0912 RTDS-16      with insert TPHW 16T308 EN DP55  
for sink operations dia. 0.428" - 1.182"



## Countersink Cutter

90°  
RTDS82°  
RTXS

| Article No.         | [inch]     |           |     |           |                |        |   |       |  |  |  |
|---------------------|------------|-----------|-----|-----------|----------------|--------|---|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                     | øD         | ød        | χ   | ap        | L <sub>1</sub> | H      | z | øA    |                                                                                       |                                                                                       |                                                                                       |
| FW "0612 RTDS-11" ■ | .817" *    | .256" *   | 45° | .281" *   | 3.055"         | 1.024" | 2 | .750" | TP.. 1102..                                                                           | T25.055                                                                               | T7F                                                                                   |
|                     | .798" **   | .273" **  |     | .262" **  |                |        |   |       |                                                                                       |                                                                                       |                                                                                       |
|                     | .759" ***  | .308" *** |     | .225" *** |                |        |   |       |                                                                                       |                                                                                       |                                                                                       |
| FW "0812 RTXS-11" ■ | .845" *    | .323" *   | 49° | .301" *   | 3.016"         | .948"  | 2 | .750" | TP.. 1102..                                                                           | T25.055                                                                               | T7F                                                                                   |
|                     | .827" **   | .340" **  |     | .281" **  |                |        |   |       |                                                                                       |                                                                                       |                                                                                       |
|                     | .791" ***  | .373" *** |     | .240" *** |                |        |   |       |                                                                                       |                                                                                       |                                                                                       |
| FW "0912 RTDS-16" ■ | 1.220" **  | .393" **  | 45° | .414" **  | 3.409"         | 1.378" | 2 | .750" | TP.. 16T3..                                                                           | T35.084                                                                               | T15H                                                                                  |
|                     | 1.182" *** | .428" *** |     | .376" *** |                |        |   |       |                                                                                       |                                                                                       |                                                                                       |
| FW "1112 RTXS-16" ■ | 1.227" **  | .455" **  | 49° | .443" **  | 3.409"         | 1.378" | 2 | .750" | TP.. 16T3..                                                                           | T35.084                                                                               | T15H                                                                                  |
|                     | 1.191" *** | .489" *** |     | .403" *** |                |        |   |       |                                                                                       |                                                                                       |                                                                                       |

\* Insert with r = .0079"

■ stock item

\*\* Insert with r = .0157"

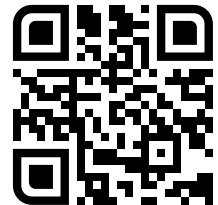
\*\*\* Insert with r = .0315"

For inserts please refer to p.68 or check QR codes.

TP11



TP16





# EdgeCut S

*Corner and Face Milling Cutters*

Runout and concentricity  
tolerances ideal for  
tooling and fixturing



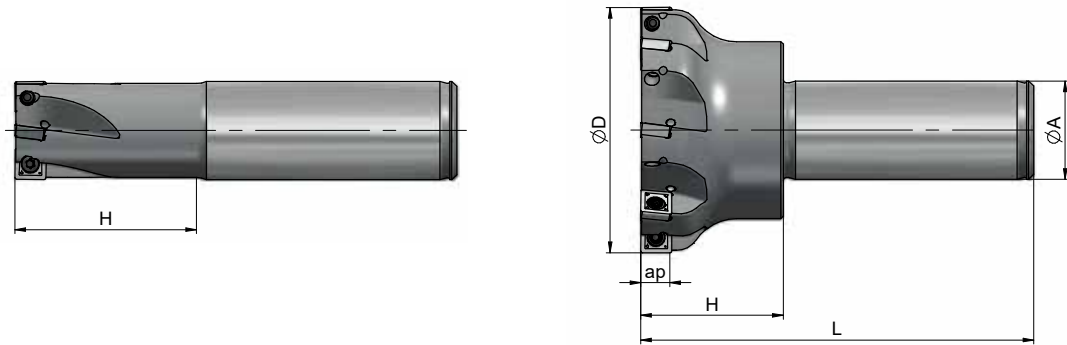
## Optimized Tools for economic milling solutions

- Angle exactly 90°
- Inserts SPHT/W 06 with 4 cutting edges
- Smooth cutting - superior surface finish at increased feed rates
- Cylindrical shank for collets, hydraulic chucks and shrink fit chucks



## Corner and face milling cutters 90°

**90°**



| Article No.            | [inch] |       |        |        |       |   |             |         |     |
|------------------------|--------|-------|--------|--------|-------|---|-------------|---------|-----|
|                        | ØD     | ØA    | L      | H      | ap    | z |             |         |     |
| <b>FZ 1616 RSAS-06</b> | .630"  | .630" | 3.346" | 1.299" | .232" | 3 | SP.. 0602.. | T25.055 | T7F |
| <b>FZ 2020 RSAS-06</b> | .787"  | .787" | 3.543" | 1.457" | .232" | 4 |             |         |     |
| <b>FZ 2520 RSAS-06</b> | .984"  | .787" | 3.150" | 1.142" | .232" | 5 |             |         |     |
| <b>FZ 3220 RSAS-06</b> | 1.260" | .787" | 3.150" | 1.142" | .232" | 6 |             |         |     |
| <b>FZ 4020 RSAS-06</b> | 1.575" | .787" | 3.150" | 1.142" | .232" | 7 |             |         |     |
| <b>FZ 5020 RSAS-06</b> | 1.969" | .787" | 3.150" | 1.142" | .232" | 8 |             |         |     |

All milling cutters with internal coolant

Upon request with Weldon area

## Indexable inserts

|  | Article No.           | [inch] |       |        |       |       |       |        |        |                 | DX 2 | DX 32 | DX 50 |  |  |  |  |  |
|--|-----------------------|--------|-------|--------|-------|-------|-------|--------|--------|-----------------|------|-------|-------|--|--|--|--|--|
|  |                       | l      | Ød    | +/-    | s     | +/-   | m     | +/-    | R      | Ød <sub>1</sub> |      |       |       |  |  |  |  |  |
|  | <b>SPHT 060204 EN</b> | .250"  | .250" | .0005" | .094" | .001" | .045" | .0005" | .0157" | .110"           | ■    | ■     |       |  |  |  |  |  |
|  | <b>SPHW 060204 FN</b> | .250"  | .250" | .0005" | .094" | .001" | .045" | .0005" | .0157" | .110"           |      |       | ■     |  |  |  |  |  |
|  | <b>SPHW 060208 FN</b> | .250"  | .250" | .0005" | .094" | .001" | .039" | .0005" | .0315" | .110"           |      |       | ■     |  |  |  |  |  |

■ stock item

□ upon request

**SP09**

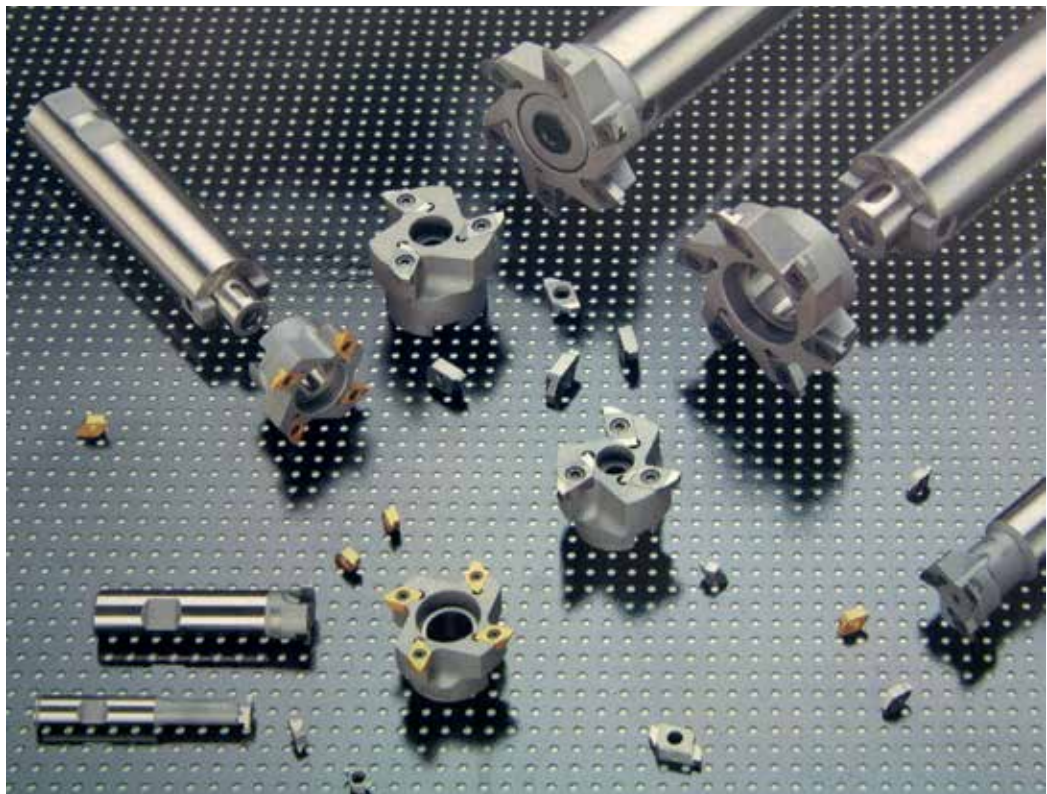




**STOCK ITEM:  
METRIC SIZE**

# SlotCut **N**

## Slot Milling Cutters



***Milling tools for milling snap rings, O-ring grooves and undercuts by means of circular interpolation.***



## Designation code

## Slot milling inserts

| N                                                                                                              | F                  | L                                            | 1                                            | 1              | 165                             | 110                            | DX 20                                                                                  |
|----------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------|----------------------------------------------|----------------|---------------------------------|--------------------------------|----------------------------------------------------------------------------------------|
| Insert form                                                                                                    | Type of tool       | Cutting direction                            | Insert size                                  | Form of groove | Groove width A [mm]             | Groove depth B [mm]            | Coating type                                                                           |
| N - Slot recessing insert<br> | F - Milling cutter | L - Left<br><br>R - Right<br><br>X - Special | 0 - small<br><br>1 - medium<br><br>2 - large | see page 98    | 165 = 1.65 mm<br>(Example size) | 110 = 1.1 mm<br>(Example size) | DX 2: uncoated<br>P 20:<br>DX 20: TiN-coated<br>DP 25:<br>DX 30: TiCN-coated<br>DP 35: |



## DENITool® Slot Milling Cutters are especially suitable for:

- Countersink milling on CNC machining centers
- Interpolation milling of snap ring-, O-ring grooves and undercutting
- Direct mounting on Weldon clamping system
- Direct mounting on milling arbors according to ISO 240 or DIN 138 (with taper key or driving catches)

## Slot Milling Cutter - metric



| Milling cutter type | Article No.            | [inch] |                |        |        |        |   |                    | Insert type |
|---------------------|------------------------|--------|----------------|--------|--------|--------|---|--------------------|-------------|
|                     |                        | D      | d <sub>i</sub> | L      | I      | H      | Z | A <sub>max</sub> * |             |
|                     | <b>FW 1210 RNAS-00</b> | .472"  | .394"          | 3.150" | 1.575" |        | 2 | .053"              | 0           |
|                     | <b>FW 2116 RNAS-01</b> | .827"  | .630"          | 2.953" | .591"  |        | 2 | .106"              | 1           |
|                     | <b>FW 3325 RNAS-01</b> | 1.299" | .984"          | 4.331" | 1.142" |        | 3 | .106"              | 1           |
|                     | <b>FA 4816 RNAS-01</b> | 1.890" | .630"          |        |        | 1.024" | 4 | .106"              | 1           |
|                     | <b>FA 8327 RNAS-02</b> | 3.268" | 1.06"          |        |        | 1.260" | 6 | .165"              | 2           |

\* Dimensions for custom made inserts see page 98

## Spare parts

| Insert type |         |      |  |
|-------------|---------|------|--|
| 0           | T30.090 | T8F  |  |
| 1           | T30.090 | T8F  |  |
| 2           | T50.160 | T20H |  |





## Indexable inserts for circlip grooves according to DIN 472 and DIN 471

| Insert type  | Article No.        | [inch]    |       |       |       |       | P 20 | DX 2 | DP 25 | DX 20 | DP 35 | DX 30 |
|--------------|--------------------|-----------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
|              |                    | A ±.0004" | B     | s     | l     | d     |      |      |       |       |       |       |
| <b>0</b><br> | NFL 0 1 115 070 ST | .045"     | .028" | .157" | .236" | .134" | ■    |      | □     |       | □     |       |
|              | NFL 0 1 115 070 GE | .045"     | .028" | .157" | .236" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 0 1 115 070 AL | .045"     | .028" | .157" | .236" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 0 1 135 100 ST | .053"     | .039" | .157" | .236" | .134" | ■    |      | □     |       | □     |       |
|              | NFL 0 1 135 100 GE | .053"     | .039" | .157" | .236" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 0 1 135 100 AL | .053"     | .039" | .157" | .236" | .134" |      | ■    |       | □     |       | □     |
| <b>1</b><br> | NFL 1 1 115 070 ST | .045"     | .028" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|              | NFL 1 1 115 070 GE | .045"     | .028" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 115 070 AL | .045"     | .028" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 135 100 ST | .053"     | .039" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|              | NFL 1 1 135 100 GE | .053"     | .039" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 135 100 AL | .053"     | .039" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 165 110 ST | .065"     | .043" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|              | NFL 1 1 165 110 GE | .065"     | .043" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 165 110 AL | .065"     | .043" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 190 140 ST | .075"     | .055" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|              | NFL 1 1 190 140 GE | .075"     | .055" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 190 140 AL | .075"     | .055" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 220 160 ST | .087"     | .063" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|              | NFL 1 1 220 160 GE | .087"     | .063" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 220 160 AL | .087"     | .063" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 270 190 ST | .106"     | .075" | .157" | .276" | .134" | ■    |      | □     |       | □     |       |
|              | NFL 1 1 270 190 GE | .106"     | .075" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
|              | NFL 1 1 270 190 AL | .106"     | .075" | .157" | .276" | .134" |      | ■    |       | □     |       | □     |
| <b>2</b><br> | NFL 2 1 320 210 ST | .126"     | .083" | .236" | .394" | .217" | ■    |      | □     |       | □     |       |
|              | NFL 2 1 320 210 GE | .126"     | .083" | .236" | .394" | .217" |      | ■    |       | □     |       | □     |
|              | NFL 2 1 320 210 AL | .126"     | .083" | .236" | .394" | .217" |      | ■    |       | □     |       | □     |
|              | NFL 2 1 420 250 ST | .165"     | .098" | .236" | .394" | .217" | ■    |      | □     |       | □     |       |
|              | NFL 2 1 420 250 GE | .165"     | .098" | .236" | .394" | .217" |      | ■    |       | □     |       | □     |
|              | NFL 2 1 420 250 AL | .165"     | .098" | .236" | .394" | .217" |      | ■    |       | □     |       | □     |

■ stock item

□ upon request

Illustrations show left-hand inserts for right-hand slot milling cutters

## Materials suitability

- **ST** for cutting steel P20  $\alpha = 12^\circ$
- **GE** for cutting cast iron K10  $\alpha = 6^\circ$
- **AL** for cutting aluminum K10  $\alpha = 23^\circ$

Special geometries upon request

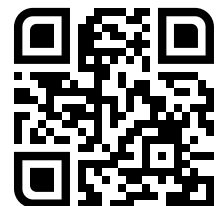
NFL 0



NFL 1



NFL 2

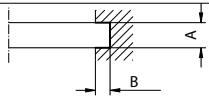
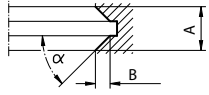
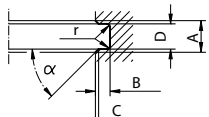
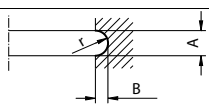
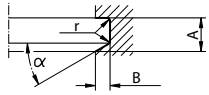
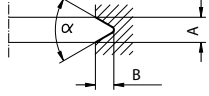
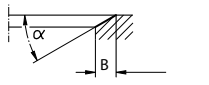


## Custom made indexable inserts

DENITool® indexable inserts can be supplied as standard for circlip grooves according to DIN 472/471 (see p.97). Special forms can also be manufactured according to a customer design print. The inserts are precision-ground on all sides and therefore guarantee:

- constant working accuracy
- long service life
- shorter down-times



| Form of groove<br>(Example of some forms, others available)                           | Milling cutter nominal dia.                              |                         |                         |                         |                         |                         |
|---------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                                                                                       | D                                                        | .472"                   | .827"                   | 1.299"                  | 1.890"                  | 3.268"                  |
|                                                                                       | Insert type                                              | 0                       | 1                       | 1                       | 1                       | 2                       |
| 1    | A <sub>max</sub><br>B <sub>max</sub>                     | .094"<br>.039"          | .150"<br>.047"          | .150"<br>.063"          | .150"<br>.098"          | .217"<br>.138"          |
| 2    | A <sub>max</sub><br>B <sub>max</sub>                     | .094"<br>.039"          | .150"<br>.047"          | .150"<br>.063"          | .150"<br>.098"          | .217"<br>.138"          |
| 3  | A <sub>max</sub><br>B <sub>max</sub><br>C <sub>max</sub> | .094"<br>.039"<br>.012" | .150"<br>.047"<br>.012" | .150"<br>.063"<br>.016" | .150"<br>.098"<br>.020" | .217"<br>.138"<br>.032" |
| 4  | A <sub>max</sub><br>B <sub>max</sub>                     | .094"<br>.039"          | .150"<br>.047"          | .150"<br>.063"          | .150"<br>.098"          | .217"<br>.138"          |
| 5  | A <sub>max</sub><br>B <sub>max</sub>                     | .094"<br>.039"          | .150"<br>.047"          | .150"<br>.063"          | .150"<br>.098"          | .217"<br>.138"          |
| 6  | A <sub>max</sub><br>B <sub>max</sub>                     | .094"<br>.039"          | .150"<br>.047"          | .150"<br>.063"          | .150"<br>.098"          | .217"<br>.138"          |
| 7  | B <sub>max</sub>                                         | .039"                   | .047"                   | .063"                   | .098"                   | .138"                   |

### Provide the following details when ordering:

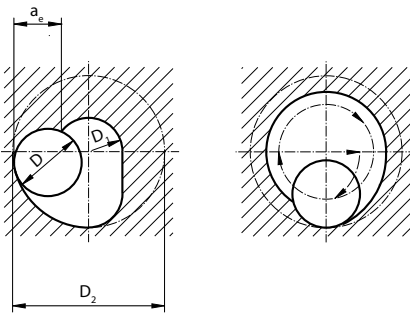
- form of groove
- dimension A, B, eventually C, D, r,  $\alpha$
- diameters of milling cutter and bore
- material specification
- direction of spindle rotation



## Nominal values for circular interpolation milling

In order to ensure an optimal cutting behavior of the milling cutter, it is recommended to remain continuously at the maximum engagement width (groove depth). Entry in the radial direction means that the feed must be reduced by half. If relatively large milling cutters are used compared to the bore diameter, the groove width ( $a_e$ ) must be calculated from the below formula.

The mean depth of cut ( $h_m$ ) is decisive for calculation of the feed per tooth ( $f_z$ ). Depending on the cutting process, the depth  $h_m$  should be over .002" for uncoated and over .003" for coated indexable inserts. The corresponding feeds are listed in the table below. Circular ramping usually provides a better result with respect to tool life and surface quality.



| Ratio<br>$a_e/D$ | Actual Feed per Tooth (fpt) $f_z$ (inch) |        |        |        |        |        |        |        |        |
|------------------|------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                  | 0.0016                                   | 0.0031 | 0.0039 | 0.0063 | 0.0079 | 0.0118 | 0.0157 | 0.0197 | 0.0236 |
|                  | Mean Feed $h_m$ (inch)                   |        |        |        |        |        |        |        |        |
| 0.020 ( $1/50$ ) |                                          |        |        |        | 0.0012 | 0.0016 | 0.0024 | 0.0028 | 0.0031 |
| 0.025 ( $1/40$ ) |                                          |        |        | 0.0012 | 0.0012 | 0.0020 | 0.0024 | 0.0031 | 0.0035 |
| 0.040 ( $1/25$ ) |                                          |        |        | 0.0012 | 0.0016 | 0.0024 | 0.0031 | 0.0039 | 0.0047 |
| 0.050 ( $1/20$ ) |                                          |        |        | 0.0012 | 0.0016 | 0.0028 | 0.0035 | 0.0043 | 0.0051 |
| 0.100 ( $1/10$ ) |                                          | 0.0012 | 0.0020 | 0.0024 | 0.0024 | 0.0035 | 0.0047 | 0.0063 |        |
| 0.200 ( $2/10$ ) |                                          | 0.0012 | 0.0016 | 0.0028 | 0.0035 | 0.0051 | 0.0067 |        |        |
| 0.300 ( $3/10$ ) |                                          | 0.0016 | 0.0020 | 0.0031 | 0.0039 | 0.0063 |        |        |        |
| 0.400 ( $4/10$ ) |                                          | 0.0020 | 0.0024 | 0.0035 | 0.0047 |        |        |        |        |

$a_e$  = radial depth of cut

Calculation example:

$$a_e = \frac{D_2^2 - D_1^2}{4(D_2 - D_1)} \text{ inch}$$

Cutter dia. 1.300 inch  
 Rough bore dia. 1.969 inch  
 Radial depth 0.075 inch  
 Finished dia. 2.118 inch

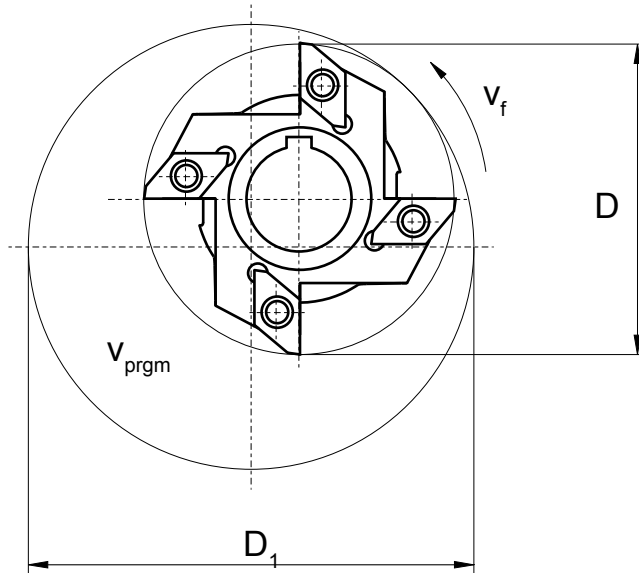
$$a_e = \frac{2.118^2 - 1.969^2}{4(2.118 - 1.300)} = 0.186 \text{ inch}$$

$$\text{Ratio: } \frac{a_e}{D} = \frac{0.186}{1.300} = 0.143$$

The table now tells us that the feed per tooth value is  $f_z = .0079$ " when using a mean depth of cut  $h_m = .0024$ ".  
 (Refer to column  $a_e/D$  at 0.100 ( $1/10$ ): jump right to field  $h_m = .0024$ ", jump up to feed per tooth  $f_z$  value in corresponding field).

## Nominal values for countersink milling

When programming the feed of circular milling contours, it must be considered that the programmed feed for older controllers is usually applied to the center of the slot cutter. The feed rate  $v_f$  corresponds to the effective feed at the slot cutter circumference. It must, therefore, be converted with the formula below. This conversion is made automatically with newer controllers.



$$v_{\text{prgm}} = \frac{v_f \cdot (D_1 - D)}{D} \quad \text{inch/min}$$

$$v_f = n \cdot z \cdot fz \quad \text{inch/min}$$

### Cutting speeds $v_c$

|           |             |          |
|-----------|-------------|----------|
| Steel     | 400 - 660   | inch/min |
| Cast iron | 260 - 430   | inch/min |
| Aluminium | 2300 - 2650 | inch/min |



# *Vario System*



## **The precisely adjustable fine-boring system**

### **Adjustable**

Tight bore tolerances can be met by simply sliding the cassettes.

### **Very chill**

Vario bodies all come with coolant through, flushing the bore.

### **Simple usage**

The adjustment is easy to do with few simple steps.

**Vario Mini / Vario Standard****The economical high precision adjustable fine boring system**

- Fine adjustment mechanism for fine machining operations with tolerance of bore < tolerance of insert
- Easily adjustable inside the machining center. With the gauge value changed by .0005" the adjustment results in a radial difference of .0001"
- Interchangeable cassettes (insert-carriers) for a variety of insert geometries and angles
- The economic solution for sophisticated machining operations due to the modular design
- Standard interface: Weldon, DIN 1835 Form B. Other interfaces upon request

**Size 1: Vario Mini**

**Bore size dia range .386" - .465"**

One mini-body size (w/ internal cooling) and 5 different cassettes per dia-range

**Size 2: Vario Standard**

**Bore size dia range .465" - .858"**

Five standard body sizes (w/ internal cooling) and 5 different cassettes per dia-range

**Caution**

**Size 1 cassettes fit only on the mini body**

**Size 2 cassettes fit only on standard bodies**

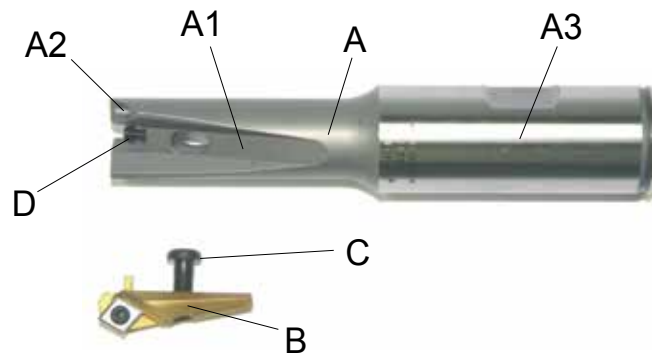
**Special**

- Materials
- Dimensions
- Interfaces                      upon request



## Description

### Vario System assembly



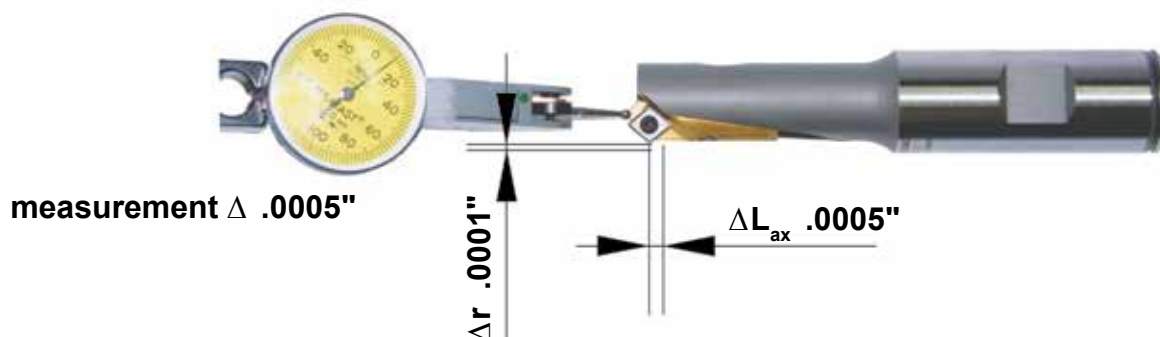
- A Body
  - A1 precision ground guide
  - A2 internal cooling
  - A3 interface
- B Cassette with insert
- C Fixing screw
- D Fine-adjustment screw

## Adjustment

### Caution

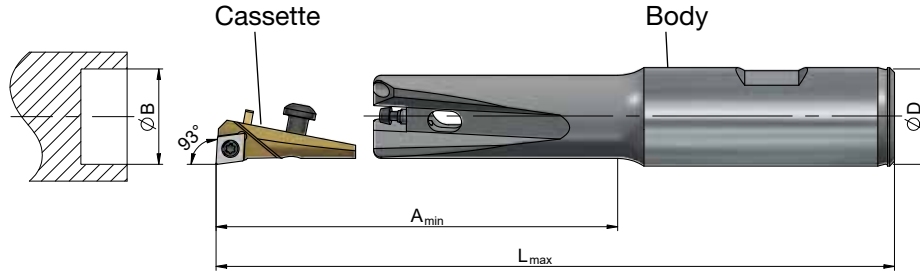
**Never turn the adjustment screw while the fixing screw is tightened.**

1. Make a test cut and measure the resulting bore diameter
2. Calculate the necessary axial correction in relation to the radial difference.  
The movement ratio is **5: 1**  
.0005" axial movement will produce .0001" radial movement  
.0005" axial movement will produce .0002" change in diameter
3. Place a measuring gauge in front to check your axial correction
4. Slightly loosen the fixing screw (C)
5. Adjust the axial position by turning the fine-adjustment screw (D)
6. Tighten the fixing screw (C)  
**Vario Mini:** 2.5 Nm / 1.84 ft-lb    **Vario Standard:** 4.0 Nm / 2.95 ft-lb  
We recommend the use of a torque wrench
7. Check indicator of the measuring gauge again





## Vario Mini / Vario Standard | 93°



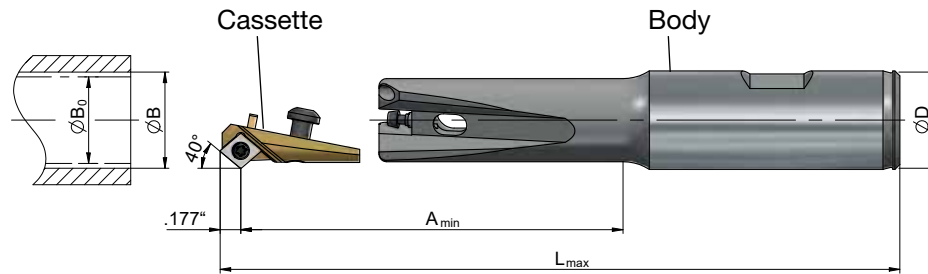
| Size            | [inch]           |                  |       |                  |                  | Insert      | Cassette     | Body          | Vario assembly        |
|-----------------|------------------|------------------|-------|------------------|------------------|-------------|--------------|---------------|-----------------------|
|                 | B <sub>min</sub> | B <sub>max</sub> | D     | L <sub>max</sub> | A <sub>min</sub> |             | Article No.  | Article No.   | Article No.           |
| 1<br>'Mini'     | .386"            | .402"            | .625" | 3.307"           | 1.063"           | WCG. 0201.. | VAK01049WU02 | VAS01"09W010A | VAR01"09W010A 049WU02 |
|                 | .402"            | .417"            |       |                  |                  |             | 051WU02      |               | 051WU02               |
|                 | .417"            | .433"            |       |                  |                  |             | 053WU02      |               | 053WU02               |
|                 | .433"            | .449"            |       |                  |                  |             | 055WU02      |               | 055WU02               |
|                 | .449"            | .465"            |       |                  |                  |             | 057WU02      |               | 057WU02               |
| 1<br>'Mini'     | .386"            | .402"            | .625" | 3.307"           | 1.063"           | CDG. 0401.. | VAK01049CL04 | VAS01"09W010A | VAR01"09W010A 049CL04 |
|                 | .402"            | .417"            |       |                  |                  |             | 051CL04      |               | 051CL04               |
|                 | .417"            | .433"            |       |                  |                  |             | 053CL04      |               | 053CL04               |
|                 | .433"            | .449"            |       |                  |                  |             | 055CL04      |               | 055CL04               |
|                 | .449"            | .465"            |       |                  |                  |             | 057CL04      |               | 057CL04               |
| 2<br>'Standard' | .465"            | .480"            | .625" | 3.543"           | 1.319"           | CPG. 05T1.. | VAK02057CU05 | VAS02"11W010A | VAR02"11W010A 057CU05 |
|                 | .480"            | .496"            |       |                  |                  |             | 059CU05      |               | 059CU05               |
|                 | .496"            | .512"            |       |                  |                  |             | 061CU05      |               | 061CU05               |
|                 | .512"            | .528"            |       |                  |                  |             | 063CU05      |               | 063CU05               |
|                 | .528"            | .543"            |       |                  |                  |             | 065CU05      |               | 065CU05               |
| 2<br>'Standard' | .543"            | .559"            | .625" | 3.780"           | 1.594"           | CPG. 05T1.. | VAK02057CU05 | VAS02"13W010A | VAR02"13W010A 057CU05 |
|                 | .559"            | .575"            |       |                  |                  |             | 059CU05      |               | 059CU05               |
|                 | .575"            | .591"            |       |                  |                  |             | 061CU05      |               | 061CU05               |
|                 | .591"            | .606"            |       |                  |                  |             | 063CU05      |               | 063CU05               |
|                 | .606"            | .622"            |       |                  |                  |             | 065CU05      |               | 065CU05               |
| 2<br>'Standard' | .622"            | .638"            | .750" | 4.094"           | 1.713"           | CPG. 05T1.. | VAK02057CU05 | VAS02"15W012A | VAR02"15W012A 057CU05 |
|                 | .638"            | .654"            |       |                  |                  |             | 059CU05      |               | 059CU05               |
|                 | .654"            | .669"            |       |                  |                  |             | 061CU05      |               | 061CU05               |
|                 | .669"            | .685"            |       |                  |                  |             | 063CU05      |               | 063CU05               |
|                 | .685"            | .701"            |       |                  |                  |             | 065CU05      |               | 065CU05               |
| 2<br>'Standard' | .701"            | .717"            | .750" | 4.331"           | 1.988"           | CPG. 05T1.. | VAK02057CU05 | VAS02"17W012A | VAR02"17W012A 057CU05 |
|                 | .717"            | .732"            |       |                  |                  |             | 059CU05      |               | 059CU05               |
|                 | .732"            | .748"            |       |                  |                  |             | 061CU05      |               | 061CU05               |
|                 | .748"            | .764"            |       |                  |                  |             | 063CU05      |               | 063CU05               |
|                 | .764"            | .780"            |       |                  |                  |             | 065CU05      |               | 065CU05               |
| 2<br>'Standard' | .780"            | .795"            | 1.0"  | 4.803"           | 2.146"           | CPG. 05T1.. | VAK02057CU05 | VAS02"19W016A | VAR02"19W016A 057CU05 |
|                 | .795"            | .811"            |       |                  |                  |             | 059CU05      |               | 059CU05               |
|                 | .811"            | .827"            |       |                  |                  |             | 061CU05      |               | 061CU05               |
|                 | .827"            | .843"            |       |                  |                  |             | 063CU05      |               | 063CU05               |
|                 | .843"            | .858"            |       |                  |                  |             | 065CU05      |               | 065CU05               |

