# HIGH PERFORMANCE CUTTING TOOLS

# IFANGER

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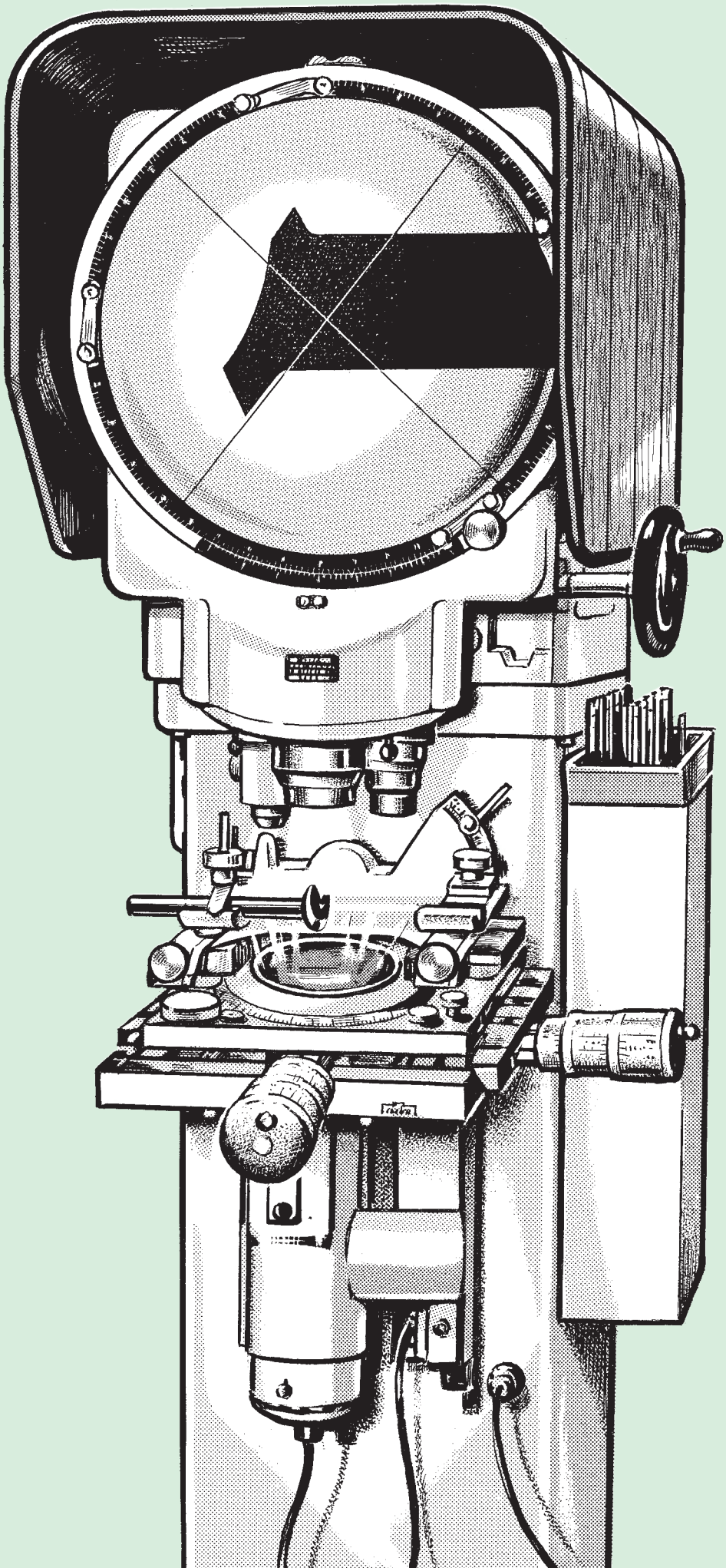

Quality control:
Measuring of profile

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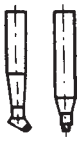

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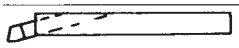

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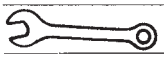

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**Counterboring and Countersinking**

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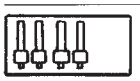

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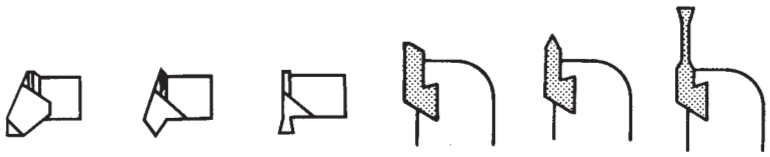
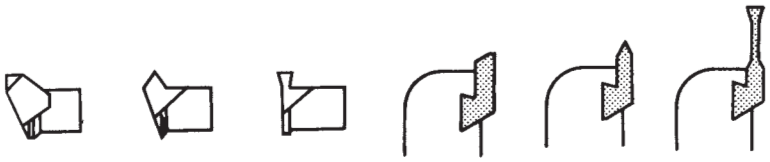
# General Information on IFANGER Tools

**Customary terms**

Righthand:



Lefthand:



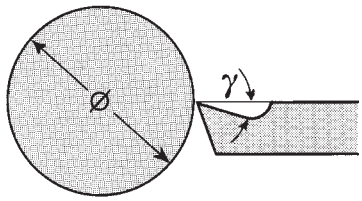
| | |
|---|---|
| Head: | Cutting part of an assembled boring tool. |
| Cutter: | Cutting part of an assembled boring, turning tool or counterbore/countersink tool. |
| Shank: | Part carrying the head of a boring tool or the cutter of a counterbore/countersink tool, made of ECN case-hardened. |
| Toolholder: | Part carrying the cutter of a turning tool, made of case-hardened steel. |
| Tool: | Completely assembled boring, turning tool or counterbore/countersink tool. |
| HSS-CO (Kob): | Cobalt and Molybdenum alloyed high speed steel with first class cutting abilities for high cutting speeds. IFANGER boring and turning tools of cobalt steel are produced of steel equal to US standard M44 or M42 (boring tools marked with a ring). |
| HSS (Rap): | Molybdenum alloyed high speed steel of high tenacity. All boring tools up to size 2 as well as cutter no. 1 of turning tools and all counterbore/countersink cutters are produced of steel equal to US standard M2. All remaining IFANGER cutters and heads are produced of steel equal to US standard M35. |
| TiN-coated (TiN): | A thin, extremely hard titanium nitrid coating with excellent sliding quality is being applied in vacuo on turning tools of HSS-CO and counterbore cutters of HSS. This permits to increase cutting speed tremendously, to prolongate tool life considerably and to improve quality of the surface on the workpiece.<br>The use of TiN-coated tools is particularly recommended for machining:<br>– soft materials like steel up to 500 N/mm², aluminum, copper, a.s.o.<br>– materials with abrasive qualities<br>– high-temperature resisting alloys and stainless steel<br>– internal turning of small diameters and grooving tools<br>– in many cases where results with carbide tools are not satisfactory |
| Carbide: | The body of a carbide tipped tool is made of constructional steel of high tensile strength. The carbide tip is always brazed on the body. All counterbore cutters and boring tools of sizes 00, 0 and 0/1 are only available with carbide tips of grade K10. All other tools are available with carbide tips grade ISO as per below table. |

**Grades of carbide and their applications**

| Grade | Features | Use for |
|---|---|---|
| P10 | High hardness, limited shock resistance | steel, cast steel, high cutting speed, small or medium chip section |
| P30 | Medium hardness, high shock resistance | steel, cast steel, long chipping malleable iron, medium cutting speeds, medium to large chip section, unfavourable cutting conditions, interrupted cut (large range grade P 20/P 30) |
| K10 | High wear resistance, very high hardness | grey cast iron, short chipping malleable iron, hardened steel, aluminum, brass, copper, synthetic material, glass, ebonite, hard paper |

**Packing** Most of the cutting parts are packed in boxes of five pieces. However, they are also sold individually.

# Recommendations regarding cutting speeds, number of revolutions and rake angles when turning

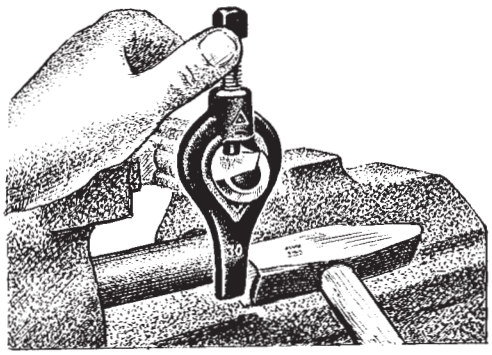



| Material to be machined | Cross section of chip (feed "s" × depth of chip "t") | | Cutting speed m/min (tool life approx. 1 h.) for cutting tool | | | | | Rake angle γ for cutting tool | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Section mm² | Example for "s" × "t" | HSS-CO (Kob) | HSS (Rap) | TiN | Carbide P30 | Carbide K10 | HSS-CO/HSS/TiN | Carbide P30 | Carbide K10 |
| Steel up to 50 kg/mm² tensile strength | 0.3 | 0.1×3/0.2×1.5 | 60 | 40 | 100 | 200 | | | | |
| | 0.6 | 0.3×2/0.2×3 | 50 | 35 | 90 | 200 | | | | |
| | 1.5 | 0.3×5/0.5×3 | 40 | 30 | 75 | 150 | | 25 | 18 | |
| | 3 | 0.3×10/0.5×6 | 35 | 25 | 60 | 150 | | | | |
| | 6 | 0.6×10/0.8×7.5 | 30 | 20 | | 100 | | | | |
| Steel of more than 60 kg/mm² tensile strength | 0.3 | 0.1×3/0.2×1.5 | 50 | 35 | 90 | 150 | | | | |
| | 0.6 | 0.2×3/0.3×2 | 40 | 30 | 75 | 150 | | | | |
| | 1.5 | 0.3×5/0.5×3 | 35 | 25 | 60 | 100 | | 20 | 12 | |
| | 3 | 0.3×10/0.5×6 | 30 | 20 | 50 | 100 | | | | |
| | 6 | 0.6×10/0.8×7.5 | 25 | 20 | | 70 | | | | |
| Grey cast iron | 0.3 | 0.1×3/0.2×1.5 | 35 | 25 | 60 | | 150 | | | |
| | 0.6 | 0.2×3/0.3×2 | 30 | 25 | 50 | | 100 | | | |
| | 1.5 | 0.3×5/0.5×3 | 25 | 20 | 45 | | 100 | 15 | | 10 |
| | 3 | 0.3×10/0.5×6 | 20 | 15 | 35 | | 70 | | | |
| | 6 | 0.6×10/0.8×7.5 | 15 | 10 | | | 50 | | | |
| Aluminum | 0.3 | 0.1×3/0.2×1.5 | 200 | 150 | 270 | | 500 | | | |
| | 1 | 0.2×5/0.4×2.5 | 150 | 100 | 240 | | 400 | | | |
| Copper | 2 | 0.4×5/0.2×10 | 100 | 70 | 180 | | 400 | 30 | | 20 |
| | 5 | 0.4×12/0.6×8 | 70 | 50 | 125 | | 300 | | | |
| | 10 | 0.6×17/1×10 | 50 | 40 | | | 200 | | | |
| Brass | 0.3 | 0.1×3/0.2×1.5 | 150 | 100 | 250 | | 400 | | | |
| | 1 | 0.2×5/0.4×2.5 | 100 | 70 | 180 | | 300 | | | |
| | 2 | 0.4×5/0.2×10 | 70 | 50 | 125 | | 300 | 5 | | 5 |
| | 5 | 0.4×12/0.6×8 | 50 | 35 | 90 | | 200 | | | |
| | 10 | 0.6×17/1×10 | 35 | 25 | | | 150 | | | |

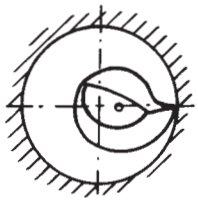
| Piece to be machined | Number of revolutions at cutting speed (m/min) of | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ø mm | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 70 | 100 | 150 | 200 | 300 | 400 | 500 |
| 5 | 640 | 950 | 1270 | 1590 | 1910 | 2250 | 2550 | 3200 | 4450 | 6350 | 9550 | | | | |
| 6 | 530 | 800 | 1060 | 1330 | 1590 | 1860 | 2100 | 2650 | 3700 | 5300 | 7950 | | | | |
| 8 | 400 | 600 | 800 | 990 | 1190 | 1390 | 1590 | 1990 | 2800 | 4000 | 5950 | 7950 | | | |
| 10 | 320 | 480 | 640 | 800 | 950 | 1110 | 1270 | 1590 | 2250 | 3200 | 4750 | 6350 | 9550 | | |
| 12 | 265 | 400 | 530 | 660 | 800 | 930 | 1060 | 1330 | 1860 | 2650 | 4000 | 5300 | 7950 | | |
| 15 | 210 | 320 | 420 | 530 | 640 | 740 | 850 | 1060 | 1490 | 2100 | 3200 | 4250 | 6350 | 8500 | |
| 20 | 160 | 240 | 320 | 400 | 480 | 560 | 640 | 800 | 1110 | 1590 | 2400 | 3200 | 4750 | 6350 | 7950 |
| 25 | 127 | 190 | 255 | 320 | 380 | 450 | 510 | 640 | 890 | 1270 | 1910 | 2550 | 3800 | 5100 | 6350 |
| 30 | 106 | 160 | 210 | 265 | 320 | 370 | 420 | 530 | 740 | 1060 | 1590 | 2100 | 3200 | 4250 | 5300 |
| 35 | 91 | 136 | 180 | 225 | 275 | 320 | 360 | 450 | 640 | 910 | 1360 | 1820 | 2750 | 3650 | 4550 |
| 40 | 80 | 119 | 160 | 200 | 240 | 280 | 320 | 400 | 560 | 800 | 1190 | 1590 | 2400 | 3200 | 4000 |
| 50 | 64 | 95 | 127 | 160 | 190 | 225 | 255 | 320 | 450 | 640 | 950 | 1270 | 1910 | 2550 | 3200 |
| 60 | 53 | 80 | 106 | 133 | 160 | 185 | 210 | 265 | 370 | 530 | 800 | 1060 | 1590 | 2100 | 2650 |
| 80 | 40 | 60 | 80 | 99 | 119 | 140 | 160 | 200 | 280 | 400 | 600 | 800 | 1190 | 1590 | 1990 |
| 100 | 32 | 48 | 64 | 80 | 95 | 111 | 127 | 160 | 225 | 320 | 480 | 640 | 950 | 1270 | 1590 |
| 120 | 27 | 40 | 53 | 66 | 80 | 93 | 106 | 133 | 185 | 265 | 400 | 530 | 800 | 1060 | 1330 |
| 150 | 21 | 32 | 42 | 53 | 64 | 74 | 85 | 106 | 149 | 210 | 320 | 420 | 640 | 850 | 1060 |
| 200 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 80 | 111 | 160 | 240 | 320 | 480 | 640 | 800 |
| 250 | 13 | 19 | 25 | 32 | 38 | 45 | 51 | 64 | 89 | 127 | 190 | 255 | 380 | 510 | 640 |
| 300 | 11 | 16 | 21 | 27 | 32 | 37 | 42 | 53 | 74 | 106 | 159 | 210 | 320 | 420 | 530 |
| 400 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 40 | 56 | 80 | 119 | 160 | 240 | 320 | 400 |
| 500 | 6 | 10 | 13 | 16 | 19 | 22 | 25 | 32 | 45 | 64 | 95 | 127 | 190 | 255 | 320 |

# Internal Turning with IFANGER Boring Tools

**Fitting of replacement cutters on shanks**



The fitting of replacement cutters must be done with great care.
Screw the cutter on by hand, without forcing it, until it is in place. Then set a narrow carrier on it, in such a way that its screw rests on the rake of the cutter (see illustration); finally give the lathe dog a few knocks with a hammer.



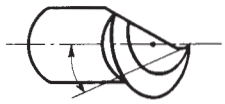
**Boring tool position**

The cutting edge and the axis of the tool are normally set at centre height. However, with a view to increase the clearance angle in small bores, the cutting edge and the axis of the tool can be set 0.1 to 0.5 mm above the centre of the bore.