**Caution** The range of operation  $D_{min} - D_{max}$  is only guaranteed when using Denitool inserts in tolerance G with R.0079" & R.0157"

Other geometries upon request



## Vario Standard | 40°



| Size            | [inch]           |                  |       |                  |                  |                   | Insert      | Cassette            | Body          | Vario assembly       |
|-----------------|------------------|------------------|-------|------------------|------------------|-------------------|-------------|---------------------|---------------|----------------------|
|                 | B <sub>min</sub> | B <sub>max</sub> | D     | L <sub>max</sub> | A <sub>min</sub> | B <sub>0</sub> *) |             | Article No.         | Article No.   | Article No.          |
| 1<br>'Mini'     |                  |                  |       |                  |                  |                   |             |                     |               |                      |
| 1<br>'Mini'     |                  |                  |       |                  |                  |                   |             |                     |               |                      |
| 2<br>'Standard' | .465"            | .480"            | .625" | 3.543"           | 1.142"           | .445"             | CPG. 05T1.. | <b>VAK02057CX05</b> | VAS02"11W010A | VAR02"11W010A057CX05 |
|                 | .480"            | .496"            |       |                  |                  |                   |             | 059CX05             |               | 059CX05              |
|                 | .496"            | .512"            |       |                  |                  |                   |             | 061CX05             |               | 061CX05              |
|                 | .512"            | .528"            |       |                  |                  |                   |             | 063CX05             |               | 063CX05              |
|                 | .528"            | .543"            |       |                  |                  |                   |             | 065CX05             |               | 065CX05              |
| 2<br>'Standard' | .543"            | .559"            | .625" | 3.780"           | 1.417"           | .524"             | CPG. 05T1.. | <b>VAK02057CX05</b> | VAS02"13W010A | VAR02"13W010A057CX05 |
|                 | .559"            | .575"            |       |                  |                  |                   |             | 059CX05             |               | 059CX05              |
|                 | .575"            | .591"            |       |                  |                  |                   |             | 061CX05             |               | 061CX05              |
|                 | .591"            | .606"            |       |                  |                  |                   |             | 063CX05             |               | 063CX05              |
|                 | .606"            | .622"            |       |                  |                  |                   |             | 065CX05             |               | 065CX05              |
| 2<br>'Standard' | .622"            | .638"            | .750" | 4.094"           | 1.535"           | .602"             | CPG. 05T1.. | <b>VAK02057CX05</b> | VAS02"15W012A | VAR02"15W012A057CX05 |
|                 | .638"            | .654"            |       |                  |                  |                   |             | 059CX05             |               | 059CX05              |
|                 | .654"            | .669"            |       |                  |                  |                   |             | 061CX05             |               | 061CX05              |
|                 | .669"            | .685"            |       |                  |                  |                   |             | 063CX05             |               | 063CX05              |
|                 | .685"            | .701"            |       |                  |                  |                   |             | 065CX05             |               | 065CX05              |
| 2<br>'Standard' | .701"            | .717"            | .750" | 4.331"           | 1.811"           | .681"             | CPG. 05T1.. | <b>VAK02057CX05</b> | VAS02"17W012A | VAR02"17W012A057CX05 |
|                 | .717"            | .732"            |       |                  |                  |                   |             | 059CX05             |               | 059CX05              |
|                 | .732"            | .748"            |       |                  |                  |                   |             | 061CX05             |               | 061CX05              |
|                 | .748"            | .764"            |       |                  |                  |                   |             | 063CX05             |               | 063CX05              |
|                 | .764"            | .780"            |       |                  |                  |                   |             | 065CX05             |               | 065CX05              |
| 2<br>'Standard' | .780"            | .795"            | 1.0"  | 4.803"           | 1.969"           | .760"             | CPG. 05T1.. | <b>VAK02057CX05</b> | VAS02"19W016A | VAR02"19W016A057CX05 |
|                 | .795"            | .811"            |       |                  |                  |                   |             | 059CX05             |               | 059CX05              |
|                 | .811"            | .827"            |       |                  |                  |                   |             | 061CX05             |               | 061CX05              |
|                 | .827"            | .843"            |       |                  |                  |                   |             | 063CX05             |               | 063CX05              |
|                 | .843"            | .858"            |       |                  |                  |                   |             | 065CX05             |               | 065CX05              |

**Caution** The range of operation  $D_{min} - D_{max}$  is only guaranteed when using Denitool inserts in tolerance G with R.0079" & R.0157"

\*) When using CX05 type cassettes the dia of the rough-bore must be at least  $D_0$

Other geometries upon request

**Accessories**


| Size            | Designation                      | Content                                                                                        |                                                                                      | Article No.      |
|-----------------|----------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------|
| 'Mini'          | Set of accessories               | 1 pce Fixing screw T30.085-0010<br>5 pcs Adjusting screw T20.034-0008<br>1 pce Torx driver T6F |   | <b>VAZ01 001</b> |
|                 | Screwdriver T10 for fixing screw |                                                                                                |                                                                                      | <b>T10H</b>      |
| 2<br>'Standard' | Set of accessories               | 1 pce Fixing screw T40.100-0009<br>5 pcs Adjusting screw T30.090-0001<br>1 pce Torx driver T6F |  | <b>VAZ02 001</b> |
|                 | Screwdriver T15 for fixing screw |                                                                                                |                                                                                      | <b>T15H</b>      |

**Vario System with carbide shank**

The adjustable fine-boring solution is also available for even deeper bores. Request a quote for your custom solution. The images show custom solutions of the Vario System with carbide shanks and coolant through.



## Indexable inserts



| Size            | Article No.                                                                                                     | [inch] |       |       |       |        |       |        |                | DX2 | P25 | DX20 | DP25 | DX30 | DP35 | DX50 | DP55 | DX52 | DP57 | DX70 | DT55 | DT255 | DT355 |
|-----------------|-----------------------------------------------------------------------------------------------------------------|--------|-------|-------|-------|--------|-------|--------|----------------|-----|-----|------|------|------|------|------|------|------|------|------|------|-------|-------|
|                 |                                                                                                                 | l      | d     | +/-   | s     | m      | +/-   | r      | d <sub>1</sub> |     |     |      |      |      |      |      |      |      |      |      |      |       |       |
| 1<br>'Mini'     | <br><b>WCET 020102 FN-20</b>   | .090"  | .156" | .001" | .063" | .0391" | .001" | .0079" | .090"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>WCET 020104 FN-20</b>   | .090"  | .156" | .001" | .063" | .0347" | .001" | .0157" | .090"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>WCGT 020102 EN</b>      | .090"  | .156" | .001" | .063" | .0391" | .001" | .0079" | .090"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>WCGT 020104 EN</b>      | .090"  | .156" | .001" | .063" | .0347" | .001" | .0157" | .090"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>WCGT 020102 FL</b>      | .090"  | .156" | .001" | .063" | .0391" | .001" | .0079" | .090"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>WCGT 020104 FL</b>      | .090"  | .156" | .001" | .063" | .0347" | .001" | .0157" | .090"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>WCGT 020102 FN-20</b>   | .090"  | .156" | .001" | .063" | .0391" | .001" | .0079" | .090"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>WCGT 020104 FN-20</b>   | .090"  | .156" | .001" | .063" | .0347" | .001" | .0157" | .090"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CDGT 040102 FL</b>      | .159"  | .156" | .001" | .039" | .0391" | .001" | .0079" | .087"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CDGT 040104 FL</b>      | .159"  | .156" | .001" | .039" | .0347" | .001" | .0157" | .087"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
| 2<br>'Standard' | <br><b>CPET 05T102 FL</b>    | .220"  | .219" | .001" | .078" | .0564" | .001" | .0079" | .098"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CPET 05T104 FL</b>    | .220"  | .219" | .001" | .078" | .0521" | .001" | .0157" | .098"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CPET 05T102 FN-20</b> | .220"  | .219" | .001" | .078" | .0564" | .001" | .0079" | .098"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CPET 05T104 FN-20</b> | .220"  | .219" | .001" | .078" | .0521" | .001" | .0157" | .098"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CPGT 05T102 EN</b>    | .220"  | .219" | .001" | .078" | .0564" | .001" | .0079" | .098"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CPGT 05T104 EN</b>    | .220"  | .219" | .001" | .078" | .0521" | .001" | .0157" | .098"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CPGT 05T102 FN</b>    | .220"  | .219" | .001" | .078" | .0564" | .001" | .0079" | .098"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CPGT 05T104 FN</b>    | .220"  | .219" | .001" | .078" | .0521" | .001" | .0157" | .098"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CPGT 05T102 FN-20</b> | .220"  | .219" | .001" | .078" | .0564" | .001" | .0079" | .098"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |
|                 | <br><b>CPGT 05T104 FN-20</b> | .220"  | .219" | .001" | .078" | .0521" | .001" | .0157" | .098"          | ■   | ■   | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■     |

**Caution** The range of operation  $B_{min}$  -  $B_{max}$  is only guaranteed when using Denitool inserts with tolerance G with R.0079" & R.0157"

■ stock item  
□ upon request

Special geometries upon request

For more insert geometries please refer to p.20 (WC02) p.15 (CD04) p.21 (CP05) or check QR codes

WC02



CD04



CP05





# LiveTools **ER**



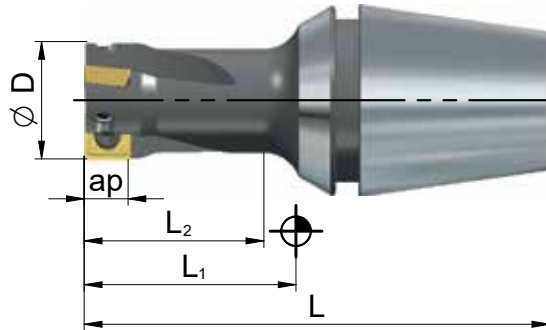
## Driven tooling with common ER 25 collet chuck interface

High-precision boring with **Vario System** fine boring solution

Premiere performance of **MicroMill** with highly rigid interface

## Corner and face milling cutter 90°

90°



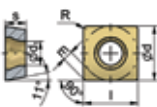
Milling cutter with internal coolant

| Article No.      | [inch] |    |        |                |                |       |   |             |         |     |
|------------------|--------|----|--------|----------------|----------------|-------|---|-------------|---------|-----|
|                  | ØD     | ER | L      | L <sub>1</sub> | L <sub>2</sub> | ap    | z |             |         |     |
| LTS 1625 RSAS-06 | .630"  | 25 | 2.480" | 1.130"         | 1.075"         | .232" | 3 | SP.. 0602.. | T25.055 | T7F |

## The extremely rigid high-performance ER 25 milling cutter

- Much higher tool rigidity compared to standard end mills
- Tool cutting edge angle of **exactly** 90°, other angles upon request
- Fits all Live Tooling units with **Standard ER 25 System** (ER-Standard & ER-Mini locknut)
- Fits all Live Tooling units with **u-tec® UT 25 A System of heimatec®** (ERAX locknut)

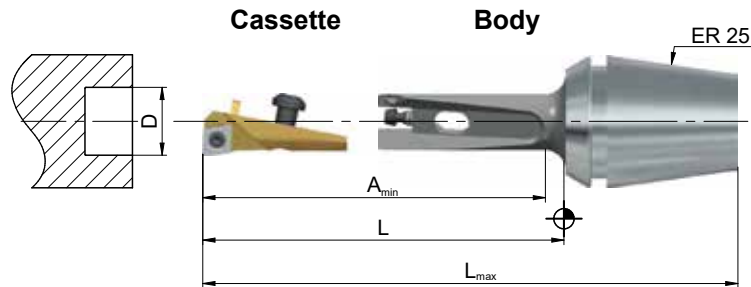
## Indexable inserts

|  | Article No.           | [inch] |       |        |       |       |       |        |        |                 | DX 2 | DX 32 | DX 50 |  |  |  |  |  |
|-------------------------------------------------------------------------------------|-----------------------|--------|-------|--------|-------|-------|-------|--------|--------|-----------------|------|-------|-------|--|--|--|--|--|
|                                                                                     |                       | l      | Ød    | +/-    | s     | +/-   | m     | +/-    | R      | Ød <sub>1</sub> |      |       |       |  |  |  |  |  |
|  | <b>SPHT 060204 EN</b> | .250"  | .250" | .0005" | .094" | .001" | .045" | .0005" | .0157" | .110"           | ■    | ■     |       |  |  |  |  |  |
|  | <b>SPHW 060204 FN</b> | .250"  | .250" | .0005" | .094" | .001" | .045" | .0005" | .0157" | .110"           |      |       | ■     |  |  |  |  |  |
|                                                                                     | <b>SPHW 060208 FN</b> | .250"  | .250" | .0005" | .094" | .001" | .039" | .0005" | .0315" | .110"           |      |       | ■     |  |  |  |  |  |

■ stock item

SP09



Fine boring 93° | **Vario System**

Tools are compatible with **Vario System** accessories and feature internal coolant through

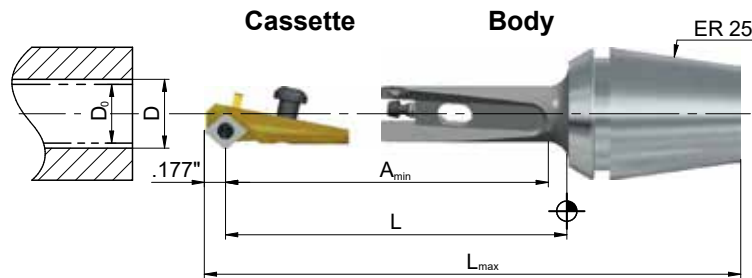
| Size                     | [inch]           |                  |                   |                  |                  | Insert     |                | Cassette     | Body            | Complete assembly      |
|--------------------------|------------------|------------------|-------------------|------------------|------------------|------------|----------------|--------------|-----------------|------------------------|
|                          | D <sub>min</sub> | D <sub>max</sub> | L <sub>1max</sub> | L <sub>max</sub> | A <sub>min</sub> |            |                | Article No.  | Article No.     | Article No.            |
| 1<br>'Mini'<br>ER 25     | .386"            | .402"            | 1.390"            | 2.740"           | 1.157"           | WC. 0201.. | T20.037 & T6F  | VAK01049WU02 | LTS 0925 VAS 01 | LTS 0925 VAR01049WU02  |
|                          | .402"            | .417"            |                   |                  |                  |            |                | 051WU02      |                 | 051WU02                |
|                          | .417"            | .433"            |                   |                  |                  |            |                | 053WU02      |                 | 053WU02                |
|                          | .433"            | .449"            |                   |                  |                  |            |                | 055WU02      |                 | 055WU02                |
|                          | .449"            | .465"            |                   |                  |                  |            |                | 057WU02      |                 | 057WU02                |
| 1<br>'Mini'<br>ER 25     | .386"            | .402"            | 1.390"            | 2.740"           | 1.157"           | CD. 0401.. | T18.Z30A & T5F | VAK01049CL04 | LTS 0925 VAS 01 | LTS 0925 VAR01 049CL04 |
|                          | .402"            | .417"            |                   |                  |                  |            |                | 051CL04      |                 | 051CL04                |
|                          | .417"            | .433"            |                   |                  |                  |            |                | 053CL04      |                 | 053CL04                |
|                          | .433"            | .449"            |                   |                  |                  |            |                | 055CL04      |                 | 055CL04                |
|                          | .449"            | .465"            |                   |                  |                  |            |                | 057CL04      |                 | 057CL04                |
| 2<br>'Standard'<br>ER 25 | .465"            | .480"            | 1.543"            | 2.894"           | 1.358"           | CP. 05T1.. | T22.045 & T7F  | VAK02057CU05 | LTS 1125 VAS02  | LTS 1125 VAR02057CU05  |
|                          | .480"            | .496"            |                   |                  |                  |            |                | 059CU05      |                 | 059CU05                |
|                          | .496"            | .512"            |                   |                  |                  |            |                | 061CU05      |                 | 061CU05                |
|                          | .512"            | .528"            |                   |                  |                  |            |                | 063CU05      |                 | 063CU05                |
|                          | .528"            | .543"            |                   |                  |                  |            |                | 065CU05      |                 | 065CU05                |
| 2<br>'Standard'<br>ER 25 | .543"            | .559"            | 1.780"            | 3.130"           | 1.610"           | CP. 05T1.. | T22.045 & T7F  | VAK02057CU05 | LTS 1325 VAS02  | LTS 1325 VAR02057CU05  |
|                          | .559"            | .575"            |                   |                  |                  |            |                | 059CU05      |                 | 059CU05                |
|                          | .575"            | .591"            |                   |                  |                  |            |                | 061CU05      |                 | 061CU05                |
|                          | .591"            | .606"            |                   |                  |                  |            |                | 063CU05      |                 | 063CU05                |
|                          | .606"            | .622"            |                   |                  |                  |            |                | 065CU05      |                 | 065CU05                |
| 2<br>'Standard'<br>ER 25 | .622"            | .638"            | 1.937"            | 3.287"           | 1.732"           | CP. 05T1.. | T22.045 & T7F  | VAK02057CU05 | LTS 1525 VAS02  | LTS 1525 VAR02057CU05  |
|                          | .638"            | .654"            |                   |                  |                  |            |                | 059CU05      |                 | 059CU05                |
|                          | .654"            | .669"            |                   |                  |                  |            |                | 061CU05      |                 | 061CU05                |
|                          | .669"            | .685"            |                   |                  |                  |            |                | 063CU05      |                 | 063CU05                |
|                          | .685"            | .701"            |                   |                  |                  |            |                | 065CU05      |                 | 065CU05                |

**Caution** The range of operation D<sub>min</sub> - D<sub>max</sub> is only guaranteed when using Denitool inserts in tolerance G with R.008" & R.016"

Please refer to p.107 for insert details and to p.106 for Vario accessories

Different geometries upon request



**Fine boring 40° | Vario System**

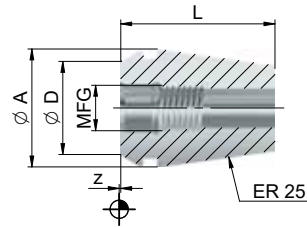
Tools are compatible with **Vario System** accessories and feature internal coolant through

| Size                     | [inch]           |                  |                   |                  |                  |                   | Insert     | Cassette     | Body           | Complete assembly      |
|--------------------------|------------------|------------------|-------------------|------------------|------------------|-------------------|------------|--------------|----------------|------------------------|
|                          | D <sub>min</sub> | D <sub>max</sub> | L <sub>1max</sub> | L <sub>max</sub> | A <sub>min</sub> | D <sub>0</sub> *) |            | Article No.  | Article No.    | Article No.            |
| 1<br>'Mini'<br>ER 25     |                  |                  |                   |                  |                  |                   |            |              |                |                        |
|                          |                  |                  |                   |                  |                  |                   |            |              |                |                        |
| 2<br>'Standard'<br>ER 25 | .465"            | .480"            | 1.543"            | 2.894"           | 1.193"           | 0.445"            | CP. 05T1.. | VAK02057CX05 | LTS 1125 VAS02 | LTS 1125 VAR02057CX05  |
|                          | .480"            | .496"            | ↓                 | ↓                | ↓                |                   | ↓          | 059CX05      | ↓              | 059CX05                |
|                          | .496"            | .512"            |                   |                  |                  |                   |            | 061CX05      |                | 061CX05                |
|                          | .512"            | .528"            |                   |                  |                  |                   |            | 063CX05      |                | 063CX05                |
|                          | .528"            | .543"            | ↓                 | ↓                | ↓                |                   | ↓          | 065CX05      | ↓              | 065CX05                |
| 2<br>'Standard'<br>ER 25 | .543"            | .559"            | 1.780"            | 3.130"           | 1.445"           | 0.524"            | CP. 05T1.. | VAK02057CX05 | LTS 1325 VAS02 | LTS 1325 VAR02 057CX05 |
|                          | .559"            | .575"            | ↓                 | ↓                | ↓                |                   | ↓          | 059CX05      | ↓              | 059CX05                |
|                          | .575"            | .591"            |                   |                  |                  |                   |            | 061CX05      |                | 061CX05                |
|                          | .591"            | .606"            |                   |                  |                  |                   |            | 063CX05      |                | 063CX05                |
|                          | .606"            | .622"            | ↓                 | ↓                | ↓                |                   | ↓          | 065CX05      | ↓              | 065CX05                |
| 2<br>'Standard'<br>ER 25 | .622"            | .638"            | 1.937"            | 3.287"           | 1.567"           | 0.602"            | CP. 05T1.. | VAK02057CX05 | LTS 1525 VAS02 | LTS 1525 VAR02057CX05  |
|                          | .638"            | .654"            | ↓                 | ↓                | ↓                |                   | ↓          | 059CX05      | ↓              | 059CX05                |
|                          | .654"            | .669"            |                   |                  |                  |                   |            | 061CX05      |                | 061CX05                |
|                          | .669"            | .685"            |                   |                  |                  |                   |            | 063CX05      |                | 063CX05                |
|                          | .685"            | .701"            | ↓                 | ↓                | ↓                |                   | ↓          | 065CX05      | ↓              | 065CX05                |

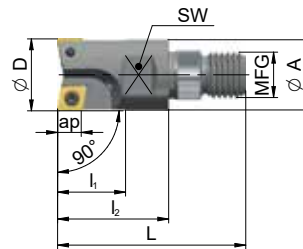
**Caution** The range of operation D<sub>min</sub> - D<sub>max</sub> is only guaranteed when using Denitool inserts in tolerance G with R.008" & R.016"  
 \*) When using CX05 type cassettes the diameter of the rough-bore must be at least D<sub>0</sub>

Please refer to p.107 for insert details and to p.106 for Vario accessories

Different geometries upon request

Adapter ER 25 for *MicroMill*

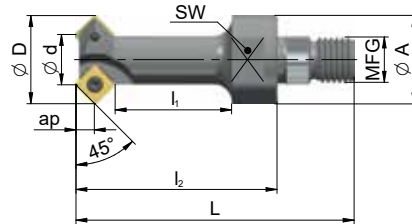
| Article No.        | [inch]          |                 |        |        |             |  |  |  |
|--------------------|-----------------|-----------------|--------|--------|-------------|--|--|--|
|                    | $\varnothing A$ | $\varnothing D$ | L      | z      | MFG<br>[mm] |  |  |  |
| <b>LTS 0825 MM</b> | 1.024"          | 0.807"          | 1.338" | 0.013" | 8 x 1.00    |  |  |  |
| <b>LTS 1025 MM</b> | 1.024"          | 0.807"          | 1.338" | 0.013" | 10 x 1.25   |  |  |  |

Mini cutter 90° | *MicroMill*

All milling cutters with internal coolant

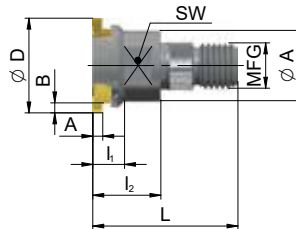
| Article No.            | [inch]          |                 |       |        |       |       |             |   |       |             |         |     |
|------------------------|-----------------|-----------------|-------|--------|-------|-------|-------------|---|-------|-------------|---------|-----|
|                        | $\varnothing D$ | $\varnothing A$ | ap    | L      | $l_1$ | $l_2$ | MFG<br>[mm] | z | SW    |             |         |     |
| <b>MM 0812 RCAS-05</b> | .315"           | .453"           | .197" | 1.535" | .394" | .984" | 8 x 1.0     | 1 | .394" | CP.. 05T1.. | T22.045 | T7F |
| <b>MM 1012 RCAS-05</b> | .394"           | .453"           | .197" | 1.535" | .591" | .984" | 8 x 1.0     | 1 | .394" | CP.. 05T1.. | T22.045 | T7F |
| <b>MM 1212 RCAS-05</b> | .472"           | .453"           | .197" | 1.535" | .591" | .984" | 8 x 1.0     | 1 | .394" | CP.. 05T1.. | T22.045 | T7F |
| <b>MM 1616 RCAS-05</b> | .630"           | .610"           | .197" | 1.654" | .591" | .984" | 10 x 1.25   | 2 | .512" | CP.. 05T1.. | T22.045 | T7F |
| <b>MM 2020 RCAS-05</b> | .787"           | .768"           | .197" | 1.654" | .591" | .984" | 10 x 1.25   | 2 | .669" | CP.. 05T1.. | T22.045 | T7F |

Please refer to p.88 for insert details

Chamfer cutter 45° | **MicroMill**

All milling cutters with internal coolant

| Article No.            | [inch] |       |       |       |       |        |                |                |             |   |       |             |         |      |
|------------------------|--------|-------|-------|-------|-------|--------|----------------|----------------|-------------|---|-------|-------------|---------|------|
|                        | øD     | ød    | øA    | ap    | øa    | L      | l <sub>1</sub> | l <sub>2</sub> | MFG<br>[mm] | z | SW    |             |         |      |
| <b>FA 0216 RSDS-06</b> | .433"  | .157" | .610" | .157" | .276" | 2.205" | .803"          | 1.535"         | 10 x 1.25   | 1 | .512" | SC.. 0602.. | T25.055 | T7F  |
| <b>FA 1120 RSDS-06</b> | .768"  | .413" | .768" | .157" | .413" | 2.421" | 1.0"           | 1.752"         | 10 x 1.25   | 2 | .669" | SC.. 0602.. | T25.055 | T7F  |
| <b>FA 1616 RSDS-09</b> | 1.142" | .630" | .610" | .197" | --    | 1.909" | --             | 1.240"         | 10 x 1.25   | 2 | .512" | SC.. 09T3.. | T40.082 | T15H |
| <b>FA 2020 RSDS-09</b> | 1.299" | .787" | .768" | .197" | --    | 2.106" | --             | 1.437"         | 10 x 1.25   | 2 | .669" | SC.. 09T3.. | T40.082 | T15H |

Slot cutter 45° | **MicroMill**

With internal coolant

| Article No.            | [inch]          |                 |            |            |        |       |       |           |   |       |       |         |     |
|------------------------|-----------------|-----------------|------------|------------|--------|-------|-------|-----------|---|-------|-------|---------|-----|
|                        | $\varnothing D$ | $\varnothing A$ | $A_{max.}$ | $B_{max.}$ | L      | $L_1$ | $L_2$ | MFG [mm]  | z | SW    |       |         |     |
| <b>MS 2116 RNAS-01</b> | .827"           | .610"           | 0.106"     | .075"      | 1.260" | --    | .591" | 10 x 1.25 | 2 | .512" | NFL-1 | T30.090 | T8F |

Please refer to page 88 &amp; 89 for insert details



# ***LiveTools*** **ER DPC**



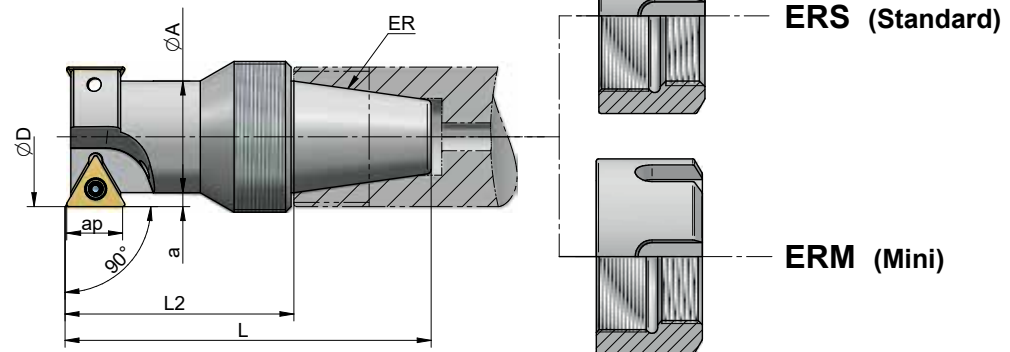
***High-performance milling cutter system with extremely rigid interface for live tooling units with collet chuck spindles***

- Much higher tool stability compared to standard end mills
- Fits without modification to commonly available collet chuck spindles with male thread ERS (ER Standard) or ERM (ER Mini)
- Available in cutting diameters .787", .984" and 1.260"
- Tool cutting edge angles of 45°, 60° and 90°



## Corner and face milling cutters 90°

90°

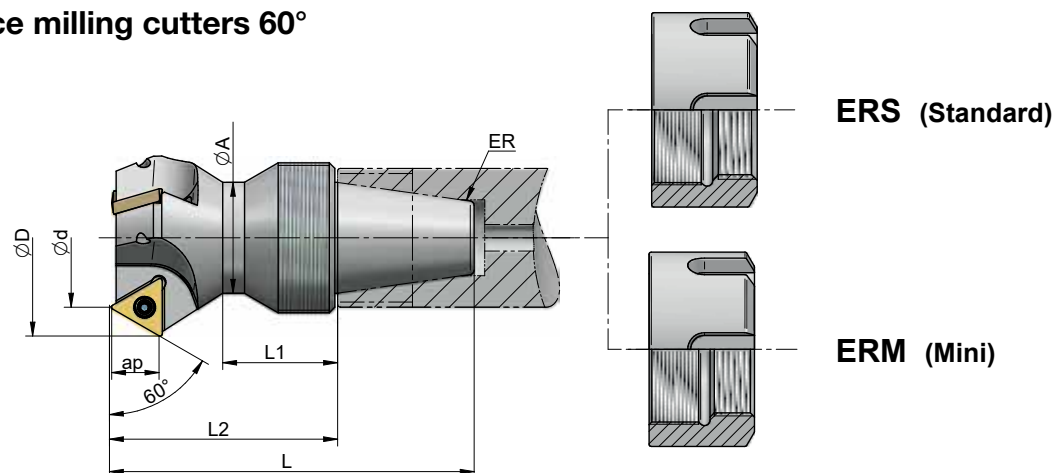


| Article No.            | Dimensions [inch] |             |        |       |        |       |       |   | ERS       | ERM       |  |  |  |
|------------------------|-------------------|-------------|--------|-------|--------|-------|-------|---|-----------|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                        | $\phi D$          | $\phi A/ER$ | L      | $L_1$ | $L_2$  | a     | ap    | z |           |           |                                                                                     |                                                                                     |                                                                                     |
| <b>FC 2016 RTAS-11</b> | .787"             | .630"/16    | 2.440" | .815" | 1.602" | .079" | .354" | 2 | TM ERS-16 | TM ERM-16 | TPHW 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| <b>FC 2520 RTAS-11</b> | .984"             | .787"/20    | 2.571" | .815" | 1.602" | .098" | .354" | 2 | TM ERS-20 | TM ERM-20 | TPHT 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| <b>FC 3225 RTAS-11</b> | 1.260"            | .984"/25    | 2.626" | .815" | 1.602" | .138" | .354" | 3 | TM ERS-25 | TM ERM-25 | TPHT 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |

All milling cutters with internal coolant

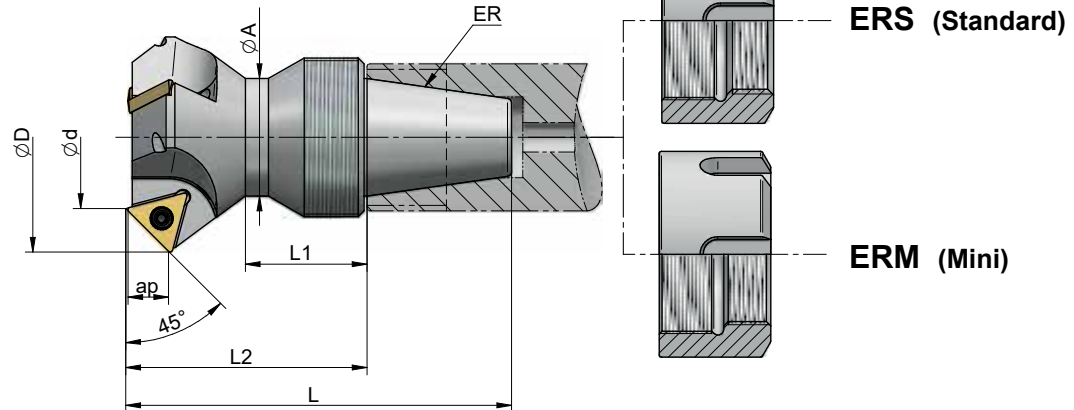
## Corner and face milling cutters 60°

60°



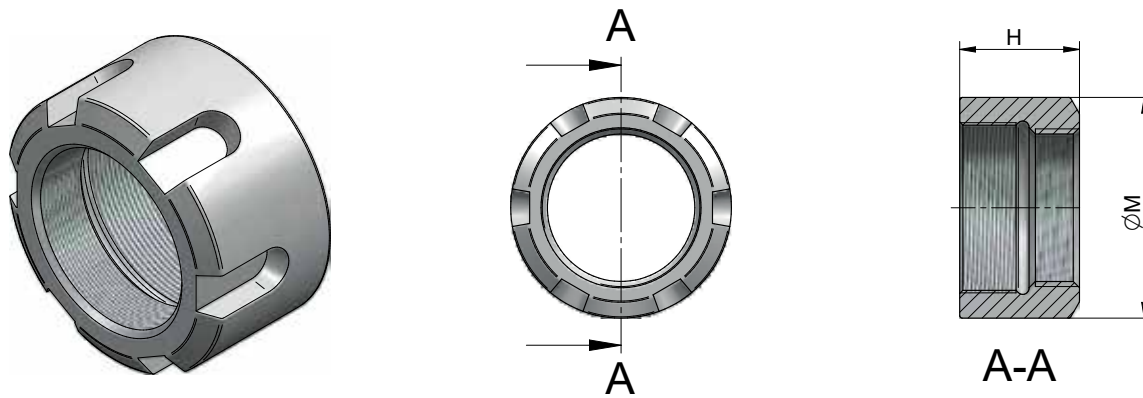
| Article No.            | Dimensions [inch] |          |             |        |       |        |       |   | ERS       | ERM       |  |  |  |
|------------------------|-------------------|----------|-------------|--------|-------|--------|-------|---|-----------|-----------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                        | $\phi D$          | $\phi d$ | $\phi A/ER$ | L      | $L_1$ | $L_2$  | a     | z |           |           |                                                                                       |                                                                                       |                                                                                       |
| <b>FC 2016 RTES-11</b> | 1.173"            | .787"    | .630"/16    | 2.440" | .815" | 1.602" | .295" | 2 | TM ERS-16 | TM ERM-16 | TPHW 1102..                                                                           | T25.055                                                                               | T7F                                                                                   |
| <b>FC 2520 RTES-11</b> | 1.370"            | .984"    | .787"/20    | 2.571" | .815" | 1.602" | .295" | 3 | TM ERS-20 | TM ERM-20 | TPHT 1102..                                                                           | T25.055                                                                               | T7F                                                                                   |
| <b>FC 3225 RTES-11</b> | 1.646"            | 1.260"   | .984"/25    | 2.626" | .815" | 1.602" | .295" | 3 | TM ERS-25 | TM ERM-25 | TPHT 1102..                                                                           | T25.055                                                                               | T7F                                                                                   |

All milling cutters with internal coolant

**Corner and face milling cutters 45°****45°**

| Article No.            | Dimensions [inch] |          |             |        |       |        |         |  |  |  |  |  |
|------------------------|-------------------|----------|-------------|--------|-------|--------|---------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                        | $\phi D$          | $\phi d$ | $\phi A/ER$ | L      | $L_1$ | $L_2$  | ap z    |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>FC 2016 RTDS-11</b> | 1.338"            | .787"    | .630"/16    | 2.440" | .815" | 1.602" | .236" 3 | TM ERS-16                                                                         | TM ERM-16                                                                           | TPHW 1102..                                                                         | T25.055                                                                             | T7F                                                                                 |
| <b>FC 2520 RTDS-11</b> | 1.535"            | .984"    | .787"/20    | 2.571" | .815" | 1.602" | .236" 3 | TM ERS-20                                                                         | TM ERM-20                                                                           | TPHT 1102..                                                                         |                                                                                     |                                                                                     |
| <b>FC 3225 RTDS-11</b> | 1.811"            | 1.260"   | .984"/25    | 2.626" | .815" | 1.602" | .236" 3 | TM ERS-25                                                                         | TM ERM-25                                                                           |                                                                                     |                                                                                     |                                                                                     |

All milling cutters with internal coolant

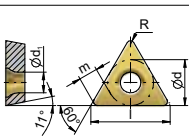
**Differential locknuts for ERS (Standard) and ERM (Mini) Spindles**

| Article No.      |  |  | Dimensions [inch] |          |       |
|------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------|----------|-------|
|                  |                                                                                     |                                                                                     | $\phi ER$         | $\phi M$ | H     |
| <b>TM ERS-16</b> |                                                                                     | <b>TM ERM-16</b>                                                                    | 16                | 1.260"   | .689" |
| <b>TM ERS-20</b> |                                                                                     | <b>TM ERM-20</b>                                                                    | 20                | 1.379"   | .748" |
| <b>TM ERS-25</b> |                                                                                     | <b>TM ERM-25</b>                                                                    | 25                | 1.654"   | .787" |

Please use the ER Standard sized wrenches for both types of differential locknuts (ERS &amp; ERM)

## Indexable inserts



|  | Article No.    | [inch] |       |       |        |        |                 |    |    |      |      |       |       |       |       |       |       |
|-----------------------------------------------------------------------------------|----------------|--------|-------|-------|--------|--------|-----------------|----|----|------|------|-------|-------|-------|-------|-------|-------|
|                                                                                   |                | l      | Ød    | s     | R      | m      | Ød <sub>1</sub> | Sp | SI | DX 2 | P 25 | DX 20 | DP 25 | DX 30 | DP 35 | DX 50 | DP 55 |
|  | TPHW 110202 EN | .433"  | .250" | .094" | .0079" | .3681" | .112"           |    |    |      | ■    |       |       |       |       |       |       |
|                                                                                   | TPHW 110204 EN |        |       |       | .0157" | .3591" |                 |    |    |      | ■    |       |       |       |       |       |       |
|                                                                                   | TPHW 110208 EN |        |       |       | .0315" | .3441" |                 |    |    |      | ■    |       | □     |       | □     |       |       |
|  | TPHW 110202 FN | .433"  | .250" | .094" | .0079" | .3681" | .112"           |    |    |      | ■    |       |       | □     |       | □     |       |
|                                                                                   | TPHW 110204 FN |        |       |       | .0157" | .3591" |                 |    |    |      | ■    |       |       | □     |       | □     |       |
|                                                                                   | TPHW 110208 FN |        |       |       | .0315" | .3441" |                 |    |    |      | ■    |       | □     |       | □     |       |       |

■ stock item

□ upon request

TP11



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# LiveTools *u-tec*®



## Driven tooling portfolio for usage with heimatec® u-tec® interface

- Premiere performance milling cutter system with extremely rigid interface
- Expanded live tool offering with introduction of Denitool's *Vario System* for high precision boring



► Please refer to the Denitool® *LiveTools u-tec*® catalog



# ***FineBore*** **EW**

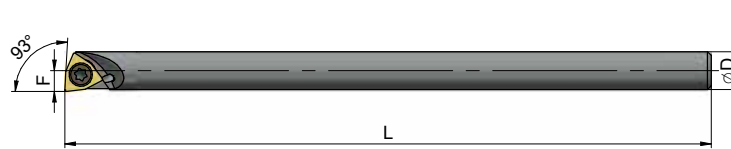
*Carbide Boring Bars for Precision Boring Heads*



***The ORIGINAL with high hardness precision insert pocket***

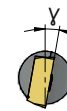


## Carbide boring bars for precision boring heads

93°  
SWUCR

Carbide shank with internal coolant

| Article No.        | [inch] |        |       |                  |     |             |         |     |
|--------------------|--------|--------|-------|------------------|-----|-------------|---------|-----|
| R                  | D      | L      | F     | B <sub>min</sub> | Y   |             |         |     |
| E05F SWUCR-02-0001 | .197"  | 3.346" | .115" | .228"            | 17° | WC.. 0201.. | T20.037 | T6F |
| E06G SWUCR-02-0001 | .236"  | 3.740" | .142" | .287"            | 12° | WC.. 0201.. | T20.037 | T6F |

93°  
STUPR

Carbide shank with internal coolant

| Article No.        | [inch] |        |       |                  |     |             |         |     |
|--------------------|--------|--------|-------|------------------|-----|-------------|---------|-----|
| R                  | D      | L      | F     | B <sub>min</sub> | Y   |             |         |     |
| E07F STUPR-07-0002 | .276"  | 3.150" | .158" | .307"            | 10° | TP.. 0702.. | T20.041 | T6F |
| E07X STUPR-07-0001 | .276"  | 4.528" | .158" | .307"            | 10° | TP.. 0702.. | T20.041 | T6F |
| E09H STUPR-07-0002 | .354"  | 3.937" | .197" | .386"            | 8°  | TP.. 0702.. | T20.041 | T6F |
| E09X STUPR-07-0001 | .354"  | 5.315" | .197" | .386"            | 8°  | TP.. 0702.. | T20.041 | T6F |

93°  
SCUPR

Carbide shank with internal coolant

| Article No.        | [inch] |        |       |                  |     |             |         |     |
|--------------------|--------|--------|-------|------------------|-----|-------------|---------|-----|
| R                  | D      | L      | F     | B <sub>min</sub> | Y   |             |         |     |
| E07F SCUPR-05-0006 | .276"  | 3.150" | .158" | .307"            | 10° | CP.. 05T1.. | T22.041 | T7F |
| E07X SCUPR-05-0007 | .276"  | 4.528" | .158" | .307"            | 10° | CP.. 05T1.. | T22.041 | T7F |
| E09H SCUPR-05-0004 | .354"  | 3.937" | .197" | .386"            | 8°  | CP.. 05T1.. | T22.045 | T7F |
| E09X SCUPR-05-0003 | .354"  | 5.315" | .197" | .386"            | 8°  | CP.. 05T1.. | T22.045 | T7F |

## Indexable inserts

|  | Article No.       | [inch] |       |       |       |       |        |       |        | d <sub>t</sub> | DX 2 | DX 20 | DX 30 | DX 50 | DX 52 | DS 10 | DS 20 | DT 55 | DT 255 | DT 355 |
|--|-------------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
|  |                   | l      | d     | +/-   | s     | +/-   | m      | +/-   | r      |                |      |       |       |       |       |       |       |       |        |        |
|  | WCET 020101 FN-20 | .090"  | .156" | .001" | .063" | .001" | .0413" | .001" | .0039" | .090"          | ■    | ■     | ■     | ■     | ■     |       |       |       |        |        |
|  | WCET 020102 FN-20 |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | ■     | ■     | ■     |       |       |       |        |        |
|  | WCET 020104 FN-20 |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     | ■     | ■     |       |       |       |        |        |
|  | WCGT 020101 EN    | .090"  | .156" | .001" | .063" | .005" | .0413" | .001" | .0039" | .090"          | ■    | ■     | ■     | ■     | ■     |       |       |       |        |        |
|  | WCGT 020102 EN    |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | ■     | ■     | ■     |       |       | ■     | ■      | ■      |
|  | WCGT 020104 EN    |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     | ■     | ■     |       |       | ■     | ■      | ■      |
|  | WCGT 020104 FN    | .090"  | .156" | .001" | .063" | .005" | .0347" | .001" | .0157" | .090"          |      |       |       |       |       |       |       | ■     | ■      | ■      |
|  | WCGT 020101 FN-20 | .090"  | .156" | .001" | .063" | .005" | .0413" | .001" | .0039" | .090"          | ■    | ■     | ■     | ■     | ■     |       |       |       |        |        |
|  | WCGT 020102 FN-20 |        |       |       |       |       | .0391" |       | .0079" |                | ■    | ■     | ■     | ■     | ■     |       |       |       |        |        |
|  | WCGT 020104 FN-20 |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     | ■     | ■     |       |       |       |        |        |
|  | WCGT 020102 FL    | .090"  | .156" | .001" | .063" | .005" | .0391" | .001" | .0079" | .090"          | ■    | ■     | ■     | ■     | ■     |       |       |       | ■      | ■      |
|  | WCGT 020104 FL    |        |       |       |       |       | .0347" |       | .0157" |                | ■    | ■     | ■     | ■     | ■     |       |       |       | ■      | ■      |

|  | Article No.       | [inch] |       |       |       |       |        |       |        | d <sub>t</sub> | DX 2 | DX 20 | DX 30 | DX 50 | DX 52 | DX 70 | P 25 | DP 25 | DP 35 | DP 55 | DS 10 | DS 20 | DT 55 | DT 255 | DT 355 |
|--|-------------------|--------|-------|-------|-------|-------|--------|-------|--------|----------------|------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|--------|--------|
|  |                   | l      | d     | +/-   | s     | +/-   | m      | +/-   | r      |                |      |       |       |       |       |       |      |       |       |       |       |       |       |        |        |
|  | CPET 05T101 FN-20 | .220"  | .219" | .001" | .078" | .001" | .0586" | .001" | .0039" | .098"          | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPET 05T102 FN-20 |        |       |       |       |       | .0564" |       | .0079" |                | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPET 05T104 FN-20 |        |       |       |       |       | .0521" |       | .0157" |                | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPET 05T101 FL    | .220"  | .219" | .001" | .078" | .001" | .0586" | .001" | .0039" | .098"          | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPET 05T102 FL    |        |       |       |       |       | .0564" |       | .0079" |                | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPET 05T104 FL    |        |       |       |       |       | .0521" |       | .0157" |                | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPTG 05T101 EN    | .220"  | .219" | .001" | .078" | .005" | .0586" | .001" | .0039" | .098"          | ■    |       |       |       |       |       |      |       |       |       |       |       |       |        |        |
|  | CPTG 05T102 EN    |        |       |       |       |       | .0564" |       | .0079" |                |      |       |       |       |       |       |      |       |       |       |       |       |       |        |        |
|  | CPTG 05T104 EN    |        |       |       |       |       | .0521" |       | .0157" |                |      |       |       |       |       |       |      |       |       |       |       |       |       |        |        |
|  | CPTG 05T101 FN    | .220"  | .219" | .001" | .078" | .005" | .0586" | .001" | .0039" | .098"          | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPTG 05T102 FN    |        |       |       |       |       | .0564" |       | .0079" |                | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPTG 05T104 FN    |        |       |       |       |       | .0521" |       | .0157" |                | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPTG 05T101 FN-20 | .220"  | .219" | .001" | .078" | .005" | .0586" | .001" | .0039" | .098"          | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPTG 05T102 FN-20 |        |       |       |       |       | .0564" |       | .0079" |                | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |
|  | CPTG 05T104 FN-20 |        |       |       |       |       | .0521" |       | .0157" |                | ■    | ■     | ■     | ■     | ■     |       |      |       |       |       |       |       |       |        |        |

For cutting data please refer to  
p.157 & p.159 or check QR codes.

WC02



■ stock item  
□ upon request

CP05



# TOOLING SYSTEMS

**MT-Tools** *HSK T*



**MT-Tools** *CHIRON®*



**MT-Tools** *PSC40*



**Modulo** *D*



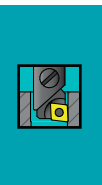




# **MT-Tools** **HSK T**

## **Denitool® Turning Tools for Mill-Turn machines**

*Super compact tools for internal & external turning with hollow taper interface  
ISO 12164-3 HSK-T40*



**MT-Tools HSK T****External turning**

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- 100° SVZCL / SVZCR 126

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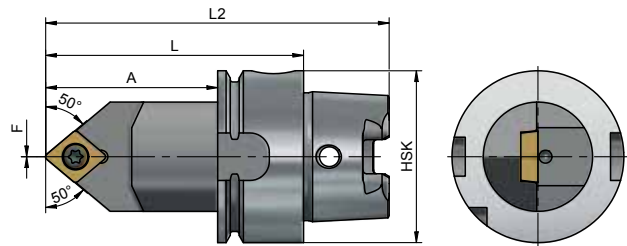
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**External turning**

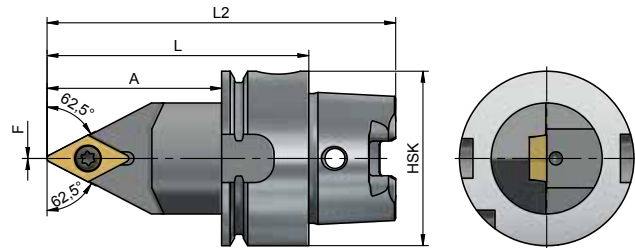
**50°**  
**SCMCN**



| Article No.              | HSK*) | L      | L <sub>2</sub> | [inch] |        |              |         |      |
|--------------------------|-------|--------|----------------|--------|--------|--------------|---------|------|
|                          |       |        |                | F      | A      |              |         |      |
| <b>MT HT4D 060 CMN09</b> | T40   | 2.362" | 3.150"         | 0"     | 1.575" | CCG.. 09T3.. | T35.110 | T15H |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

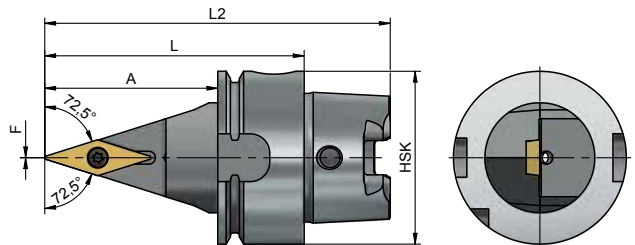
**62.5°**  
**SDNCN**



| Article No.              | HSK*) | L      | L <sub>2</sub> | [inch] |        |             |         |      |
|--------------------------|-------|--------|----------------|--------|--------|-------------|---------|------|
|                          |       |        |                | F      | A      |             |         |      |
| <b>MT HT4D 060 DNN11</b> | T40   | 2.362" | 3.150"         | 0"     | 1.575" | DC.. 11T3.. | T35.110 | T15H |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

**72.5°**  
**SVVCN**



| Article No.              | HSK*) | L      | L <sub>2</sub> | [inch] |        |             |         |     |
|--------------------------|-------|--------|----------------|--------|--------|-------------|---------|-----|
|                          |       |        |                | F      | A      |             |         |     |
| <b>MT HT4D 060 VVN13</b> | T40   | 2.362" | 3.150"         | 0"     | 1.575" | VC.. 1303.. | T30.090 | T8F |

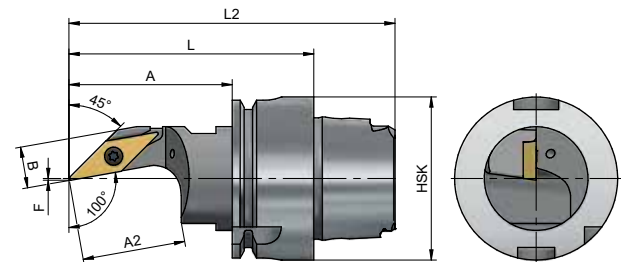
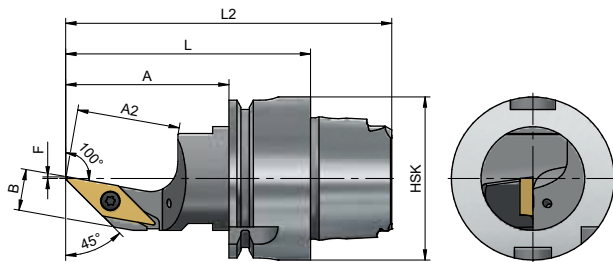
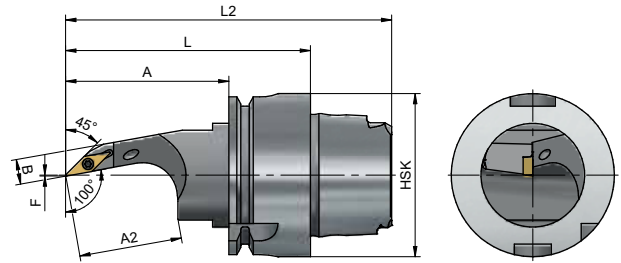
\*) ISO 12164-3 HSK-T40 / ICTM Standard

External turning



100°  
SVXCL

100°  
SVXCR



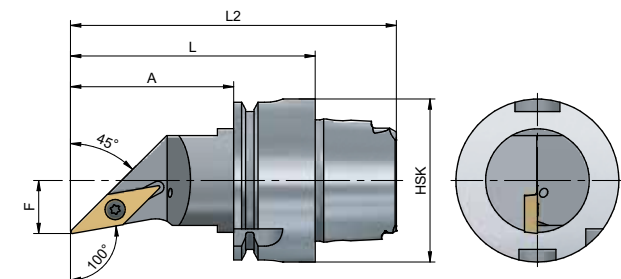
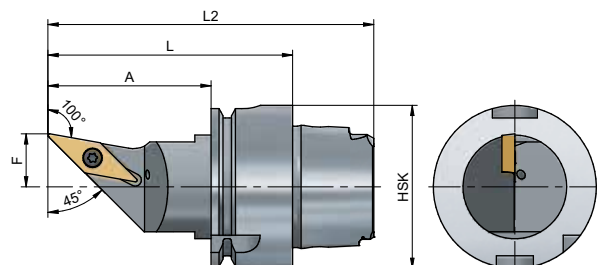
| Article No.       | [inch] |        |                |       |        |                |       |  |  |  |
|-------------------|--------|--------|----------------|-------|--------|----------------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                   | HSK*)  | L      | L <sub>2</sub> | F     | A      | A <sub>2</sub> | B     |                                                                                     |                                                                                     |                                                                                     |
| MT HT4D 060 VXL13 | T40    | 2.362" | 3.150"         | .016" | 1.575" | .984"          | .398" | VC.. 1303..                                                                         | T30.090                                                                             | T8F                                                                                 |
| MT HT4D 060 VXR07 | T40    | 2.362" | 3.150"         | .008" | 1.575" | .984"          | .240" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |
| MT HT4D 060 VXR13 | T40    | 2.362" | 3.150"         | .016" | 1.575" | .984"          | .398" | VC.. 1303..                                                                         | T30.090                                                                             | T8F                                                                                 |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

Right hand inserts with Wiper require **MT-Tools** in execution R

100°  
SVZCL

100°  
SVZCR



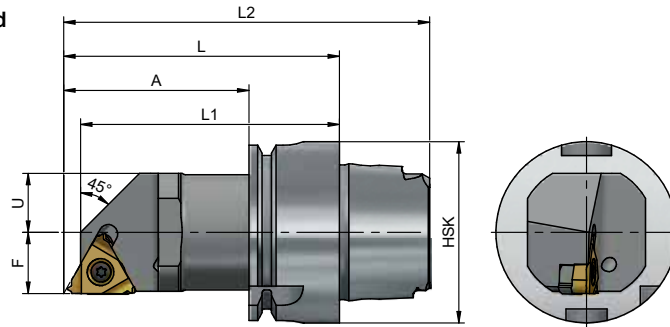
| Article No.       | [inch] |        |                |       |        |  |  |  |
|-------------------|--------|--------|----------------|-------|--------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                   | HSK*)  | L      | L <sub>2</sub> | F     | A      |                                                                                       |                                                                                       |                                                                                       |
| MT HT4D 060 VZL13 | T40    | 2.362" | 3.150"         | .512" | 1.575" | VC.. 1303..                                                                           | T30.090                                                                               | T8F                                                                                   |
| MT HT4D 060 VZR13 | T40    | 2.362" | 3.150"         | .512" | 1.575" | VC.. 1303..                                                                           | T30.090                                                                               | T8F                                                                                   |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

## External turning

## Threading

### LT16ER Right-hand thread



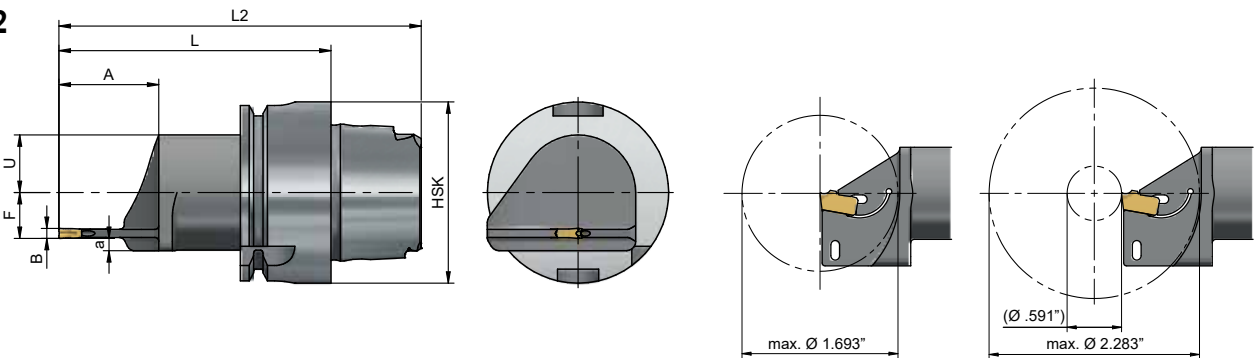
| Article No.       | [inch] |        |                |                |       |        |       |  | Screw set |
|-------------------|--------|--------|----------------|----------------|-------|--------|-------|-------------------------------------------------------------------------------------|-----------|
|                   | HSK*)  | L      | L <sub>1</sub> | L <sub>2</sub> | F     | A      | U     |                                                                                     |           |
| MT HT4D 060 LTR16 | T40    | 2.362" | 2.244"         | 3.150"         | .531" | 1.575" | .512" | LT 16ER..                                                                           | TDE 001   |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

TDE 001 : 1 x SMYE3 309018 Anvil  
1 x SSY3T 309019 Screw  
1 x SSA3T 309016 Insert screw

## Grooving

### D2



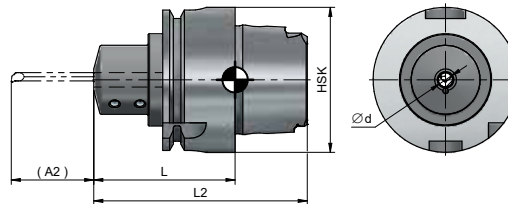
max. workpiece-dia. **2.283"**

| Article No.              | [inch] |        |                |       |       |       |       |       |  | Mounting lever |
|--------------------------|--------|--------|----------------|-------|-------|-------|-------|-------|---------------------------------------------------------------------------------------|----------------|
|                          | HSK*)  | L      | L <sub>2</sub> | F     | A     | a     | B     | U     |                                                                                       |                |
| <b>MT HT4D 060 D2022</b> | T40    | 2.362" | 3.150"         | .398" | .866" | .106" | .087" | .500" |  | K-170137       |
| <b>MT HT4D 060 D2040</b> | T40    | 2.362" | 3.150"         | .433" | .866" | .067" | .157" | .500" |  | K-170137       |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

## Internal turning

### MicroTurn A/S Adapter

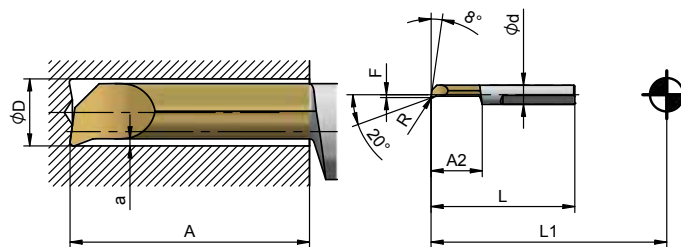


| Article No.         | [inch] |       |        |                |  |  |
|---------------------|--------|-------|--------|----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                     | HSK*)  | Ød    | L      | L <sub>2</sub> |                                                                                     |                                                                                     |
| <b>MT HT4D AS04</b> | T40    | .157" | 1.535" | 2.165"         | T1221 03080                                                                         | T20S                                                                                |
| <b>MT HT4D AS06</b> | T40    | .236" | 1.575" | 2.205"         | T1221 04060                                                                         | T20S                                                                                |
| <b>MT HT4D AS08</b> | T40    | .315" | 1.654" | 2.283"         | T1221 05060                                                                         | T25S                                                                                |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

### MicroTurn A/S Turning tips

#### NSAR



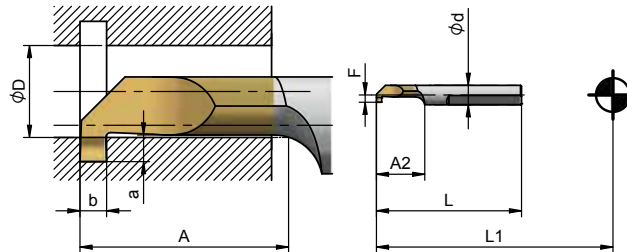
| Article No.             | [inch] |       |                |        |       |                |       |                   |       |       | MicroTurn A/S Adapter |
|-------------------------|--------|-------|----------------|--------|-------|----------------|-------|-------------------|-------|-------|-----------------------|
|                         | R      | Ød    | L <sub>1</sub> | L      | A     | A <sub>2</sub> | F     | ØD <sub>min</sub> | a     | R     |                       |
| <b>NSAR 2804 000 10</b> |        | .157" | 1.937"         | 1.181" | .339" | .402"          | .024" | .110"             | .008" | .006" | MT HT4D AS04          |
| <b>NSAR 2804 000 15</b> |        |       | 2.134"         | 1.378" | .535" | .598"          |       |                   |       |       |                       |
| <b>NSAR 2804 000 22</b> |        |       | 2.429"         | 1.673" | .831" | .894"          |       |                   |       |       |                       |
| <b>NSAR 3804 000 10</b> |        | .157" | 1.937"         | 1.181" | .358" | .402"          | .059" | .150"             | .012" | .006" |                       |
| <b>NSAR 3804 000 15</b> |        |       | 2.134"         | 1.378" | .555" | .598"          |       |                   |       |       |                       |
| <b>NSAR 3804 000 22</b> |        |       | 2.429"         | 1.673" | .850" | .894"          |       |                   |       |       |                       |

Different dimensions & geometries upon request

Internal turning

MicroTurn A/S Grooving tips

NSER



| Article No.      | [inch] |                |        |        |                |       |                                     |                   |       | MicroTurn A/S Adapter |
|------------------|--------|----------------|--------|--------|----------------|-------|-------------------------------------|-------------------|-------|-----------------------|
| R                | Ød     | L <sub>1</sub> | L      | A      | A <sub>2</sub> | F     | b <sup>+0.002</sup> <sub>-0.0</sub> | ØD <sub>min</sub> | a     |                       |
| NSER 3804 110 10 | .157"  | 1.937"         | 1.181" | .339"  | .402"          | .059" | .043"                               | .150"             | .004" | MT HT4D AS04          |
| NSER 3804 110 15 |        | 2.134"         | 1.378" | .535"  | .598"          |       |                                     |                   |       |                       |
| NSER 4806 110 10 | .236"  | 1.976"         | 1.181" | .339"  | .402"          | .059" | .043"                               | .189"             | .004" | MT HT4D AS06          |
| NSER 4806 110 18 |        | 2.291"         | 1.496" | .654"  | .717"          |       |                                     |                   |       |                       |
| NSER 4806 110 25 |        | 2.567"         | 1.772" | .929"  | .992"          |       |                                     |                   |       |                       |
| NSER 4806 160 10 | .236"  | 1.996"         | 1.201" | .358"  | .421"          | .059" | .063"                               | .189"             | .055" |                       |
| NSER 4806 160 18 |        | 2.311"         | 1.516" | .673"  | .736"          |       |                                     |                   |       |                       |
| NSER 4806 160 25 |        | 2.587"         | 1.791" | .989"  | 1.012"         |       |                                     |                   |       |                       |
| NSER 5806 160 15 | .236"  | 2.193"         | 1.398" | .555"  | .618"          | .098" | .063"                               | .228"             | .055" | MT HT4D AS06          |
| NSER 5806 160 25 |        | 2.587"         | 1.791" | .989"  | 1.012"         |       |                                     |                   |       |                       |
| NSER 5806 160 30 |        | 2.764"         | 1.969" | 1.126" | 1.189"         |       |                                     |                   |       |                       |
| NSER 5806 230 15 | .236"  | 2.173"         | 1.378" | .535"  | .598"          | .098" | .091"                               | .228"             | .075" |                       |
| NSER 5806 230 24 |        | 2.528"         | 1.732" | .890"  | .953"          |       |                                     |                   |       | MT HT4D AS08          |
| NSER 5806 230 30 |        | 2.764"         | 1.969" | 1.126" | 1.189"         |       |                                     |                   |       |                       |
| NSER 6808 160 15 | .315"  | 2.271"         | 1.398" | .555"  | .618"          | .098" | .063"                               | .268"             | .055" |                       |
| NSER 6808 160 25 |        | 2.665"         | 1.791" | .989"  | 1.012"         |       |                                     |                   |       |                       |
| NSER 6808 230 15 | .315"  | 2.252"         | 1.378" | .535"  | .598"          | .098" | .091"                               | .268"             | .075" |                       |
| NSER 6808 230 24 |        | 2.606"         | 1.732" | .890"  | .953"          |       |                                     |                   |       |                       |
| NSER 6808 230 30 |        | 2.843"         | 1.969" | 1.126" | 1.189"         |       |                                     |                   |       |                       |
| NSER 7808 160 15 | .315"  | 2.271"         | 1.398" | .555"  | .618"          | .138" | .063"                               | .307"             | .055" |                       |
| NSER 7808 160 25 |        | 2.665"         | 1.791" | .989"  | 1.012"         |       |                                     |                   |       |                       |
| NSER 7808 230 15 | .315"  | 2.252"         | 1.378" | .535"  | .598"          | .138" | .091"                               | .307"             | .075" |                       |
| NSER 7808 230 24 |        | 2.606"         | 1.732" | .890"  | .953"          |       |                                     |                   |       |                       |
| NSER 7808 230 30 |        | 2.685"         | 1.969" | 1.126" | 1.189"         |       |                                     |                   |       |                       |

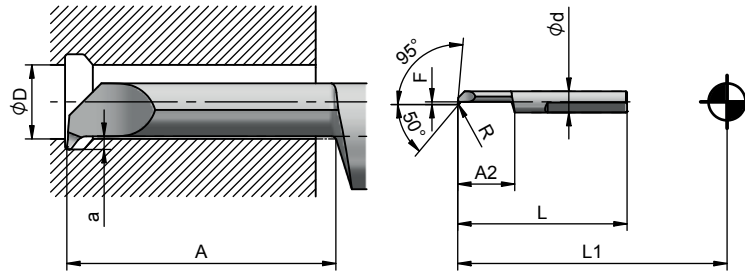
Different dimensions & geometries upon request