**Resharpening of IFANGER boring tools**

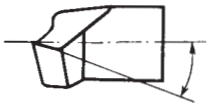
The original rake angles on boring tools IFANGER are as follows:

| | | | |
|---|---|---|---|
| Boring tools ASB: | of HSS-CO, HSS, TiN-coated | | 20° |
| | with carbide tips | for steel | 20° |
| | | for cast iron | 15° |



The cutting edge must always point to the center.

| | | | |
|---|---|---|---|
| Bottoming and facing tools ECS axial: | of HSS-CO, HSS, TiN-coated | | 20° |
| | with carbide tips | for steel | 20° |
| | | for cast iron | 15° |



| | | |
|---|---|---|
| Bottoming and facing tools ECS radial: | of HSS-CO, HSS, TiN-coated and with carbide tips | 10° |

| | | | |
|---|---|---|---|
| Grooving tools NUS, SEN, HAS, GRS Tools FLG for cutting square threads: | of HSS-CO, HSS, TiN-coated | | 20° |
| | with carbide tips: | for steel | 20° |
| | | for cast iron | 15° |

| | | |
|---|---|---|
| Thread cutting tools GWS and tools TRG for cutting trapezoidal threads: | axial and radial | 0° |

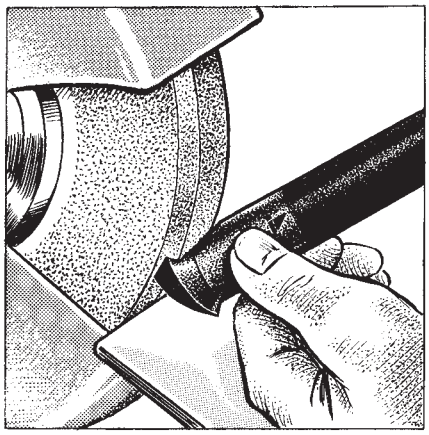
The face for chip evacuation should, if ever possible, be hollow ground.

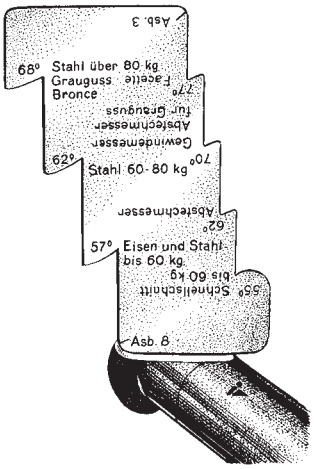
**Recommended rake angles on ASB, ECS, NUS, HAS, GRS and FLG:**

| Material to be machined | Rake angles | |
|---|---|---|
| | HSS-CO, HSS and TiN-coated | Carbide tipped |
| Steel 30–50 kg/mm² | 25° | 20° |
| Steel 50–80 kg/mm² | 20° | 15° |
| Grey cast iron | 10°–15° | 10° |
| Aluminum | 30° | 20°–25° |
| Copper | 30° | 20°–25° |
| Brass | 0°–10° | 0°–10° |

# Freehand-Resharpening of Boring Tools IFANGER

**Boring tools ASB and Facing and Bottoming tools ECS**





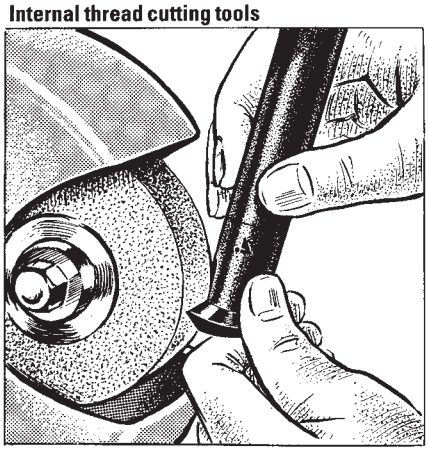

Manual resharpening with IFANGER tool grinding machines for freehand grinding.

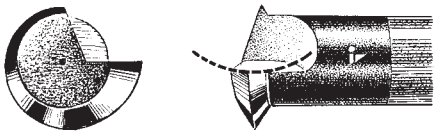
Recommended equipment of grinding machines:
Grinding wheels of aluminumoxide 46 and 60 J for HSS-CO and HSS.

Grinding wheels of silicone carbide of 46 to 120 grains per square inch, hardness H for carbide.

The check of the rake angle and of the height of the cutting edge can be done with the IFANGER universal grinding gauge.

**Internal thread cutting tools**





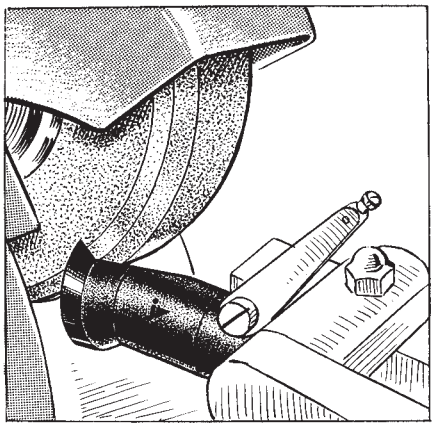
Manual resharpening.

Diameter of grinding wheel: 50 to 100 mm.
Grinding wheels of aluminumoxide 60 J for HSS-CO and HSS.

Grinding wheels of silicone carbide 80 H or diamond grinding wheels for carbide.

The flow of the chip is thru the center of the V. A small-diameter grinding wheel will produce a sufficient hollow-ground top.

# Mechanical Resharpening of IFANGER Boring Tools ASB and ECS



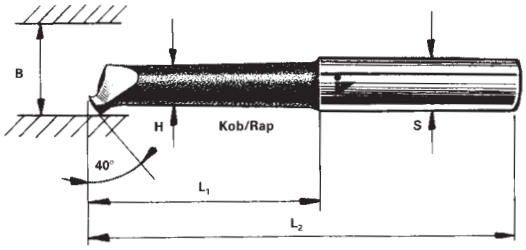
Resharpening with sharpening fixture or mechanical sharpening machine.

Special grinding wheel of aluminumoxide for HSS-CO and HSS.

Special diamond grinding wheel for carbide.

# ASB

## Boring Tools ASB (for thru holes) of HSS-CO (Kob), HSS (Rap) and TiN-coated




**ASB** nos. 0000–2R

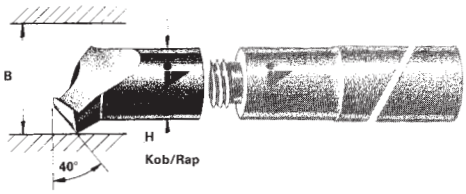
How to order (example): 10 pieces ASB-00-R-N-Rap. (Original box of 5 pieces)

For sets refer to page 21

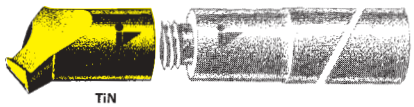
| Size **ASB** | Code number for righthand-side cutting (for lefthand-side cutting: replace "R" by "L") | Availability "R" Kob | Rap | TiN | "L" Kob | TiN | Recommended minimum bore B / mm | ∅ of neck H mm | ∅ S-h7 of shank mm | Length of neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0000 normal | *ASB-0000-R-N-...* | ● | ● | ● | ● | ○ | 3.5 | 2 | 8 | 20 | 45 |
| 0000 long | *ASB-0000-R-T-...* | ● | ● | ● | ● | ○ | 3.5 | 2 | 8 | 25 | 52 |
| 0000 short | *ASB-0000-R-C-...* | ● | | ● | ● | ○ | 3.5 | 2 | 8 | 9 | 35 |
| 000 normal | *ASB-000-R-N-...* | ● | ● | ● | ● | ○ | 4 | 2.5 | 8 | 23 | 49 |
| 000 long | *ASB-000-R-T-...* | ● | ● | ● | ● | ○ | 4 | 2.5 | 8 | 28 | 58 |
| 000 short | *ASB-000-R-C-...* | ● | | ● | ● | ○ | 4 | 2.5 | 8 | 11 | 38 |
| 00 normal | *ASB-00-R-N-...* | ● | ● | ● | ● | ○ | 5 | 3 | 8 | 25 | 52 |
| 00 long | *ASB-00-R-T-...* | ● | ● | ● | ● | ○ | 5 | 3 | 8 | 32 | 64 |
| 00 short | *ASB-00-R-C-...* | ● | | ● | ● | ○ | 5 | 3 | 8 | 13 | 40 |
| 0 normal | *ASB-0-R-N-...* | ● | ● | ● | ● | ○ | 6.5 | 4 | 8 | 29 | 56 |
| 0 long | *ASB-0-R-T-...* | ● | ● | ● | ● | ○ | 6.5 | 4 | 8 | 35 | 69 |
| 0 short | *ASB-0-R-C-...* | ● | | ● | ● | ○ | 6.5 | 4 | 8 | 16 | 44 |
| 0/1 normal | *ASB-0/1-R-N-...* | ● | ● | ● | ● | ○ | 8.5 | 5 | 8 | 31 | 60 |
| 0/1 long | *ASB-0/1-R-T-...* | ● | ● | ● | ● | ○ | 8.5 | 5 | 8 | 38 | 75 |
| 0/1 short | *ASB-0/1-R-C-...* | ● | | ● | ● | ○ | 8.5 | 5 | 8 | 19 | 48 |
| 1 normal | *ASB-1-R-N-...* | ● | ● | ● | ● | ○ | 10 | 6 | 8 | 33 | 65 |
| 1 long | *ASB-1-R-T-...* | ● | ● | ● | ● | ○ | 10 | 6 | 8 | 41 | 82 |
| 1 short | *ASB-1-R-C-...* | ● | | ● | ● | ○ | 10 | 6 | 8 | 23 | 53 |
| 2 normal | *ASB-2-R-N-...* | ● | ● | ● | ● | ○ | 13 | 8 | 8 | — | 72 |
| 2 long | *ASB-2-R-T-...* | ● | ● | ● | ● | ○ | 13 | 8 | 8 | — | 100 |

▲ Please indicate here the alloy required

Tools for smaller bores and of different dimensions of shank on page 12.




Heads: **ASB** nos. 3–12 R or **ADK** nos. 3–10 R
Shanks see page 12




How to order (example): 10 pieces ASB-6-R-Kob. (Original box of 5 pieces)

| Size **ASB/ ADK** | Code number for righthand-side cutting **ASB** (for lefthand-side cutting: replace "R" by "L") | Availability ASB "R" Kob | Rap | TiN | ASB "L" Kob | TiN | Code number for **ADK** 2nd flank relief-ground for use on boring heads | Availability ADK "R" Kob | Rap | TiN | ADK "L" Kob | Rap | TiN | Recommended minimum bore B / mm | ∅ of neck H mm | Thread |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | *ASB-3-R-...* | ● | ● | ● | ● | ○ | *ADK-3-R-...* | ● | ● | ○ | ○ | ○ | ○ | 17 | 10 | M6 |
| 4 | *ASB-4-R-...* | ● | ● | ● | ● | ○ | *ADK-4-R-...* | ● | ● | ○ | ○ | ○ | ○ | 21 | 12 | M8 |
| 5 | *ASB-5-R-...* | ● | ● | ● | ● | ○ | *ADK-5-R-...* | ● | ● | ○ | ○ | ○ | ○ | 24 | 14 | M10×20TPI |
| 6 | *ASB-6-R-...* | ● | ● | ● | ● | ○ | *ADK-6-R-...* | ● | ● | ○ | ○ | ○ | ○ | 28 | 16.3 | M12×20TPI |
| 7 | *ASB-7-R-...* | ● | ● | ● | ● | ○ | *ADK-7-R-...* | ● | ● | ○ | ○ | ○ | ○ | 31 | 18.3 | M14×20TPI |
| 8 | *ASB-8-R-...* | ● | ● | ● | ● | ○ | *ADK-8-R-...* | ● | ● | ○ | ○ | ○ | ○ | 34 | 20 | M15×20TPI |
| 9 | *ASB-9-R-...* | ● | ● | ● | ● | ○ | | | | | | | | 37 | 22 | M15×20TPI |
| 10 | *ASB-10-R-...* | ● | ● | ● | ● | ○ | *ADK-10-R-...* | ● | ● | ○ | ○ | ○ | ○ | 42 | 25 | M18×20TPI |
| 11 | *ASB-11-R-...* | ● | | ○ | ● | ○ | | | | | | | | 50 | 30 | M21×14TPI |
| 12 | *ASB-12-R-...* | ● | | ○ | ● | ○ | | | | | | | | 60 | 35 | M25×14TPI |

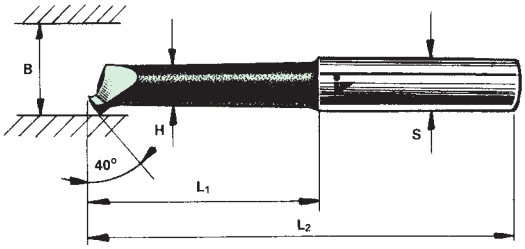
▲ Please indicate here the alloy required ▲

Availability: ● ex stock / ○ within short notice



IFANGER CH-8610 USTER PHONE 044 943 16 16 FAX 044 943 16 17 www.ifanger.com

# Boring Tools ASB (for thru holes) with Carbide Tips




**ASB** nos. 0000–000R

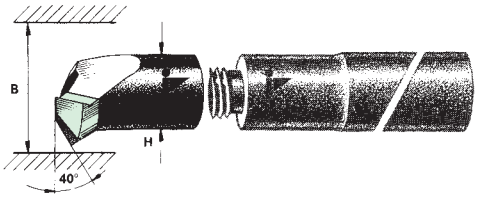
**ASB** nos. 00–2R

How to order (example): 5 pieces ASB-1-R-N-P30

| Size **ASB** | Code number for righthand-side cutting (for lefthand-side cutting: replace "R" by "L") | Availability "R" K10 | P10 | P30 | "L" K10 | P10 | P30 | Recommended minimum bore B / mm | ∅ of neck H mm | ∅ S-h7 of shank mm | Length of neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0000 | *ASB-0000-R-N-HM* | ● | | | ● | | | 3.2 | 2 | 8 | 20 | 45 |
| 000 | *ASB-000-R-N-HM* | ● | | | ● | | | 4 | 2.5 | 8 | 23 | 49 |
| 00 | *ASB-00-R-N-HM* | ● | | | ● | | | 5 | 3 | 8 | 25 | 64 |
| 0 | *ASB-0-R-N-HM* | ● | | | ● | | | 6.5 | 4 | 8 | 29 | 69 |
| 0/1 | *ASB-0/1-R-N-HM* | ● | | | ● | | | 8.5 | 5 | 8 | 30 | 75 |
| 1 | *ASB-1-R-N-...* | ● | ● | ● | ● | ● | ● | 10 | 6 | 8 | 33 | 82 |
| 2 normal | *ASB-2-R-N-...* | ● | ● | ● | ● | ● | ● | 13 | 8 | 8 | — | 72 |
| 2 long | *ASB-2-R-T-...* | ● | ● | ● | ● | ● | ● | 13 | 8 | 10 | 37 | 100 |

▲ Please indicate here the grade of carbide required

Tools for smaller bores and of different dimensions of shank on page 12.