## Internal turning

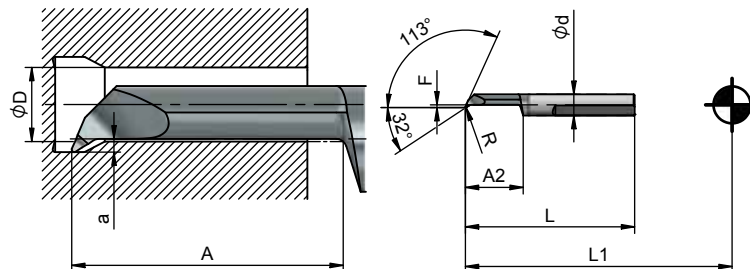
### MicroTurn A/S Copying tips

#### 95° NSLR



| Article No.      | [inch] |                |        |        |                |       |                   |       |       |  | MicroTurn A/S<br>Adapter |
|------------------|--------|----------------|--------|--------|----------------|-------|-------------------|-------|-------|--|--------------------------|
| R                | Ød     | L <sub>1</sub> | L      | A      | A <sub>2</sub> | F     | ØD <sub>min</sub> | a     | R     |  |                          |
| NSLR 2804 000 10 | .157"  | 2.016"         | 1.260" | .406"  | .480"          | .020" | .110"             | .020" | .004" |  | MT HT4D AS04             |
| NSLR 3804 000 15 |        | 2.213"         | 1.457" | .602"  | .677"          | .059" | .150"             | .039" |       |  |                          |
| NSLR 4806 000 18 | .236"  | 2.370"         | 1.575" | .720"  | .795"          | .059" | .189"             | .039" | .004" |  | MT HT4D AS06             |
| NSLR 5806 000 23 |        | 2.567"         | 1.772" | .917"  | .992"          | .091" | .228"             | .051" |       |  |                          |
| NSLR 6808 000 30 | .315"  | 2.921"         | 2.047" | 1.193" | 1.268"         | .091" | .268"             | .055" | .004" |  | MT HT4D AS08             |
| NSLR 7808 000 40 |        | 3.315"         | 2.441" | 1.587" | 1.661"         | .091" | .307"             | .055" |       |  |                          |

#### 113° NSXR

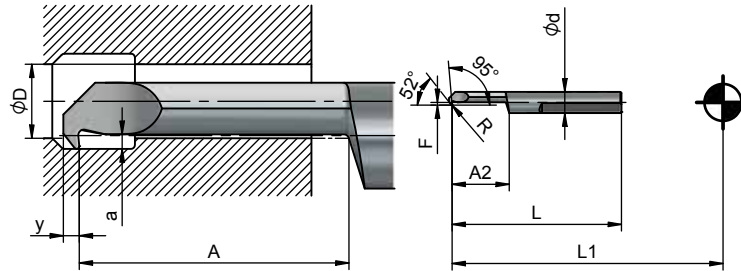


| Article No.      | [inch] |                |        |        |                |       |                   |       |       |  | MicroTurn A/S<br>Adapter |
|------------------|--------|----------------|--------|--------|----------------|-------|-------------------|-------|-------|--|--------------------------|
| R                | Ød     | L <sub>1</sub> | L      | A      | A <sub>2</sub> | F     | ØD <sub>min</sub> | a     | R     |  |                          |
| NSXR 2804 000 10 | .157"  | 2.016"         | 1.260" | .406"  | .480"          | .020" | .110"             | .020" | .004" |  | MT HT4D AS04             |
| NSXR 3804 000 15 |        | 2.213"         | 1.457" | .602"  | .677"          | .059" | .150"             | .039" |       |  |                          |
| NSXR 4806 000 18 | .236"  | 2.370"         | 1.575" | .720"  | .795"          | .059" | .189"             | .039" | .004" |  | MT HT4D AS06             |
| NSXR 5806 000 23 |        | 2.567"         | 1.772" | .917"  | .992"          | .091" | .228"             | .051" |       |  |                          |
| NSXR 6808 000 30 | .315"  | 2.921"         | 2.047" | 1.193" | 1.268"         | .091" | .268"             | .055" | .004" |  | MT HT4D AS08             |
| NSXR 7808 000 40 |        | 3.315"         | 2.441" | 1.587" | 1.661"         | .091" | .307"             | .055" |       |  |                          |

Internal turning

MicroTurn A/S Copying tips

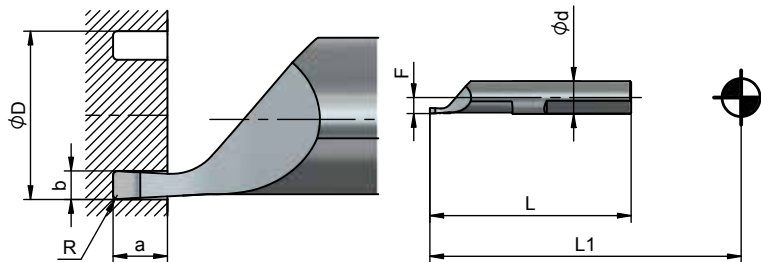
52°  
NSQR



| Article No.      | [inch] |       |                |        |        |                |       |                   |       |       | MicroTurn A/S Adapter |
|------------------|--------|-------|----------------|--------|--------|----------------|-------|-------------------|-------|-------|-----------------------|
| R                | Ød     | y     | L <sub>1</sub> | L      | A      | A <sub>2</sub> | F     | ØD <sub>min</sub> | a     | R     |                       |
| NSQR 2804 000 10 | .157"  | .039" | 2.016"         | 1.260" | .406"  | .480"          | .020" | .110"             | .020" | .004" | MT HT4D AS04          |
| NSQR 3804 000 15 |        |       | 2.213"         | 1.457" | .602"  | .677"          | .059" | .150"             | .039" |       |                       |
| NSQR 4806 000 18 | .236"  | .059" | 2.370"         | 1.575" | .720"  | .795"          | .059" | .189"             | .039" | .004" | MT HT4D AS06          |
| NSQR 5806 000 23 |        | .079" | 2.567"         | 1.772" | .917"  | .992"          | .090" | .228"             | .051" |       |                       |
| NSQR 6808 000 30 | .315"  | .079" | 2.921"         | 2.047" | 1.193" | 1.268"         | .090" | .268"             | .055" | .004" | MT HT4D AS08          |
| NSQR 7808 000 40 |        |       | 3.315"         | 2.441" | 1.587" | 1.661"         | .090" | .307"             | .055" |       |                       |

MicroTurn A/S Face grooving tips

NSFR



| Article No.      | [inch] |                |        |       |                |       |                                     |                   |       |       | MicroTurn A/S Adapter |
|------------------|--------|----------------|--------|-------|----------------|-------|-------------------------------------|-------------------|-------|-------|-----------------------|
| R                | Ød     | L <sub>1</sub> | L      | A     | A <sub>2</sub> | F     | b <sup>+0.002</sup> <sub>-0.0</sub> | ØD <sub>min</sub> | a     | R     |                       |
| NSFR 6206 100 15 | .236"  | 2.252"         | 1.457" | .591" | .667"          | .116" | .039"                               | .244"             | .079" | .006" | MT HT4D AS06          |
| NSFR 6206 150 15 |        |                |        |       |                |       | .059"                               |                   | .118" |       |                       |
| NSFR 6206 200 15 |        |                |        |       |                |       | .079"                               |                   | .157" |       |                       |
| NSFR 6206 250 15 |        |                |        |       |                |       | .098"                               |                   | .197" |       |                       |
| NSFR 6206 300 15 |        |                |        |       |                |       | .118"                               |                   | .236" |       |                       |

Different dimensions & geometries upon request

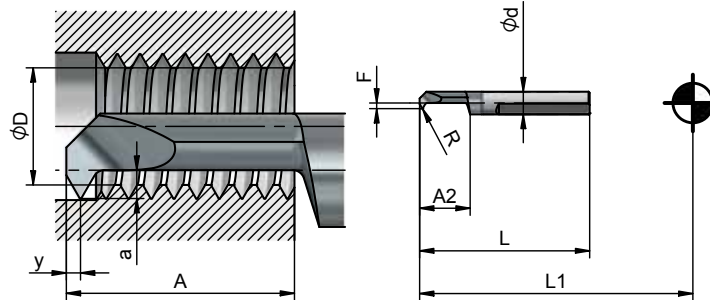


Internal turning

**MicroTurn A/S** Threading adapter  
Partial profile 60°

metric

NSMR

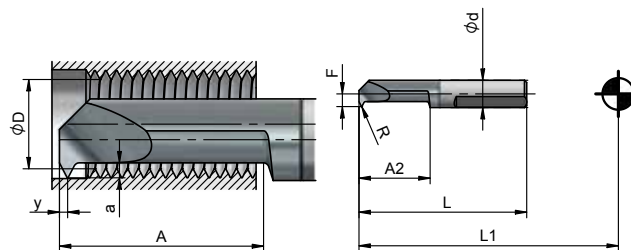


| Article No.          | [inch] |                |        |       |                |       |                   |           |        |       | Lead of thread | Range |       |       |  | MicroTurn A/S<br>Adapter |
|----------------------|--------|----------------|--------|-------|----------------|-------|-------------------|-----------|--------|-------|----------------|-------|-------|-------|--|--------------------------|
| R                    | Ød     | L <sub>1</sub> | L      | A     | A <sub>2</sub> | F     | ØD <sub>min</sub> | mm        | TPI    | ISO   | UNC            | y     | a     | R     |  |                          |
| NSMR 3104 025 100 08 | .157"  | 1.937"         | 1.181" | .315" | .402"          | .039" | .122"             | 0.25-1.00 | 101-24 | ÷ M5  | +10-24 UNC     | .020" | .039" | .008" |  | MT HT4D AS04             |
| NSMR 4104 025 125 10 |        | 2.016"         | 1.260" | .394" | .480"          | .075" | .161"             | 0.25-1.25 | 101-20 | ÷ M6  | +1/4-20 UNC    | .024" | .043" | .008" |  |                          |
| NSMR 5706 050 150 13 | .236"  | 2.173"         | 1.378" | .512" | .598"          | .098" | .224"             | 0.50-1.50 | 51-17  | ÷ M8  | +5/16-18 UNC   | .028" | .051" | .016" |  | MT HT4D AS06             |
| NSMR 7708 075 160 16 | .315"  | 2.370"         | 1.496" | .630" | .717"          | .138" | .303"             | 0.75-1.60 | 34-16  | ÷ M10 | +3/8-16 UNC    | .031" | .055" | .016" |  | MT HT4D AS08             |

**MicroTurn A/S** Threading adapter  
Partial profile 55°

DIN ISO 228-1  
Pipe thread

NSWR

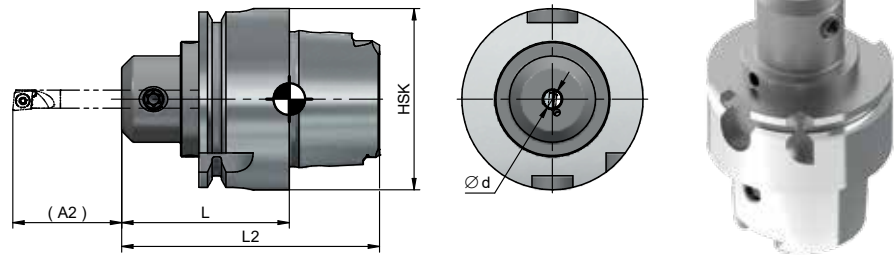


| Article No.          | [inch] |                |        |       |                |       |                   |  |  |  | Range     | MicroTurn A/S<br>Adapter |       |       |              |
|----------------------|--------|----------------|--------|-------|----------------|-------|-------------------|--|--|--|-----------|--------------------------|-------|-------|--------------|
| R                    | Ød     | L <sub>1</sub> | L      | A     | A <sub>2</sub> | F     | ØD <sub>min</sub> |  |  |  | G         | y                        | a     | R     |              |
| NSWR 6006 090 000 15 | .236"  | 2.252"         | 1.457" | .591" | .677"          | .110" | .236"             |  |  |  | ÷ G 1/16" | .024"                    | .043" | .002" | MT HT4D AS06 |
| NSWR 7708 090 000 20 | .315"  | 2.528"         | 1.654" | .787" | .874"          | .138" | .303"             |  |  |  | + G 1/8"  | .024"                    | .043" | .002" | MT HT4D AS08 |

Different dimensions & geometries upon request

## Internal turning

### SynTool Adapter



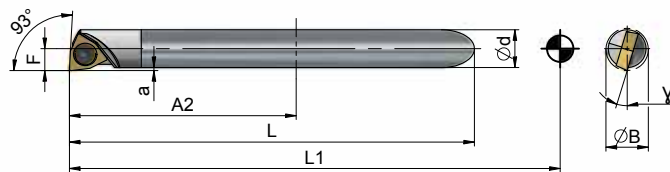
| Article No.         | [inch] |       |        |                |  |  |
|---------------------|--------|-------|--------|----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                     | HSK*)  | Ød    | L      | L <sub>2</sub> |                                                                                     |                                                                                     |
| <b>MT HT4D ST04</b> | T40    | .157" | 1.457" | 2.087"         | T60.075                                                                             | T15H                                                                                |
| <b>MT HT4D ST05</b> | T40    | .197" | 1.654" | 2.283"         |                                                                                     |                                                                                     |
| <b>MT HT4D ST06</b> | T40    | .236" | 1.654" | 2.283"         |                                                                                     |                                                                                     |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

SynTool Adapter and boring bars compatible to Sandvik® CoroTurn® XS and SIMTEK® simturn® AX

### SynTool Carbide shank tips with inserts

#### 93° SWUCR | SynTool



| Article No.           | [inch] |       |                |        |       |                   |                |       |  |  |  | MT-Tools – SynTool Adapter |
|-----------------------|--------|-------|----------------|--------|-------|-------------------|----------------|-------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------|
|                       | R      | Ød    | L <sub>1</sub> | L      | F     | ØB <sub>min</sub> | A <sub>2</sub> | a     | Y                                                                                    |                                                                                       |                                                                                       |                            |
| <b>C0520 SWUCR-02</b> |        | .197" | 2.441"         | 1.717" | .114" | .228"             | .787"          | .012" | 17°                                                                                  | WC.. 0201..<br>T20.037                                                                | T6F                                                                                   | MT HT4D ST05               |
| <b>C0525 SWUCR-02</b> |        | .197" | 2.638"         | 1.913" | .114" | .228"             | .984"          | .012" | 17°                                                                                  |                                                                                       |                                                                                       |                            |
| <b>C0530 SWUCR-02</b> |        | .197" | 2.835"         | 2.110" | .114" | .228"             | 1.181"         | .012" | 17°                                                                                  |                                                                                       |                                                                                       |                            |
| <b>C0624 SWUCR-02</b> |        | .236" | 2.598"         | 1.906" | .154" | .307"             | .945"          | .031" | 12°                                                                                  | WC.. 0201..<br>T20.037                                                                | T6F                                                                                   | MT HT4D ST06               |
| <b>C0630 SWUCR-02</b> |        | .236" | 2.835"         | 2.142" | .154" | .307"             | 1.181"         | .031" | 12°                                                                                  |                                                                                       |                                                                                       |                            |
| <b>C0636 SWUCR-02</b> |        | .236" | 3.071"         | 2.378" | .154" | .307"             | 1.417"         | .031" | 12°                                                                                  |                                                                                       |                                                                                       |                            |

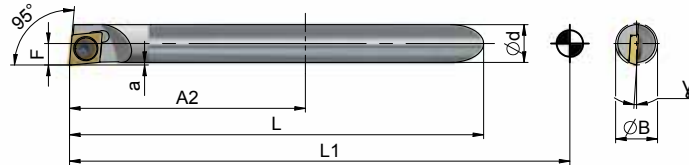
Different dimensions & geometries upon request

# Internal turning

## SynTool Carbide shank tips with inserts

95°

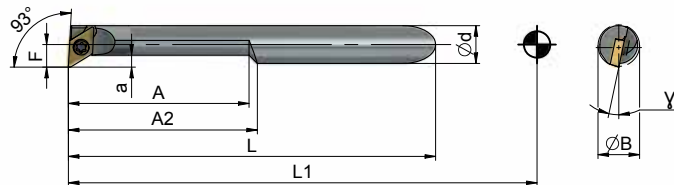
SCLDR | SynTool



| Article No.    | [inch] |                |        |       |                   |                |       |      |  |  |  | MT-Tools – SynTool Adapter |
|----------------|--------|----------------|--------|-------|-------------------|----------------|-------|------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------|
| R              | Ød     | L <sub>1</sub> | L      | F     | ØB <sub>min</sub> | A <sub>2</sub> | a     | Y    |                                                                                    |                                                                                     |                                                                                     |                            |
| C0416 SCLDR-04 | .157"  | 2.087"         | 1.327" | .098" | .189"             | .630"          | .018" | 5.5° | CD.. 0401..                                                                        | T18.Z30A                                                                            | T5F                                                                                 | MT HT4D ST04               |
| C0420 SCLDR-04 | .157"  | 2.244"         | 1.484" | .098" | .189"             | .787"          | .018" | 5.5° | CD.. 0401..                                                                        | T18.Z30A                                                                            | T5F                                                                                 |                            |
| C0424 SCLDR-04 | .157"  | 2.402"         | 1.642" | .098" | .189"             | .945"          | .018" | 5.5° | CD.. 0401..                                                                        | T18.Z30A                                                                            | T5F                                                                                 |                            |
| C0521 SCLDR-04 | .197"  | 2.488"         | 1.764" | .114" | .228"             | .835"          | .012" | 4°   | CD.. 0401..                                                                        | T18.Z30A                                                                            | T5F                                                                                 | MT HT4D ST05               |
| C0526 SCLDR-04 | .197"  | 2.685"         | 1.961" | .114" | .228"             | 1.031"         | .012" | 4°   | CD.. 0401..                                                                        | T18.Z30A                                                                            | T5F                                                                                 |                            |
| C0531 SCLDR-04 | .197"  | 2.882"         | 2.157" | .114" | .228"             | 1.228"         | .012" | 4°   | CD.. 0401..                                                                        | T18.Z30A                                                                            | T5F                                                                                 |                            |
| C0625 SCLDR-04 | .236"  | 2.665"         | 1.972" | .134" | .268"             | 1.012"         | .012" | 3°   | CD.. 0401..                                                                        | T18.Z30A                                                                            | T5F                                                                                 | MT HT4D ST06               |
| C0631 SCLDR-04 | .236"  | 2.902"         | 2.209" | .134" | .268"             | 1.248"         | .012" | 3°   | CD.. 0401..                                                                        | T18.Z30A                                                                            | T5F                                                                                 |                            |
| C0637 SCLDR-04 | .236"  | 3.138"         | 2.445" | .134" | .268"             | 1.484"         | .012" | 3°   | CD.. 0401..                                                                        | T18.Z30A                                                                            | T5F                                                                                 |                            |

93°

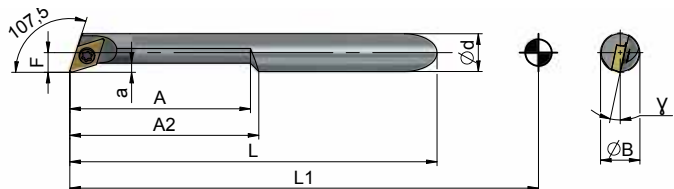
SDUCR | SynTool



| Article No.           | [inch] |                |        |       |                   |       |                |       |     |  |  |  | <i>MT-Tools – SynTool</i><br>Adapter |
|-----------------------|--------|----------------|--------|-------|-------------------|-------|----------------|-------|-----|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------|
| R                     | Ød     | L <sub>1</sub> | L      | F     | ØB <sub>min</sub> | A     | A <sub>2</sub> | a     | γ   |                                                                                      |                                                                                       |                                                                                       |                                      |
| <b>C0520 SDUCR-04</b> | .197"  | 2.441"         | 1.717" | .118" | .220"             | .744" | .787"          | .059" | 12° | DC.. 04T0..                                                                          | T16.035                                                                               | T5F                                                                                   | MT HT4D ST05                         |
| <b>C0525 SDUCR-04</b> | .197"  | 2.638"         | 1.913" | .118" | .220"             | .941" | .984"          | .059" | 12° | DC.. 04T0..                                                                          | T16.035                                                                               | T5F                                                                                   |                                      |

107.5°

SDQCR | SynTool



| Article No.           | [inch] |                |        |       |                   |       |                |       |     |  |  |  | <b>MT-Tools – SynTool</b><br>Adapter |
|-----------------------|--------|----------------|--------|-------|-------------------|-------|----------------|-------|-----|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------|
| R                     | Ød     | L <sub>1</sub> | L      | F     | ØB <sub>min</sub> | A     | A <sub>2</sub> | a     | γ   |                                                                                      |                                                                                       |                                                                                       |                                      |
| <b>C0520 SDQCR-04</b> | .197"  | 2.441"         | 1.717" | .102" | .205"             | .744" | .787"          | .043" | 12° | DC.. 04T0..                                                                          | T16.035                                                                               | T5F                                                                                   | MT HT4D ST05                         |
| <b>C0525 SDQCR-04</b> | .197"  | 2.638"         | 1.913" | .102" | .205"             | .941" | .984"          | .043" | 12° | DC.. 04T0..                                                                          | T16.035                                                                               | T5F                                                                                   |                                      |

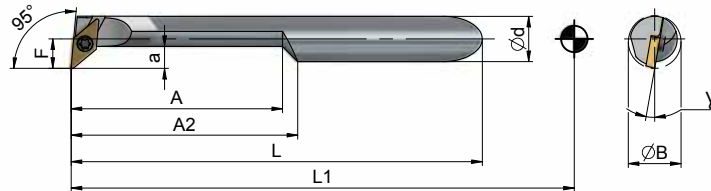
Different dimensions & geometries upon request

Internal turning

**SynTool** Carbide shank tips with inserts

95°

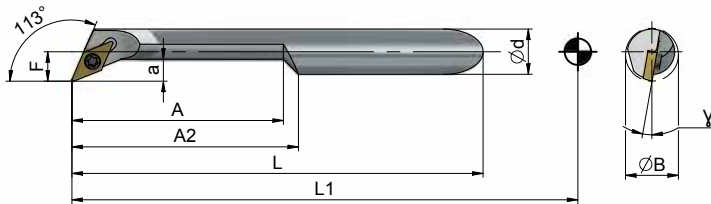
**SGLCR | SynTool**



| Article No.           | [inch] |                |        |       |                   |        |                |       |     |  |  |  | MT-Tools – SynTool Adapter |
|-----------------------|--------|----------------|--------|-------|-------------------|--------|----------------|-------|-----|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------|
| R                     | Ød     | L <sub>1</sub> | L      | F     | ØB <sub>min</sub> | A      | A <sub>2</sub> | a     | Y   |                                                                                    |                                                                                     |                                                                                     |                            |
| <b>C0624 SGLCR-04</b> | .236"  | 2.598"         | 1.906" | .154" | .276"             | .866"  | .945"          | .114" | 10° | GC.. 04T0..                                                                        | T16.035                                                                             | T5F                                                                                 | MT HT4D ST06               |
| <b>C0630 SGLCR-04</b> | .236"  | 2.835"         | 2.142" | .154" | .276"             | 1.102" | 1.181"         | .114" | 10° | GC.. 04T0..                                                                        | T16.035                                                                             | T5F                                                                                 |                            |

113°

**SGXCR | SynTool**

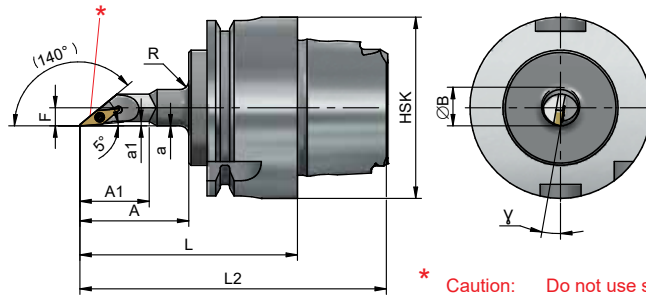


| Article No.           | [inch] |                |        |       |                   |        |                |       |     |  |  |  | MT-Tools – SynTool Adapter |
|-----------------------|--------|----------------|--------|-------|-------------------|--------|----------------|-------|-----|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------|
| R                     | Ød     | L <sub>1</sub> | L      | F     | ØB <sub>min</sub> | A      | A <sub>2</sub> | a     | Y   |                                                                                      |                                                                                       |                                                                                       |                            |
| <b>C0624 SGXCR-04</b> | .236"  | 2.598"         | 1.906" | .154" | .276"             | .866"  | .945"          | .114" | 10° | GC.. 04T0..                                                                          | T16.035                                                                               | T5F                                                                                   | MT HT4D ST06               |
| <b>C0630 SGXCR-04</b> | .236"  | 2.835"         | 2.142" | .154" | .276"             | 1.102" | 1.181"         | .114" | 10° | GC.. 04T0..                                                                          | T16.035                                                                               | T5F                                                                                   |                            |

Different dimensions & geometries upon request

# Internal turning

5°  
SVOCR

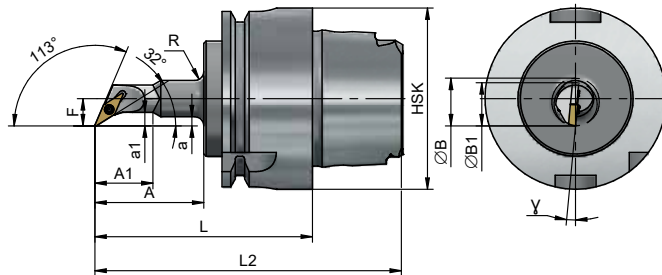


\* Caution: Do not use secondary cutting edge for machining!

| Article No.        | [inch] |       |        |                |       |        |       |                |                |       |     |       |  |  |  |
|--------------------|--------|-------|--------|----------------|-------|--------|-------|----------------|----------------|-------|-----|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                    | HSK*)  | Ød    | L      | L <sub>2</sub> | F     | A      | a     | A <sub>1</sub> | a <sub>1</sub> | ØB    | γ   | R     |                                                                                     |                                                                                     |                                                                                     |
| MT HT4D 0824 VOR05 | T40    | .315" | 1.890" | 2.520"         | .157" | .945"  | 0"    | .602"          | .039"          | .323" | 10° | .079" | VC.. 0501..                                                                         | T16.045                                                                             | T5F                                                                                 |
| MT HT4D 0832 VOR05 | T40    | .315" | 2.205" | 2.835"         | .157" | 1.260" | 0"    | .602"          | .039"          | .323" | 10° | .079" | VC.. 0501..                                                                         | T16.045                                                                             | T5F                                                                                 |
| MT HT4D 1030 VOR07 | T40    | .394" | 2.126" | 2.756"         | .217" | 1.181" | .020" | -              | -              | .433" | 10° | .079" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |
| MT HT4D 1040 VOR07 | T40    | .394" | 2.520" | 3.150"         | .217" | 1.575" | .020" | -              | -              | .433" | 10° | .079" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |
| MT HT4D 1236 VOR07 | T40    | .472" | 2.632" | 2.992"         | .256" | 1.417" | .020" | -              | -              | .512" | 8°  | .079" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |
| MT HT4D 1248 VOR07 | T40    | .472" | 2.835" | 3.465"         | .256" | 1.890" | .020" | -              | -              | .512" | 8°  | .079" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

113°  
SVXCR



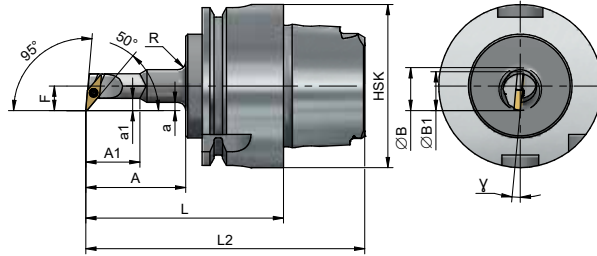
| Article No.        | [inch]    |        |                |       |        |       |                |                |       |                 |      |       |             |  |  |  |
|--------------------|-----------|--------|----------------|-------|--------|-------|----------------|----------------|-------|-----------------|------|-------|-------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                    | HSK*) Ød  | L      | L <sub>2</sub> | F     | A      | a     | A <sub>1</sub> | a <sub>1</sub> | ØB    | ØB <sub>1</sub> | Y    | R     |             |                                                                                       |                                                                                       |                                                                                       |
| MT HT4D 0824 VXR05 | T40 .315" | 1.890" | 2.520"         | .236" | .945"  | .079" | .504"          | .118"          | .402" | .362"           | 5.5° | .079" | VC.. 0501.. | T16.045                                                                               | T5F                                                                                   |                                                                                       |
| MT HT4D 0832 VXR05 | T40 .315" | 2.205" | 2.835"         | .236" | 1.260" | .079" | .504"          | .118"          | .402" | .362"           | 5.5° | .079" | VC.. 0501.. | T16.045                                                                               | T5F                                                                                   |                                                                                       |
| MT HT4D 1030 VXR07 | T40 .394" | 2.126" | 2.756"         | .303" | 1.181" | .106" | .736"          | .134"          | .524" | .492"           | 10°  | .079" | VC.. 0702.. | T20.055                                                                               | T6F                                                                                   |                                                                                       |
| MT HT4D 1040 VXR07 | T40 .394" | 2.520" | 3.150"         | .303" | 1.575" | .106" | .736"          | .134"          | .524" | .492"           | 10°  | .079" | VC.. 0702.. | T20.055                                                                               | T6F                                                                                   |                                                                                       |
| MT HT4D 1236 VXR07 | T40 .472" | 2.632" | 2.992"         | .433" | 1.417" | .197" | -              | -              | .689" | -               | 6°   | .079" | VC.. 0702.. | T20.055                                                                               | T6F                                                                                   |                                                                                       |
| MT HT4D 1248 VXR07 | T40 .472" | 2.835" | 3.465"         | .433" | 1.890" | .197" | -              | -              | .689" | -               | 6°   | .079" | VC.. 0702.. | T20.055                                                                               | T6F                                                                                   |                                                                                       |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

Internal turning

95°

SVLCR

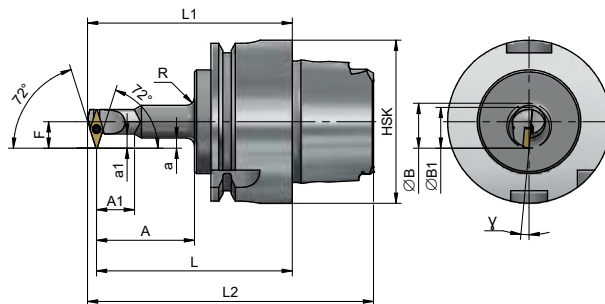


| Article No.        | [inch]    |        |                |       |        |       |                |                |       |                 |      |       |  |  |  |
|--------------------|-----------|--------|----------------|-------|--------|-------|----------------|----------------|-------|-----------------|------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                    | HSK*) Ød  | L      | L <sub>2</sub> | F     | A      | a     | A <sub>1</sub> | a <sub>1</sub> | ØB    | ØB <sub>1</sub> | γ    | R     |                                                                                     |                                                                                     |                                                                                     |
| MT HT4D 0824 VLR05 | T40 .315" | 1.890" | 2.520"         | .236" | .945"  | .079" | .524"          | .118"          | .402" | .362"           | 5.5° | .079" | VC.. 0501..                                                                         | T16.045                                                                             | T5F                                                                                 |
| MT HT4D 0832 VLR05 | T40 .315" | 2.205" | 2.835"         | .236" | 1.260" | .079" | .524"          | .118"          | .402" | .362"           | 5.5° | .079" | VC.. 0501..                                                                         | T16.045                                                                             | T5F                                                                                 |
| MT HT4D 1030 VLR07 | T40 .394" | 2.126" | 2.756"         | .335" | 1.181" | .138" | .508"          | .197"          | .551" | .492"           | 10°  | .079" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |
| MT HT4D 1040 VLR07 | T40 .394" | 2.520" | 3.150"         | .335" | 1.575" | .138" | .508"          | .197"          | .551" | .492"           | 10°  | .079" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |
| MT HT4D 1236 VLR07 | T40 .472" | 2.632" | 2.992"         | .433" | 1.417" | .197" | -              | -              | .689" | -               | 6°   | .079" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |
| MT HT4D 1248 VLR07 | T40 .472" | 2.835" | 3.465"         | .433" | 1.890" | .197" | -              | -              | .689" | -               | 6°   | .079" | VC.. 0702..                                                                         | T20.055                                                                             | T6F                                                                                 |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

72.5°

SVVCR

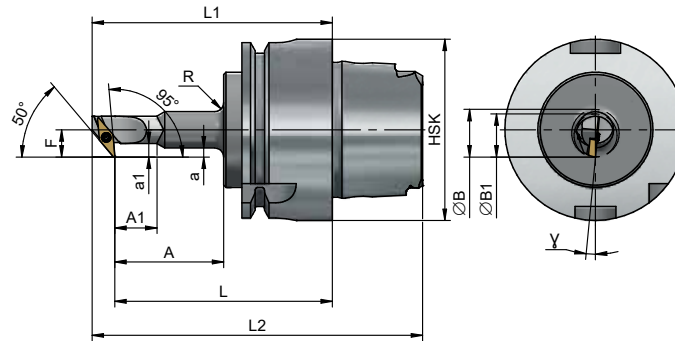


| Article No.        | [inch]    |        |                |                |       |        |       |                |                |       |                 |      |       |             |  |  |  |
|--------------------|-----------|--------|----------------|----------------|-------|--------|-------|----------------|----------------|-------|-----------------|------|-------|-------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                    | HSK*) Ød  | L      | L <sub>1</sub> | L <sub>2</sub> | F     | A      | a     | A <sub>1</sub> | a <sub>1</sub> | ØB    | ØB <sub>1</sub> | Y    | R     |             |                                                                                       |                                                                                       |                                                                                       |
| MT HT4D 0824 VVR05 | T40 .315" | 1.890" | 1.976"         | 2.602"         | .256" | .945"  | .098" | .366"          | .138"          | .421" | .382"           | 5.5° | .079" | VC.. 0501.. | T16.045                                                                               | T5F                                                                                   |                                                                                       |
| MT HT4D 0832 VVR05 | T40 .315" | 2.205" | 2.291"         | 2.917"         | .256" | 1.260" | .098" | .366"          | .138"          | .421" | .382"           | 5.5° | .079" | VC.. 0501.. | T16.045                                                                               | T5F                                                                                   |                                                                                       |
| MT HT4D 1030 VVR07 | T40 .394" | 2.126" | 2.248"         | 2.874"         | .374" | 1.181" | .177" | .508"          | .236"          | .591" | .531"           | 10°  | .079" | VC.. 0702.. | T20.055                                                                               | T6F                                                                                   |                                                                                       |
| MT HT4D 1040 VVR07 | T40 .394" | 2.520" | 2.642"         | 3.268"         | .374" | 1.575" | .177" | .508"          | .236"          | .591" | .531"           | 10°  | .079" | VC.. 0702.. | T20.055                                                                               | T6F                                                                                   |                                                                                       |
| MT HT4D 1236 VVR07 | T40 .472" | 2.632" | 2.492"         | 3.118"         | .433" | 1.417" | .197" | -              | -              | .689" | -               | 6°   | .079" | VC.. 0702.. | T20.055                                                                               | T6F                                                                                   |                                                                                       |
| MT HT4D 1248 VVR07 | T40 .472" | 2.835" | 2.965"         | 3.591"         | .433" | 1.890" | .197" | -              | -              | .689" | -               | 6°   | .079" | VC.. 0702.. | T20.055                                                                               | T6F                                                                                   |                                                                                       |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