Heads: **ASB** nos. 3–12 R or **ADK** nos. 3–10 R

Shanks see page 12

How to order (example): 5 pieces ASB-5-R-K10

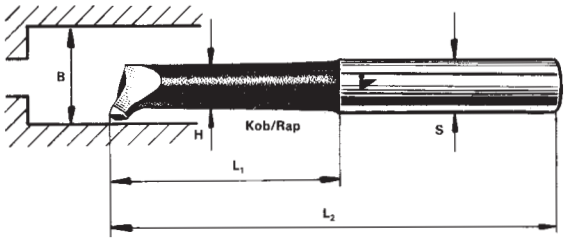
| Size **ASB/ ADK** | Code number for righthand-side cutting **ASB** (for lefthand-side cutting: replace "R" by "L") | Availability ASB "R" K10 | P10 | P30 | ASB "L" K10 | P10 | P30 | Code number for **ADK** 2nd flank relief-ground for use on boring heads | Availability ADK "R" K10 | P10 | P30 | ADK "L" K10 | P10 | P30 | Recommended minimum bore B / mm | ∅ of neck H mm | Thread |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | *ASB-3-R-...* | ● | ● | ● | ● | ● | ● | *ADK-3-R-...* | ● | ● | ● | ○ | ○ | ○ | 17 | 10 | M6 |
| 4 | *ASB-4-R-...* | ● | ● | ● | ● | ● | ● | *ADK-4-R-...* | ● | ● | ● | ○ | ○ | ○ | 21 | 12 | M8 |
| 5 | *ASB-5-R-...* | ● | ● | ● | ● | ● | ● | *ADK-5-R-...* | ● | ● | ● | ○ | ○ | ○ | 24 | 14 | M10×20TPI |
| 6 | *ASB-6-R-...* | ● | ● | ● | ● | ● | ● | *ADK-6-R-...* | ● | ● | ● | ○ | ○ | ○ | 28 | 16.3 | M12×20TPI |
| 7 | *ASB-7-R-...* | ● | ● | ● | ● | ● | ● | *ADK-7-R-...* | ● | ● | ● | ○ | ○ | ○ | 31 | 18.3 | M14×20TPI |
| 8 | *ASB-8-R-...* | ● | ● | ● | ● | ● | ● | *ADK-8-R-...* | ● | ● | ● | ○ | ○ | ○ | 34 | 20 | M15×20TPI |
| 9 | *ASB-9-R-...* | ● | ● | ● | ● | ● | ● | | | | | | | | 37 | 22 | M15×20TPI |
| 10 | *ASB-10-R-...* | ● | ● | ● | ● | ● | ● | *ADK-10-R-...* | ● | ● | ● | ○ | ○ | ○ | 42 | 25 | M18×20TPI |
| 11 | *ASB-11-R-...* | ● | ● | ● | ● | ● | ● | | | | | | | | 50 | 30 | M21×14TPI |
| 12 | *ASB-12-R-...* | ● | ● | ● | ● | ● | ● | | | | | | | | 60 | 35 | M25×14TPI |

▲ Please indicate here the grade of carbide required ▲

Availability: ● ex stock / ○ within short notice

# ECS

## Facing and Bottoming Tools ECS of HSS-CO (Kob), HSS (Rap) and TiN-coated




**ECS** nos. 0000–2 R

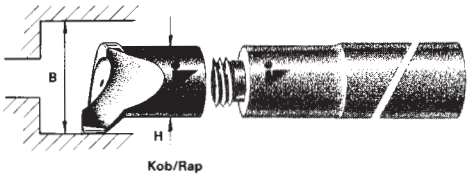
How to order (example): 10 pieces ECS-0-R-N-Rap. (Original box of 5 pieces)

For sets refer to page 21

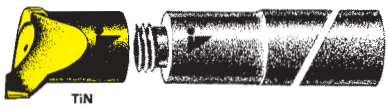
| Size **ECS** | Code number for righthand-side cutting (for lefthand-side cutting: replace "R" by "L") | Availability "R" Kob | "R" Rap | "R" TiN | "L" Kob | "L" TiN | Recommended minimum bore B / mm | ∅ of neck H mm | ∅ S-h7 of shank mm | Length of neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0000 normal | *ECS-0000-R-N-...* | ● | ● | ● | ● | ○ | 3.5 | 2 | 8 | 20 | 45 |
| 0000 long | *ECS-0000-R-T-...* | ● | ● | ● | ● | ○ | 3.5 | 2 | 8 | 25 | 52 |
| 0000 short | *ECS-0000-R-C-...* | ● | | ● | ● | ○ | 3.5 | 2 | 8 | 9 | 35 |
| 000 normal | *ECS-000-R-N-...* | ● | ● | ● | ● | ○ | 4 | 2.5 | 8 | 23 | 49 |
| 000 long | *ECS-000-R-T-...* | ● | ● | ● | ● | ○ | 4 | 2.5 | 8 | 28 | 58 |
| 000 short | *ECS-000-R-C-...* | ● | | ● | ● | ○ | 4 | 2.5 | 8 | 11 | 38 |
| 00 normal | *ECS-00-R-N-...* | ● | ● | ● | ● | ○ | 5 | 3 | 8 | 25 | 52 |
| 00 long | *ECS-00-R-T-...* | ● | ● | ● | ● | ○ | 5 | 3 | 8 | 32 | 64 |
| 00 short | *ECS-00-R-C-...* | ● | | ● | ● | ○ | 5 | 3 | 8 | 13 | 40 |
| 0 normal | *ECS-0-R-N-...* | ● | ● | ● | ● | ○ | 6.5 | 4 | 8 | 29 | 56 |
| 0 long | *ECS-0-R-T-...* | ● | ● | ● | ● | ○ | 6.5 | 4 | 8 | 35 | 69 |
| 0 short | *ECS-0-R-C-...* | ● | | ● | ● | ○ | 6.5 | 4 | 8 | 16 | 44 |
| 0/1 normal | *ECS-0/1-R-N-...* | ● | ● | ● | ● | ○ | 8.5 | 5 | 8 | 31 | 60 |
| 0/1 long | *ECS-0/1-R-T-...* | ● | ● | ● | ● | ○ | 8.5 | 5 | 8 | 38 | 75 |
| 0/1 short | *ECS-0/1-R-C-...* | ● | | ● | ● | ○ | 8.5 | 5 | 8 | 19 | 48 |
| 1 normal | *ECS-1-R-N-...* | ● | ● | ● | ● | ○ | 10 | 6 | 8 | 33 | 65 |
| 1 long | *ECS-1-R-T-...* | ● | ● | ● | ● | ○ | 10 | 6 | 8 | 41 | 82 |
| 1 short | *ECS-1-R-C-...* | ● | | ● | ● | ○ | 10 | 6 | 8 | 23 | 53 |
| 2 normal | *ECS-2-R-N-...* | ● | ● | ● | ● | ○ | 13 | 8 | 8 | — | 72 |
| 2 long | *ECS-2-R-T-...* | ● | ● | ● | ● | ○ | 13 | 8 | 8 | — | 100 |

▲ Please indicate here the alloy required

Tools for smaller bores and of different dimensions of shank on page 12.




Heads: **ECS** nos. 3–12 R
Shanks see page 12



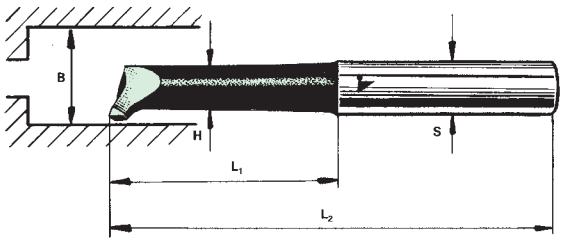

How to order (example): 10 pieces ECS-8-R-Kob. (Original box of 5 pieces)

| Size **ECS** | Code number for righthand-side cutting (for lefthand-side cutting: replace "R" by "L") | Availability "R" Kob | "R" Rap | "R" TiN | "L" Kob | "L" TiN | Recommended minimum bore B/mm | ∅ of neck H mm | Thread |
|---|---|---|---|---|---|---|---|---|---|
| 3 | *ECS-3-R-...* | ● | ● | ● | ● | ○ | 17 | 10 | M6 |
| 4 | *ECS-4-R-...* | ● | ● | ● | ● | ○ | 21 | 12 | M8 |
| 5 | *ECS-5-R-...* | ● | ● | ● | ● | ○ | 24 | 14 | M10×20TPI |
| 6 | *ECS-6-R-...* | ● | ● | ● | ● | ○ | 28 | 16.3 | M12×20TPI |
| 7 | *ECS-7-R-...* | ● | ● | ● | ● | ○ | 31 | 18.3 | M14×20TPI |
| 8 | *ECS-8-R-...* | ● | ● | ● | ● | ○ | 34 | 20 | M15×20TPI |
| 9 | *ECS-9-R-...* | ● | ● | ● | ● | ○ | 37 | 22 | M15×20TPI |
| 10 | *ECS-10-R-...* | ● | ● | ● | ● | ○ | 42 | 25 | M18×20TPI |
| 11 | *ECS-11-R-...* | ● | | ○ | ● | ○ | 50 | 30 | M21×14TPI |
| 12 | *ECS-12-R-...* | ● | | ○ | ● | ○ | 60 | 35 | M25×14TPI |

▲ Please indicate here the alloy required

Availability: ● ex stock / ○ within short notice

## Facing and Bottoming Tools ECS with Carbide Tips




**ECS** nos. 0000–000 R

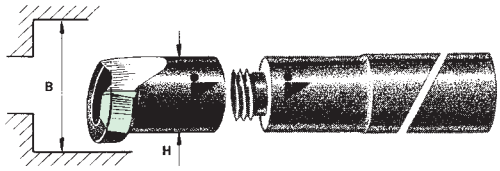
**ECS** nos. 00–2 R

How to order (example): 5 pieces ECS-2-R-N-P30

| Size **ECS** | Code number for righthand-side cutting (for lefthand-side cutting: replace "R" by "L") | Availability "R" K10 | P10 | P30 | "L" K10 | P10 | P30 | Recommended minimum bore B / mm | ∅ of neck H mm | ∅ S-h7 of shank mm | Length of neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0000 | *ECS-0000-R-N-HM* | ● | | | ● | | | 3.2 | 2 | 8 | 20 | 45 |
| 000 | *ECS-000-R-N-HM* | ● | | | ● | | | 4 | 2.5 | 8 | 23 | 49 |
| 00 | *ECS-00-R-N-HM* | ● | | | ● | | | 5 | 3 | 8 | 25 | 64 |
| 0 | *ECS-0-R-N-HM* | ● | | | ● | | | 6.5 | 4 | 8 | 29 | 69 |
| 0/1 | *ECS-0/1-R-N-HM* | ● | | | ● | | | 8.5 | 5 | 8 | 30 | 75 |
| 1 | *ECS-1-R-N-...* | ● | ● | ● | ● | ● | ● | 10 | 6 | 8 | 33 | 82 |
| 2 normal | *ECS-2-R-N-...* | ● | ● | ● | ● | ● | ● | 13 | 8 | 8 | — | 72 |
| 2 long | *ECS-2-R-T-...* | ● | ● | ● | ● | ● | ● | 13 | 8 | 10 | 37 | 100 |

▲ Please indicate here the grade of carbide required

Tools for smaller bores and of different dimensions of shank on page 12.




Heads: **ECS** nos. 3–12 R
Shanks see page 12

How to order (example): 5 pieces ECS-6-R-K10

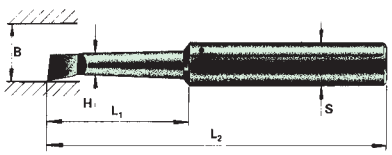
| Size **ECS** | Code number for righthand-side cutting (for lefthand-side cutting: replace "R" by "L") | Availability "R" K10 | P10 | P30 | "L" K10 | P10 | P30 | Recommended minimum bore B / mm | ∅ of neck H mm | Thread |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | *ECS-3-R-...* | ● | ● | ● | ● | ● | ● | 17 | 10 | M6 |
| 4 | *ECS-4-R-...* | ● | ● | ● | ● | ● | ● | 21 | 12 | M8 |
| 5 | *ECS-5-R-...* | ● | ● | ● | ● | ● | ● | 24 | 14 | M10×20 TPI |
| 6 | *ECS-6-R-...* | ● | ● | ● | ● | ● | ● | 28 | 16.3 | M12×20 TPI |
| 7 | *ECS-7-R-...* | ● | ● | ● | ● | ● | ● | 31 | 18.3 | M14×20 TPI |
| 8 | *ECS-8-R-...* | ● | ● | ● | ● | ● | ● | 34 | 20 | M15×20 TPI |
| 9 | *ECS-9-R-...* | ● | ● | ● | ● | ● | ● | 37 | 22 | M15×20 TPI |
| 10 | *ECS-10-R-...* | ● | ● | ● | ● | ● | ● | 42 | 25 | M18×20 TPI |
| 11 | *ECS-11-R-...* | ● | ● | ● | ● | ● | ● | 50 | 30 | M21×14 TPI |
| 12 | *ECS-12-R-...* | ● | ● | ● | ● | ● | ● | 60 | 35 | M25×14 TPI |

▲ Please indicate here the grade of carbide required

## Boring Bars MDK of Solid Carbide



**MDK**




How to order (example): 10 pieces MDK-4/0.8-HM

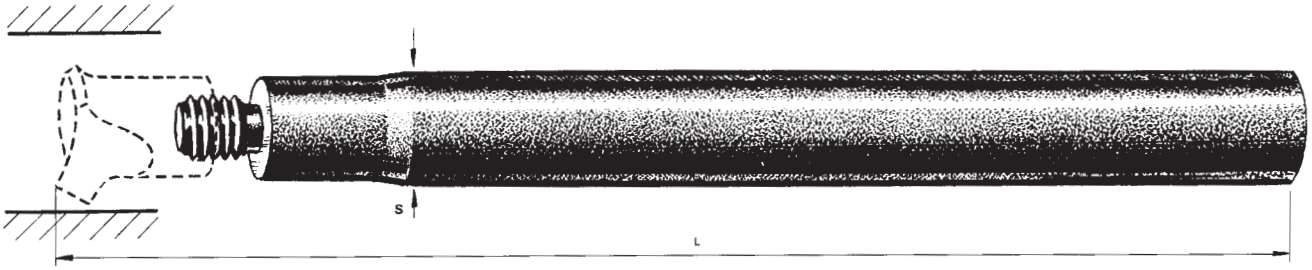
| Size **MDK** | Code number | Availability Carbide | ∅ S-h7 of shank mm | ∅ of neck H mm | Recomm. minimum bore B / mm | Length of neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|
| 4/0.8 | *MDK-4/0.8-HM* | ● | 4 | 0.8 | 1 | 5 | 30 |
| 4/1 | *MDK-4/1-HM* | ● | 4 | 1 | 1.2 | 7 | 30 |
| 4/1.2 | *MDK-4/1.2-HM* | ● | 4 | 1.2 | 1.5 | 8 | 30 |
| 4/1.5 | *MDK-4/1.5-HM* | ● | 4 | 1.5 | 1.8 | 9 | 30 |
| 4/2 | *MDK-4/2-HM* | ● | 4 | 2 | 2.5 | 12 | 30 |
| 4/2.5 | *MDK-4/2.5-HM* | ● | 4 | 2.5 | 3.2 | 12 | 30 |

More tools for use on boring heads on page 13.

Availability: ● ex stock

# SCH

## Shanks SCH for detachable Head Type for Use on Turning Lathes



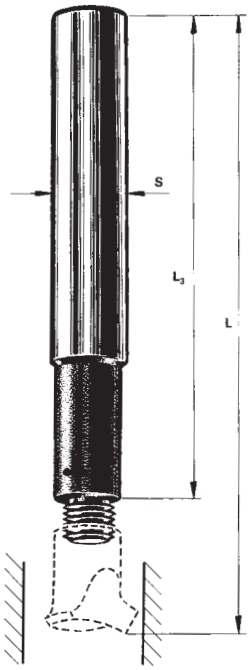

How to order (example): 10 pieces SCH-6-R-N

| Normal series | | | | | | |
|---|---|---|---|---|---|---|
| Size **SCH** | Code number for righthand-side (for lefthand-side: replace "R" by "L") | Availability "R" | Availability "L" | ∅ S-h11 of shank mm | Thread | Total length L mm |
| 3 | *SCH-3-R-N* | ● | ● | 10 | M6 | 100 |
| | *SCH-3-R-T* | ● | ● | 10 | M6 | 125 |
| | *SCH-3-R-V* | ● | ● | 12 | M6 | 200 |
| 4 | *SCH-4-R-N* | ● | ● | 13 | M8 | 230 |
| 5 | *SCH-5-R-N* | ● | ● | 15 | M10×20TPI | 260 |
| 6 | *SCH-6-R-N* | ● | ● | 17 | M12×20TPI | 280 |
| 7 | *SCH-7-R-N* | ● | ● | 19 | M14×20TPI | 310 |
| 8 | *SCH-8-R-N* | ● | ● | 20 | M15×20TPI | 330 |
| 9 | *SCH-9-R-N* | ● | ● | 22 | M15×20TPI | 360 |
| 10 | *SCH-10-R-N* | ● | ● | 25 | M18×20TPI | 390 |
| 11 | *SCH-11-R-N* | ● | ● | 30 | M21×14TPI | 430 |
| 12 | *SCH-12-R-N* | ● | ● | 35 | M25×14TPI | 500 |

| Reinforced series for carbide tipped tools and wide overhang | | | | | | |
|---|---|---|---|---|---|---|
| Size **SCH** | Code number for righthand-side (for lefthand-side: replace "R" by "L") | Availability "R" | Availability "L" | ∅ S-h11 of shank mm | Thread | Total length L mm |
| 3 | *SCH-3-R-V* | ● | ● | 12 | M6 | 200 |
| 4 | *SCH-4-R-V* | ● | ● | 14 | M8 | 230 |
| 5 | *SCH-5-R-V* | ● | ● | 16 | M10×20TPI | 260 |
| 6 | *SCH-6-R-V* | ● | ● | 18 | M12×20TPI | 280 |
| 7 | *SCH-7-R-V* | ● | ● | 20 | M14×20TPI | 310 |
| 8 | *SCH-8-R-V* | ● | ● | 22 | M15×20TPI | 330 |
| 9 | *SCH-9-R-V* | ● | ● | 25 | M15×20TPI | 360 |
| 10 | *SCH-10-R-V* | ● | ● | 30 | M18×20TPI | 390 |
| 11 | *SCH-11-R-V* | ● | ● | 35 | M21×14TPI | 430 |