# Internal turning

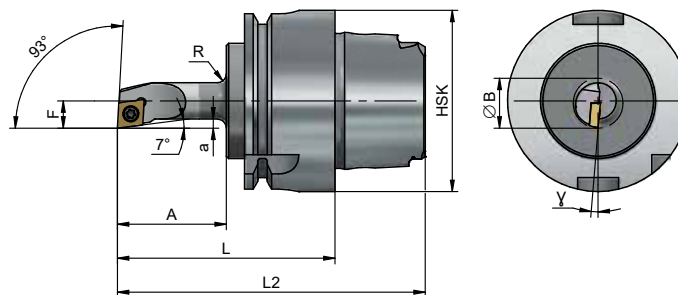
50°  
SVQCR



| Article No.        | [inch] |       |        |                |                |       |        |       |                |                |       |                 |      |       |             |         |     |
|--------------------|--------|-------|--------|----------------|----------------|-------|--------|-------|----------------|----------------|-------|-----------------|------|-------|-------------|---------|-----|
|                    | HSK*)  | Ød    | L      | L <sub>1</sub> | L <sub>2</sub> | F     | A      | a     | A <sub>1</sub> | a <sub>1</sub> | ØB    | ØB <sub>1</sub> | Y    | R     |             |         |     |
| MT HT4D 0824 VQR05 | T40    | .315" | 1.890" | 2.087"         | 2.717"         | .236" | .945"  | .079" | .366"          | .118"          | .402" | .362"           | 5.5° | .079" | VC.. 0501.. | T16.045 | T5F |
| MT HT4D 0832 VQR05 | T40    | .315" | 2.205" | 2.402"         | 3.031"         | .236" | 1.260" | .079" | .366"          | .118"          | .402" | .362"           | 5.5° | .079" | VC.. 0501.. | T16.045 | T5F |
| MT HT4D 1030 VQR07 | T40    | .394" | 2.126" | 2.413"         | 3.039"         | .335" | 1.181" | .138" | .508"          | .197"          | .551" | .492"           | 10°  | .079" | VC.. 0702.. | T20.055 | T6F |
| MT HT4D 1040 VQR07 | T40    | .394" | 2.520" | 2.807"         | 3.433"         | .335" | 1.575" | .138" | .508"          | .197"          | .551" | .492"           | 10°  | .079" | VC.. 0702.. | T20.055 | T6F |
| MT HT4D 1236 VQR07 | T40    | .472" | 2.632" | 2.661"         | 3.287"         | .433" | 1.417" | .197" | -              | -              | .689" | -               | 6°   | .079" | VC.. 0702.. | T20.055 | T6F |
| MT HT4D 1248 VQR07 | T40    | .472" | 2.835" | 3.134"         | 3.760"         | .433" | 1.890" | .197" | -              | -              | .689" | -               | 6°   | .079" | VC.. 0702.. | T20.055 | T6F |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

93°  
SCUPR



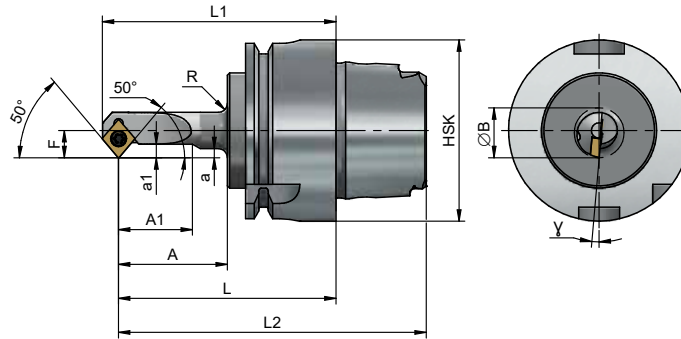
| Article No.        | [inch] |       |        |                |       |        |       |       |    |       |             |         |     |
|--------------------|--------|-------|--------|----------------|-------|--------|-------|-------|----|-------|-------------|---------|-----|
|                    | HSK*)  | Ød    | L      | L <sub>2</sub> | F     | A      | a     | ØB    | Y  | R     |             |         |     |
| MT HT4D 0824 CUR05 | T40    | .315" | 1.890" | 2.520"         | .236" | .945"  | .079" | .433" | 5° | .079" | CP.. 05T1.. | T22.045 | T7F |
| MT HT4D 0832 CUR05 | T40    | .315" | 2.205" | 2.835"         | .236" | 1.260" | .079" | .433" | 5° | .079" | CP.. 05T1.. | T22.045 | T7F |
| MT HT4D 1030 CUR05 | T40    | .394" | 2.126" | 2.756"         | .276" | 1.181" | .079" | .512" | 5° | .079" | CP.. 05T1.. | T22.045 | T7F |
| MT HT4D 1040 CUR05 | T40    | .394" | 2.520" | 3.150"         | .276" | 1.575" | .079" | .512" | 5° | .079" | CP.. 05T1.. | T22.045 | T7F |
| MT HT4D 1236 CUR05 | T40    | .472" | 2.632" | 2.992"         | .354" | 1.417" | .118" | .630" | 2° | .079" | CP.. 05T1.. | T22.050 | T7F |
| MT HT4D 1248 CUR05 | T40    | .472" | 2.835" | 3.465"         | .354" | 1.890" | .118" | .630" | 2° | .079" | CP.. 05T1.. | T22.050 | T7F |

\*) ISO 12164-3 HSK-T40 / ICTM Standard



Internal turning

50°  
SCMPR



| Article No.               | HSK*) | Ød    | L      | L <sub>1</sub> | L <sub>2</sub> | F     | A      | a     | A <sub>1</sub> | a <sub>1</sub> | ØB    | Y  | R     |  |  |  |
|---------------------------|-------|-------|--------|----------------|----------------|-------|--------|-------|----------------|----------------|-------|----|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>MT HT4D 0824 CMR05</b> | T40   | .315" | 1.890" | 2.028"         | 2.654"         | .236" | .945"  | .079" | .642"          | .118"          | .413" | 5° | .079" | CP..05T1..                                                                          | T22.045                                                                             | T7F                                                                                 |
| <b>MT HT4D 0832 CMR05</b> | T40   | .315" | 2.205" | 2.342"         | 2.969"         | .236" | 1.260" | .079" | .642"          | .118"          | .413" | 5° | .079" | CP..05T1..                                                                          | T22.045                                                                             | T7F                                                                                 |
| <b>MT HT4D 1030 CMR05</b> | T40   | .394" | 2.126" | 2.264"         | 2.890"         | .276" | 1.181" | .079" | .724"          | .138"          | .492" | 5° | .079" | CP..05T1..                                                                          | T22.045                                                                             | T7F                                                                                 |
| <b>MT HT4D 1040 CMR05</b> | T40   | .394" | 2.520" | 2.657"         | 3.283"         | .276" | 1.575" | .079" | .724"          | .138"          | .492" | 5° | .079" | CP..05T1..                                                                          | T22.045                                                                             | T7F                                                                                 |
| <b>MT HT4D 1236 CMR05</b> | T40   | .472" | 2.632" | 2.500"         | 3.126"         | .354" | 1.417" | .118" | -              | -              | .610" | 2° | .079" | CP..05T1..                                                                          | T22.050                                                                             | T7F                                                                                 |
| <b>MT HT4D 1248 CMR05</b> | T40   | .472" | 2.835" | 2.972"         | 3.598"         | .354" | 1.890" | .118" | -              | -              | .610" | 2° | .079" | CP..05T1..                                                                          | T22.050                                                                             | T7F                                                                                 |

\*) ISO 12164-3 HSK-T40 / ICTM Standard

Indexable inserts

CC.. 09 | IsoTools



|  | Article No.                                                                           | [inch] |       |       |       |       |       |       |        |                 | DX 2 | DX 20 | DX 30 | DX 32 | DT 55 | DT 255 | DT 355 |
|--|---------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|--------|-----------------|------|-------|-------|-------|-------|--------|--------|
|  |                                                                                       | l      | Ød    | +/-   | s     | +/-   | m     | +/-   | R      | Ød <sub>1</sub> |      |       |       |       |       |        |        |
|  | <b>CCGT 09T302 FN-18M</b><br><b>CCGT 09T304 FN-18M</b><br><i>M: Top face polished</i> | .382"  | .375" | .001" | .156" | .005" | .100" | .001" | .0079" | .173"           | ■    |       |       | ■     |       |        |        |
|  |                                                                                       |        |       |       |       |       |       | .095" | .0157" |                 | ■    |       |       | ■     |       |        |        |
|  | <b>CCGT 09T304 EN</b>                                                                 | .382"  | .375" | .001" | .156" | .005" | .095" | .001" | .0157" | .173"           |      |       |       |       | ■     | □      | □      |
|  | <b>CCGT 09T301 FN-250</b>                                                             | .382"  | .375" | .001" | .156" | .005" | .102" | .001" | .0039" | .173"           | ■    | □     | □     |       |       |        |        |
|  | <b>CCGT 09T302 FN-250</b>                                                             |        |       |       |       |       | .100" |       | .0079" |                 | ■    | ■     | □     |       |       |        |        |
|  | <b>CCGT 09T304 FN-250</b>                                                             |        |       |       |       |       | .095" |       | .0157" |                 | ■    | ■     | □     |       |       |        |        |
|  | <b>CCGT 09T308 FN-250</b>                                                             |        |       |       |       |       | .087" |       | .0315" |                 | ■    | □     | □     |       |       |        |        |

CD.. 04 | MicroTurn D

|  | Article No.           | [inch] |       |       |       |       |       |       |        |                 | DX 2 | DX 20 | DX 30 | DX 50 | DX 52 | DS10 | DS20 |
|--|-----------------------|--------|-------|-------|-------|-------|-------|-------|--------|-----------------|------|-------|-------|-------|-------|------|------|
|  |                       | l      | Ød    | +/-   | s     | +/-   | m     | +/-   | R      | Ød <sub>1</sub> |      |       |       |       |       |      |      |
|  | <b>CDGT 040100 FL</b> | .159"  | .156" | .001" | .039" | .001" | .043" | .001" | 0"     | .087"           | ■    | ■     | □     | □     |       |      |      |
|  | <b>CDGT 040101 FL</b> |        |       |       |       |       | .041" |       | .0039" |                 | ■    | ■     | □     | □     |       |      |      |
|  | <b>CDGT 040102 FL</b> |        |       |       |       |       | .039" |       | .0079" |                 | ■    | ■     | ■     | ■     |       |      |      |
|  | <b>CDGT 040104 FL</b> |        |       |       |       |       | .035" |       | .0157" |                 | ■    | ■     | ■     | □     |       |      |      |
|  | <b>CDGT 040101 FN</b> | .159"  | .156" | .001" | .039" | .001" | .041" | .001" | .0039" | .087"           | ■    | ■     | □     | □     |       | □    | □    |
|  | <b>CDGT 040102 FN</b> |        |       |       |       |       | .039" |       | .0079" |                 | ■    | ■     | □     | □     |       | □    | □    |
|  | <b>CDGT 040104 FN</b> |        |       |       |       |       | .035" |       | .0157" |                 | ■    | ■     | □     | □     |       | □    | □    |
|  | <b>CDGW 040100 FN</b> | .159"  | .156" | .001" | .039" | .001" | .043" | .001" | 0"     | .087"           | ■    | ■     | ■     | □     |       |      |      |
|  | <b>CDGW 040101 FN</b> |        |       |       |       |       | .041" |       | .0039" |                 | ■    | ■     | □     | □     |       |      |      |
|  | <b>CDGW 040102 FN</b> |        |       |       |       |       | .039" |       | .0079" |                 | ■    | ■     | ■     | ■     |       |      |      |
|  | <b>CDGW 040104 FN</b> |        |       |       |       |       | .035" |       | .0157" |                 | ■    | ■     | ■     | □     |       |      |      |

■ stock item

□ upon request

Important: Medical implants made with inserts using DX32 & DX52 grades need to be cleaned accordingly.

CC09

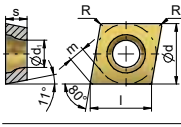
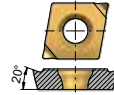
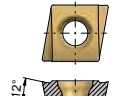
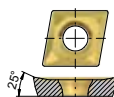


CD04



Indexable inserts

CP.. 05 | MiniTools 80°

|             | Article No.        | [inch] |       |       |       |       |       |       |        | DX 2            | P 25 | DX 20 | DX 25 | DX 30 | DP 35 | DP 50 | DP 55 | DX 52 | DX 70 | DS 10 | DS 20 | DT 55 | DT 255 | DT 355 | CBN |
|----------------------------------------------------------------------------------------------|--------------------|--------|-------|-------|-------|-------|-------|-------|--------|-----------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-----|
|                                                                                              |                    | l      | Ød    | +/-   | s     | +/-   | m     | +/-   | R      | Ød <sub>1</sub> |      |       |       |       |       |       |       |       |       |       |       |       |        |        |     |
|             | CPET 05T101 FN-20  | .220"  | .219" | .001" | .078" | .001" | .059" | .001" | .0039" | .098"           | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPET 05T102 FN-20  |        |       |       |       |       | .056" |       | .0079" |                 | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPET 05T104 FN-20  |        |       |       |       |       | .052" |       | .0157" |                 | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
| <p>*1)</p>  | CPET 05T101 FL/R   | .220"  | .219" | .001" | .078" | .001" | .059" | .001" | .0039" | .098"           | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPET 05T102 FL/R   |        |       |       |       |       | .056" |       | .0079" |                 | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPET 05T104 FL/R   |        |       |       |       |       | .052" |       | .0157" |                 | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|             | CPGT 05T101 EN     | .220"  | .219" | .001" | .078" | .005" | .059" | .001" | .0039" | .098"           | ■    | ■     | ■     |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPGT 05T102 EN     |        |       |       |       |       | .056" |       | .0079" |                 | ■    | ■     | ■     |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPGT 05T104 EN     |        |       |       |       |       | .052" |       | .0157" |                 | ■    | ■     | ■     |       |       |       |       |       |       |       |       |       |        |        |     |
|            | CPGT 05T101 FN     | .220"  | .219" | .001" | .078" | .005" | .059" | .001" | .0039" | .098"           | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPGT 05T102 FN     |        |       |       |       |       | .056" |       | .0079" |                 | ■    | ■     | ■     |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPGT 05T104 FN     |        |       |       |       |       | .052" |       | .0157" |                 | ■    | ■     | ■     |       |       |       |       |       |       |       |       |       |        |        |     |
|           | CPGT 05T101 FN-20  | .220"  | .219" | .001" | .078" | .005" | .059" | .001" | .0039" | .098"           | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPGT 05T102 FN-20  |        |       |       |       |       | .056" |       | .0079" |                 | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPGT 05T104 FN-20  |        |       |       |       |       | .052" |       | .0157" |                 | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|           | CPGT 05T102 FN-250 | .220"  | .219" | .001" | .078" | .005" | .056" | .001" | .0079" | .098"           | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPGT 05T104 FN-250 |        |       |       |       |       | .052" |       | .0157" |                 | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|           | CPGW 05T102        | .220"  | .219" | .001" | .078" | .005" | .056" | .001" | .0079" | .098"           |      |       |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPGW 05T104        |        |       |       |       |       | .052" |       | .0157" |                 |      |       |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              | CPGW 05T102 FN     |        |       |       |       |       | .056" |       | .0079" |                 | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|           | CPGW 05T104 FN     |        |       |       |       |       | .052" |       | .0157" |                 | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |
|                                                                                              |                    |        |       |       |       |       |       |       |        |                 | ■    | ■     |       |       |       |       |       |       |       |       |       |       |        |        |     |

■ stock item

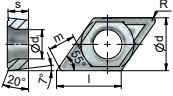
□ upon request

\*1) Illustration: Left hand execution shown

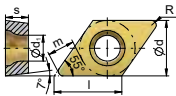
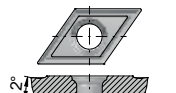
CP05



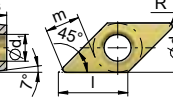
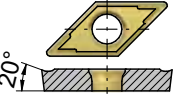
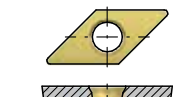
**Indexable inserts**
**DC.. 04 | MicroCopy D**

|                                                                                   | Article No.           | [inch] |       |       |       |       |       |       |        |                 | DX 2 | DX 32 |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------|-----------------------|--------|-------|-------|-------|-------|-------|-------|--------|-----------------|------|-------|--|--|--|--|--|--|
|                                                                                   |                       | l      | Ød    | +/-   | s     | +/-   | m     | +/-   | R      | Ød <sub>1</sub> |      |       |  |  |  |  |  |  |
|  | <b>DCGT 04T001-20</b> | .149"  | .122" | .001" | .047" | .002" | .067" | .001" | .0039" | .067"           | ■    | ■     |  |  |  |  |  |  |
|                                                                                   | <b>DCGT 04T002-20</b> |        |       |       |       |       | .062" |       | .0079" |                 | ■    | ■     |  |  |  |  |  |  |

**DC.. 11 | IsoTools**

|    | Article No.               | [inch] |       |       |       |       |       |       |        |                 | DX 2 | DX 20 | DX 30 | DX 32 | DT 55 | DT 255 | DT 355 |
|-------------------------------------------------------------------------------------|---------------------------|--------|-------|-------|-------|-------|-------|-------|--------|-----------------|------|-------|-------|-------|-------|--------|--------|
|                                                                                     |                           | l      | Ød    | +/-   | s     | +/-   | m     | +/-   | R      | Ød <sub>1</sub> |      |       |       |       |       |        |        |
|    | <b>DCGT 11T302-15</b>     | .457"  | .375" | .001" | .156" | .005" | .210" | .001" | .0079" | .173"           | ■    |       |       | ■     |       |        |        |
|                                                                                     | <b>DCGT 11T304-15</b>     |        |       |       |       |       | .200" |       | .0157" |                 | ■    |       |       | ■     |       |        |        |
|   | <b>DCGT 11T302 EN</b>     | .457"  | .375" | .001" | .156" | .005" | .209" | .001" | .0079" | .173"           |      |       |       |       | ■     | □      | □      |
|                                                                                     |                           |        |       |       |       |       |       |       |        |                 |      |       |       |       |       |        |        |
|  | <b>DCGT 11T301 FN-250</b> | .457"  | .375" | .001" | .156" | .005" | .214" | .001" | .0039" | .173"           | ■    | ■     | □     |       |       |        |        |
|                                                                                     | <b>DCGT 11T302 FN-250</b> |        |       |       |       |       | .209" |       | .0079" |                 | ■    | ■     | □     |       |       |        |        |
|                                                                                     | <b>DCGT 11T304 FN-250</b> |        |       |       |       |       | .200" |       | .0157" |                 | ■    | ■     | □     |       |       |        |        |
|                                                                                     | <b>DCGT 11T308 FN-250</b> |        |       |       |       |       |       | .182" |        | .0315"          |      | ■     | ■     | □     |       |        |        |

**GC.. 04 | MicroCopy G**

|                                                                                     | Article No.            | [inch] |       |       |       |       |       |       |        |                 | DX 2 | DX 70 |  |  |  |  |  |  |
|-------------------------------------------------------------------------------------|------------------------|--------|-------|-------|-------|-------|-------|-------|--------|-----------------|------|-------|--|--|--|--|--|--|
|                                                                                     |                        | l      | Ød    | +/-   | s     | +/-   | m     | +/-   | R      | Ød <sub>1</sub> |      |       |  |  |  |  |  |  |
|  | <b>GCGT 04T0005 FL</b> | .173"  | .122" | .001" | .047" | .002" | .095" | .001" | .0020" | .067"           | ■    | ■     |  |  |  |  |  |  |
|                                                                                     | <b>GCGT 04T001 FL</b>  |        |       |       |       |       | .092" |       | .0039" |                 | ■    | ■     |  |  |  |  |  |  |
|                                                                                     | <b>GCGT 04T002 FL</b>  |        |       |       |       |       | .086" |       | .0079" |                 | ■    | ■     |  |  |  |  |  |  |
|  | <b>GCGT 04T001-20</b>  | .173"  | .122" | .001" | .047" | .002" | .092" | .001" | .0039" | .067"           | ■    | ■     |  |  |  |  |  |  |
|                                                                                     | <b>GCGT 04T002-20</b>  |        |       |       |       |       | .086" |       | .0079" |                 | ■    | ■     |  |  |  |  |  |  |
|  | <b>GCGW 04T001</b>     | .173"  | .122" | .001" | .047" | .002" | .092" | .001" | .0039" | .067"           | ■    | ■     |  |  |  |  |  |  |
|                                                                                     | <b>GCGW 04T002</b>     |        |       |       |       |       | .086" |       | .0079" |                 | ■    | ■     |  |  |  |  |  |  |

■ stock item

□ upon request

**DC04**

**DC11**

**GC04**


Indexable inserts

VC.. 05 | MicroCopy 35°



|  | Article No.     | [inch] |       |       |       |       |       |       |        |                 | DX 2 | DX 70 |  |  |  |  |  |  |  |  |
|--|-----------------|--------|-------|-------|-------|-------|-------|-------|--------|-----------------|------|-------|--|--|--|--|--|--|--|--|
|  |                 | l      | Ød    | +/-   | s     | +/-   | m     | +/-   | R      | Ød <sub>1</sub> |      |       |  |  |  |  |  |  |  |  |
|  | VCGT 050101-20  | .213"  | .122" | .001" | .063" | .002" | .133" | .001" | .0039" | .067"           | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGT 050102-20  |        |       |       |       |       | .123" |       | .0079" |                 | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGT 050100 FL  | .213"  | .122" | .001" | .063" | .002" | .122" | .001" | 0"     | .067"           | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGT 050100 FR  |        |       |       |       |       | .122" |       | 0"     |                 | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGT 0501005 FL | .213"  | .122" | .001" | .063" | .002" | .137" | .001" | .0020" | .067"           | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGT 0501005 FR |        |       |       |       |       | .137" |       | .0020" |                 | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGT 050101 FL  |        |       |       |       |       | .133" |       | .0039" |                 | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGT 050101 FR  |        |       |       |       |       | .133" |       | .0039" |                 | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGT 050102 FL  |        |       |       |       |       | .123" |       | .0079" |                 | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGT 050102 FR  |        |       |       |       |       | .123" |       | .0079" |                 | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGW 050100 FL  | .213"  | .122" | .001" | .063" | .002" | .122" | .001" | 0"     | .067"           | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGW 050100 FR  |        |       |       |       |       | .122" |       | 0"     |                 | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGW 050101     | .213"  | .122" | .001" | .063" | .002" | .133" | .001" | .0039" | .067"           | ■    | ■     |  |  |  |  |  |  |  |  |
|  | VCGW 050102     |        |       |       |       |       | .123" |       | .0079" |                 | ■    | ■     |  |  |  |  |  |  |  |  |

■ stock item

□ upon request

\*1) Illustration: Left hand execution shown

\*2) Caution: Suitable only for tools with angle 95° (SVOCR, SVLCR, SVQCR, p.136 - p.138)

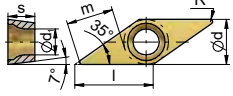
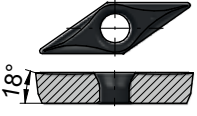
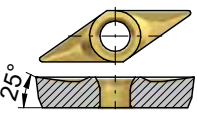
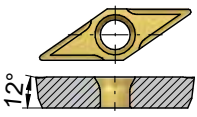
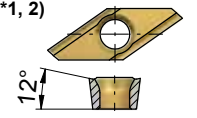
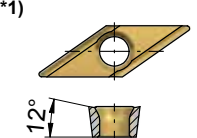
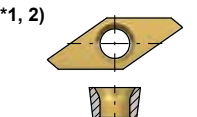
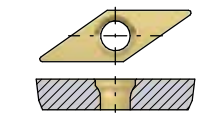
**Important: Medical implants made with inserts using DX32 & DX52 grades need to be cleaned accordingly.**

VC05



Indexable inserts

VC.. 07 | MiniCopy 35°

|    | Article No.          | [inch] |       |       |       |       |       |       |        |                | DX 2 | DX 20 | DX 30 | DX 32 | DX 50 | DX 52 | CBN | PKD |
|-------------------------------------------------------------------------------------|----------------------|--------|-------|-------|-------|-------|-------|-------|--------|----------------|------|-------|-------|-------|-------|-------|-----|-----|
|                                                                                     |                      | l      | d     | +/-   | s     | +/-   | m     | +/-   | R      | d <sub>1</sub> |      |       |       |       |       |       |     |     |
|    | VCGT 070202 FN-18M   | .273"  | .156" | .001" | .094" | .002" | .163" | .001" | .0079" | .091"          | ■    |       |       | ■     |       |       |     |     |
|                                                                                     | VCGT 070204 FN-18M   |        |       |       |       |       | .145" |       | .0157" |                | ■    |       |       | ■     |       |       |     |     |
|                                                                                     | M: Top face polished |        |       |       |       |       |       |       |        |                |      |       |       |       |       |       |     |     |
|    | VCGT 070201-25       | .273"  | .156" | .001" | .094" | .002" | .172" | .001" | .0039" | .091"          | ■    | ■     | ■     |       | □     | □     |     |     |
|                                                                                     | VCGT 070202-25       |        |       |       |       |       | .163" |       | .0079" |                | ■    | ■     | ■     |       | ■     | □     |     |     |
|                                                                                     | VCGT 070204-25       |        |       |       |       |       | .145" |       | .0157" |                | ■    | ■     | ■     |       | ■     | □     |     |     |
|    | VCGT 070201-12       | .273"  | .156" | .001" | .094" | .002" | .172" | .001" | .0039" | .091"          | ■    | ■     | ■     |       | □     | □     |     |     |
|                                                                                     | VCGT 070202-12       |        |       |       |       |       | .163" |       | .0079" |                | ■    | ■     | ■     |       | ■     | □     |     |     |
|                                                                                     | VCGT 070204-12       |        |       |       |       |       | .145" |       | .0157" |                | ■    | ■     | ■     |       | ■     | □     |     |     |
|   | VCGT 070200-08 FL    | .273"  | .156" | .001" | .094" | .002" | .133" | .001" | 0"     | .091"          | ■    | ■     | ■     |       | □     |       |     |     |
|                                                                                     | VCGT 070200-08 FR    |        |       |       |       |       |       |       |        |                | ■    | ■     | ■     |       | □     |       |     |     |
|  | VCGT 070201-08 FL    | .273"  | .156" | .001" | .094" | .002" | .172" | .001" | .0039" | .091"          | ■    | ■     | □     |       | □     |       |     |     |
|                                                                                     | VCGT 070201-08 FR    |        |       |       |       |       | .172" |       | .0039" |                | ■    | ■     | □     |       | □     |       |     |     |
|                                                                                     | VCGT 070202-08 FL    |        |       |       |       |       | .163" |       | .0079" |                | ■    | ■     | ■     |       | □     |       |     |     |
|                                                                                     | VCGT 070202-08 FR    |        |       |       |       |       | .163" |       | .0079" |                | ■    | ■     | ■     |       | □     |       |     |     |
|                                                                                     | VCGT 070204-08 FL    |        |       |       |       |       | .145" |       | .0157" |                | ■    | ■     | ■     |       | □     |       |     |     |
|                                                                                     | VCGT 070204-08 FR    |        |       |       |       |       | .145" |       | .0157" |                | ■    | ■     | ■     |       | □     |       |     |     |
|  | VCGW 070200 FL       | .273"  | .156" | .001" | .094" | .002" | .132" | .001" | 0"     | .091"          | ■    | ■     | □     |       | □     |       |     |     |
|                                                                                     | VCGW 070200 FR       |        |       |       |       |       |       |       |        |                | ■    | ■     | □     |       | □     |       |     |     |
|  | VCGW 070201          | .273"  | .156" | .001" | .094" | .002" | .172" | .001" | .0039" | .091"          | ■    | ■     | ■     |       | □     |       |     | □   |
|                                                                                     | VCGW 070202          |        |       |       |       |       | .163" |       | .0079" |                | ■    | ■     | ■     |       | ■     | □     | □   |     |
|                                                                                     | VCGW 070204          |        |       |       |       |       | .145" |       | .0157" |                | ■    | ■     | ■     |       | ■     | □     | □   |     |

■ stock item

□ upon request

VC07



\*1) Illustration: Left hand execution shown

\*2) Caution: Frontal protection chamfer (wiper) at 0° -> angle must be corrected to 90°

Important: Medical implants made with inserts using DX32 & DX52 grades need to be cleaned accordingly.

Indexable inserts

VC.. 13 | Copy 35°



|                      | Article No.         | [inch] |       |       |       |       |       |       |        |                | DX 2 | DC 15 | DX 20 | DX 30 | DX 32 | DX 50 | DX 52 | DX 70 | DT 10 | DT 210 | DT 310 | CBN | PKD |
|----------------------|---------------------|--------|-------|-------|-------|-------|-------|-------|--------|----------------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-----|-----|
|                      |                     | l      | d     | +/-   | s     | +/-   | m     | +/-   | R      | d <sub>1</sub> |      |       |       |       |       |       |       |       |       |        |        |     |     |
|                      | VCGT 130301-25      | .512"  | .313" | .001" | .125" | .005" | .354" | .001" | .0039" | .134"          | ■    | □     | ■     | ■     | ■     | □     | □     |       |       |        |        |     |     |
|                      | VCGT 130302-25      |        |       |       |       |       | .345" |       | .0079" |                | ■    | □     | ■     | ■     | ■     | □     | □     |       |       |        |        |     |     |
|                      | VCGT 130304-25      |        |       |       |       |       | .327" |       | .0157" |                | ■    | □     | ■     | ■     | ■     | □     | □     |       |       |        |        |     |     |
|                      | VCGT 130308-25      |        |       |       |       |       | .290" |       | .0315" |                | ■    | □     | ■     | ■     | ■     | □     | □     |       |       |        |        |     |     |
|                      | VCGT 130302 FN-25M  |        |       |       |       |       | .345" |       | .0079" |                | ■    |       |       |       |       |       |       |       |       |        |        |     |     |
|                      | VCGT 130304 FN-25M  |        |       |       |       |       | .327" |       | .0157" |                | ■    |       |       |       |       |       |       |       |       |        |        |     |     |
| M: Top face polished |                     |        |       |       |       |       |       |       |        |                |      |       |       |       |       |       |       |       |       |        |        |     |     |
|                      | VCGT 130301         | .512"  | .313" | .001" | .125" | .005" | .353" | .001" | .0039" | .134"          | ■    | ■     | ■     | ■     |       | □     | □     |       |       |        |        |     |     |
|                      | VCGT 130302         |        |       |       |       |       | .345" |       | .0079" |                | ■    | ■     | ■     | ■     |       | □     | □     |       |       |        |        |     |     |
|                      | VCGT 130304         |        |       |       |       |       | .327" |       | .0157" |                | ■    | ■     | ■     | ■     |       | □     | □     |       |       | ■      | ■      | ■   | ■   |
|                      | VCGT 130308         |        |       |       |       |       | .290" |       | .0315" |                | ■    | ■     | ■     | ■     |       | □     | □     |       |       | ■      | □      | □   |     |
|                      | VCGT 130302 EN-18M  | .512"  | .313" | .001" | .125" | .005" | .345" | .001" | .0079" | .134"          | ■    |       |       |       |       |       |       |       |       |        |        |     |     |
|                      | VCGT 130304 EN-18M  |        |       |       |       |       | .345" |       | .0157" |                | ■    |       |       |       |       |       |       |       |       |        |        |     |     |
|                      | VCGT 130302 FN-18M  |        |       |       |       |       | .345" |       | .0079" |                | ■    |       |       |       | ■     |       |       |       |       |        |        |     |     |
|                      | VCGT 130304 FN-18M  |        |       |       |       |       | .327" |       | .0157" |                | ■    |       |       |       | ■     |       |       |       |       |        |        |     |     |
| M: Top face polished |                     |        |       |       |       |       |       |       |        |                |      |       |       |       |       |       |       |       |       |        |        |     |     |
| *1, 3)<br>           | VCGT 130300 FL/R-10 | .512"  | .313" | .001" | .125" | .005" | .331" | .001" | .0"    | .134"          | ■    |       | ■     | ■     |       | □     |       |       |       |        |        |     |     |
|                      |                     |        |       |       |       |       |       |       |        |                |      |       |       |       |       |       |       |       |       |        |        |     |     |
|                      | VCGT 130301 FL/R-10 | .512"  | .313" | .001" | .125" | .005" | .353" | .001" | .0039" | .134"          | ■    |       | □     | □     |       | □     |       |       |       |        |        |     |     |
|                      | VCGT 130302 FL/R-10 |        |       |       |       |       | .345" |       | .0079" |                | ■    |       | ■     | ■     |       | □     |       |       |       |        |        |     |     |
|                      | VCGT 130304 FL/R-10 |        |       |       |       |       | .327" |       | .0157" |                | ■    |       | ■     | ■     |       | □     |       |       |       |        |        |     |     |
|                      | VCGT 130308 FL/R-15 |        |       |       |       |       | .290" |       | .0315" |                | ■    |       | ■     | ■     |       | □     |       |       |       |        |        |     |     |
| *1, 3)<br>           | VCGW 130300 FL/R    | .512"  | .313" | .001" | .125" | .005" | .331" | .001" | .0"    | .134"          | ■    |       | ■     | ■     |       | □     |       |       |       |        |        |     |     |
|                      | VCGW 130301 (FN)    | .512"  | .313" | .001" | .125" | .005" | .354" | .001" | .0039" | .134"          | ■    |       | □     | □     |       | □     |       |       |       |        |        |     |     |
|                      | VCGW 130302 (FN)    |        |       |       |       |       | .345" |       | .0079" |                | ■    |       | ■     | ■     |       | □     |       |       |       |        | □      | □   |     |
|                      | VCGW 130304 (FN)    |        |       |       |       |       | .327" |       | .0157" |                | ■    |       | ■     | ■     |       | □     |       |       |       |        | □      |     |     |
|                      | VCGW 130308 (FN)    |        |       |       |       |       | .290" |       | .0315" |                | ■    |       | ■     | ■     |       | □     |       |       |       |        |        |     |     |
| *2, 3)<br>           | VCGT 130300 FR-01W  | .512"  | .313" | .001" | .125" | .005" | .287" | .001" | .000"  | .134"          | ■    |       |       |       | ■     |       |       |       |       |        |        |     |     |
|                      | VCGT 130301 FR-01W  |        |       |       |       |       | .285" |       | .004"  |                | ■    |       |       |       | ■     |       |       |       |       |        |        |     |     |
|                      | VCGT 130302 FR-01W  |        |       |       |       |       | .284" |       | .008"  |                | ■    |       |       |       | ■     |       |       |       |       |        |        |     |     |
| *2, 3)<br>           | VCGT 130300 FR-15W  | .512"  | .313" | .001" | .125" | .005" | .331" | .001" | .000"  | .134"          | ■    |       |       |       | ■     |       |       |       |       |        |        |     |     |
|                      | VCGT 130301 FR-15W  |        |       |       |       |       | .329" |       | .004"  |                | ■    |       |       |       | ■     |       |       |       |       |        |        |     |     |
|                      | VCGT 130302 FR-15W  |        |       |       |       |       | .328" |       | .008"  |                | ■    |       |       |       | ■     |       |       |       |       |        |        |     |     |

■ stock item

□ upon request

\*1) Illustration: Left hand execution shown

\*2) Illustration: Right hand execution shown

\*3) Caution: Wiper must be parallel to axis of workpiece -> ensure proper angle of insert !







## Indexable inserts

### WC.. 02 | MiniTools 80°

|     | Article No.                          | [inch] |       |       |       |       |        |       |        |                 | DX 2 | DX 20 | DX 30 | DX 50 | DS10 | DS20 | DT 55 | DT 255 | DT 355 |
|-----|--------------------------------------|--------|-------|-------|-------|-------|--------|-------|--------|-----------------|------|-------|-------|-------|------|------|-------|--------|--------|
|     |                                      | l      | Ød    | +/-   | s     | +/-   | m      | +/-   | R      | Ød <sub>1</sub> |      |       |       |       |      |      |       |        |        |
|     | WCET 020101 FN-20                    | .090"  | .156" | .001" | .063" | .001" | .0413" | .001" | .0039" | .090"           | ■    | ■     | □     | □     | □    | □    |       |        |        |
|     | WCET 020102 FN-20                    |        |       |       |       |       | .0391" |       | .0079" |                 | ■    | ■     | □     | □     | □    | □    |       |        |        |
|     | WCET 020104 FN-20                    |        |       |       |       |       | .0347" |       | .0157" |                 | ■    | ■     | ■     | □     | □    | □    |       |        |        |
|     | WCGT 020101 EN                       | .090"  | .156" | .001" | .063" | .005" | .0413" | .001" | .0039" | .090"           | ■    | ■     | □     | □     |      |      |       |        |        |
|     | WCGT 020102 EN                       |        |       |       |       |       | .0391" |       | .0079" |                 | ■    | ■     | ■     | ■     |      |      | ■     | ■      | ■      |
|     | WCGT 020104 EN                       |        |       |       |       |       | .0347" |       | .0157" |                 | ■    | ■     | ■     | □     |      |      | ■     | ■      | ■      |
|     | WCGT 020101 FN-20                    | .090"  | .156" | .001" | .063" | .005" | .0413" | .001" | .0039" | .090"           | ■    | ■     | ■     | □     |      |      |       |        |        |
|     | WCGT 020102 FN-20                    |        |       |       |       |       | .0391" |       | .0079" |                 | ■    | ■     | ■     | □     |      |      |       |        |        |
|     | WCGT 020104 FN-20                    |        |       |       |       |       | .0347" |       | .0157" |                 | ■    | ■     | ■     | □     |      |      |       |        |        |
| *1) | WCGT 020102 FR/L<br>WCGT 020104 FR/L | .090"  | .156" | .001" | .063" | .005" | .0391" | .001" | .0079" | .090"           | ■    | ■     | ■     | ■     |      |      | ■     | ■      | ■      |
|     |                                      |        |       |       |       |       | .0347" |       | .0157" |                 | ■    | ■     | ■     | □     |      |      | ■     | ■      | ■      |

\*1) Left hand execution shown

### D20.. Cut-off inserts | Modulo D

|  | Article No.    | [inch] |       |     | DX 50 |  |  |  |  |  |
|--|----------------|--------|-------|-----|-------|--|--|--|--|--|
|  |                | B      | R     | α   |       |  |  |  |  |  |
|  | D2022 L10 CF00 | .087"  | 0     | 10° | □     |  |  |  |  |  |
|  | D2022 L16 CF00 | .087"  | 0     | 16° | □     |  |  |  |  |  |
|  | D2022 N00 CF00 | .087"  | 0     | 0°  | □     |  |  |  |  |  |
|  | D2022 N00 CF02 | .087"  | .008" | 0°  | □     |  |  |  |  |  |
|  | D2040 N00 CF00 | .157"  | 0     | 0°  | □     |  |  |  |  |  |
|  | D2040 N00 CF02 | .157"  | .008" | 0°  | □     |  |  |  |  |  |
|  | D2022 R10 CF00 | .087"  | 0     | 10° | □     |  |  |  |  |  |
|  | D2022 R16 CF00 | .087"  | 0     | 16° | □     |  |  |  |  |  |

Different dimensions & geometries upon request

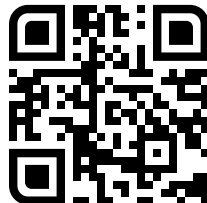
■ stock item

□ upon request

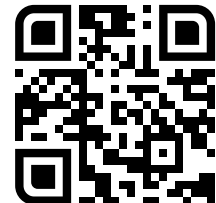
WC02



D2022



D2040



► Also available :

DENITool®

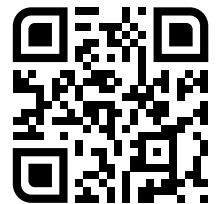


# MT-Tools **CHIRON®**

**Denitool® Turning Tools only for Mill-Turn machines**  
**CHIRON® FZ08 MT Precision<sup>+</sup>**

Super compact tools for internal & external turning with specific interface sizes  
HSK-A32-CHIRON and HSK-A40-CHIRON

► Please refer to *Denitool® MT-Tools CHIRON® Precision<sup>+</sup> catalog*



# MT-Tools **PSC40**

**Denitool® Turning Tools for Mill-Turn machines**

Super compact tools for internal & external turning with polygonal taper interface  
ISO 26623-1 PSC 40

► Please refer to *Denitool® MT-Tools PSC40 catalog*





# *Modulo* **D**

## ISO 12164-3 HSK-T



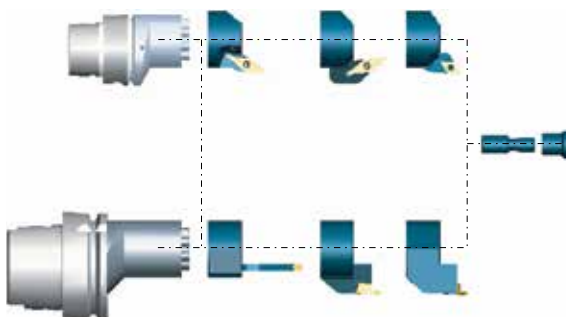
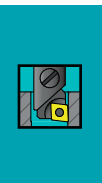
**Modular Tool System for Turning Machines and Combined Mill-Turn Centers**

**ISO 12164-3 HSK-T (ICTM Standard)**



**The economic modular tool system for operation on CNC turning centers and combined mill-turn centers**

- Cost-effective, flexible solution for the use of highly positive Denitool® cutting inserts on CNC turning center with modern chucking system
- Patented, extremely rigid connection with integrated coolant between insert carrier and chuck unit
- The position of the insert carrier can be turned by 180° (e.g. radial assembly at the revolver)
- Exchangeable high-tensile insert carrier, chuck unit with conventional strength factor
- Exchangeable insert carriers with different positioning angles for copying operations available with VC13 inserts as standard
- Special insert carriers for various insert geometries and fixing possibilities at low costs and with short delivery times available
- Standard chuck units: HSK 40 "T", HSK 50 "T", HSK 63 "T"  
Other dimensions and systems (ABS, PSC, KM etc.) upon request
- Low-cost replacement in case of damage of insert or tool (collision).



ISO 12164-3 HSK-T (ICTM Standard)



Insert  
DC 0702..

Screw  
T25.055

Insert Carrier  
**TDJL07**  
MOD M32 SDJCL0731199

Insert  
VC 1303..

Screw  
T30.090

Insert Carrier  
**TVXL13**  
MOD M32 SVXCL1338105

Differential Set T25  
**TDS 100300**

Insert  
CC 0602..

Screw  
T25.055

Insert Carrier  
**TCLL06**  
MOD M32 SCLCL0631199

Insert  
NFL 1..

Screw  
T30.090

Insert Carrier  
**SNFL01**  
MOD M32 SNFOL0131199

Insert  
D2-022..

Mounting Lever  
K-170137

Insert Carrier  
**SA22220**  
MOD M32 3870260239105

Insert  
DC 11T3..

Screw  
T35.084

Insert Carrier  
**TDJL11**  
MOD M32 SDJCL1133250

Insert  
VC 1303..

Screw  
T30.090

Insert Carrier  
**TVLL13**  
MOD M32 SVLCL1331195

Alignment Head  
**A100**  
MOD M32 30503219

Insert  
CC 09T3..

Screw  
T35.084

Insert Carrier  
**TCLL09**  
MOD M32 SCLCL0933250

Insert  
NFL 2..

Screw  
T50.160

Insert Carrier  
**SNFL02**  
MOD M32 SNFOL0235260

Insert Carrier  
**SA22228**  
MOD M32 3870260247105

Insert  
DC 11T3..

Screw  
T35.084

Insert Carrier  
**TDNL11**  
MOD M32 SDNCL 1150105

Insert  
VC 1303..

Screw  
T30.090

Insert Carrier  
**TVVL13**  
MOD M32 SVVCL 1355105

Threading Insert  
LT 16 ER..

Screw Set  
TDE 001

Insert Carrier  
**FLTR16**  
MOD M32 LTR1637245

Insert  
TP 16T3..

Screw  
T35.084

Insert Carrier  
**TTJL16**  
MOD M32 STJPL1633250

Special Insert  
NFR 2..

Screw  
T50.160

Insert Carrier  
**SNFR02**  
MOD M32 SNFOR0235260

Insert  
D2-040..

Mounting Lever  
K-170137

Insert Carrier  
**SA24020**  
MOD M32 3870320439125

Insert  
DC 11T3..

Screw  
T35.084

Insert Carrier  
**TDXL11**  
MOD M32 SDXCL1138105

| Article No.             | Ø HSK  | L      | X     |
|-------------------------|--------|--------|-------|
| MOD HSK A40 DS20 450M32 | 1.575" | 1.772" | .236" |
| MOD HSK A50 DS20 640M32 | 1.969" | 2.520" | .315" |
| MOD HSK A63 DS20 688M32 | 2.480" | 2.709" | .413" |
| MOD HSK A63 DS20 X88M32 | 2.480" | 4.283" | .413" |

HSK  
- A40 "T40"  
- A50 "T50"  
- A63 "T63"

F-Dimension  
F = C - X

Insert Carrier  
**SA24035**  
MOD M32 3870320454125

Different geometries, dimensions & chuck systems - e.g. PSC - upon request



# Denitool® Data

- ▶ Selector for Turning Inserts
- ▶ Grades & Coatings
- ▶ Denitool® PVD-Coatings
- ▶ Cutting Data
- ▶ Material Cross Reference
- ▶ Application advice for cylindrical boring bars
- ▶ Application advice for deep bores
- ▶ Operating Recommendation for Carbide Boring Bars
- ▶ General Safety Recommendations



## DENITool® DATA

**Carbide**

**DX2** Micrograin grade for machining of cast iron, plastics and aluminum. Stainless steel at lower cutting speed.

**P20 / P25** Universal grade for medium machining of steel, cast iron and stainless steel at medium cutting speed.

**Carbide coated**

**DC15 CVD** Micrograin grade for machining of steel, stainless steel, cast iron steel and nodular cast iron. Good stability of cutting edge and resistance against crater-wear.

**DP25 / DX20 PVD** For steel, free-cutting stainless steel and super alloys at medium cutting speed.

**DP35 / DX30 PVD** For steel, difficult to machine stainless steel, grey and nodular cast iron at medium up to high cutting speed. Excellent wear resistance.

**DX32 PVD** Universal grade for light metal alloys and stainless steel. High protection against edge build-up.

**DP55 / DX50 PVD** For steel, difficult to machine stainless steel, grey and nodular cast iron at high cutting speed. High thermal stability. Excellent for dry machining.

**DP57 / DX52 PVD + PLC** Similar to **DP55 / DX 50** but with additional **PLC-antifriction film** against cold-welding tendency. High thermal stability.

**DX70 PVD** Universal grade for aluminum alloys, steel and superalloys. High thermal stability.

**DS10 PVD** Micrograin with SuperHard special coating for **Hard Turning Operations** up to **62 HRC**. High thermal stability.

**DS20 PVD** High-end quality for **Hard Turning Operations** up to **62 HRC** in steel with higher carbon content. High thermal stability.

**Cermet**

**DT10 / DT55** For finishing applications in steel and free-cutting stainless steel at medium cutting speed.

**Cermet coated**

**DT210 / DT255 PVD** For steel, free-cutting stainless steel and super alloys at medium up to high cutting speed.

**DT310 / DT355 PVD** For steel, difficult to machine stainless steel, grey and nodular cast iron at medium up to high cutting speed. Excellent wear resistance.

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| TYPE OF COATING                               | WORKING TEMPERATURE (MAX. F) | MICRO HARDNESS (HV 0.01) | COATING LAYER THICKNESS (µm) | COEFFICIENT OF FRICTION VS. DRY STEEL | COLOUR         |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|-----------------------------------------------|------------------------------|--------------------------|------------------------------|---------------------------------------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| DX20<br>DP25                                  | 1'112                        | 2'500                    | 1-4                          | 0.4                                   | GOLD           |    |    |    |    |
| DX30<br>DP35                                  | 752                          | 3'500                    | 2-4                          | 0.2                                   | VIOLET-GREY    |    |    |    |    |
| DX32<br>(PLC ANTI-FRICTION TOP LAYER)         | 752                          | 3'500                    | 2-4                          | 0.15                                  | DARK BLUE-GREY |    |    |    |    |
| DX50<br>DP55                                  | 1'652                        | 3'500                    | 1-2                          | 0.3                                   | DARK BLUE-GREY |    |    |    |    |
| DX52<br>DP57<br>(PLC ANTI-FRICTION TOP LAYER) | 1'652                        | 3'500                    | 1-2                          | 0.15                                  | DARK BLUE-GREY |   |   |   |   |
| DX70                                          | 1'652                        | 3'500                    | 2-3                          | 0.4                                   | GOLD           |  |  |  |  |
| DS10                                          | 2'012                        | 4'200                    | 1-3                          | 0.35                                  | BLUE-GREY      |  |  |  |  |
| DS20<br>(STEEL W. HIGHER C-CONTENT)           | 2'192                        | 4'500                    | 1-3                          | 0.45                                  | DARK BLUE-GREY |  |  |  |  |
| STEEL                                         |                              |                          |                              |                                       |                |    |    |    |    |
| CAST IRON                                     |                              |                          |                              |                                       |                |     |     |     |     |
| Ti-/ Ni-ALLOYS                                |                              |                          |                              |                                       |                |      |      |      |      |
| HARD TURNING                                  |                              |                          |                              |                                       |                |      |      |      |      |
| AL-/ MG-ALLOYS                                |                              |                          |                              |                                       |                |      |      |      |      |
| COPPER                                        |                              |                          |                              |                                       |                |      |      |      |      |
| BRASS, BRONZE, NICKEL SILVER                  |                              |                          |                              |                                       |                |      |      |      |      |
| PLASTIC MATERIAL                              |                              |                          |                              |                                       |                |      |      |      |      |

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[illegible]

\* ) low data for tool w. long shank - high data for tool w. short shank

\*) chip thickness

## DENITool-DATA

**Caution: General safety regulations and directions of machine manufacturers must be observed at any time!**

| Caution: General safety regulations and directions of machine manufacturers must be observed at any time! |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|------------------|----------|---------------|--|--|--|--|--|--|--|--|--|
|                                                                                                           | Material description | W-Nr.<br>German | AISI/SAE | Tensile strength | Hardness |               |  |  |  |  |  |  |  |  |  |
|                                                                                                           |                      |                 |          |                  |          | Rm (N/mm²) HB |  |  |  |  |  |  |  |  |  |
|                                                                                                           |                      |                 |          |                  |          | f (ipr) *)    |  |  |  |  |  |  |  |  |  |
|                                                                                                           |                      |                 |          |                  |          | Vc (sfm)      |  |  |  |  |  |  |  |  |  |
|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
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|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
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|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
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|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
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|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |
|                                                                                                           |                      |                 |          |                  |          |               |  |  |  |  |  |  |  |  |  |

\*) in function of stability of tool &amp; workpiece



CD04





## DENITRIFICATION DATA

**Caution:** General safety regulations and directions of machine manufacturers must be observed at any time!

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|    | Material description                      | W-Nr.<br>German                               | AlSi/SAE                                                                  | Tensile strength          | Hardness                            |
|----|-------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------|---------------------------|-------------------------------------|
|    |                                           |                                               |                                                                           |                           | HB                                  |
|    |                                           |                                               |                                                                           | Rm (N/mm²)                |                                     |
| 1  | Low Carbon Steel                          | 1.0035<br>1.0038<br>1.0401<br>1.0050          | 1010<br>1045<br>1015<br>1050                                              | - 500                     | - 160                               |
| 2  | Alloy Steel                               | 1.0501<br>1.1141<br>1.5732<br>1.7225          | 1035<br>1115<br>3415<br>4140                                              | 500 - 700                 | 140 - 200                           |
| 3  | Tool Steel                                | 1.1221<br>1.3505<br>52100<br>1.7225<br>1.5141 | 1080<br>52100<br>4140<br>-                                                | 900 - 1100                | 170 - 275                           |
| 4  | Alloy Tool Steel                          | 1.1191<br>1.7225<br>1.2080<br>1.7220          | 4140<br>4142<br>D3<br>4135                                                | 700 - 900                 | 250 - 325                           |
| 5  | Alloy Cast Steel                          | 1.6592<br>1.8159<br>1.2367<br>1.7361          | 4340<br>6150<br>A2<br>4145                                                | 1100 - 1500<br>800 - 1000 | 325 - 450<br>250 - 300<br>330 - 390 |
| 6  | Stainless Steel                           | 1.4006<br>1.4057<br>1.4034<br>1.4005          | 403<br>431<br>420<br>416                                                  | - 800                     | - 250                               |
| 7  | Stainless Steel - Austenitic, Martensitic | 1.4300<br>1.4301<br>1.4435<br>1.4542          | 302<br>304 (304H)<br>316<br>17-4 ph                                       | 500 - 1100                | 200 - 325                           |
| 8  | Grey Cast Iron                            | 0.6010<br>0.6015<br>0.6020                    | A48-20B<br>A48-25B<br>A48-30B                                             | - 250                     | - 200                               |
| 9  | Cast Iron Malleable                       | 0.6025<br>0.8135<br>0.8140<br>0.7050          | A48-35B<br>A48-40B<br>A48-45B<br>80-55-06                                 | 250 - 350                 | 200 - 250                           |
| 10 | Copper Alloys                             | 2.0331<br>2.0401<br>2.1030<br>2.0920          | B121<br>B121<br>B103<br>CuAl 8                                            | 450 - 650                 | 120 - 180                           |
| 11 | Aluminium Alloys                          | 3.2582.05<br>3.3541.01<br>3.2315<br>3.0205    | 383.2 (AlSi-12)<br>514.0 (AlMg 3)<br>413.0 (ALMgSi 1)<br>1200 ( ALMg 99 ) | 250 - 350                 | 200 - 300                           |

\*) in function of stability of tool &amp; workpiece





| Carbide                                                                            |                                                                                   |                                                                                   |                                                                                   | Cermet                                                                            |                                                                                   |              |              |                      |              |              |        |  |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------|--------------|----------------------|--------------|--------------|--------|--|
|  |  |  |  |  |  | uncoated     |              | coated               |              | uncoated     | coated |  |
|                                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | DX2          | DX20         | DX30<br>DX50<br>DX70 | DT55         | DT355        |        |  |
| .0012<br>.0028                                                                     | .0012<br>.0028                                                                    | .0020<br>.0059                                                                    | .0012<br>.0028                                                                    | .0012<br>.0039                                                                    |                                                                                   | 1120<br>955  | 1250<br>1055 | 1520<br>1220         | 1915<br>1550 | 1915<br>1550 |        |  |
| .0012<br>.0028                                                                     | .0012<br>.0028                                                                    | .0020<br>.0059                                                                    | .0012<br>.0028                                                                    | .0012<br>.0039                                                                    |                                                                                   | 1055<br>890  | 1190<br>990  | 1450<br>1155         | 1815<br>1450 | 1815<br>1450 |        |  |
| .0012<br>.0028                                                                     | .0012<br>.0028                                                                    | .0020<br>.0059                                                                    | .0012<br>.0028                                                                    | .0012<br>.0039                                                                    |                                                                                   | 860<br>695   | 1055<br>955  | 1355<br>1120         | 1685<br>1385 | 1685<br>1385 |        |  |
| .0012<br>.0028                                                                     | .0012<br>.0028                                                                    | .0020<br>.0059                                                                    | .0012<br>.0028                                                                    | .0012<br>.0031                                                                    |                                                                                   |              |              | 725<br>660           | 890<br>790   | 890<br>790   |        |  |
| 0.001                                                                              | 0.001                                                                             | .0020<br>.0059                                                                    | 0.001                                                                             | .0012<br>.0031                                                                    |                                                                                   |              |              | 595<br>495           | 725<br>625   | 725<br>625   |        |  |
|                                                                                    | .0012<br>.0028                                                                    |                                                                                   |                                                                                   | .0012<br>.0039                                                                    |                                                                                   | 530<br>460   | 560<br>530   |                      |              |              |        |  |
|                                                                                    | .0008<br>.0028                                                                    |                                                                                   |                                                                                   | .0008<br>.0039                                                                    |                                                                                   | 395<br>330   | 430<br>365   |                      |              |              |        |  |
| .0012<br>.0031                                                                     |                                                                                   | .0020<br>.0059                                                                    | .0012<br>.0031                                                                    | .0020<br>.0059                                                                    |                                                                                   | 460<br>395   | 925<br>825   | 595<br>530           | 1120<br>925  | 1120<br>925  |        |  |
| .0012<br>.0031                                                                     |                                                                                   | .0020<br>.0059                                                                    | .0012<br>.0031                                                                    | .0020<br>.0059                                                                    |                                                                                   |              | 825<br>725   | 530<br>395           | 925<br>860   | 1055<br>925  |        |  |
|                                                                                    | .0008<br>.0059                                                                    |                                                                                   |                                                                                   | .0008<br>.0059                                                                    |                                                                                   | 1485<br>1320 | 1980<br>1815 |                      |              |              |        |  |
| .0008<br>.0059                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |              | >6270        |                      |              |              |        |  |

\*) in function of stability of tool &amp; workpiece

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|-----------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------|-------------------------------------------------------------------------|---------------------------|------------------------|
|                                                                                                           | Material description                      | W-Nr.<br>German                            | ANSI/SAE                                                                | Tensile strength          | Hardness               |
|                                                                                                           |                                           |                                            |                                                                         | Rm (N/mm <sup>2</sup> )   |                        |
|                                                                                                           |                                           |                                            |                                                                         | HB                        |                        |
| 1                                                                                                         | Low Carbon Steel                          | 1.0035<br>1.0038<br>1.0401<br>1.0050       | 1010<br>1045<br>1015<br>1050                                            | - 500                     | - 160                  |
| 2                                                                                                         | Alloy Steel                               | 1.0501<br>1.1141<br>1.5732<br>1.7225       | 1035<br>1115<br>3415<br>4140                                            | 500 - 700                 | 140 - 200              |
| 3                                                                                                         | Tool Steel                                | 1.1221<br>1.3505<br>1.7225<br>1.5141       | 1060<br>52100<br>4140<br>-                                              | 900 - 1100                | 170 - 275              |
| 4                                                                                                         | Alloy Tool Steel                          | 1.1191<br>1.7225<br>1.2080<br>1.7220       | 4140<br>4142<br>D3<br>4135                                              | 700 - 900                 | 250 - 325              |
| 5                                                                                                         | Alloy Cast Steel                          | 1.6582<br>1.8159<br>1.2367<br>1.7361       | 4340<br>6150<br>A2<br>4145                                              | 1100 - 1500<br>800 - 1000 | 325 - 450<br>250 - 300 |
| 6                                                                                                         | Stainless Steel                           | 1.4006<br>1.4057<br>1.4034<br>1.4005       | 403<br>431<br>420<br>416                                                | - 800                     | - 250                  |
| 7                                                                                                         | Stainless Steel - Austenitic, Martensitic | 1.4300<br>1.4301<br>1.4435<br>1.4542       | 302<br>304 (304H)<br>316<br>17-4 ph                                     | 500 - 1100                | 200 - 325              |
| 8                                                                                                         | Grey Cast Iron                            | 0.6010<br>0.6015<br>0.6020                 | A48-20B<br>A48-25B<br>A48-30B                                           | - 250                     | - 200                  |
| 9                                                                                                         | Cast Iron Malleable                       | 0.6025<br>0.8135<br>0.8140<br>0.7050       | A48-35B<br>A48-40B<br>A48-45B<br>80-55-06                               | 250 - 350                 | 200 - 250              |
| 10                                                                                                        | Copper Alloys                             | 2.0331<br>2.0401<br>2.1030<br>2.0920       | B121<br>B121<br>B103<br>CuAl 8                                          | 450 - 650                 | 120 - 180              |
| 11                                                                                                        | Aluminium Alloys                          | 3.2582.05<br>3.3541.01<br>3.2315<br>3.0205 | 383.2 (ALSI-12)<br>514.0 (AlMg 3)<br>413.0 (AlMgSi 1)<br>1200 ( Al 99 ) | 250 - 350                 | 200 - 300              |





WC02



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|-----------------------------------------------------------------------------------------------------------|--|-------------------------|----------|------------------|----------|--|--|--|--|
| Material description                                                                                      |  | W-Nr.<br>German         | AISI/SAE | Tensile strength | Hardness |  |  |  |  |
|                                                                                                           |  | HB                      |          |                  |          |  |  |  |  |
|                                                                                                           |  | Rm (N/mm <sup>2</sup> ) |          |                  |          |  |  |  |  |
|                                                                                                           |  | f (ipr) *               |          |                  |          |  |  |  |  |
|                                                                                                           |  | Vc (sfm)                |          |                  |          |  |  |  |  |
|                                                                                                           |  | Cermet                  |          |                  |          |  |  |  |  |
|                                                                                                           |  | Carbide                 |          |                  |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          | coated           |          |  |  |  |  |
|                                                                                                           |  | uncoated                |          |                  |          |  |  |  |  |

\*) in function of stability of tool & workpiece



## DENITTOOL-DATA

**Caution:** General safety regulations and directions of machine manufacturers must be observed at any time!

[illegible]<sup>\*)</sup> in function of stability of tool & workpiece

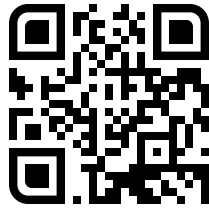
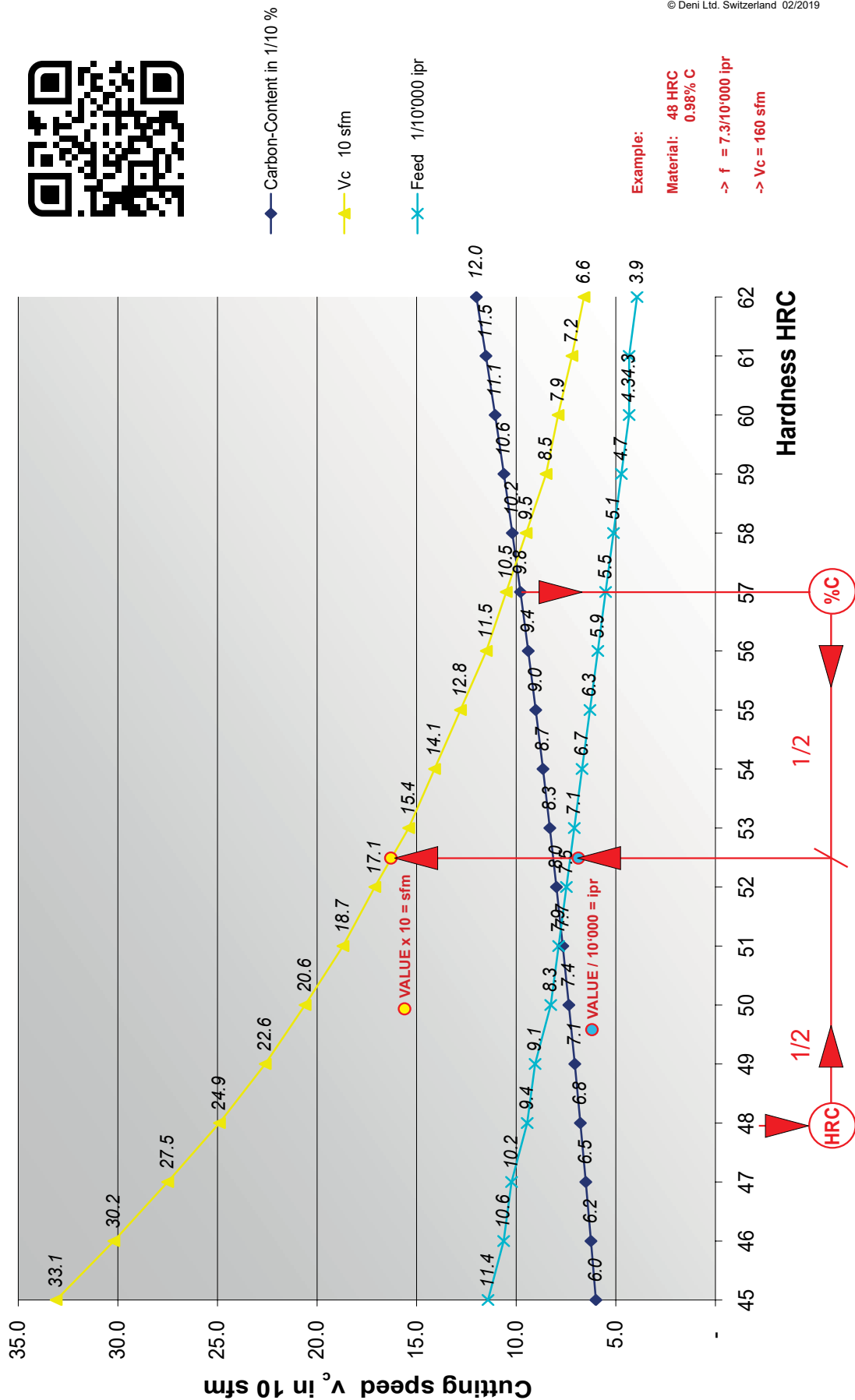
WC02