# SDK

## Ground Shanks SDK for detachable Head Type for Use on Boring Heads and on NC/CNC Turning Machines




How to order (example): 5 pieces SDK-3-12089-R

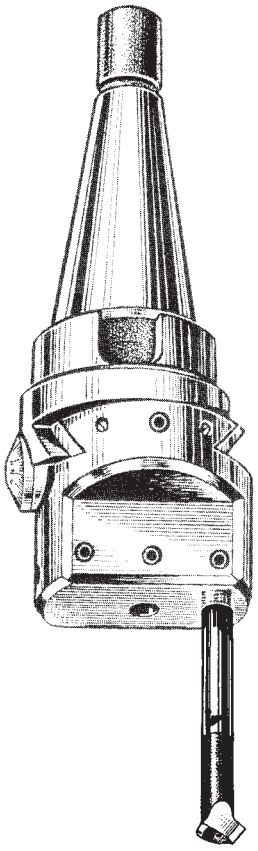
| Size **SDK** | ∅ S-h7 of shank mm | Length of shank $L_3$ mm | Code number for righthand-side (for lefthand-side: replace "R" by "L") | Availability "R" | Availability "L" | Thread | Total length L mm |
|---|---|---|---|---|---|---|---|
| 3 | 10 | 79 | *SDK-3-10079-R* | ● | ○ | M6 | 100 |
| 3 | 10 | 119 | *SDK-3-10119-R* | ● | ○ | M6 | 140 |
| 3 | 12 | 89 | *SDK-3-12089-R* | ● | ○ | M6 | 110 |
| 3 | 12 | 129 | *SDK-3-12129-R* | ● | ○ | M6 | 150 |
| 4 | 12 | 97 | *SDK-4-12097-R* | ● | ○ | M8 | 120 |
| 4 | 12 | 147 | *SDK-4-12147-R* | ● | ○ | M8 | 170 |
| 5 | 14 | 74 | *SDK-5-14074-R* | ● | ○ | M10×20TPI | 100 |
| 5 | 14 | 114 | *SDK-5-14114-R* | ● | ○ | M10×20TPI | 140 |
| 5 | 14 | 164 | *SDK-5-14164-R* | ● | ○ | M10×20TPI | 190 |
| 6 | 16 | 71 | *SDK-6-16071-R* | ● | ○ | M12×20TPI | 100 |
| 6 | 16 | 111 | *SDK-6-16111-R* | ● | ○ | M12×20TPI | 140 |
| 6 | 16 | 171 | *SDK-6-16171-R* | ● | ○ | M12×20TPI | 200 |
| 6 | 18 | 111 | *SDK-6-18111-R* | ● | ○ | M12×20TPI | 140 |
| 6 | 18 | 171 | *SDK-6-18171-R* | ● | ○ | M12×20TPI | 200 |
| 7 | 18 | 68 | *SDK-7-18068-R* | ● | ○ | M14×20TPI | 100 |
| 7 | 18 | 108 | *SDK-7-18108-R* | ● | ○ | M14×20TPI | 140 |
| 7 | 18 | 188 | *SDK-7-18188-R* | ● | ○ | M14×20TPI | 220 |
| 8 | 20 | 70 | *SDK-8-20070-R* | ● | ○ | M15×20TPI | 105 |
| 8 | 20 | 110 | *SDK-8-20110-R* | ● | ○ | M15×20TPI | 145 |
| 8 | 20 | 195 | *SDK-8-20195-R* | ● | ○ | M15×20TPI | 230 |
| 8 | 22 | 70 | *SDK-8-22070-R* | ● | ○ | M15×20TPI | 105 |
| 8 | 22 | 110 | *SDK-8-22110-R* | ● | ○ | M15×20TPI | 145 |
| 8 | 22 | 195 | *SDK-8-22195-R* | ● | ○ | M15×20TPI | 230 |
| 10 | 25 | 108 | *SDK-10-25108-R* | ● | ○ | M18×20TPI | 150 |
| 10 | 25 | 188 | *SDK-10-25188-R* | ● | ○ | M18×20TPI | 230 |
| 10 | 25 | 258 | *SDK-10-25258-R* | ● | ○ | M18×20TPI | 300 |
| 10 | 30 | 108 | *SDK-10-30108-R* | ● | ○ | M18×20TPI | 150 |
| 10 | 30 | 188 | *SDK-10-30188-R* | ● | ○ | M18×20TPI | 230 |
| 10 | 30 | 258 | *SDK-10-30258-R* | ● | ○ | M18×20TPI | 300 |

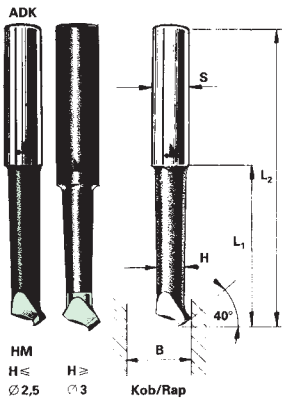
Availability: ● ex stock / ○ within short notice

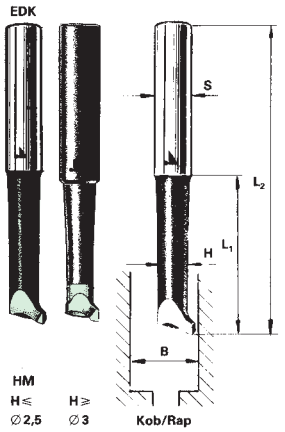
# Boring Bars ADK and Bottoming/Facing Bars EDK of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips for Use on Boring Heads

How to order (example): 10 pieces ADK-6/3-R-Rap.

For sets refer to page 21






| Size ADK or EDK | Code number for righthand-side cutting ADK | Availability ADK-...-R-... Kob | Rap | TiN | K10 | P10 | P30 | Code number for righthand-side cutting EDK | Availability EDK-...-R-... Kob | Rap | TiN | K10 | P10 | P30 | ∅ S-h7 of shank mm | ∅ of neck H mm | Recomm. minimum bore B / mm | Length of neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4/1 | ADK-4/1-R-... | ● | ● | ○ | ● | | | EDK-4/1-R-... | ● | ● | ○ | ● | | | 4 | 1 | 1.5 | 8 | 32 |
| 4/1.2 | ADK-4/1.2-R-... | ● | ● | ○ | ● | | | EDK-4/1.2-R-... | ● | ● | ○ | ● | | | 4 | 1.2 | 2 | 12 | 35 |
| 4/1.5 | ADK-4/1.5-R-... | ● | ● | ○ | ● | | | EDK-4/1.5-R-... | ● | ● | ○ | ● | | | 4 | 1.5 | 2.5 | 12 | 36 |
| 4/2 | ADK-4/2-R-... | ● | ● | ○ | ● | | | EDK-4/2-R-... | ● | ● | ○ | ● | | | 4 | 2 | 3.5 | 15 | 38 |
| 4/2.5 | ADK-4/2.5-R-... | ● | ● | ○ | ● | | | EDK-4/2.5-R-... | ● | ● | ○ | ● | | | 4 | 2.5 | 4 | 16 | 39 |
| 4/3 | ADK-4/3-R-... | ● | ● | ○ | ● | | | EDK-4/3-R-... | ● | ● | ○ | ● | | | 4 | 3 | 5 | 17 | 40 |
| 4/4 | ADK-4/4-R-... | ● | ● | ○ | ● | | | EDK-4/4-R-... | ● | ● | ○ | ● | | | 4 | 4 | 6.5 | — | 40 |
| 6/2 | ADK-6/2-R-... | ● | ● | ○ | ● | | | EDK-6/2-R-... | ● | ● | ○ | ● | | | 6 | 2 | 3.5 | 20 | 45 |
| 6/2.5 | ADK-6/2.5-R-... | ● | ● | ○ | ● | | | EDK-6/2.5-R-... | ● | ● | ○ | ● | | | 6 | 2.5 | 4 | 23 | 49 |
| 6/3 | ADK-6/3-R-... | ● | ● | ○ | ● | | | EDK-6/3-R-... | ● | ● | ○ | ● | | | 6 | 3 | 5 | 24 | 50 |
| 6/4 | ADK-6/4-R-... | ● | ● | ○ | ● | | | EDK-6/4-R-... | ● | ● | ○ | ● | | | 6 | 4 | 6.5 | 26 | 52 |
| 6/5 | ADK-6/5-R-... | ● | ● | ○ | ● | | | EDK-6/5-R-... | ● | ● | ○ | ● | | | 6 | 5 | 8.5 | 28 | 54 |
| 6/6 | ADK-6/6-R-... | ● | ● | ○ | ● | ● | ● | EDK-6/6-R-... | ● | ● | ○ | ● | ● | ● | 6 | 6 | 10 | — | 56 |
| 8/2 | ADK-8/2-R-... | ● | ● | ○ | ● | | | EDK-8/2-R-... | ● | ● | ● | ● | | | 8 | 2 | 3.5 | 20 | 45 |
| | ADK-8/2-R-T-... | ● | ● | ○ | | | | EDK-8/2-R-T-... | ● | ● | ○ | | | | 8 | 2 | 3.5 | 25 | 52 |
| 8/2.5 | ADK-8/2.5-R-... | ● | ● | ○ | ● | | | EDK-8/2.5-R-... | ● | ● | ● | ● | | | 8 | 2.5 | 4 | 23 | 49 |
| | ADK-8/2.5-R-T-... | ● | ● | ○ | | | | EDK-8/2.5-R-T-... | ● | ● | ○ | | | | 8 | 2.5 | 4 | 28 | 58 |
| 8/3 | ADK-8/3-R-... | ● | ● | ○ | ● | | | EDK-8/3-R-... | ● | ● | ● | ● | | | 8 | 3 | 5 | 25 | 52 |
| | ADK-8/3-R-T-... | ● | ● | ○ | | | | EDK-8/3-R-T-... | ● | ● | ○ | | | | 8 | 3 | 5 | 32 | 64 |
| 8/4 | ADK-8/4-R-... | ● | ● | ○ | ● | | | EDK-8/4-R-... | ● | ● | ● | ● | | | 8 | 4 | 6.5 | 29 | 56 |
| | ADK-8/4-R-T-... | ● | ● | ○ | | | | EDK-8/4-R-T-... | ● | ● | ○ | | | | 8 | 4 | 6.5 | 35 | 69 |
| 8/5 | ADK-8/5-R-... | ● | ● | ○ | ● | | | EDK-8/5-R-... | ● | ● | ● | ● | | | 8 | 5 | 8.5 | 31 | 60 |
| | ADK-8/5-R-T-... | ● | ● | ○ | | | | EDK-8/5-R-T-... | ● | ● | ○ | | | | 8 | 5 | 8.5 | 38 | 75 |
| 8/6 | ADK-8/6-R-... | ● | ● | ○ | ● | ● | ● | EDK-8/6-R-... | ● | ● | ● | ● | ● | ● | 8 | 6 | 10 | 33 | 65 |
| | ADK-8/6-R-T-... | ● | ● | ○ | | | | EDK-8/6-R-T-... | ● | ● | ○ | | | | 8 | 6 | 10 | 41 | 82 |
| 8/7 | ADK-8/7-R-... | ● | ● | ○ | ● | ● | ● | EDK-8/7-R-... | ● | ● | ○ | ● | ● | ● | 8 | 7 | 11.5 | 34 | 68 |
| | ADK-8/7-R-T-... | ● | ● | ○ | | | | EDK-8/7-R-T-... | ● | ● | ○ | | | | 8 | 7 | 11.5 | 45 | 90 |
| 8/8 | ADK-8/8-R-... | ● | ● | ○ | ● | ● | ● | EDK-8/8-R-... | ● | ● | ● | ● | ● | ● | 8 | 8 | 13 | — | 72 |
| | ADK-8/8-R-T-... | ● | ● | ○ | | | | EDK-8/8-R-T-... | ● | ● | ○ | | | | 8 | 8 | 13 | — | 100 |
| 10/2 | ADK-10/2-R-... | ● | ● | ○ | ● | | | EDK-10/2-R-... | ● | ● | ○ | ● | ● | ● | 10 | 2 | 3.5 | 20 | 46 |
| | ADK-10/2-R-T-... | ● | ● | ○ | | | | EDK-10/2-R-T-... | ● | ● | ○ | | | | 10 | 2 | 3.5 | 25 | 53 |
| 10/2.5 | ADK-10/2.5-R-... | ● | ● | ○ | ● | | | EDK-10/2.5-R-... | ● | ● | ○ | ● | | | 10 | 2.5 | 4 | 23 | 51 |
| | ADK-10/2.5-R-T-... | ● | ● | ○ | | | | EDK-10/2.5-R-T-... | ● | ● | ○ | | | | 10 | 2.5 | 4 | 28 | 59 |
| 10/3 | ADK-10/3-R-... | ● | ● | ○ | ● | | | EDK-10/3-R-... | ● | ● | ○ | ● | | | 10 | 3 | 5 | 25 | 52 |
| | ADK-10/3-R-T-... | ● | ● | ○ | | | | EDK-10/3-R-T-... | ● | ● | ○ | | | | 10 | 3 | 5 | 32 | 64 |
| 10/4 | ADK-10/4-R-... | ● | ● | ○ | ● | | | EDK-10/4-R-... | ● | ● | ○ | ● | | | 10 | 4 | 6.5 | 28 | 56 |
| | ADK-10/4-R-T-... | ● | ● | ○ | | | | EDK-10/4-R-T-... | ● | ● | ○ | | | | 10 | 4 | 6.5 | 35 | 69 |
| 10/5 | ADK-10/5-R-... | ● | ● | ○ | ● | | | EDK-10/5-R-... | ● | ● | ○ | ● | | | 10 | 5 | 8.5 | 31 | 60 |
| | ADK-10/5-R-T-... | ● | ● | ○ | | | | EDK-10/5-R-T-... | ● | ● | ○ | | | | 10 | 5 | 8.5 | 38 | 75 |
| 10/6 | ADK-10/6-R-... | ● | ● | ○ | ● | ● | ● | EDK-10/6-R-... | ● | ● | ○ | ● | ● | ● | 10 | 6 | 10 | 34 | 64 |
| | ADK-10/6-R-T-... | ● | ● | ○ | | | | EDK-10/6-R-T-... | ● | ● | ○ | | | | 10 | 6 | 10 | 41 | 82 |
| 10/7 | ADK-10/7-R-... | ● | ● | ○ | ● | ● | ● | EDK-10/7-R-... | ● | ● | ○ | ● | ● | ● | 10 | 7 | 11.5 | 37 | 68 |
| | ADK-10/7-R-T-... | ● | ● | ○ | | | | EDK-10/7-R-T-... | ● | ● | ○ | | | | 10 | 7 | 11.5 | 45 | 90 |
| 10/8 | ADK-10/8-R-... | ● | ● | ○ | ● | ● | ● | EDK-10/8-R-... | ● | ● | ○ | ● | ● | ● | 10 | 8 | 13 | 40 | 72 |
| | ADK-10/8-R-T-... | ● | ● | ○ | | | | EDK-10/8-R-T-... | ● | ● | ○ | | | | 10 | 8 | 13 | 51 | 100 |
| 10/9 | ADK-10/9-R-... | ● | ● | ○ | ● | ● | ● | EDK-10/9-R-... | ● | ● | ○ | ● | ● | ● | 10 | 9 | 15 | 43 | 76 |
| | ADK-10/9-R-T-... | ● | ● | ○ | | | | EDK-10/9-R-T-... | ● | ● | ○ | | | | 10 | 9 | 15 | — | 140 |
| 12/2.5 | ADK-12/2.5-R-... | ● | ● | ○ | ● | | | EDK-12/2.5-R-... | ● | ● | ○ | ● | | | 12 | 2.5 | 4 | 23 | 52 |
| | ADK-12/2.5-R-T-... | ● | ● | ○ | | | | EDK-12/2.5-R-T-... | ● | ● | ○ | | | | 12 | 2.5 | 4 | 28 | 60 |
| 12/3 | ADK-12/3-R-... | ● | ● | ○ | ● | | | EDK-12/3-R-... | ● | ● | ○ | ● | | | 12 | 3 | 5 | 25 | 55 |
| | ADK-12/3-R-T-... | ● | ● | ○ | | | | EDK-12/3-R-T-... | ● | ● | ○ | | | | 12 | 3 | 5 | 34 | 70 |
| 12/4 | ADK-12/4-R-... | ● | ● | ○ | ● | | | EDK-12/4-R-... | ● | ● | ○ | ● | | | 12 | 4 | 6.5 | 28 | 60 |
| | ADK-12/4-R-T-... | ● | ● | ○ | | | | EDK-12/4-R-T-... | ● | ● | ○ | | | | 12 | 4 | 6.5 | 37 | 76 |
| 12/5 | ADK-12/5-R-... | ● | ● | ○ | ● | | | EDK-12/5-R-... | ● | ● | ○ | ● | | | 12 | 5 | 8.5 | 31 | 65 |
| | ADK-12/5-R-T-... | ● | ● | ○ | | | | EDK-12/5-R-T-... | ● | ● | ○ | | | | 12 | 5 | 8.5 | 41 | 83 |
| 12/6 | ADK-12/6-R-... | ● | ● | ○ | ● | ● | ● | EDK-12/6-R-... | ● | ● | ○ | ● | ● | ● | 12 | 6 | 10 | 34 | 70 |
| | ADK-12/6-R-T-... | ● | ● | ○ | | | | EDK-12/6-R-T-... | ● | ● | ○ | | | | 12 | 6 | 10 | 45 | 90 |
| 12/7 | ADK-12/7-R-... | ● | ● | ○ | ● | ● | ● | EDK-12/7-R-... | ● | ● | ○ | ● | ● | ● | 12 | 7 | 11.5 | 37 | 75 |
| | ADK-12/7-R-T-... | ● | ● | ○ | | | | EDK-12/7-R-T-... | ● | ● | ○ | | | | 12 | 7 | 11.5 | 50 | 98 |
| 12/8 | ADK-12/8-R-... | ● | ● | ○ | ● | ● | ● | EDK-12/8-R-... | ● | ● | ○ | ● | ● | ● | 12 | 8 | 13 | 40 | 80 |
| | ADK-12/8-R-T-... | ● | ● | ○ | | | | EDK-12/8-R-T-... | ● | ● | ○ | | | | 12 | 8 | 13 | 56 | 108 |
| 12/9 | ADK-12/9-R-... | ● | ● | ○ | ● | ● | ● | EDK-12/9-R-... | ● | ● | ○ | ● | ● | ● | 12 | 9 | 15 | 43 | 85 |
| | ADK-12/9-R-T-... | ● | ● | ○ | | | | EDK-12/9-R-T-... | ● | ● | ○ | | | | 12 | 9 | 15 | 64 | 120 |