# Cutting Data HardTurn 80°

for SuperHard Coatings DS10 / DS20



## DENITool-DATA

**Caution: General safety regulations and directions of machine manufacturers must be observed at any time!**

|  | Material description | W-Nr.<br>German | AISI/SAE | Tensile strength | Hardness | f (pr) *) | Carbide  |                              |          | Cermet   |        |        |
|--|----------------------|-----------------|----------|------------------|----------|-----------|----------|------------------------------|----------|----------|--------|--------|
|  |                      |                 |          |                  |          |           | uncoated | coated                       | uncoated | uncoated | coated | coated |
|  |                      |                 |          |                  |          |           | DX2      | DX20<br>DX30<br>DX50<br>DX52 |          | DT55     | DT255  | DT355  |
|  |                      |                 |          |                  |          |           | Vc (sfm) |                              |          |          |        |        |
|  |                      |                 |          |                  |          |           | 500      | 1120                         | 1250     | 1510     | 1910   | 1910   |
|  |                      |                 |          |                  |          |           | 425      | 960                          | 1050     | 1220     | 1550   | 1550   |
|  |                      |                 |          |                  |          |           | 300      | 790                          | 860      | 825      | 1050   | 1051   |
|  |                      |                 |          |                  |          |           | 400      | 1050                         | 1190     | 1450     | 1810   | 1810   |
|  |                      |                 |          |                  |          |           | 300      | 890                          | 990      | 1150     | 1450   | 1450   |
|  |                      |                 |          |                  |          |           | 200      | 725                          | 925      | 925      | 925    | 926    |
|  |                      |                 |          |                  |          |           | 300      | 880                          | 1050     | 1350     | 1680   | 1680   |
|  |                      |                 |          |                  |          |           | 230      | 700                          | 960      | 1120     | 1380   | 1380   |
|  |                      |                 |          |                  |          |           | 165      | 560                          | 660      | 760      | 960    | 961    |
|  |                      |                 |          |                  |          |           | 200      | 660                          | 860      | 725      | 890    | 890    |
|  |                      |                 |          |                  |          |           | 165      | 600                          | 725      | 600      | 790    | 790    |
|  |                      |                 |          |                  |          |           | 135      | 400                          | 525      | 460      | 560    | 561    |
|  |                      |                 |          |                  |          |           |          | 460                          | 660      | 600      | 725    | 725    |
|  |                      |                 |          |                  |          |           |          | 400                          | 525      | 500      | 625    | 625    |
|  |                      |                 |          |                  |          |           |          | 300                          | 400      | 400      | 500    | 501    |
|  |                      |                 |          |                  |          |           |          |                              |          |          |        |        |
|  |                      |                 |          |                  |          |           |          | 525                          | 560      |          |        |        |
|  |                      |                 |          |                  |          |           |          | 460                          | 525      |          |        |        |
|  |                      |                 |          |                  |          |           |          | 400                          | 425      |          |        |        |
|  |                      |                 |          |                  |          |           |          | 330                          | 360      |          |        |        |
|  |                      |                 |          |                  |          |           | 460      | 860                          | 925      | 600      | 1120   | 1190   |
|  |                      |                 |          |                  |          |           | 400      | 725                          | 825      | 525      | 925    | 1060   |
|  |                      |                 |          |                  |          |           | 300      | 660                          | 760      | 425      | 790    | 990    |
|  |                      |                 |          |                  |          |           | 400      | 725                          | 825      | 528      | 925    | 1050   |
|  |                      |                 |          |                  |          |           | 300      | 660                          | 725      | 400      | 860    | 925    |
|  |                      |                 |          |                  |          |           | 230      | 600                          | 660      | 300      | 800    | 860    |
|  |                      |                 |          |                  |          |           | 1490     | 1810                         | 1980     |          |        |        |
|  |                      |                 |          |                  |          |           | 1320     | 1650                         | 1810     |          |        |        |
|  |                      |                 |          |                  |          |           | 1160     | 1485                         | 1650     |          |        |        |
|  |                      |                 |          |                  |          |           |          | >6270                        | >6600    |          |        |        |

\*) in function of stability of tool &amp; workpiece





TP11



TP16

|  | Carbide  |        |              |                      | Cermet |
|--|----------|--------|--------------|----------------------|--------|
|  | uncoated | coated |              |                      |        |
|  |          | DP25   | DP35<br>DP55 | DX20                 |        |
|  | DX2      | P25    |              | DX30<br>DX50<br>DX52 |        |

| TPGT<br>16...25 | TPHT<br>11...16...<br>ERL | TPHT<br>11...16...<br>FR/L | TPHW<br>11...16...<br>EN | TPHW<br>11...16...<br>FN |
|-----------------|---------------------------|----------------------------|--------------------------|--------------------------|
|-----------------|---------------------------|----------------------------|--------------------------|--------------------------|

|      |      | Vc (sfm) |       |
|------|------|----------|-------|
| 495  | 1050 | 1220     |       |
| 425  | 850  | 990      |       |
| 300  | 725  | 825      |       |
| 390  | 990  | 1120     |       |
| 300  | 825  | 925      |       |
| 200  | 690  | 790      |       |
| 300  | 850  | 990      |       |
| 230  | 725  | 825      |       |
| 165  | 625  | 690      |       |
| 200  | 660  | 750      |       |
| 165  | 525  | 600      |       |
| 135  | 400  | 460      |       |
| 525  | 610  |          |       |
| 360  | 410  |          |       |
| 260  | 315  |          |       |
| 660  | 760  |          |       |
| 525  | 600  |          |       |
| 460  | 460  |          |       |
| 600  | 660  |          |       |
| 460  | 525  |          |       |
| 400  | 450  |          |       |
| 400  | 660  | 750      | 750   |
| 330  | 560  | 625      | 625   |
| 260  | 425  | 480      | 480   |
| 400  | 560  | 625      | 625   |
| 330  | 460  | 525      | 525   |
| 230  | 360  | 410      | 410   |
| 1800 | 2640 | 2640     | 2640  |
| 1650 | 2300 | 2300     | 2300  |
| 1320 | 1980 | 1981     | 1982  |
| 2640 |      |          | >3300 |
| 1650 |      |          | >3300 |
| 990  |      |          |       |

|       |       | f (ipr) *) |  |
|-------|-------|------------|--|
| .0031 |       |            |  |
| .0059 |       |            |  |
| .0118 |       |            |  |
| .0031 |       |            |  |
| .0059 |       |            |  |
| .0118 |       |            |  |
| .0031 |       |            |  |
| .0059 |       |            |  |
| .0118 |       |            |  |
| .0031 |       |            |  |
| .0059 |       |            |  |
| .0118 |       |            |  |
| .0031 |       |            |  |
| .0059 |       |            |  |
| .0118 |       |            |  |
| .0031 |       |            |  |
| .0059 |       |            |  |
| .0118 |       |            |  |
| .0024 | .0012 |            |  |
| .0047 | .0039 |            |  |
| .0118 | .0079 |            |  |
| .0024 | .0012 |            |  |
| .0047 | .0039 |            |  |
| .0098 | .0079 |            |  |
| .0020 | .0020 |            |  |
| .0059 | .0079 |            |  |
| .0118 | .0157 |            |  |
| .0020 | .0020 |            |  |
| .0059 | .0079 |            |  |
| .0157 | .0157 |            |  |

\*) in function of stability of tool &amp; workpiece

## DENITool-DATA

**Caution:** General safety regulations and directions of machine manufacturers must be observed at any time!

|    | Material description                      | W-Nr.<br>German                                | AISI/SAE                                                               | Tensile strength          | Hardness                            |
|----|-------------------------------------------|------------------------------------------------|------------------------------------------------------------------------|---------------------------|-------------------------------------|
| HB |                                           |                                                |                                                                        |                           |                                     |
|    |                                           |                                                | Rm (N/mm <sup>2</sup> )                                                |                           |                                     |
| 1  | Low Carbon Steel                          | 1.0035<br>1.0038<br>1.0401<br>1.0050           | 1010<br>1045<br>1015<br>1050                                           | - 500                     | - 160                               |
| 2  | Alloy Steel                               | 1.0501<br>1.1141<br>1.1115<br>1.5732<br>1.7225 | 1035<br>1115<br>3415<br>4140                                           | 500 - 700                 | 140 - 200                           |
| 3  | Tool Steel                                | 1.1221<br>1.3505<br>1.7225<br>1.5141           | 1060<br>52100<br>4140<br>_                                             | 900 - 1100                | 170 - 275                           |
| 4  | Alloy Tool Steel                          | 1.1191<br>1.7225<br>1.2080<br>1.7220           | 4140<br>4142<br>D3<br>4135                                             | 700 - 900                 | 250 - 325                           |
| 5  | Alloy Cast Steel                          | 1.6582<br>1.8159<br>1.2367<br>1.7361           | 4340<br>6150<br>A2<br>4145                                             | 1100 - 1500<br>800 - 1000 | 325 - 450<br>250 - 300<br>330 - 390 |
| 6  | Stainless Steel                           | 1.4006<br>1.4057<br>1.4034<br>1.4005           | 403<br>431<br>420<br>416                                               | - 800                     | - 250                               |
| 7  | Stainless Steel - Austenitic, Martensitic | 1.4300<br>1.4301<br>1.4435<br>1.4542           | 302<br>304 (304H)<br>316<br>17-4 ph                                    | 500 - 1100                | 200 - 325                           |
| 8  | Grey Cast Iron                            | 0.6010<br>0.6015<br>0.6020                     | A48-20B<br>A48-25B<br>A48-30B                                          | - 250                     | - 200                               |
| 9  | Cast Iron Malleable                       | 0.6025<br>0.8135<br>0.8140<br>0.7050           | A48-35B<br>A48-40B<br>A48-45B<br>80-55-06                              | 250 - 350                 | 200 - 250                           |
| 10 | Copper Alloys                             | 2.0331<br>2.0401<br>2.1030<br>2.0920           | B121<br>B121<br>B103<br>CuAl 8                                         | 450 - 650                 | 120 - 180                           |
| 11 | Aluminium Alloys                          | 3.2582.05<br>3.3541.01<br>3.2315<br>3.0205     | 383.2 (AL-Si-12)<br>514.0 (AlMg 3)<br>413.0 (ALMgSi 1)<br>1200 (AL 99) | 250 - 350                 | 200 - 300                           |



| Material description                        | W-Nr.<br>German                            | AISI/SAE                                                             | Tensile strength             | Hardness               | HB    | DCGT<br>04..<br>-20   | GCGT<br>04..<br>FL / FR | GCGT<br>04..<br>-20   | GCGW<br>04T0..<br>-20 | VCGT<br>05..<br>FL / FR | VCGT<br>05..<br>-20   | VCGW<br>05..          | Carbide         |                        | Vc (sfm)   |
|---------------------------------------------|--------------------------------------------|----------------------------------------------------------------------|------------------------------|------------------------|-------|-----------------------|-------------------------|-----------------------|-----------------------|-------------------------|-----------------------|-----------------------|-----------------|------------------------|------------|
|                                             |                                            |                                                                      |                              |                        |       |                       |                         |                       |                       |                         |                       |                       | uncoated<br>DX2 | coated<br>DX32<br>DX70 |            |
| 1 Low Carbon Steel                          | 1.0035<br>1.0038<br>1.0401<br>1.0050       | 1010<br>1045<br>1015<br>1050                                         | -                            | - 500                  | - 160 | 0.0004<br>+<br>0.0016 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0039 |                 |                        | 990<br>990 |
| 2 Alloy Steel                               | 1.0501<br>1.1141<br>1.5732<br>1.7225       | 1035<br>1115<br>3415<br>4140                                         | 500 - 700                    | 140 - 200              |       | 0.0004<br>+<br>0.0016 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0039 |                 |                        | 825<br>825 |
| 3 Tool Steel                                | 1.1221<br>1.3505<br>1.7225<br>1.5141       | 1060<br>52100<br>4140<br>-                                           | 900 - 1*100                  | 170 - 275              |       | 0.0004<br>+<br>0.0016 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0028 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0028 |                 |                        | 726<br>726 |
| 4 Alloy Tool Steel                          | 1.1191<br>1.7225<br>1.2080<br>1.7220       | 4140<br>D3<br>4135                                                   | 700 - 900                    | 250 - 325              |       | 0.0004<br>+<br>0.0016 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0028 | 0.0004<br>+<br>0.0028 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0028 | 0.0004<br>+<br>0.0028 |                 |                        | 594<br>594 |
| 5 Alloy Cast Steel                          | 1.6582<br>1.8159<br>1.2367<br>1.7361       | 4340<br>6150<br>A2<br>4145                                           | 1*100 - 1*500<br>800 - 1*000 | 325 - 450<br>250 - 390 |       | 0.0004<br>+<br>0.0016 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0028 | 0.0004<br>+<br>0.0019 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0028 | 0.0004<br>+<br>0.0019 |                 |                        | 462<br>462 |
| 6 Stainless Steel                           | 1.4006<br>1.4057<br>1.4034<br>1.4005       | 403<br>431<br>420<br>416                                             | - 800                        | - 250                  |       | 0.0004<br>+<br>0.0016 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 |                       | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 |                       |                 |                        | 660<br>660 |
| 7 Stainless Steel - Austenitic, Martensitic | 1.4300<br>1.4301<br>1.4435<br>1.4542       | 302<br>304 (304H)<br>316<br>17-4 ph                                  | 500 - 1100                   | 200 - 325              |       | 0.0004<br>+<br>0.0016 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0031 |                       | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0031 |                       |                 |                        | 495<br>495 |
| 8 Grey Cast Iron                            | 0.6010<br>0.6015<br>0.6020                 | A48-20B<br>A48-25B<br>A48-30B                                        | - 250                        | - 200                  |       | 0.0004<br>+<br>0.0016 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0059 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0059 | 0.0004<br>+<br>0.0059 | 297             |                        | 693<br>693 |
| 9 Cast Iron Malleable                       | 0.6025<br>0.8135<br>0.8140<br>0.7050       | A48-35B<br>A48-40B<br>A48-45B<br>80-55-06                            | 250 - 350                    | 200 - 250              |       | 0.0004<br>+<br>0.0016 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0039 | 264             |                        | 528<br>528 |
| 10 Copper Alloys                            | 2.0331<br>2.0401<br>2.1030<br>2.0920       | B121<br>B121<br>B103<br>CuAl8                                        | 450 - 650                    | 120 - 180              |       | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0039   | 0.0004<br>+<br>0.0079 | 0.0004<br>+<br>0.0079 | 0.0004<br>+<br>0.0039   | 0.0004<br>+<br>0.0079 | 0.0004<br>+<br>0.0079 | 660             | >990                   | >990       |
| 11 Aluminium Alloys                         | 3.2582.05<br>3.3541.01<br>3.2315<br>3.0205 | 383.2 (AL-Si12)<br>514.0 (AlMg 3)<br>413.0 (ALMgSi1)<br>1200 (AL 99) | 250 - 350                    | 200 - 300              |       | 0.0004<br>+<br>0.0016 | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0059 |                       | 0.0004<br>+<br>0.0016   | 0.0004<br>+<br>0.0059 |                       |                 | >3300                  | >3300      |

\*) in function of stability of tool &amp; workpiece

## DENITool-Data

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VC05



GC04



DC04



VC07

|    | Material description                      | W-Nr.<br>German                                | AISI/SAE                                                          | Tensile strength          | Hardness               | f (tpr) *)            |                       |                        |                       |                                        | Vc (sfm) |        | Carbide |                      | Cermet |
|----|-------------------------------------------|------------------------------------------------|-------------------------------------------------------------------|---------------------------|------------------------|-----------------------|-----------------------|------------------------|-----------------------|----------------------------------------|----------|--------|---------|----------------------|--------|
|    |                                           |                                                |                                                                   |                           |                        | VC07 07...<br>-12     | VC07 07...<br>-25     | VC07 07...<br>-08 FRIL | VC07 07...<br>FN-18M  | VC07 07...<br>VC07 07...<br>VC07 07... | uncoated | coated | DX2     | DX30<br>DX50<br>DX52 |        |
| 1  | Low Carbon Steel                          | 1.0035<br>1.0038<br>1.0401<br>1.0050           | 1010<br>1045<br>1015<br>1050                                      | - 500                     | - 160                  | 0.0008<br>+<br>0.0059 | 0.0004<br>+<br>0.0031 | 0.0004<br>+<br>0.0031  | 0.0008<br>+<br>0.0059 | 0.0004<br>+<br>0.0039                  | 495      | 825    |         |                      |        |
| 2  | Alloy Steel                               | 1.0501<br>1.1141<br>1.1732<br>1.7225           | 1035<br>1115<br>3415<br>4140                                      | 500 - 700                 | 140 - 200              | 0.0008<br>+<br>0.0051 | 0.0004<br>+<br>0.0031 | 0.0004<br>+<br>0.0031  | 0.0008<br>+<br>0.0059 | 0.0004<br>+<br>0.0039                  | 396      | 726    |         |                      |        |
| 3  | Tool Steel                                | 1.1221<br>1.3505<br>1.7225<br>1.5141           | 1060<br>52100<br>4140<br>-                                        | 900 - 1100                | 170 - 275              | 0.0008<br>+<br>0.0039 | 0.0004<br>+<br>0.0019 | 0.0004<br>+<br>0.0019  | 0.0008<br>+<br>0.0039 | 0.0004<br>+<br>0.0027                  | 297      | 660    |         |                      |        |
| 4  | Alloy Tool Steel                          | 1.1191<br>1.7225<br>1.4142<br>1.2080<br>1.7220 | 4140<br>D3<br>4135                                                | 700 - 900                 | 250 - 325              | 0.0008<br>+<br>0.0039 | 0.0004<br>+<br>0.0019 | 0.0004<br>+<br>0.0019  | 0.0008<br>+<br>0.0039 | 0.0004<br>+<br>0.0028                  |          | 528    |         |                      |        |
| 5  | Alloy Cast Steel                          | 1.6582<br>1.8159<br>1.2367<br>1.7361           | 4340<br>6150<br>A2<br>4145                                        | 1100 - 1500<br>800 - 1000 | 325 - 450<br>250 - 390 | 0.0008<br>+<br>0.0028 | 0.0004<br>+<br>0.0019 | 0.0004<br>+<br>0.0019  | 0.0008<br>+<br>0.0039 | 0.0004<br>+<br>0.0028                  |          | 429    |         |                      |        |
| 6  | Stainless Steel                           | 1.4006<br>1.4057<br>1.4034<br>1.4005           | 403<br>431<br>420<br>416                                          | - 800                     | - 250                  | 0.0008<br>+<br>0.0059 | 0.0004<br>+<br>0.0024 | 0.0004<br>+<br>0.0031  | 0.0008<br>+<br>0.0059 | 0.0008<br>+<br>0.0059                  |          | 660    |         |                      |        |
| 7  | Stainless Steel - Austenitic, Martensitic | 1.4300<br>1.4301<br>1.4435<br>1.4542           | 302<br>304 (304H)<br>316<br>17-4 ph                               | 500 - 1100                | 200 - 325              | 0.0008<br>+<br>0.0039 | 0.0004<br>+<br>0.0024 | 0.0004<br>+<br>0.002   | 0.0008<br>+<br>0.0051 | 0.0008<br>+<br>0.0051                  |          | 528    |         |                      |        |
| 8  | Grey Cast Iron                            | 0.6010<br>0.6015<br>0.6020                     | A48-20B<br>A48-25B<br>A48-30B                                     | - 250                     | - 200                  | 0.0008<br>+<br>0.0059 |                       |                        | 0.0008<br>+<br>0.0078 | 0.0008<br>+<br>0.0078                  | 297      | 594    |         |                      |        |
| 9  | Cast Iron Malleable                       | 0.6025<br>0.8135<br>0.8140<br>0.7050           | A48-35B<br>A48-40B<br>A48-45B<br>80-55-06                         | 250 - 350                 | 200 - 250              | 0.0008<br>+<br>0.0059 |                       |                        | 0.0008<br>+<br>0.0059 | 0.0008<br>+<br>0.0059                  | 264      | 462    |         |                      |        |
| 10 | Copper Alloys                             | 2.0331<br>2.0401<br>2.1030<br>2.0920           | B121<br>B121<br>B103<br>CuAl8                                     | 450 - 650                 | 120 - 180              | 0.0004<br>+<br>0.0079 | 0.0004<br>+<br>0.0039 | 0.0004<br>+<br>0.0039  | 0.0008<br>+<br>0.0118 | 0.0008<br>+<br>0.0079                  | 660      | >990   |         |                      |        |
| 11 | Aluminium Alloys                          | 3.2582.05<br>3.3541.01<br>3.2315<br>3.0205     | 383.2 (ALSI-12)<br>514.0 (AMg3)<br>413.0 (ALMgSi1)<br>1200 (AL99) | 250 - 350                 | 200 - 300              | 0.0016<br>+<br>0.0059 | 0.0004<br>+<br>0.0118 | 0.0004<br>+<br>0.0039  | 0.0008<br>+<br>0.0098 | 0.0008<br>+<br>0.0098                  | >3300    | >3300  |         |                      |        |

\*) in function of stability of tool &amp; workpiece

DENITool-DATA

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| Caution: General safety regulations and directions of machine manufacturers must be observed at any time! |                 |          |                              |
|-----------------------------------------------------------------------------------------------------------|-----------------|----------|------------------------------|
| Material description                                                                                      | W-Nr.<br>German | AISI/SAE | Tensile strength<br>Hardness |

| HB                                          |                         |                    |             |
|---------------------------------------------|-------------------------|--------------------|-------------|
|                                             | Rm (N/mm <sup>2</sup> ) |                    |             |
| 1 Low Carbon Steel                          | 1.0035                  | 1010               | -           |
|                                             | 1.0038                  | 1045               | - 500 - 160 |
|                                             | 1.0401                  | 1015               |             |
|                                             | 1.0050                  | 1050               |             |
| 2 Alloy Steel                               | 1.0501                  | 1035               |             |
|                                             | 1.1141                  | 1115               | 500 - 700   |
|                                             | 1.5732                  | 3415               | 140 - 200   |
|                                             | 1.7225                  | 4140               |             |
| 3 Tool Steel                                | 1.1221                  | 1060               |             |
|                                             | 1.3505                  | 52100              |             |
|                                             | 1.7225                  | 4140               | 170 - 275   |
|                                             | 1.5141                  | -                  |             |
| 4 Alloy Tool Steel                          | 1.1191                  | 4140               |             |
|                                             | 1.7225                  | 4142               |             |
|                                             | 1.2080                  | D3                 | 250 - 325   |
|                                             | 1.7220                  | 4135               |             |
| 5 Alloy Cast Steel                          | 1.6582                  | 4340               |             |
|                                             | 1.8159                  | 6150               | 325 - 450   |
|                                             | 1.2367                  | A2                 | 250 - 300   |
|                                             | 1.7361                  | 4145               | 330 - 390   |
| 6 Stainless Steel                           | 1.4006                  | 403                |             |
|                                             | 1.4057                  | 431                | - 250       |
|                                             | 1.4034                  | 420                | - 800       |
|                                             | 1.4005                  | 416                |             |
| 7 Stainless Steel - Austenitic, Martensitic | 1.4300                  | 302                |             |
|                                             | 1.4301                  | 304 (304H)         | 200 - 325   |
|                                             | 1.4435                  | 316                | 500 - 1100  |
|                                             | 1.4542                  | 17-4 ph            |             |
| 8 Grey Cast Iron                            | 0.6010                  | A48-20B            |             |
|                                             | 0.6015                  | A48-25B            | - 250       |
|                                             | 0.6020                  | A48-30B            |             |
|                                             |                         |                    |             |
| 9 Cast Iron Malleable                       | 0.6025                  | A48-35B            |             |
|                                             | 0.8135                  | A48-40B            | 200 - 250   |
|                                             | 0.8140                  | A48-45B            | 250 - 350   |
|                                             | 0.7050                  | 80-55-06           |             |
| 10 Copper Alloys                            | 2.0331                  | B121               |             |
|                                             | 2.0401                  | B121               | 120 - 180   |
|                                             | 2.1030                  | B103               | 450 - 650   |
|                                             | 2.0920                  | CuAl8              |             |
| 11 Aluminium Alloys                         | 3.2582.05               | 383.2 (AL-SI-12)   |             |
|                                             | 3.3541.01               | 514.0 (AlMg 3)     | 250 - 350   |
|                                             | 3.2315                  | 413.0 (AL-Mg-Si 1) |             |
|                                             | 3.0205                  | 1200 (AL 98 )      |             |

|                   |                    |                   |                   |                   |                   |            |                |
|-------------------|--------------------|-------------------|-------------------|-------------------|-------------------|------------|----------------|
| VCGT 13... FN-01W | VCGT 13... FRIL-10 | VCGT 13... FR-15W | VCGT 13... FN-18M | VCGT 13... FN-25M | VCGT 13... FN-250 | VCGW 13... | VCMIT 13...-17 |
|-------------------|--------------------|-------------------|-------------------|-------------------|-------------------|------------|----------------|

| f (µm) * |       |       |       |       |       |       |       |
|----------|-------|-------|-------|-------|-------|-------|-------|
| .0031    | .0016 | .0020 | .0012 | .0016 |       |       | .0031 |
| .0039    | .0039 | .0039 | .0024 | .0031 |       |       | .0059 |
| .0118    | .0079 | .0098 | .0047 | .0059 |       |       | .0118 |
| .0031    | .0016 | .0020 | .0012 | .0016 |       |       | .0031 |
| .0039    | .0039 | .0039 | .0024 | .0031 |       |       | .0059 |
| .0118    | .0079 | .0098 | .0047 | .0059 |       |       | .0118 |
| .0031    | .0012 | .0020 | .0012 | .0012 |       |       | .0031 |
| .0039    | .0024 | .0039 | .0024 | .0024 |       |       | .0059 |
| .0118    | .0039 | .0059 | .0047 | .0047 |       |       | .0098 |
| .0031    | .0012 | .0020 | .0012 | .0012 |       |       | .0031 |
| .0039    | .0020 | .0039 | .0020 | .0020 |       |       | .0059 |
| .0118    | .0039 | .0039 | .0039 | .0039 |       |       | .0059 |
| .0031    | .0020 | .0016 | .0016 | .0016 | .0020 |       | .0031 |
| .0039    | .0039 | .0031 | .0039 | .0024 | .0039 |       | .0059 |
| .0118    | .0059 | .0059 | .0059 | .0047 | .0059 |       | .0079 |
| .0031    | .0020 | .0012 | .0012 | .0012 | .0020 |       | .0031 |
| .0039    | .0039 | .0024 | .0039 | .0024 | .0039 |       | .0059 |
| .0118    | .0059 | .0039 | .0059 | .0047 | .0059 |       | .0079 |
| .0020    |       |       |       |       |       | .0020 | .0039 |
| .0059    |       |       |       |       |       | .0059 | .0079 |
| .0098    |       |       |       |       |       | .0098 | .0118 |
| .0020    |       |       |       |       |       |       |       |
| .0059    |       |       |       |       |       |       |       |
| .0098    |       |       |       |       |       |       |       |
| .0020    |       |       |       |       |       |       |       |
| .0059    |       |       |       |       |       |       |       |
| .0098    |       |       |       |       |       |       |       |
| .0020    |       |       |       |       |       |       |       |
| .0059    |       |       |       |       |       |       |       |
| .0118    |       |       |       |       |       |       |       |
| .0031    |       |       |       |       |       |       |       |
| .0078    |       |       |       |       |       |       |       |
| .0118    |       |       |       |       |       |       |       |

| Carbide  |              |                      |      | Cermet   |      |                |                |
|----------|--------------|----------------------|------|----------|------|----------------|----------------|
| uncoated |              | coated               |      | uncoated |      | coated         |                |
| DX2      | DX20<br>DX32 | DX30<br>DX50<br>DX52 | DC15 | DT10     | DT55 | DT210<br>DT310 | DT255<br>DT355 |

| Vc (sfm) |       |      |      |      |      |      |      |
|----------|-------|------|------|------|------|------|------|
| 495      | 1122  | 1353 | 1188 | 1980 | 1914 | 1980 | 1914 |
| 429      | 957   | 1221 | 1122 | 1650 | 1551 | 1650 | 1551 |
| 297      | 792   | 1089 | 1023 | 1155 | 1056 | 1155 | 1056 |
| 396      | 1056  | 1155 | 1089 | 1881 | 1947 |      |      |
| 297      | 891   | 1089 | 990  | 1551 | 1452 |      |      |
| 198      | 726   | 957  | 825  | 1056 | 924  |      |      |
| 297      | 858   | 925  | 858  | 1750 | 1680 |      |      |
| 231      | 693   | 858  | 726  | 1450 | 1380 |      |      |
| 165      | 561   | 759  | 660  | 1020 | 950  |      |      |
| 200      | 790   | 850  | 790  | 950  | 890  |      |      |
| 165      | 725   | 790  | 725  | 850  | 790  |      |      |
| 130      | 625   | 690  | 660  | 590  | 560  |      |      |
|          |       |      |      |      |      |      |      |
|          | 460   | 525  | 460  | 790  | 725  |      |      |
|          | 390   | 430  | 400  | 690  | 625  |      |      |
|          | 300   | 360  | 330  | 560  | 500  |      |      |
| 400      | 790   | 850  |      |      |      | 1050 | 1050 |
| 300      | 725   | 790  |      |      |      | 990  | 990  |
| 230      | 560   | 625  |      |      |      | 890  | 890  |
| 330      | 560   | 625  |      |      |      | 825  | 825  |
| 230      | 396   | 525  |      |      |      | 690  | 690  |
| 165      | 330   | 425  |      |      |      | 590  | 590  |
| 525      | 750   | 825  | 750  | 890  | 825  |      |      |
| 425      | 675   | 750  | 690  | 825  | 725  |      |      |
| 330      | 560   | 660  | 625  | 725  | 660  |      |      |
| 396      | 460   | 496  | 425  | 600  | 560  |      |      |
| 300      | 360   | 396  | 366  | 525  | 500  |      |      |
| 230      | 300   | 330  | 300  | 460  | 425  |      |      |
| 1800     | 2300  | 2650 | 2650 |      |      | 2650 | 2650 |
| 1650     | 1980  | 2300 | 2300 |      |      | 2300 | 2300 |
| 1300     | 1650  | 1980 | 1980 |      |      | 1980 | 1980 |
| 2650     | >3300 |      |      |      |      |      |      |
| 1650     | >3300 |      |      |      |      |      |      |
| 990      |       |      |      |      |      |      |      |

\*) in function of stability of tool &amp; workpiece



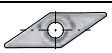
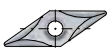
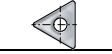
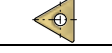
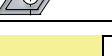
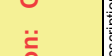
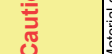


## DENITRIFICATION DATA

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|-----------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------|------------------|---------------------------|-------------------------------------|--|--|--|--|
| Material description                                                                                      |                                           | W.-Nr.<br>German | AISI/SAE         | Tensile strength          | Hardness                            |  |  |  |  |
| HB                                                                                                        |                                           |                  |                  |                           |                                     |  |  |  |  |
|                                                                                                           |                                           |                  |                  | Rm (N/mm²)                |                                     |  |  |  |  |
| 1                                                                                                         | Low Carbon Steel                          | 1.0035           | 1010             | - 500                     | - 160                               |  |  |  |  |
|                                                                                                           |                                           | 1.0038           | 1045             |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.0401           | 1015             |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.0050           | 1050             |                           |                                     |  |  |  |  |
| 2                                                                                                         | Alloy Steel                               | 1.0501           | 1035             | 500 - 700                 | 140 - 200                           |  |  |  |  |
|                                                                                                           |                                           | 1.1141           | 1115             |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.5732           | 3415             |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.7225           | 4140             |                           |                                     |  |  |  |  |
| 3                                                                                                         | Tool Steel                                | 1.1221           | 1080             | 900 - 1100                | 170 - 275                           |  |  |  |  |
|                                                                                                           |                                           | 1.3505           | 52100            |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.7225           | 4140             |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.5141           | -                |                           |                                     |  |  |  |  |
| 4                                                                                                         | Alloy Tool Steel                          | 1.1191           | 4140             | 700 - 900                 | 250 - 325                           |  |  |  |  |
|                                                                                                           |                                           | 1.7225           | 4142             |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.2080           | D3               |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.7220           | 4135             |                           |                                     |  |  |  |  |
| 5                                                                                                         | Alloy Cast Steel                          | 1.6582           | 4340             | 1100 - 1500<br>800 - 1000 | 325 - 450<br>250 - 300<br>330 - 390 |  |  |  |  |
|                                                                                                           |                                           | 1.8159           | 6150             |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.2367           | A2               |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.7361           | 4145             |                           |                                     |  |  |  |  |
| 6                                                                                                         | Stainless Steel                           | 1.4006           | 403              | - 800                     | - 250                               |  |  |  |  |
|                                                                                                           |                                           | 1.4057           | 431              |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.4034           | 420              |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.4005           | 416              |                           |                                     |  |  |  |  |
| 7                                                                                                         | Stainless Steel - Austenitic, Martensitic | 1.4300           | 302              | 500 - 1100                | 200 - 325                           |  |  |  |  |
|                                                                                                           |                                           | 1.4301           | 304 (304H)       |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.4435           | 316              |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 1.4542           | 17-4 ph          |                           |                                     |  |  |  |  |
| 8                                                                                                         | Grey Cast Iron                            | 0.6010           | A48-20B          | - 250                     | - 200                               |  |  |  |  |
|                                                                                                           |                                           | 0.6015           | A48-25B          |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 0.6020           | A48-30B          |                           |                                     |  |  |  |  |
|                                                                                                           |                                           |                  |                  |                           |                                     |  |  |  |  |
| 9                                                                                                         | Cast Iron Malleable                       | 0.6025           | A48-35B          | 250 - 350                 | 200 - 250                           |  |  |  |  |
|                                                                                                           |                                           | 0.8135           | A48-40B          |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 0.8140           | A48-45B          |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 0.7050           | 80-55-06         |                           |                                     |  |  |  |  |
| 10                                                                                                        | Copper Alloys                             | 2.0331           | B121             | 450 - 650                 | 120 - 180                           |  |  |  |  |
|                                                                                                           |                                           | 2.0401           | B121             |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 2.1030           | B103             |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 2.0920           | CuAl 8           |                           |                                     |  |  |  |  |
| 11                                                                                                        | Aluminium Alloys                          | 3.2582.05        | 383.2 (ALSi-12)  | 250 - 350                 | 200 - 300                           |  |  |  |  |
|                                                                                                           |                                           | 3.2581.01        | 514.0 (AlMg 3)   |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 3.2315           | 413.0 (AlMgSi 1) |                           |                                     |  |  |  |  |
|                                                                                                           |                                           | 3.0205           | 1200 (AL 99)     |                           |                                     |  |  |  |  |

| Carbide   |                                      | Cermet    |             |
|-----------|--------------------------------------|-----------|-------------|
| un coated | coated                               | un coated | coated      |
| DX2       | DX20<br>DX30<br>DX50<br>DX52<br>DX62 | DT55      | DT255 DT355 |

|                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                     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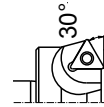
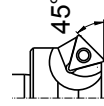
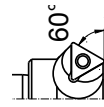
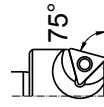
\*) in function of stability of tool &amp; workpiece