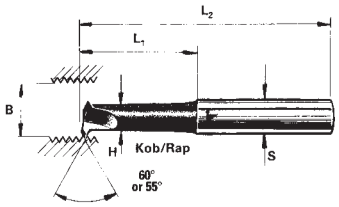
▲ Please indicate here alloy or grade required ▲

Larger boring tools: Heads ADK/ECS pages 8–11, Shanks SDK page 12

Different boring tools: MDK page 11

Availability: ● ex stock / ○ within short notice

# Internal Thread Cutting Tools GWS 60° and 55° of HSS-CO (Kob), HSS (Rap) and TiN-coated



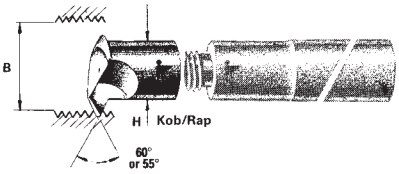

**G60(55)** nos. 000–2 A

How to order (example): 10 pieces G60-1-A-T-Kob. (Original box of 5 pieces)

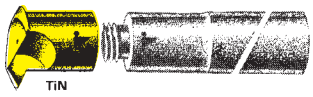
For sets refer to page 21

| Size GWS | Code number Cutting form for: righthand thread by forward movement | Availability Kob | Rap | TiN | Code number Cutting form for: lefthand thread by forward movement | Availability Kob | TiN | Recommended minimum bore B/ mm | ∅ of neck H mm | ∅ S-h7 of shank mm | Length of neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 000 60° | *G60-000-A-...* | ● | ● | ● | *G60-000-B-...* | ● | ○ | 5 | 2.6 | 8 | 15 | 46 |
| 000 55° | *G55-000-A-...* | ● | ● | ● | *G55-000-B-...* | ● | ○ | 5 | 2.6 | 8 | 15 | 46 |
| 00 60° | *G60-00-A-...* | ● | ● | ● | *G60-00-B-...* | ● | ○ | 6.5 | 3.5 | 8 | 20 | 50 |
| 00 55° | *G55-00-A-...* | ● | ● | ● | *G55-00-B-...* | ● | ○ | 6.5 | 3.5 | 8 | 20 | 50 |
| 0 60° normal | *G60-0-A-N-...* | ● | ● | ● | *G60-0-B-N-...* | ● | ○ | 9 | 4.8 | 8 | 26 | 52 |
| 0 55° normal | *G55-0-A-N-...* | ● | ● | ● | *G55-0-B-N-...* | ● | ○ | 9 | 4.8 | 8 | 26 | 52 |
| 0 60° long | *G60-0-A-T-...* | ● | ● | ● | *G60-0-B-T-...* | ● | ○ | 9 | 4.8 | 8 | 31 | 64 |
| 0 55° long | *G55-0-A-T-...* | ● | ● | ● | *G55-0-B-T-...* | ● | ○ | 9 | 4.8 | 8 | 31 | 64 |
| 1 60° normal | *G60-1-A-N-...* | ● | ● | ● | *G60-1-B-N-...* | ● | ○ | 11 | 6 | 8 | 28 | 56 |
| 1 55° normal | *G55-1-A-N-...* | ● | ● | ● | *G55-1-B-N-...* | ● | ○ | 11 | 6 | 8 | 28 | 56 |
| 1 60° long | *G60-1-A-T-...* | ● | ● | ● | *G60-1-B-T-...* | ● | ○ | 11 | 6 | 8 | 34 | 70 |
| 1 55° long | *G55-1-A-T-...* | ● | ● | ● | *G55-1-B-T-...* | ● | ○ | 11 | 6 | 8 | 34 | 70 |
| 2 60° normal | *G60-2-A-N-...* | ● | ● | ● | *G60-2-B-N-...* | ● | ○ | 13 | 7.5 | 8 | — | 64 |
| 2 55° normal | *G55-2-A-N-...* | ● | ● | ● | *G55-2-B-N-...* | ● | ○ | 13 | 7.5 | 8 | — | 64 |
| 2 60° long | *G60-2-A-T-...* | ● | ● | ● | *G60-2-B-T-...* | ● | ○ | 13 | 7.5 | 8 | — | 80 |
| 2 55° long | *G55-2-A-T-...* | ● | ● | ● | *G55-2-B-T-...* | ● | ○ | 13 | 7.5 | 8 | — | 80 |

▲ Please indicate here the alloy required ▲




Heads: **G60(55)** nos. 3–11 A and
Shanks see page 12




How to order (example): 10 pieces G60-8-A-Rap. (Original box of 5 pieces)

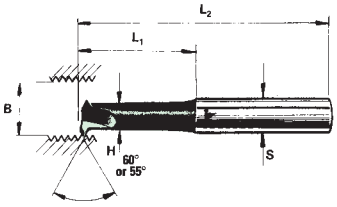
| Size GWS | Code number Cutting form for: righthand thread by forward movement | Availability Kob | Rap | TiN | Code number Cutting form for: lefthand thread by forward movement | Availability Kob | TiN | Recomm. minimum bore B / mm | ∅ of neck H mm | Thread |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 60° | *G60-3-A-...* | ● | ● | ● | *G60-3-B-...* | ● | ○ | 17 | 10 | M6 |
| 3 55° | *G55-3-A-...* | ● | ● | ● | *G55-3-B-...* | ● | ○ | 17 | 10 | M6 |
| 4 60° | *G60-4-A-...* | ● | ● | ● | *G60-4-B-...* | ● | ○ | 21 | 12 | M8 |
| 4 55° | *G55-4-A-...* | ● | ● | ● | *G55-4-B-...* | ● | ○ | 21 | 12 | M8 |
| 5 60° | *G60-5-A-...* | ● | ● | ● | *G60-5-B-...* | ● | ○ | 24 | 14 | M10×20TPI |
| 5 55° | *G55-5-A-...* | ● | ● | ● | *G55-5-B-...* | ● | ○ | 24 | 14 | M10×20TPI |
| 6 60° | *G60-6-A-...* | ● | ● | ● | *G60-6-B-...* | ● | ○ | 28 | 16.3 | M12×20TPI |
| 6 55° | *G55-6-A-...* | ● | ● | ● | *G55-6-B-...* | ● | ○ | 28 | 16.3 | M12×20TPI |
| 7 60° | *G60-7-A-...* | ● | ● | ● | *G60-7-B-...* | ● | ○ | 31 | 18.3 | M14×20TPI |
| 7 55° | *G55-7-A-...* | ● | ● | ● | *G55-7-B-...* | ● | ○ | 31 | 18.3 | M14×20TPI |
| 8 60° | *G60-8-A-...* | ● | ● | ● | *G60-8-B-...* | ● | ○ | 34 | 20 | M15×20TPI |
| 8 55° | *G55-8-A-...* | ● | ● | ● | *G55-8-B-...* | ● | ○ | 34 | 20 | M15×20TPI |
| 9 60° | *G60-9-A-...* | ● | ● | ● | *G60-9-B-...* | ● | ○ | 37 | 22 | M15×20TPI |
| 9 55° | *G55-9-A-...* | ● | ● | ● | *G55-9-B-...* | ● | ○ | 37 | 22 | M15×20TPI |
| 10 60° | *G60-10-A-...* | ● | ● | ● | *G60-10-B-...* | ● | ○ | 42 | 25 | M18×20TPI |
| 10 55° | *G55-10-A-...* | ● | ● | ● | *G55-10-B-...* | ● | ○ | 42 | 25 | M18×20TPI |
| 11 60° | *G60-11-A-...* | ● | | ○ | *G60-11-B-...* | ● | ○ | 50 | 30 | M21×14TPI |
| 11 55° | *G55-11-A-...* | ● | | ○ | *G55-11-B-...* | ● | ○ | 50 | 30 | M21×14TPI |

▲ Please indicate here alloy required ▲

The above mentioned tools for internal thread cutting are equipped with righthand-side thread of shank.
To determine correct size of tool and for different types (C+D) of internal thread cutting tools 60° and 55°, please see page 16.

Availability: ● ex stock / ○ within short notice

# Internal Thread Cutting Tools GWS 60° and 55° with Carbide Tips



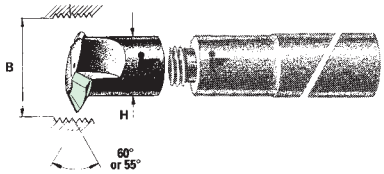

**G60(55)** nos. 000

**G60(55)** nos. 00–2

How to order (example): 5 pieces G60-1-A-K10

| Size GWS | | Code number cutting form for: righthand thread by forward movement | Availability K10 | Availability P30 | Code number cutting form for: lefthand thread by forward movement | Availability K10 | Availability P30 | Recommended minimum bore B / mm | ∅ of neck H mm | ∅ S-h7 of shank mm | Length of neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 000 | 60° | *G60-000-A-HM* | ● | | *G60-000-B-HM* | ● | | 5 | 2.6 | 8 | 15 | 46 |
| 000 | 55° | *G55-000-A-HM* | ● | | *G55-000-B-HM* | ● | | 5 | 2.6 | 8 | 15 | 46 |
| 00 | 60° | *G60-00-A-HM* | ● | | *G60-00-B-HM* | ● | | 6.5 | 3.5 | 8 | 20 | 50 |
| 00 | 55° | *G55-00-A-HM* | ● | | *G55-00-B-HM* | ● | | 6.5 | 3.5 | 8 | 20 | 50 |
| 0 | 60° | *G60-0-A-HM* | ● | | *G60-0-B-HM* | ● | | 9 | 4.8 | 8 | 22 | 64 |
| 0 | 55° | *G55-0-A-HM* | ● | | *G55-0-B-HM* | ● | | 9 | 4.8 | 8 | 22 | 64 |
| 1 | 60° | *G60-1-A-...* | ● | ● | *G60-1-B-...* | ● | ● | 11 | 6 | 8 | 30 | 70 |
| 1 | 55° | *G55-1-A-...* | ● | ● | *G55-1-B-...* | ● | ● | 11 | 6 | 8 | 30 | 70 |
| 2 | 60° | *G60-2-A-...* | ● | ● | *G60-2-B-...* | ● | ● | 13 | 7.5 | 8 | ---- | 80 |
| 2 | 55° | *G55-2-A-...* | ● | ● | *G55-2-B-...* | ● | ● | 13 | 7.5 | 8 | — | 80 |

▲ Please indicate here the grade of carbide required ▲




Heads: **G60(55)** nos. 3–11 A
Shanks see page 12

How to order (example): 5 pieces G60-6-A-P30

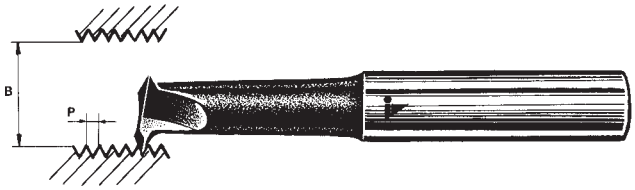
| Size GWS | | Code number cutting form for: righthand thread by forward movement | Availability K10 | Availability P30 | Code number cutting form for: lefthand thread by forward movement | Availability K10 | Availability P30 | Recomm. minimum bore B / mm | ∅ of neck H mm | Thread |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 60° | *G60-3-A-...* | ● | ● | *G60-3-B-...* | ● | ● | 17 | 10 | M6 |
| 3 | 55° | *G55-3-A-...* | ● | ● | *G55-3-B-...* | ● | ● | 17 | 10 | M6 |
| 4 | 60° | *G60-4-A-...* | ● | ● | *G60-4-B-...* | ● | ● | 21 | 12 | M8 |
| 4 | 55° | *G55-4-A-...* | ● | ● | *G55-4-B-...* | ● | ● | 21 | 12 | M8 |
| 5 | 60° | *G60-5-A-...* | ● | ● | *G60-5-B-...* | ● | ● | 24 | 14 | M10×20TPI |
| 5 | 55° | *G55-5-A-...* | ● | ● | *G55-5-B-...* | ● | ● | 24 | 14 | M10×20TPI |
| 6 | 60° | *G60-6-A-...* | ● | ● | *G60-6-B-...* | ● | ● | 28 | 16.3 | M12×20TPI |
| 6 | 55° | *G55-6-A-...* | ● | ● | *G55-6-B-...* | ● | ● | 28 | 16.3 | M12×20TPI |
| 7 | 60° | *G60-7-A-...* | ● | ● | *G60-7-B-...* | ● | ● | 31 | 18.3 | M14×20TPI |
| 7 | 55° | *G55-7-A-...* | ● | ● | *G55-7-B-...* | ● | ● | 31 | 18.3 | M14×20TPI |
| 8 | 60° | *G60-8-A-...* | ● | ● | *G60-8-B-...* | ● | ● | 34 | 20 | M15×20TPI |
| 8 | 55° | *G55-8-A-...* | ● | ● | *G55-8-B-...* | ● | ● | 34 | 20 | M15×20TPI |
| 9 | 60° | *G60-9-A-...* | ● | ● | *G60-9-B-...* | ● | ● | 37 | 22 | M15×20TPI |
| 9 | 55° | *G55-9-A-...* | ● | ● | *G55-9-B-...* | ● | ● | 37 | 22 | M15×20TPI |
| 10 | 60° | *G60-10-A-...* | ● | ● | *G60-10-B-...* | ● | ● | 42 | 25 | M18×20TPI |
| 10 | 55° | *G55-10-A-...* | ● | ● | *G55-10-B-...* | ● | ● | 42 | 25 | M18×20TPI |
| 11 | 60° | *G60-11-A-...* | ● | ● | *G60-11-B-...* | ● | ● | 50 | 30 | M21×14TPI |
| 11 | 55° | *G55-11-A-...* | ● | ● | *G55-11-B-...* | ● | ● | 50 | 30 | M21×14TPI |

▲ Please indicate here the grade of carbide required ▲

The above mentioned tools for internal thread cutting are equipped with righthand-side thread of shank.
To determine correct size of tool and for different types (C+D) of internal thread cutting tools 60° and 55°, please see page 16.

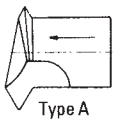
Availability: ● ex stock

## Table of Pitch and Size of Threads for Internal Thread Cutting Tools




| Size | | 000 | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum pitch possible P | in mm | 1.25 | 1.5 | 1.75 | 2 | 2.5 | 3.5 | 4 | 5 | 5.5 | 6.5 | 7.5 | 8 | 10 | 12 |
| | in threads per inch | 20 | 16 | 14 | 12 | 10 | 7 | 6 | 5 | 4½ | 3½ | 3 | 2¾ | 2½ | 2 |
| Minimum bore ∅ B in mm | | 5 | 6.5 | 9 | 11 | 13 | 17 | 21 | 24 | 28 | 31 | 34 | 37 | 42 | 50 |
| Suitable for | metric thread | M6 | M8 | M10 | M12-16 | M14-22 | M20-27 | M24-33 | M30-42 | M33-48 | M39-56 | from M42 | from M45 | from M48 | from M60 |
| | English thread | | 5/16-3/8" | 3/8" | 1/2-5/8" | 5/8-3/4" | 3/4-1 1/4" | 1-1 1/2" | 1 1/4-1 3/4" | 1 1/4-2" | 1 1/2-2 1/2" | 1 5/8-3" | 1 3/4-3 1/2" | 2-4" | from 2 1/2" |

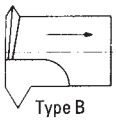
## Table of Internal Thread Cutting Tools, Righthand and Lefthand



Type A

**For righthand internal thread**
cutting from right to left during forward movement
(normal tool for righthand threads)

(also suitable for external lefthand thread cutting during reverse spindle operation)

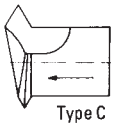


Type B

**For lefthand internal thread**
cutting from left to right during forward movement
(normal tool for lefthand threads)

(also suitable for external righthand thread cutting during reverse spindle operation)

When ordering GWS types B, C or D it is imperative to mark it clearly. (Types B, C and D available in HSS-CO, TiN-coated and with carbide tips grade K10 and P30.)



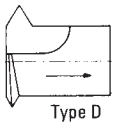
Type C

**For lefthand internal thread**
cutting from right to left during reverse spindle operation

(also suitable for external righthand thread cutting during forward movement)

requires lefthand-side threaded shank *(SCH...L...)*

**Code number:**
replace letter "A" in code for type A by "C".



Type D

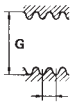
**For righthand internal thread**
cutting from left to right during reverse spindle operation

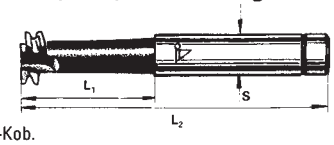
(also suitable for external lefthand thread cutting during forward movement)

requires lefthand-side threaded shank *(SCH...L...)*

**Code number:**
replace letter "A" in code for type A by "D".

## RDG — Tools RDG of HSS-CO (Kob) for Cutting Round Threads, acc. to DIN 405




**RDG** nos. 0/1-2 R

Heads: **RDG** nos. 3-10 R
Shanks see page 12

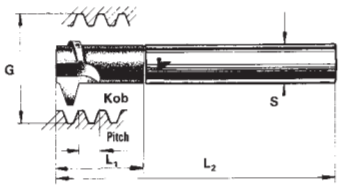
How to order (example): 5 pieces RDG-4-28×8G-R-Kob.

| ∅ G of thread | Size RDG | Pitch of thread **10 TPI** Code number | * | Pitch of thread **8 TPI** Code number | * | Pitch of thread **6 TPI** Code number | * | Pitch of thread **4 TPI** Code number | * | ∅ S-h7 mm | Thread | Lengths $L_1$ mm | $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 0/1 | *RDG-0/1-12×10G-R-Kob* | ● | | | | | | | 8 | | 31 | 60 |
| 14 | 1 | *RDG-1-14×10G-R-Kob* | ● | | | | | | | 8 | | 30 | 64 |
| 16 | 1/2 | *RDG-1/2-16×10G-R-Kob* | ● | | | | | | | 8 | | 35 | 69 |
| 18 | 2 | *RDG-2-18×10G-R-Kob* | ● | | | | | | | 8 | | — | 80 |
| 20 | 2 | *RDG-2-20×10G-R-Kob* | ● | *RDG-2-20×8G-R-Kob* | ● | | | | | 8 | | — | 80 |
| 22 | 2 | | | *RDG-2-22×8G-R-Kob* | ● | | | | | 8 | | — | 80 |
| 22 | 3 | *RDG-3-22×10G-R-Kob* | ● | | | | | | | | M6 | | |
| 25 | 3 | *RDG-3-25×10G-R-Kob* | ● | *RDG-3-25×8G-R-Kob* | ● | | | | | | M6 | | |
| 25 | 4 | | | | | *RDG-4-25×6G-R-Kob* | ● | | | | M8 | | |
| 28 | 4 | | | *RDG-4-28×8G-R-Kob* | ● | *RDG-4-28×6G-R-Kob* | ● | | | | M8 | | |
| 30 | 4 | *RDG-4-30×10G-R-Kob* | ● | *RDG-4-30×8G-R-Kob* | ● | | | | | | M8 | | |
| 30 | 5 | | | | | *RDG-5-30×6G-R-Kob* | ● | | | | M10×20TPI | | |
| 32 | 5 | | | *RDG-5-32×8G-R-Kob* | ● | | | | | | M10×20TPI | | |
| 35 | 4 | *RDG-4-35×10G-R-Kob* | ● | | | | | | | | M8 | | |
| 35 | 5 | | | | | *RDG-5-35×6G-R-Kob* | ● | | | | M10×20TPI | | |
| 35 | 6 | | | *RDG-6-35×8G-R-Kob* | ● | | | *RDG-6-35×4G-R-Kob* | ● | | M12×20TPI | | |
| 38 | 6 | | | *RDG-6-38×8G-R-Kob* | ● | *RDG-6-38×6G-R-Kob* | ● | *RDG-6-38×4G-R-Kob* | ● | | M12×20TPI | | |
| 40 | 5 | *RDG-5-40×10G-R-Kob* | ● | | | | | | | | M10×20TPI | | |
| 40 | 6 | | | *RDG-6-40×8G-R-Kob* | ● | *RDG-6-40×6G-R-Kob* | ● | *RDG-6-40×4G-R-Kob* | ● | | M12×20TPI | | |
| 45 | 5 | *RDG-5-45×10G-R-Kob* | ● | | | | | | | | M10×20TPI | | |
| 45 | 6 | | | *RDG-6-45×8G-R-Kob* | ● | | | | | | M12×20TPI | | |
| 45 | 8 | | | | | *RDG-8-45×6G-R-Kob* | ● | *RDG-8-45×4G-R-Kob* | ● | | M15×20TPI | | |
| 50 | 6 | *RDG-6-50×10G-R-Kob* | ● | | | | | | | | M12×20TPI | | |
| 50 | 8 | | | *RDG-8-50×8G-R-Kob* | ● | *RDG-8-50×6G-R-Kob* | ● | *RDG-8-50×4G-R-Kob* | ● | | M15×20TPI | | |
| 55 | 8 | | | *RDG-8-55×8G-R-Kob* | ● | *RDG-8-55×6G-R-Kob* | ● | *RDG-8-55×4G-R-Kob* | ● | | M15×20TPI | | |
| 60 | 6 | *RDG-6-60×10G-R-Kob* | ● | | | | | | | | M12×20TPI | | |
| 60 | 8 | | | *RDG-8-60×8G-R-Kob* | ● | *RDG-8-60×6G-R-Kob* | ● | *RDG-8-60×4G-R-Kob* | ● | | M15×20TPI | | |
| 70 | 8 | | | *RDG-8-70×8G-R-Kob* | ● | *RDG-8-70×6G-R-Kob* | ● | | | | M15×20TPI | | |
| 70 | 10 | | | | | | | *RDG-10-70×4G-R-Kob* | ● | | M18×20TPI | | |
| 80 | 8 | *RDG-8-80×10G-R-Kob* | ● | *RDG-8-80×8G-R-Kob* | ● | | | | | | M15×20TPI | | |
| 80 | 10 | | | | | *RDG-10-80×6G-R-Kob* | ● | *RDG-10-80×4G-R-Kob* | ● | | M18×20TPI | | |
| 100 | 8 | | | *RDG-8-100×8G-R-Kob* | ● | | | | | | M15×20TPI | | |
| 100 | 10 | | | | | *RDG-10-100×6G-R-Kob* | ● | *RDG-10-100×4G-R-Kob* | ● | | M18×20TPI | | |
| 120 | 10 | | | | | | | *RDG-10-120×4G-R-Kob* | ● | | M18×20TPI | | |
| 150 | 10 | | | | | | | *RDG-10-150×4G-R-Kob* | ● | | M18×20TPI | | |

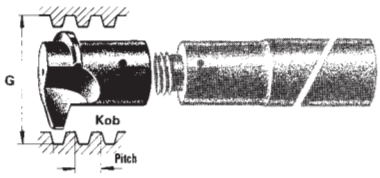
* Availability: ● ex stock for righthand thread

# Tools TRG of HSS-CO (Kob), TiN-coated and Carbide Tipped for Cutting Trapezoidal Threads
# Tools FLG of HSS-CO (Kob), TiN-coated and Carbide Tipped for Cutting Square Threads

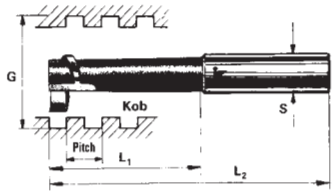
**TRG** nos. 0–2R



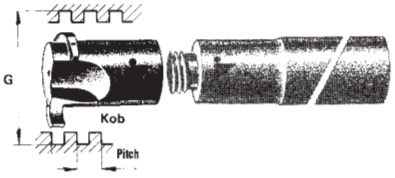

Heads: **TRG** nos. 3–12R
Shanks see page 12




**FLG** nos. 0–2R




Heads: **FLG** nos. 3–12R
Shanks see page 12




How to order (example): 5 TRG-4×3-R-Kob.
5 FLG-0×2-R-Kob.

| Thread Pitch mm | Range of ∅ G mm | Size TRG or FLG | Code number for tools for righthand threads during forward movement (for lefthand threads during forward movement replace "R" by "L") TRG | Availability TRG "R" Kob | TiN | K10 | P30 | "L" Kob | TiN | K10 | P30 | Code number for tools for righthand threads during forward movement (for lefthand threads during forward movement replace "R" by "L") FLG | Availability FLG "R" Kob | TiN | K10 | P30 | "L" Kob | TiN | K10 | P30 | ∅ S-h7 of shank mm | Thread | Length $L_1$ mm | $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 14– 10 | 0 | TRG-0×2-R-... | ● | ○ | × | | ● | ○ | × | | FLG-0×2-R-... | ● | ○ | × | | ● | ○ | × | | 8 | — | 20 | 55 |
| 2 | 22– 14 | 2 | TRG-2×2-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-2×2-R-... | ● | ○ | × | × | ● | ○ | × | × | 8 | — | — | 80 |
| 2 | 45– 20 | 3 | TRG-3×2-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-3×2-R-... | ● | ○ | × | × | ● | ○ | × | × | | M6 | | |
| 2 | 90– 28 | 5 | TRG-5×2-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-5×2-R-... | ● | ○ | × | × | ● | ○ | × | × | | M10×20TPI | | |
| 3 | 13– 10 | 0 | TRG-0×3-R-... | ● | ○ | × | | ● | ○ | × | | FLG-0×3-R-... | ● | ○ | × | | ● | ○ | × | | 8 | — | 20 | 55 |
| 3 | 19– 14 | 1 | TRG-1×3-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-1×3-R-... | ● | ○ | × | × | ● | ○ | × | × | 8 | — | 30 | 64 |
| 3 | 32– 20 | 3 | TRG-3×3-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-3×3-R-... | ● | ○ | × | × | ● | ○ | × | × | | M6 | | |
| 3 | 45– 25 | 4 | TRG-4×3-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-4×3-R-... | ● | ○ | × | × | ● | ○ | × | × | | M8 | | |
| 3 | 70– 30 | 6 | TRG-6×3-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-6×3-R-... | ● | ○ | × | × | ● | ○ | × | × | | M12×20TPI | | |
| 3 | 120– 40 | 8 | TRG-8×3-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-8×3-R-... | ● | ○ | × | × | ● | ○ | × | × | | M15×20TPI | | |
| 4 | 17– 14 | 1 | TRG-1×4-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-1×4-R-... | ● | ○ | × | × | ● | ○ | × | × | 8 | — | 30 | 64 |
| 4 | 24– 18 | 2 | TRG-2×4-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-2×4-R-... | ● | ○ | × | × | ● | ○ | × | × | 8 | — | — | 80 |
| 4 | 30– 20 | 3 | TRG-3×4-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-3×4-R-... | ● | ○ | × | × | ● | ○ | × | × | | M6 | | |
| 4 | 40– 26 | 4 | TRG-4×4-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-4×4-R-... | ● | ○ | × | × | ● | ○ | × | × | | M8 | | |
| 4 | 70– 35 | 6 | TRG-6×4-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-6×4-R-... | ● | ○ | × | × | ● | ○ | × | × | | M12×20TPI | | |
| 4 | 120– 45 | 8 | TRG-8×4-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-8×4-R-... | ● | ○ | × | × | ● | ○ | × | × | | M15×20TPI | | |
| 5 | 22– 18 | 2 | TRG-2×5-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-2×5-R-... | ● | ○ | × | × | ● | ○ | × | × | 8 | — | — | 80 |
| 5 | 30– 22 | 3 | TRG-3×5-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-3×5-R-... | ● | ○ | × | × | ● | ○ | × | × | | M6 | | |
| 5 | 40– 28 | 4 | TRG-4×5-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-4×5-R-... | ● | ○ | × | × | ● | ○ | × | × | | M8 | | |
| 5 | 60– 35 | 6 | TRG-6×5-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-6×5-R-... | ● | ○ | × | × | ● | ○ | × | × | | M12×20TPI | | |
| 5 | 150– 45 | 8 | TRG-8×5-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-8×5-R-... | ● | ○ | × | × | ● | ○ | × | × | | M15×20TPI | | |
| 6 | 34– 26 | 4 | TRG-4×6-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-4×6-R-... | ● | ○ | × | × | ● | ○ | × | × | | M8 | | |
| 6 | 40– 30 | 5 | TRG-5×6-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-5×6-R-... | ● | ○ | × | × | ● | ○ | × | × | | M10×20TPI | | |
| 6 | 50– 34 | 6 | TRG-6×6-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-6×6-R-... | ● | ○ | × | × | ● | ○ | × | × | | M12×20TPI | | |
| 6 | 90– 45 | 8 | TRG-8×6-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-8×6-R-... | ● | ○ | × | × | ● | ○ | × | × | | M15×20TPI | | |
| 6 | 180– 60 | 10 | TRG-10×6-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-10×6-R-... | ● | ○ | × | × | ● | ○ | × | × | | M18×20TPI | | |
| 7 | 48– 35 | 6 | TRG-6×7-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-6×7-R-... | ● | ○ | × | × | ● | ○ | × | × | | M12×20TPI | | |
| 7 | 60– 40 | 7 | TRG-7×7-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-7×7-R-... | ● | ○ | × | × | ● | ○ | × | × | | M14×20TPI | | |
| 7 | 70– 45 | 8 | TRG-8×7-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-8×7-R-... | ● | ○ | × | × | ● | ○ | × | × | | M15×20TPI | | |
| 7 | 180– 60 | 10 | TRG-10×7-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-10×7-R-... | ● | ○ | × | × | ● | ○ | × | × | | M18×20TPI | | |
| 8 | 46– 35 | 6 | TRG-6×8-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-6×8-R-... | ● | ○ | × | × | ● | ○ | × | × | | M12×20TPI | | |
| 8 | 55– 40 | 7 | TRG-7×8-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-7×8-R-... | ● | ○ | × | × | ● | ○ | × | × | | M14×20TPI | | |
| 8 | 65– 45 | 8 | TRG-8×8-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-8×8-R-... | ● | ○ | × | × | ● | ○ | × | × | | M15×20TPI | | |
| 8 | 240– 60 | 10 | TRG-10×8-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-10×8-R-... | ● | ○ | × | × | ● | ○ | × | × | | M18×20TPI | | |
| 9 | 62– 45 | 8 | TRG-8×9-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-8×9-R-... | ● | ○ | × | × | ● | ○ | × | × | | M15×20TPI | | |
| 9 | 240– 60 | 10 | TRG-10×9-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-10×9-R-... | ● | ○ | × | × | ● | ○ | × | × | | M18×20TPI | | |
| 10 | 65– 48 | 8 | TRG-8×10-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-8×10-R-... | ● | ○ | × | × | ● | ○ | × | × | | M15×20TPI | | |
| 10 | 90– 60 | 10 | TRG-10×10-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-10×10-R-... | ● | ○ | × | × | ● | ○ | × | × | | M18×20TPI | | |
| 10 | 240– 80 | 11 | TRG-11×10-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-11×10-R-... | ● | ○ | × | × | ● | ○ | × | × | | M21×14TPI | | |
| 12 | 80– 55 | 10 | TRG-10×12-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-10×12-R-... | ● | ○ | × | × | ● | ○ | × | × | | M18×20TPI | | |
| 12 | 110– 70 | 11 | TRG-11×12-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-11×12-R-... | ● | ○ | × | × | ● | ○ | × | × | | M21×14TPI | | |
| 12 | 400–100 | 12 | TRG-12×12-R-... | ● | ○ | × | × | ● | ○ | × | × | FLG-12×12-R-... | ● | ○ | × | × | ● | ○ | × | × | | M25×14TPI | | |

▲ Please indicate here alloy or grade of carbide required ▲

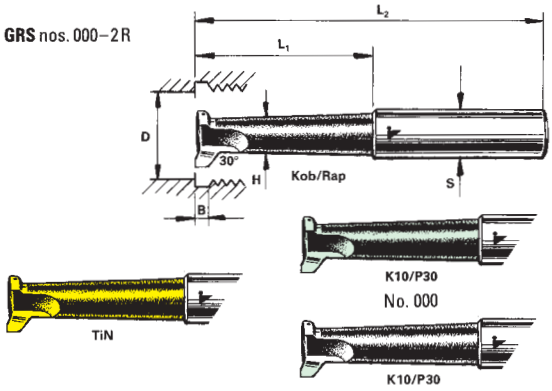
The above mentioned TRG and FLG are for cutting single-start threads.
On request these tools are also produced for multi-start threads.