**Caution:** General safety regulations and directions of machine manufacturers must be observed at any time!

\*) in function of stability of tool & workpiece

\*) Above mentioned Cutting Data are valid for angle  $\chi = 90^\circ$  ! For angles mentioned hereafter please multiply the feed rate by the corresponding factor  $F_\chi$ :


$$\chi = 30^\circ \rightarrow F_{30^\circ} = 2,5$$

$$\chi = 45^\circ \rightarrow F_{45^\circ} = 1,6$$

$$\chi = 60^\circ \rightarrow F_{60^\circ} = 1,3$$

$$\chi = 75^\circ \rightarrow F_{75^\circ} = 1,1$$



SC09



SC06



SP06

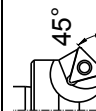


| Caution: General safety regulations and directions of machine manufacturers must be observed at any time! |                                           |                               |                                                      |                                        |                        |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------|------------------------------------------------------|----------------------------------------|------------------------|--|--|--|--|--|--|--|--|
| Material description                                                                                      |                                           | W-Nr.<br>German               | ASIS/SAE                                             | Tensile strength                       | Hardness               |  |  |  |  |  |  |  |  |
| HB                                                                                                        |                                           |                               |                                                      |                                        |                        |  |  |  |  |  |  |  |  |
| 1                                                                                                         | Low Carbon Steel                          | 1.0035                        | 1010                                                 | - 500                                  | - 160                  |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 1.0038<br>1.0401<br>1.0050    | 1045<br>1015<br>1050                                 |                                        |                        |  |  |  |  |  |  |  |  |
| 2                                                                                                         | Alloy Steel                               | 1.0501                        | 1035                                                 | 500 - 700                              | 140 - 200              |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 1.1141<br>1.5732<br>1.7225    | 1115<br>3415<br>4140                                 |                                        |                        |  |  |  |  |  |  |  |  |
| 3                                                                                                         | Tool Steel                                | 1.1221                        | 1060                                                 | 900 - 1100                             | 170 - 275              |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 1.3505<br>1.7225<br>1.5141    | 52100<br>4140<br>-                                   |                                        |                        |  |  |  |  |  |  |  |  |
| 4                                                                                                         | Alloy Tool Steel                          | 1.1191                        | 4140                                                 | 700 - 900                              | 250 - 325              |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 1.7225<br>1.2080<br>1.7220    | 4142<br>D3<br>4135                                   |                                        |                        |  |  |  |  |  |  |  |  |
| 5                                                                                                         | Alloy Cast Steel                          | 1.6582                        | 4340                                                 | 1100 - 1500<br>800 - 1000<br>330 - 390 | 325 - 450<br>250 - 300 |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 1.8159<br>1.2387<br>1.7361    | 6150<br>A2<br>4145                                   |                                        |                        |  |  |  |  |  |  |  |  |
| 6                                                                                                         | Stainless Steel                           | 1.4006                        | 403                                                  | - 800                                  | - 250                  |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 1.4057<br>1.4034<br>1.4005    | 431<br>420<br>416                                    |                                        |                        |  |  |  |  |  |  |  |  |
| 7                                                                                                         | Stainless Steel - Austenitic, Martensitic | 1.4300                        | 302                                                  | 500 - 1100                             | 200 - 325              |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 1.4301<br>1.4435<br>1.4542    | 304 (304H)<br>316<br>17-4 ph                         |                                        |                        |  |  |  |  |  |  |  |  |
| 8                                                                                                         | Grey Cast Iron                            | 0.6010                        | A48-20B                                              | - 250                                  | - 200                  |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 0.6015<br>0.6020              | A48-25B<br>A48-30B                                   |                                        |                        |  |  |  |  |  |  |  |  |
| 9                                                                                                         | Cast Iron Malleable                       | 0.6025                        | A48-35B                                              | 250 - 350                              | 200 - 250              |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 0.8135<br>0.8140<br>0.7050    | A48-40B<br>A48-45B<br>80-55-06                       |                                        |                        |  |  |  |  |  |  |  |  |
| 10                                                                                                        | Copper Alloys                             | 2.0331                        | B121                                                 | 450 - 650                              | 120 - 180              |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 2.0401<br>2.1030<br>2.0920    | B121<br>B103<br>CuAl 8                               |                                        |                        |  |  |  |  |  |  |  |  |
| 11                                                                                                        | Aluminium Alloys                          | 3.2582.05                     | 383.2 (ALSiH-12)                                     | 250 - 350                              | 200 - 300              |  |  |  |  |  |  |  |  |
|                                                                                                           |                                           | 3.3541 01<br>3.2315<br>3.0205 | 514.0 (AlMg 3)<br>413.0 (ALMgSi 1)<br>1200 ( Al 99 ) |                                        |                        |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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\*) in function of stability of tool &amp; workpiece and engagement portion of the cutter

\*\*) Above mentioned Cutting Data are valid for angle  $\chi = 90^\circ$  ! For angles mentioned hereafter please multiply the feed rate by the corresponding factor  $F_\chi$ :


$$\chi = 45^\circ \rightarrow F_{45^\circ} = 1,6$$



|    | Material Description                      | W-Nr. German                               | DIN ~ German                                                               | AISI/SAE ~ USA                                                      |
|----|-------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|
| 1  | Low Carbon Steel                          | 1.0035<br>1.0038<br>1.0401<br>1.0050       | St 33<br>RSt 37-2<br>C 15<br>St 50-2                                       | 1010<br>1045<br>1015<br>1050                                        |
| 2  | Alloy Steel                               | 1.0501<br>1.1141<br>1.5732<br>1.7225       | Ck 35 V<br>Ck 15<br>14 NiCr 14<br>42 CrMo 4 G                              | 1035<br>1115<br>3415<br>4140                                        |
| 3  | Tool Steel                                | 1.1221<br>1.3505<br>1.7225<br>1.5141       | Ck 60<br>100 Cr 6<br>42 CrMo 4<br>53 MnSi 4                                | 1060<br>52100<br>4140<br>-                                          |
| 4  | Alloy Tool Steel                          | 1.1191<br>1.7225<br>1.2080<br>1.7220       | Ck 45 V<br>42 CrMo 4<br>X 210 Cr 12<br>GS-34 CrMo 4                        | 4140<br>4142<br>D3<br>4135                                          |
| 5  | Alloy Cast Steel                          | 1.6582<br>1.8159<br>1.2367<br>1.7361       | 34 CrNiMo 6<br>50 CrV 4<br>X 38 CrMoV 5 3<br>32 CrMo 12                    | 4340<br>6150<br>A2<br>4145                                          |
| 6  | Stainless Steel                           | 1.4006<br>1.4057<br>1.4034<br>1.4005       | X 10 Cr 13<br>X 22 CrNi 12<br>X 40 Cr 13<br>X 12 CrS 13                    | 403<br>431<br>420<br>416                                            |
| 7  | Stainless Steel - Austenitic, Martensitic | 1.4300<br>1.4301<br>1.4435<br>1.4542       | X 12 CrNi 18 8<br>X 5 CrNi 18 9<br>X 2 CrNiMo 18 12<br>X 10 CrNiMoTi 18 12 | 302<br>304 (304H)<br>316<br>17-4 ph                                 |
| 8  | Grey Cast Iron                            | 0.6010<br>0.6015<br>0.6020                 | GG-10<br>GG-15<br>GG-20                                                    | A48-20B<br>A48-25B<br>A48-30B                                       |
| 9  | Cast Iron Malleable                       | 0.6025<br>0.8135<br>0.8140<br>0.7050       | GG-25<br>GTS-35<br>GTS-40<br>GGG-50                                        | A48-35B<br>A48-40B<br>A48-45B<br>80-55-06                           |
| 10 | Copper Alloys                             | 2.0331<br>2.0401<br>2.1030<br>2.0920       | CuZn 36 Pb 1.5<br>CuZn 36 Pb 3<br>CuSn 8<br>CuAl 8                         | B121<br>B121<br>B103<br>CuAl 8                                      |
| 11 | Aluminium Alloys                          | 3.2582.05<br>3.3541.01<br>3.2315<br>3.0205 | GD-AISi 12<br>G-ALMg 3<br>ALMgSi 1<br>Al 99                                | 383.2 (ALSi-12)<br>514.0 (ALMg 3)<br>413.0 (ALMgSi 1)<br>1200 AL 99 |

## Application advice for cylindrical boring bars

### General

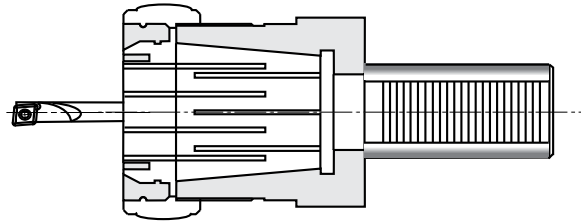
Completely cylindrical boring bars have no clamping surface on the tool shank.

#### Caution

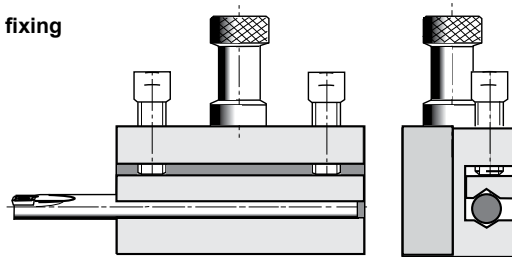
On adjusting the cylindrical boring bars it is necessary to adjust the correct height of the cutting edge.

### Clamping methods

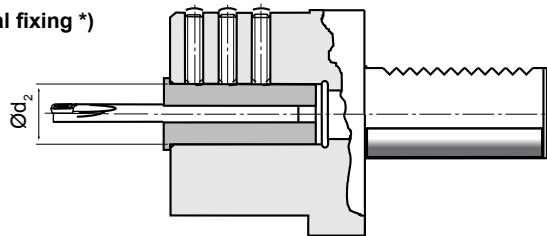
#### Tool holder with collet



#### Tool holder with prismatic fixing

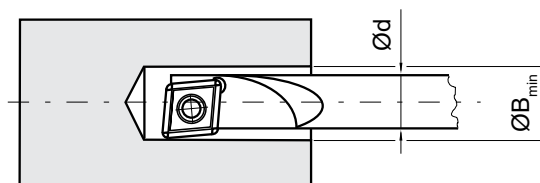


#### Tool holder with cylindrical fixing \*)



\*) Denitool® Reduction Sleeves (see page 15) with different mounting diameters ( $\varnothing d_2$ ) are available for this clamping method.

## Application advice for deep bores



For safety reasons the minimum bore dia.  $\varnothing B_{\min}$  should be .0315" bigger than dia.  $\varnothing d$  (boring bar).

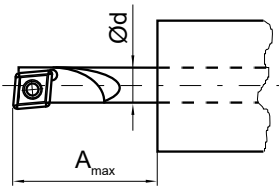




## Application advice for deep bores

Steel shank

$$A_{\max} \leq 4 \times \varnothing d$$



Carbide shank

$$A_{\max} \leq 6 \times \varnothing d$$

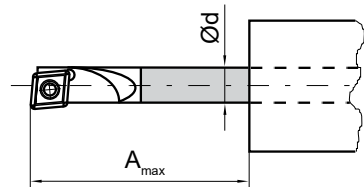
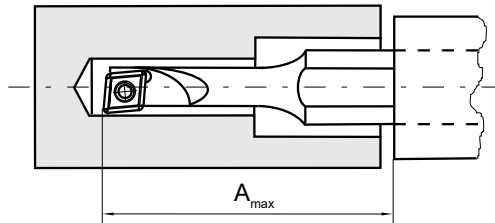
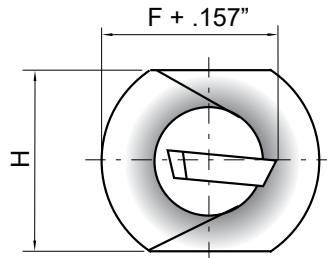
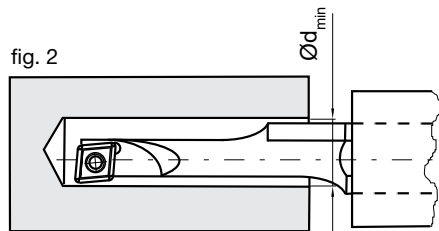


fig. 1



With stepped boring bars (see fig.1) the overall machining depth may be increased.

fig. 2



With stepped **MicroTurn D** boring bars, the maximum machining depth may be increased without unduly reducing the rigidity by grinding the sides of the boring bar \*) (see fig.2). However, the dimensions H and F + .157" must remain unchanged.

**\*) Caution: Overheating of the solder joint on boring bars with carbide shank must be avoided.**

## Operating recommendation for Denitool® Carbide Boring Bars

General: The recommended cutting data are valid for steel as well as carbide boring bars

Problems with the operation of tungsten carbide boring bars can be avoided by careful consideration of the following points:

- a) mechanical influence
  - Carbide boring bars are fragile and need careful treatment
  - The tool can break, as strong contact usually causes cracks in the carbide.
  - Programming errors that lead to a collision with the tool mostly lead to tool breakage.
  - Chips created during machining can jam between the shaft and the workpiece, causing the tool to break off.
- b) thermal influence
  - Frictional heat reduces the stability of the solder joint
  - The carbide boring bar must work freely throughout the entire head and shaft area.
  - The coolant supply must be equipped with a properly running filter system to prevent clogging of the internal coolant.
  - Avoid the formation of continuous chips. Continuous chips often penetrate and therefore block the internal coolant. Good chip control reduces thermal stress on the cutting edge and improves tool life.



# Indexable inserts

|   |   |   |   |    |    |    |   |   |   |     |       |
|---|---|---|---|----|----|----|---|---|---|-----|-------|
| V | C | G | T | 13 | 03 | 04 | F | N | - | 18M | DX32  |
| 1 | 2 | 3 | 4 | 5  | 6  | 7  | 8 | 9 |   | 10  | Grade |

| 1 Insert included angle |   |
|-------------------------|---|
| C                       | D |
| K                       | R |
| S                       | T |
| V                       | W |
| E                       |   |

| 2 Clearance angle |                                                           |
|-------------------|-----------------------------------------------------------|
| B 5°              | C 7°                                                      |
| N 0°              | P 11°                                                     |
| E 20°             |                                                           |
| 0                 | Non standard clearance angle requiring special definition |

| 3 Insert tolerance class |               |        |               |
|--------------------------|---------------|--------|---------------|
|                          |               |        |               |
|                          | m ±           | s ±    | d ±           |
|                          | [inch]        | [inch] | [inch]        |
| A                        | .0002         | .0010  | .0010         |
| F                        | .0002         | .0010  | .0005         |
| C                        | .0005         | .0010  | .0010         |
| H                        | .0005         | .0010  | .0005         |
| E                        | .0010         | .0010  | .0010         |
| G                        | .0010         | .0051  | .0010         |
| J                        | .0002         | .0010  | .0020 - .0059 |
| K                        | .0005         | .0010  | .0020 - .0059 |
| L                        | .0010         | .0010  | .0020 - .0059 |
| M                        | .0031 - .0079 | .0051  | .0020 - .0059 |
| U                        | .0051 - .0150 | .0051  | .0031 - .0098 |

| 4 Insert shape |                 |
|----------------|-----------------|
| N              | R               |
| A              | M               |
| G              | W               |
| T              | X Special shape |

| 5 Cutting edge length |          |       |          |
|-----------------------|----------|-------|----------|
|                       |          |       |          |
| Index                 | l [inch] | Index | l [inch] |
| 02                    | ~ .08    | 11    | ~ .43    |
| 04                    | ~ .16    | 12    | ~ .47    |
| 05                    | ~ .20    | 13    | ~ .51    |
| 06                    | ~ .24    | 16    | ~ .63    |
| 07                    | ~ .28    |       |          |
| 09                    | ~ .35    |       |          |

| 6 Insert thickness |          |
|--------------------|----------|
|                    | s        |
| Index              | s [inch] |
| T0                 | .047     |
| 01                 | .063     |
| T1                 | .078     |
| 02                 | .094     |
| 03                 | .125     |
| T3                 | .156     |
| 04                 | .187     |
| 05                 | .219     |
| 06                 | .250     |
| 07                 | .313     |
| 09                 | .375     |

| 7 Corner radius |                                              |
|-----------------|----------------------------------------------|
|                 | r                                            |
| Index           | r [inch]                                     |
| 00              | 0                                            |
| 005             | .0020                                        |
| 01              | .0039                                        |
| 02              | .0079                                        |
| 04              | .0157                                        |
| 08              | .0315                                        |
| 12              | .0472                                        |
| 16              | .0630                                        |
| 24              | .0945                                        |
| 00              | if d is converted from a dimension in inches |
| M0              | if d is a metric value                       |

| 8 Cutting edge condition |                       |
|--------------------------|-----------------------|
| F                        | sharp                 |
| E                        | rounded               |
| T                        | chamfered             |
| S                        | chamfered and rounded |

| 9 Insert hand |  |
|---------------|--|
| R             |  |
| L             |  |
| N             |  |

## 10 Special indication of the manufacturer

Pos. 8 and 9 are only used if required. Special chip breaker shapes can be indicated by a company coding system at the 10th position. Denitool Grades are placed at the last position.

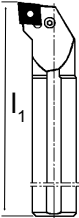
**Boring bars**

|   |    |   |   |   |   |   |   |   |   |    |   |    |
|---|----|---|---|---|---|---|---|---|---|----|---|----|
| S | 12 | R | " | S | V | L | C | R | - | 13 | - |    |
| 1 | 2  | 3 |   | 4 | 5 | 6 | 7 | 8 |   | 9  |   | 10 |

|   |      |   |   |   |   |   |   |   |   |    |   |    |
|---|------|---|---|---|---|---|---|---|---|----|---|----|
| S | 0605 | H | " | S | C | U | P | R | - | 05 | - |    |
| 1 | 2    | 3 |   | 4 | 5 | 6 | 7 | 8 |   | 9  |   | 10 |

| 1 Type of shank                                    |
|----------------------------------------------------|
| A Steel shank with internal coolant                |
| C Carbide shank with steel head (no coolant)       |
| E Carbide shank with steel head & internal coolant |
| S Steel shank (no coolant)                         |

| 2 Shank dia. [in sixteenths of an inch]<br>(straight cylindrical boring bar in mm only) |
|-----------------------------------------------------------------------------------------|
| Straight boring bar                                                                     |
| Index [inch]                                                                            |
| 05 5/16                                                                                 |
| 06 6/16                                                                                 |
| 08 8/16                                                                                 |
| 10 10/16                                                                                |
| 12 12/16                                                                                |
| 16 16/16                                                                                |
| 20 20/16                                                                                |
| Straight cylindrical boring bar (w/o flats)                                             |
| 04 mm only for use                                                                      |
| 05 in reduction                                                                         |
| 06 bushing                                                                              |
| Stepped boring bar                                                                      |
| Index *) [inch]                                                                         |
| 0605 5/16                                                                               |
| 0806 6/16                                                                               |
| 1008 8/16                                                                               |
| 1210 10/16                                                                              |
| *) The first 2 digits describe the smaller head dia in mm.                              |

| 3 Total length $l_1$ [inch]                                                         |        |       |        |         |
|-------------------------------------------------------------------------------------|--------|-------|--------|---------|
|  | [inch] |       | [inch] |         |
|                                                                                     | F      | 3.150 | S      | 9.843   |
|                                                                                     | H      | 3.937 | T      | 11.811  |
|                                                                                     | K      | 4.921 | U      | 13.780  |
|                                                                                     | M      | 5.906 | V      | 15.748  |
|                                                                                     | P      | 6.693 | W      | 17.717  |
|                                                                                     | Q      | 7.087 | Y      | 19.685  |
|                                                                                     | R      | 7.874 | X      | Special |

| 4 Clamping method       |
|-------------------------|
| Top clamping            |
| C                       |
| Top and hole clamping   |
| M                       |
| Hole clamping           |
| P                       |
| With screw through hole |
| S                       |

| 5 Insert shape |
|----------------|
| C 80°          |
| E 75°          |
| S              |
| V 35°          |
| D 55°          |
| R              |
| T              |
| W 80°          |

| 6 Style                | $\chi$                 |
|------------------------|------------------------|
| M 40°                  | U $\chi$ 93°           |
| L $\chi$ 95°           | V $\chi$ 72.5°         |
| O 95°                  | X Special style see 10 |
| Q Special style see 10 |                        |

| 7 Clearance angle $\alpha$ |
|----------------------------|
| $\alpha$                   |
| A 3°                       |
| B 5°                       |
| C 7°                       |
| D 15°                      |
| E 20°                      |
| F 25°                      |
| G 30°                      |
| N 0°                       |
| P 11°                      |

| 8 Hand of tool |
|----------------|
| R              |
| L              |

| 9 Cutting edge length |
|-----------------------|
| C,D,V                 |
| R                     |
| S                     |
| T                     |
| W                     |

| 10 Special styles |                                                                                     |             |                                                                                     |            |                                                                                     |             |                                                                                       |            |                                                                                       |
|-------------------|-------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------|
| 50<br>CP..        |  | 113<br>VC.. |  | 93<br>DC.. |  | 107<br>DC.. |  | 95<br>VC.. |  |
|                   | 50°                                                                                 |             | 113°                                                                                |            | 93°                                                                                 |             | 107,5°                                                                                |            | 95°                                                                                   |





## Tool holders

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| <b>S</b> | <b>V</b> | <b>L</b> | <b>C</b> | <b>R</b> |
| 1        | 2        | 3        | 4        | 5        |

|   |    |    |   |    |   |    |
|---|----|----|---|----|---|----|
| “ | 12 | 12 | K | 13 | - |    |
|   | 6  | 7  | 8 | 9  |   | 10 |

### 1 Clamping method

|                       |                                |                        |                                  |
|-----------------------|--------------------------------|------------------------|----------------------------------|
| Top clamping<br><br>C | Top and hole clamping<br><br>M | Hole clamping<br><br>P | With screw through hole<br><br>S |
|-----------------------|--------------------------------|------------------------|----------------------------------|

### 2 Insert shape

|   |   |
|---|---|
| C | D |
| S | R |
| V | T |
| E | W |

### 3 Style

|              |                |                 |                                |
|--------------|----------------|-----------------|--------------------------------|
| 90°<br><br>A | 90°<br><br>G   | 107.5°<br><br>H | 93°<br><br>J                   |
| 95°<br><br>L | 62.5°<br><br>N | 72.5°<br><br>V  | Special style<br>(see 10)<br>X |

### 4 Clearance angle a

|                                                                                                                                                                                                                                                                                                                                             |   |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----|
|  <p>The diagram shows a side view of a cutting tool. A vertical line represents the cutting direction. The angle between the tool's flank face and the cutting direction is labeled 'a'. The tool's profile is a rectangle with a wavy right edge.</p> | A | 3°  |
|                                                                                                                                                                                                                                                                                                                                             | B | 5°  |
|                                                                                                                                                                                                                                                                                                                                             | C | 7°  |
|                                                                                                                                                                                                                                                                                                                                             | D | 15° |
|                                                                                                                                                                                                                                                                                                                                             | E | 20° |
|                                                                                                                                                                                                                                                                                                                                             | F | 25° |
|                                                                                                                                                                                                                                                                                                                                             | G | 30° |
|                                                                                                                                                                                                                                                                                                                                             | N | 0°  |
|                                                                                                                                                                                                                                                                                                                                             | P | 11° |

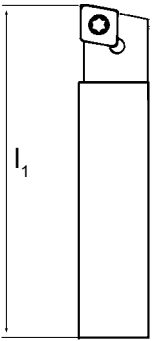
### 5 Hand of tool

|   |   |
|---|---|
| R | L |
| N |   |

### 6 Tool height and width (h) (b)

|  | h, b [inch]                                                                              |
|--|------------------------------------------------------------------------------------------|
|  | 04 4/16<br>05 5/16<br>06 6/16<br>08 8/16<br>10 10/16<br>12 12/16<br>16 16/16<br>20 20/16 |
|  |                                                                                          |

### 8 Tool length l<sub>1</sub> [inch]

|  | [inch]  | [inch]    |
|---------------------------------------------------------------------------------------|---------|-----------|
|                                                                                       | A 1.260 | Q 7.087   |
|                                                                                       | B 1.575 | R 7.874   |
|                                                                                       | C 1.969 | S 9.843   |
|                                                                                       | D 2.362 | T 11.811  |
|                                                                                       | E 2.756 | U 13.780  |
|                                                                                       | F 3.150 | V 15.748  |
|                                                                                       | G 3.543 | W 17.717  |
|                                                                                       | H 3.937 | X 19.685  |
|                                                                                       | J 4.331 | Y Special |
|                                                                                       | K 4.921 |           |
|                                                                                       | L 5.512 |           |
|                                                                                       | M 5.906 |           |
|                                                                                       | N 6.299 |           |
| P 6.693                                                                               |         |           |

### 9 Cutting edge length

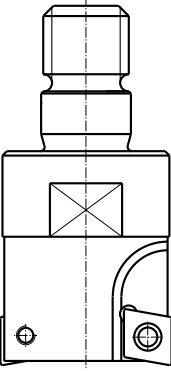
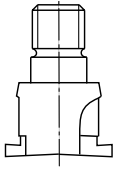
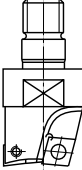
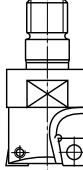
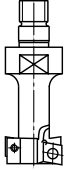
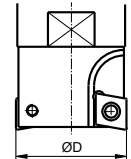
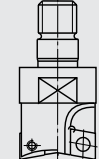
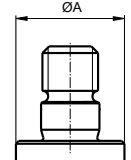
|  |
|--|
|  |
|--|

### 10 Special style

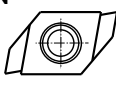
|    |     |
|----|-----|
| 40 | 113 |
|----|-----|

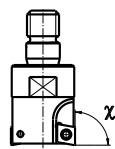
**MicroMill**

|   |   |    |    |   |   |   |   |   |    |  |
|---|---|----|----|---|---|---|---|---|----|--|
| M | M | 10 | 12 | R | C | A | S | - | 05 |  |
| 1 | 2 | 3  | 4  | 5 | 6 | 7 | 8 | 9 | 10 |  |

|                                                                                                    |                                                                                                           |                                                                                                            |                                                                                                                  |                                                                                                          |                                                                                                                    |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>1 Tool type</b>                                                                                 | <b>2 Tool shape</b>                                                                                       |                                                                                                            |                                                                                                                  |                                                                                                          | <b>3 Cutter dia.</b><br>(Refer to Milling)                                                                         |
| M = MicroMill<br> | <b>S</b> Slot - Mill<br> | <b>D</b> Drill - Mill<br> | <b>C</b> Countersink - Mill<br> | <b>T</b> T - Mill<br> |                                 |
|                                                                                                    | <b>M</b> Mini - Mill<br> |                                                                                                            |                                                                                                                  |                                                                                                          | <b>4 Shank dia.</b><br>(mm)<br> |

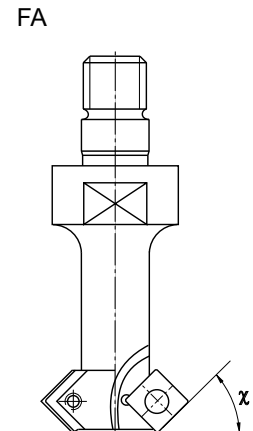
|                                                                                                  |
|--------------------------------------------------------------------------------------------------|
| <b>5 Cutting direction</b>                                                                       |
| R = Right<br> |

|                                                                                                 |                                                                                                 |                                                                                                  |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>6 Insert shape</b>                                                                           |                                                                                                 |                                                                                                  |
| <b>C</b><br> | <b>N</b><br> | <b>S</b><br> |

|                                                                                        |                                                                                     |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>7 Lead angle</b>                                                                    | <b>c</b>                                                                            |
| A = 90°<br>B = 75°<br>E = 60°<br>D = 45°<br>W = 30°<br><br>T = T-Cutter<br>X = Special |  |

| 9 Insert size |   |    |    |       |
|---------------|---|----|----|-------|
| C             | N | S  | IC |       |
| 05            |   |    |    | .219" |
|               |   | 06 |    | .250" |
|               |   | 09 |    | .375" |
|               | 0 |    |    |       |
|               | 1 |    |    |       |
|               | 2 |    |    |       |

|                          |                                                                                                  |
|--------------------------|--------------------------------------------------------------------------------------------------|
| <b>8 Clamping system</b> |                                                                                                  |
|                          | S = Screw<br> |



**Note:**

The MicroMill milling tool with the designation "FA" is a chamfer mill with a lead angle of 45°!

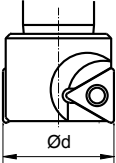
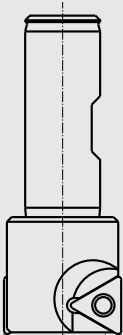
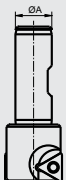
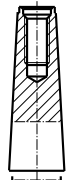
**10 Special indications of the manufacturer**



## Milling Cutters



|   |   |   |    |    |   |   |   |   |   |    |    |
|---|---|---|----|----|---|---|---|---|---|----|----|
| F | W | “ | 25 | 12 | R | T | A | S | - | 16 |    |
| 1 | 2 |   | 3  | 4  | 5 | 6 | 7 | 8 |   | 9  | 10 |

| 1 Tool type                                                                       | 2 Shank type       |                         |                        | 3 Cutter dia. [mm]                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |        |    |       |    |       |    |       |    |       |    |       |
|-----------------------------------------------------------------------------------|--------------------|-------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|----|-------|----|-------|----|-------|----|-------|----|-------|
| F = Milling cutters                                                               | W<br>Weldon        | G<br>Clarkson           | M<br>Morse taper shank | <div><table><tr><th>[mm]</th><th>[inch]</th></tr><tr><td>16</td><td>0.630</td></tr><tr><td>20</td><td>0.787</td></tr><tr><td>25</td><td>0.984</td></tr><tr><td>32</td><td>1.260</td></tr><tr><td>40</td><td>1.575</td></tr></table></div>                                                                                                                                                      | [mm]  | [inch] | 16 | 0.630 | 20 | 0.787 | 25 | 0.984 | 32 | 1.260 | 40 | 1.575 |
| [mm]                                                                              | [inch]             |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |
| 16                                                                                | 0.630              |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |
| 20                                                                                | 0.787              |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |
| 25                                                                                | 0.984              |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |
| 32                                                                                | 1.260              |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |
| 40                                                                                | 1.575              |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |
|  | N<br>Whistle Notch | A<br>For clamping shank | Z<br>Cylindrical shank | <div><div><div></div><div></div><div>MK2</div><div>MK3</div></div><div><div>Spec.</div><div>X</div></div><table><tr><th>Index</th><th>[inch]</th></tr><tr><td>08</td><td>08/16</td></tr><tr><td>10</td><td>10/16</td></tr><tr><td>12</td><td>12/16</td></tr><tr><td>16</td><td>16/16</td></tr></table></div> | Index | [inch] | 08 | 08/16 | 10 | 10/16 | 12 | 12/16 | 16 | 16/16 |    |       |
| Index                                                                             | [inch]             |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |
| 08                                                                                | 08/16              |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |
| 10                                                                                | 10/16              |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |
| 12                                                                                | 12/16              |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |
| 16                                                                                | 16/16              |                         |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |        |    |       |    |       |    |       |    |       |    |       |

| 5 Cutting direction                    | 6 Insert shape                                                                                                                    |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <div>R= Right</div> <div>L= Left</div> | <div>C</div> <div>D</div> <div>E</div> <div>N</div> <div>Q</div> <div>R</div> <div>S</div> <div>T</div> <div>V</div> <div>W</div> |

| 7 Lead angle                                                                       | χ |
|------------------------------------------------------------------------------------|---|
| A = 90°<br>B = 75°<br>E = 60°<br>D = 45°<br>W = 30°<br>T = T-Cutter<br>X = Special |   |

| 8 Clamping system                      |
|----------------------------------------|
| <div>C= Claw</div> <div>S= Screw</div> |

| 9 Insert IC size |    |    |   |    |    |    |    |    |    |       |
|------------------|----|----|---|----|----|----|----|----|----|-------|
| C                | D  | E  | N | Q  | R  | S  | T  | V  | W  | IC    |
| 04               |    |    |   |    |    |    |    | 07 | 02 | .156" |
| 05               |    | 05 |   |    |    |    |    |    |    | .219" |
|                  |    |    |   | 08 |    |    |    |    |    | .244" |
| 06               | 07 |    |   | 10 |    | 06 | 11 |    |    | .250" |
|                  |    |    |   |    |    |    |    |    |    | .295" |
|                  |    |    |   |    |    |    |    | 13 |    | .313" |
|                  |    |    |   |    | 08 |    |    |    |    | .315" |
| 09               | 11 |    |   | 12 |    | 09 | 16 |    |    | .375" |
|                  |    |    |   | 16 |    | 12 |    |    |    | .500" |
|                  |    |    | 0 |    |    |    |    |    |    |       |
|                  |    |    | 1 |    |    |    |    |    |    |       |
|                  |    |    | 2 |    |    |    |    |    |    |       |

## 10 Special indications of the manufacturer

**SAFETY WARNING:**

- ▶ Cutting tools may chip or fragment in use. Wear safety glasses, use machine guards and protective clothes to prevent injury from flying fragments.
- ▶ General safety regulations and directions of machine manufacturers must be observed at any time!
- ▶ Never bypass protective door interlocks or other safety devices on the machine that is using Denitool® products.
- ▶ Feed and speeds used beyond those recommended may cause premature failure and/or breakage of the insert cutting edge and/or the tool holder.
- ▶ Check to make sure that inserts are sitting properly in the tool holder pocket.
- ▶ Always use the designated Denitool® insert locking screw.
- ▶ Check to make sure that all insert and tool holder mounting screws are tight.
- ▶ Modification of the tool holder may cause premature failure and/or breakage of the insert cutting edge and/or the tool holder.
- ▶ Grinding of carbide products produces grinding dust that can be hazardous. To avoid adverse health effects, use adequate ventilation and read material safety data sheet first.
- ▶ The use of competitive manufacturers' inserts in Denitool® holders may cause premature insert failure due to incompatible insert seating.





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CH-5106 Veltheim  
Switzerland  
[www.denitool.com](http://www.denitool.com)

### North American Headquarters

- DENITool® Inc.  
8009 Creedmoor Rd  
Ste.102  
Raleigh, NC 27613  
USA  
[www.denitool.com](http://www.denitool.com)

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