Availability: ● ex stock / ○ within short notice / × on request

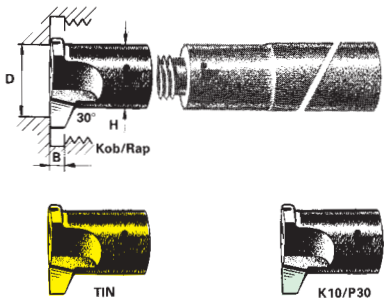
# GRS

## Thread Relief Tools GRS of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips

**GRS** nos. 000–2 R




Heads: **GRS** nos. 3–11 R
Shanks see page 12




How to order (example): 5 pieces GRS-1-R-TiN No. 00-2

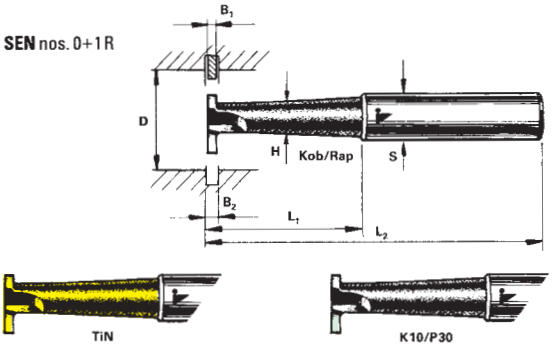
| Size **GRS** | Code number for righthand-side cutting (for lefthand-side cutting replace "R" by "L") | Availability "R" Kob | Rap | TiN | K10 | P30 | "L" Kob | TiN | K10 | P30 | Recomm. minimum bore D / mm | Width B mm | ∅ of neck H mm | ∅ S-h7 of shank mm | Thread | Length of neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 000 | *GRS-000-R-...* | ● | ● | ● | ● | | ● | ○ | ● | | 5 | 1.3 | 2.6 | 8 | — | 15 | 46 |
| 00 | *GRS-00-R-...* | ● | ● | ● | ● | | ● | ○ | ● | | 6.5 | 1.5 | 3.5 | 8 | — | 20 | 50 |
| 0 | *GRS-0-R-...* | ● | ● | ● | ● | | ● | ○ | ● | | 9 | 1.8 | 4.8 | 8 | — | 26 | 52 |
| 1 | *GRS-1-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 11 | 2 | 6 | 8 | — | 28 | 56 |
| 2 | *GRS-2-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 13 | 2.2 | 7.5 | 8 | — | — | 64 |
| 3 | *GRS-3-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 17 | 2.5 | 10 | | M6 | | |
| 4 | *GRS-4-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 21 | 2.7 | 12 | | M8 | | |
| 5 | *GRS-5-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 24 | 3 | 14 | | M10×20TPI | | |
| 6 | *GRS-6-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 28 | 3.5 | 16.3 | | M12×20TPI | | |
| 7 | *GRS-7-R-...* | ● | | ● | ● | ● | ● | ○ | ● | ● | 31 | 4 | 18.3 | | M14×20TPI | | |
| 8 | *GRS-8-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 34 | 4.5 | 20 | | M15×20TPI | | |
| 10 | *GRS-10-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 42 | 5 | 25 | | M18×20TPI | | |
| 11 | *GRS-11-R-...* | ● | | | ● | ● | ● | ○ | ● | ● | 50 | 5.5 | 30 | | M21×14TPI | | |

▲ Please indicate here alloy or grade of carbide required

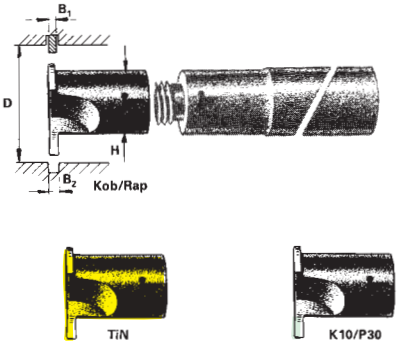
# SEN

## Circlip Groove (Retaining Ring) Tools SEN of HSS-CO (Kob), HSS (Rap), TiN-coated or with Carbide Tips for Circlip Grooves According to DIN 472

**SEN** nos. 0+1 R




Heads: **SEN** nos. 3–8 R
Shanks see page 12




How to order (example): 5 pieces SEN-1-R-1.0-Kob.

| Size **SEN** | Code number for righthand-side cutting (for lefthand-side cutting replace "R" by "L") | Availability "R" Kob | Rap | TiN | K10 | P30 | "L" Kob | TiN | K10 | P30 | Circlip thickness $B_1$ mm | Width of groove $B_2$–H13 mm | For bore D mm | ∅ of neck H mm | ∅ S-h7 of shank mm | Thread | Length of neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | *SEN-0-R-0.8-...* | ● | ● | ● | ● | | ● | ○ | ● | | 0.8 | 0.9 | 8–9 | 4 | 8 | — | 22 | 52 |
| 1 | *SEN-1-R-1.0-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 1.0 | 1.1 | 10–16 | 6 | 8 | — | 25 | 55 |
| 3 | *SEN-3-R-1.0-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 1.0 | 1.1 | 17–22 | 10 | | M6 | | |
| 4 | *SEN-4-R-1.2-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 1.2 | 1.3 | 23–33 | 12 | | M8 | | |
| 6 | *SEN-6-R-1.5-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 1.5 | 1.6 | 34–39 | 16.3 | | M12×20TPI | | |
| 6 | *SEN-6-R-1.75-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 1.75 | 1.85 | 40–49 | 16.3 | | M12×20TPI | | |
| 8 | *SEN-8-R-2.0-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 2.0 | 2.15 | 50–64 | 20 | | M15×20TPI | | |
| 8 | *SEN-8-R-2.5-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 2.5 | 2.65 | 65–82 | 20 | | M15×20TPI | | |
| 8 | *SEN-8-R-3.0-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 3.0 | 3.15 | 85–100 | 20 | | M15×20TPI | | |
| 8 | *SEN-8-R-4.0-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 4.0 | 4.15 | 102–200 | 20 | | M15×20TPI | | |

▲ Please indicate here alloy or grade of carbide required

Availability: ● ex stock / ○ within short notice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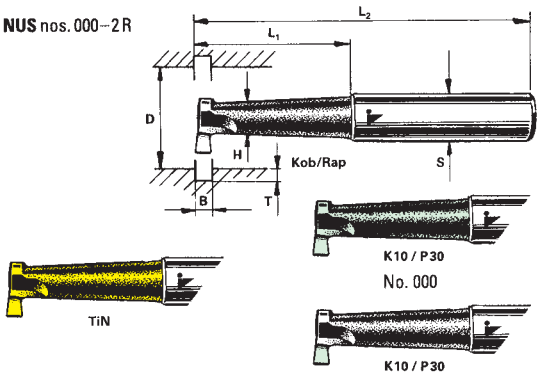
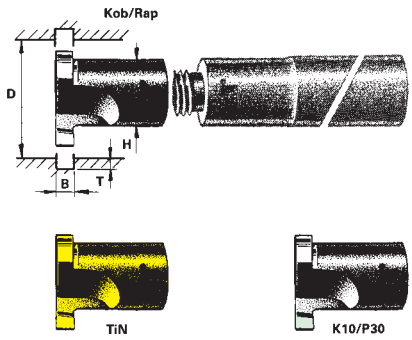
## Groove Finishing Tools NUS of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips

**NUS** nos. 000–2R




Heads: **NUS** nos. 3–10R
Shanks see page 12




How to order (example): 5 pieces NUS-6-R-Kob. No. 00-2

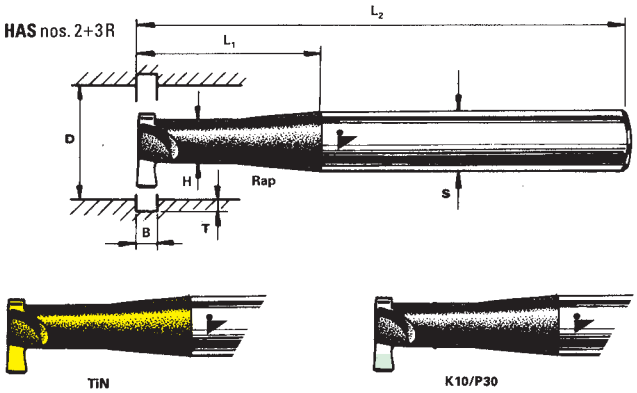
| Size **NUS** | Code number for righthand-side cutting (for lefthand-side cutting replace "R" by "L") | Availability "R" Kob | Rap | TiN | K10 | P30 | "L" Kob | TiN | K10 | P30 | Recomm. minimum bore D / mm | Width B mm | Max. groove depth T mm | ∅ of neck H mm | ∅ S-h7 of shank mm | Thread | Length neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 000 | *NUS-000-R-...* | ● | ● | ● | ● | | ● | ○ | ● | | 5 | 1.2 | 1.3 | 2.6 | 8 | — | 15 | 46 |
| 00 | *NUS-00-R-...* | ● | ● | ● | ● | | ● | ○ | ● | | 6.5 | 1.5 | 1.6 | 3.5 | 8 | — | 20 | 50 |
| 0 | *NUS-0-R-...* | ● | ● | ● | ● | | ● | ○ | ● | | 9 | 1.8 | 2 | 4.8 | 8 | — | 26 | 52 |
| 1 | *NUS-1-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 11 | 2 | 2.3 | 6 | 8 | — | 28 | 56 |
| 2 | *NUS-2-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 13 | 2.2 | 2.9 | 7.5 | 8 | — | — | 64 |
| 3 | *NUS-3-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 17 | 2.5 | 3.2 | 10 | | M6 | | |
| 4 | *NUS-4-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 21 | 3 | 3.5 | 12 | | M8 | | |
| 5 | *NUS-5-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 24 | 3.5 | 4.2 | 14 | | M10×20TPI | | |
| 6 | *NUS-6-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 28 | 4 | 4.7 | 16.3 | | M12×20TPI | | |
| 8 | *NUS-8-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 34 | 5 | 7 | 20 | | M15×20TPI | | |
| 10 | *NUS-10-R-...* | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 42 | 6 | 8.5 | 25 | | M18×20TPI | | |

▲ Please indicate here alloy or grade of carbide required

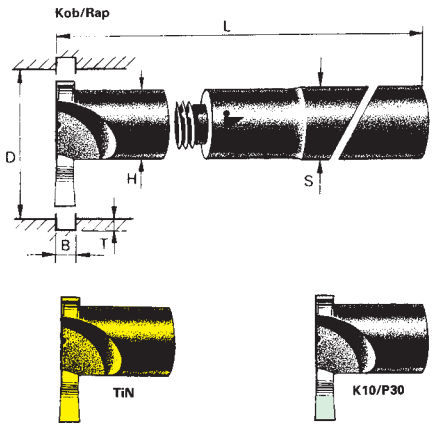


## Grooving Tools HAS of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips

**HAS** nos. 2+3R




Heads: **HAS** nos. 4–10R
Shanks see page 12




How to order (example): 5 pieces HAS-4-R-Rap.

| Size **HAS** | Code number for righthand-side cutting (for lefthand-side cutting replace "R" by "L") | Availability "R" Kob | Rap | TiN | K10 | P30 | "L" Kob | Rap | TiN | K10 | P30 | Recomm. minimum bore D / mm | Width B mm | Max. groove depth T mm | ∅ of neck H mm | ∅ S-h7 of shank mm | Thread | Length neck $L_1$ mm | Total length $L_2$ mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | *HAS-2-R-...* | | ● | ● | ● | ● | | ● | ○ | ● | ● | 17 | 3 | 4 | 8 | 10 | — | 29 | 80 |
| 3 | *HAS-3-R-...* | | ● | ● | ● | ● | | ● | ○ | ● | ● | 21 | 3.5 | 6 | 10 | 10 | — | — | 85 |
| 3 long | *HAS-3-R-T-...* | | ● | ● | ● | ● | | ● | ○ | ● | ● | 21 | 3.5 | 6 | 10 | 12 | — | 40 | 150 |
| 4 | *HAS-4-R-...* | ● | ● | ● | ● | ● | ● | | ○ | ● | ● | 25 | 4 | 7 | 13 | | M8 | | |
| 6 | *HAS-6-R-...* | ● | ● | ● | ● | ● | ● | | ○ | ● | ● | 34 | 5 | 10 | 16.3 | | M12×20TPI | | |
| 8 | *HAS-8-R-...* | ● | ● | ● | ● | ● | ● | | ○ | ● | ● | 40 | 6.5 | 11.5 | 20 | | M15×20TPI | | |
| 10 | *HAS-10-R-...* | ● | ● | ● | ● | ● | ● | | ○ | ● | ● | 48 | 8 | 13 | 25 | | M18×20TPI | | |

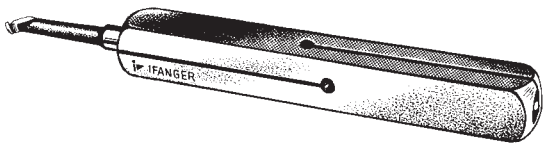
▲ Please indicate here alloy or grade of carbide required

Availability: ● ex stock / ○ within short notice

# KGI

## Standard Tool Holders for Boring Tools

**Clamping holders KGI**

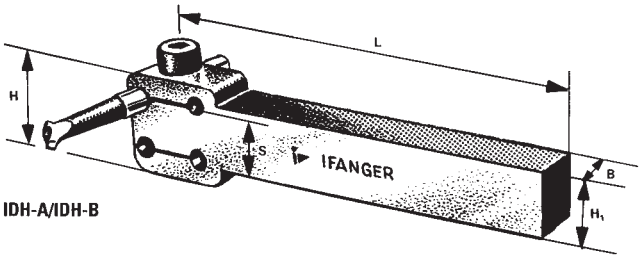



KGI

How to order (example): 5 pieces KGI

| For tools of sizes | For ∅ of shank mm | Type and code number | Availability | Measurements mm |
|---|---|---|---|---|
| 0000–3 | 8 and 10 | *KGI* | ● | 16×16×125 |
| 0000–2 | 8 | *KGI-A* | ● | 12×12×100 |
| 0000–2 | 8 | *KGI-B* | ● | 14×10×100 |
| Shank 4 and 6 | 4 and 6 | *KGI-C* | ● | 10×10× 90 |

# IDH Tool holders IDH for internal turning tools sizes 0000–3




IDH-A/IDH-B

How to order (example): 1 piece IDH-A-18

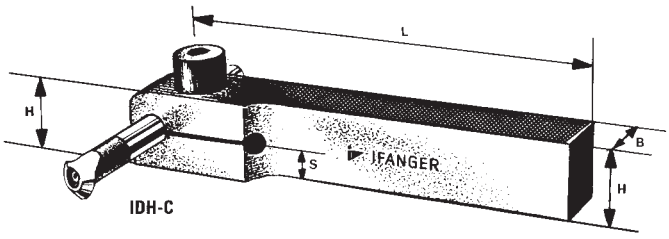
| Type | Code number | Height of center S above tool rest in mm | Measurements H×B×L mm | Bores mm | Availability |
|---|---|---|---|---|---|
| IDH-A | IDH-A-.. | 12–20 | 30×12×150 | 8 and 10 | ● |

| Please state accurate height of center S above tool rest | Height of holder $H_1$ in mm | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| if S = | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| $H_1$ = | 11.2 | 13.2 | 15.2 | 17.2 | 19.2 | 21.2 | 23.2 | 25.2 | 27.2 |

How to order (example): 1 piece IDH-B-25

| Type | Code number | Height of center S above tool rest in mm | Measurements H×B×L mm | Bores mm | Availability |
|---|---|---|---|---|---|
| IDH-B | IDH-B-.. | 21–30 | 40×22×175 | 8 and 10 | ● |

| Please state accurate height of center S above tool rest | Height of holder $H_1$ in mm | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| if S = | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| $H_1$ = | 21.2 | 23.2 | 25.2 | 27.2 | 29.2 | 31.2 | 33.2 | 35.2 | 37.2 | 39.2 |




IDH-C

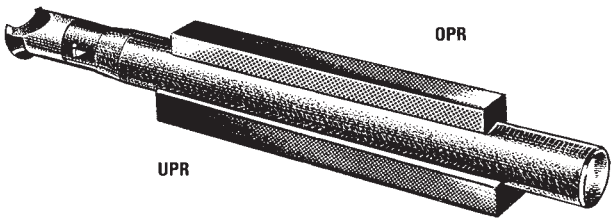
How to order (example): 1 piece IDH-C-12/8

| Type | Code number | Height of center S above tool rest in mm | Measurements H×B×L mm | Bores mm | Availability |
|---|---|---|---|---|---|
| IDH-C | IDH-C-../.. | 8 or 10 or 12 | 20×10×100 | 8 or 10 | ● |

Please indicate ∅ of bores (8 or 10 mm)
Please state here height of center S above tool rest (8 or 10 or 12 mm)

# OPR – UPR

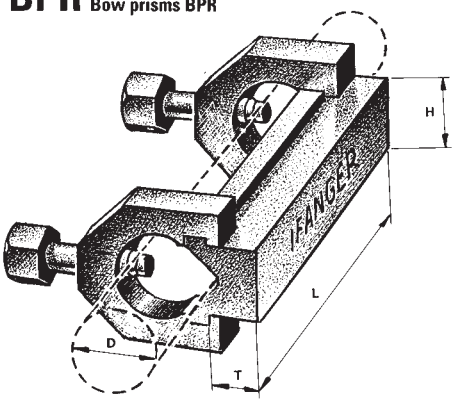
**Prisms**




How to order (example): 5 pieces UPR-130

| For tools of sizes | Lower prisms UPR | | | Upper prisms OPR | | |
|---|---|---|---|---|---|---|
| | Type and code number | Availability | Measurements in mm | Type and code number | Availability | Measurements in mm |
| 0000– 3 | *PR-50* | ● | 8×10× 50 | *PR-50* | ● | 8×10× 50 |
| 3– 8 | *UPR-130* | ● | 12×22×130 | *OPR-100* | ● | 8×14×100 |
| 6–10 | *UPR-150* | ● | 15×25×150 | *OPR-125* | ● | 8×14×125 |
| 10–12 | *UPR-180* | ● | 20×35×180 | *OPR-150* | ● | 8×14×150 |

# BPR Bow prisms BPR

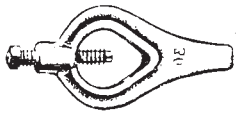



How to order (example): 1 piece BPR-20

| For IFANGER shanks no. | Size | Code number | Availability | D mm | Measurements in mm L×H×T |
|---|---|---|---|---|---|
| 3– 8 | 20 | *BPR-20* | ● | 10–20 | 130×16×12 |
| 4–12 | 35 | *BPR-35* | ● | 12–35 | 180×30×20 |

Availability: ● ex stock

## Lathe Dog for Mounting Cutters on Shanks DRH

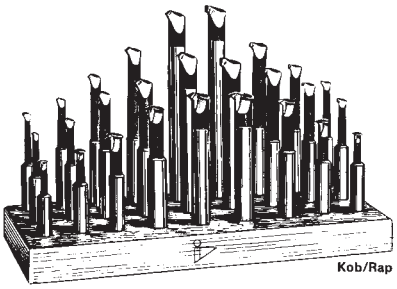


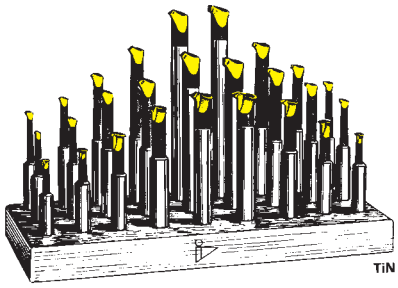
How to order (example): 1 piece DRH-40

| Size | 15 | 20 | 25 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|
| Code number | *DRH-15* | *DRH-20* | *DRH-25* | *DRH-30* | *DRH-40* | *DRH-50* | *DRH-60* |
| Availability | ● | ● | ● | ● | ● | ● | ● |
| for IFANGER cutters no. | 3–5 | 4–6 | 5–8 | 6–9 | 9–12 | 11–12 | |

## Sets SO and SA of Boring Tools of HSS-CO (Kob), HSS (Rap) and TiN-coated

SO




**Sets SO of boring tools** (for measurements of tools, please refer to pages 8–11 and 14–15)

How to order (example): 1 piece SO-B-Kob.

| Type **SO** of set | Code number | Availability Kob | Rap | TiN | Quantity of tools | Set consisting in: **ASB** normal | **ASB** long | **ECS** normal | **ECS** long | 60° **GWS** normal | 55° **GWS** normal |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | *SO-A-...* | ● | ● | ● | 20 | 00–3 | – | 00–3 | – | 0–3 | 0–3 |
| B | *SO-B-...* | ● | ● | ● | 32 | 00–3 | 00–3 | 00–3 | 00–3 | 0–3 | 0–3 |
| C | *SO-C-...* | ● | ● | ● | 16 | 0000–3 | – | 0000–3 | – | – | – |
| D | *SO-D-...* | ● | ● | ● | 32 | 0000–3 | 0000–3 | 0000–3 | 0000–3 | – | – |

▲ Please indicate here the alloy required

SA

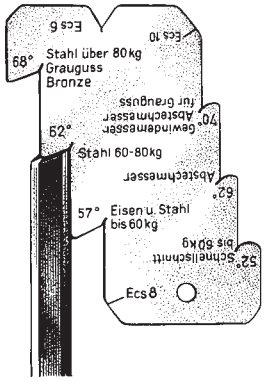
**Sets SA of boring tools for use on boring heads** (for measurements of tools, please refer to pages 12+13)

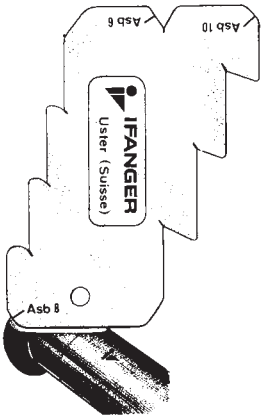
| Type **SA** of set | Code number | Availability Kob | Rap | TiN | Quantity of tools | Set consisting in: **ADK** ∅-h7 of shank mm | **ADK** ∅ of neck mm | **EDK** ∅-h7 of shank mm | **EDK** ∅ of neck mm |
|---|---|---|---|---|---|---|---|---|---|
| A | *SA-A-...* | ● | ● | ○ | 16 | 8 | 2 – 8 | 8 | 2 – 8 |
| B | *SA-B-...* | ● | ● | ○ | 18 | 10 | 2.5–10 | 10 | 2.5–10 |
| C | *SA-C-...* | ● | ● | ○ | 20 | 12 | 2.5–12 | 12 | 2.5–12 |

▲ Please indicate here the alloy required

## Universal Grinding Gauge for Boring and Turning Tools (same as page 31)

SL



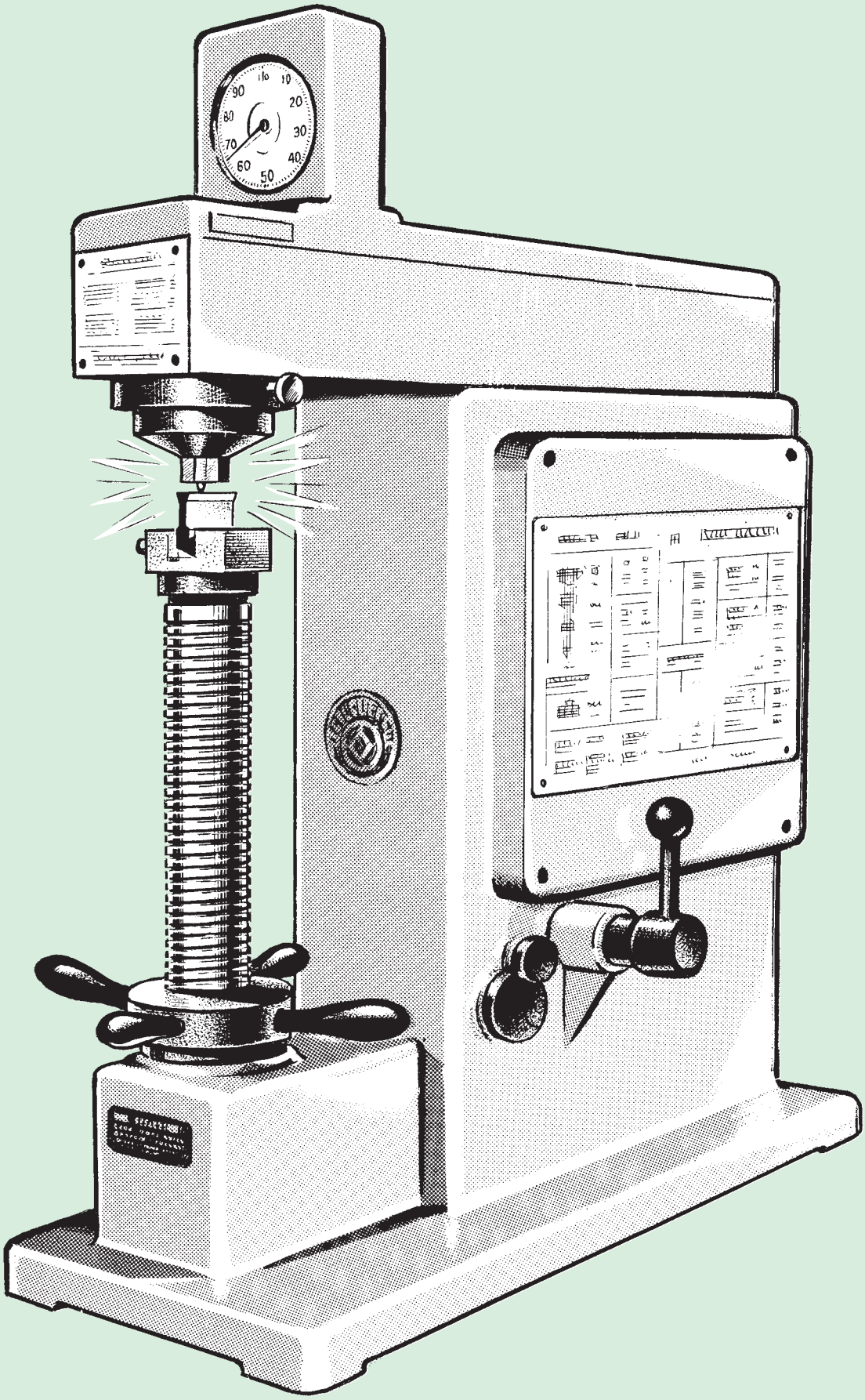

– only one grinding gauge for all IFANGER turning tools

– indispensable for correct and accurate grinding of IFANGER turning tools

How to order (example): 1 piece SL-D

| Grinding gauge | Marking German | French | English |
|---|---|---|---|
| Code number | *SL-D* | *SL-F* | *SL-E* |
| Availability | ● | ● | ● |

Availability: ● ex stock / ○ within short notice



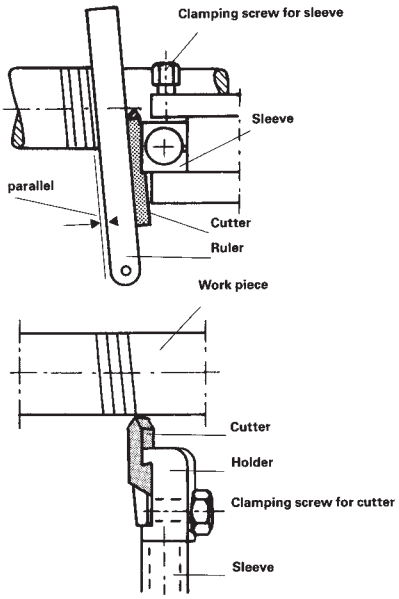

Quality control:
Hardness

# Turning with IFANGER Turning Tools

### General remarks

The primary condition to be watched for when using IFANGER turning tools is that the numbers indicating size of cutters and holders are identical. Generally, the indications regarding type of tool have to be identical as well. In this connexion, however, there are exceptions to the rule. In these cases, tool holders suitable for use with such cutters are indicated in the technical description of the cutters.

Furthermore, it is important to keep clamping faces on cutter and holder absolutely clean, as dirt can increase tensions and brake the cutter when being clamped into the holder.




### Roughing and side cutters

To reach best cutting capacity and tool life set the roughing cutters A, B, X and Y and the side cutters D and E over the center at about 3% of the turning diameter (carbide tipped cutters only 1%).

### Parting cutters

When parting the cutter should be set over the center at approx. 3% of the diameter of the groove and for a complete cut off the cutter should be set at approx. 0.2 mm over the center. On elder lathes it is recommended to use the holder GHS and to cut off in reverse.

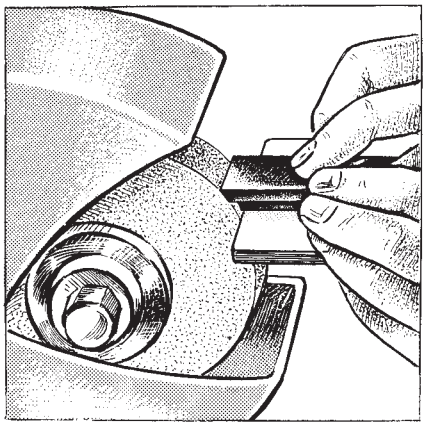
### Threading cutters

In comparison to the angle of screw thread the angle on the cutter is adjusted. Therefore, and in order to keep this adjustment upright, the rake angle should be resharpened exactly in accordance with the IFANGER grinding gauge (see page 31).

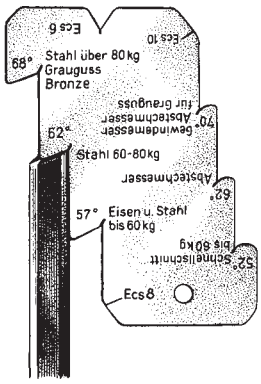
To reach the correct angle of inclination of the cutter in relation to the angle of pitch on the work piece, the following procedure is recommended:

1) After having fixed the work piece on the lathe introduce the IFANGER tool holder in the turret and tighten the fixing screw slightly. Set the cutter at the correct height of center and give the cutter the estimated inclination of pitch of the thread by twisting the cutter and the holder in the sleeve. Tighten the fixing screw rigidly.
2) After having selected on the lathe the pitch required mark a few threads on the work piece with the cutter.
3) Loosen the screw holding the sleeve in the turret. Lean a ruler against the cutter and twist ruler, cutter and holder so that the ruler be placed absolutely parallel to the marks of thread on the work piece. Now the clearance angles on both sides of the cutter are of equal size during work.
4) Tighten the fixing screws of the turret and check the center heights of the cutter once more. To be adjusted if necessary.

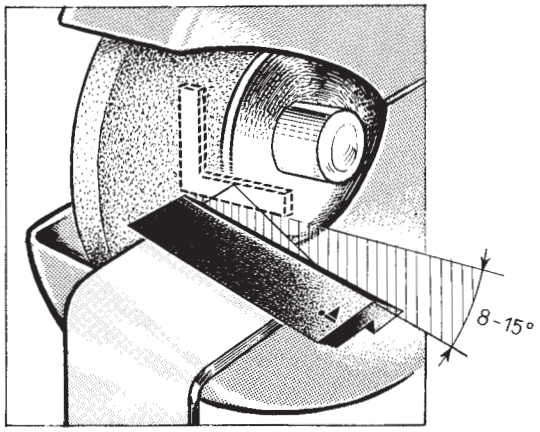
## Resharpening of IFANGER External Turning Tools of HSS-CO (Kob), HSS (Rap) and TiN-coated



IFANGER cutters are only to be resharpened on the face for chip evacuation. Grinding wheels of aluminumoxide, grit 46 and 60, hardness J and K are recommended.

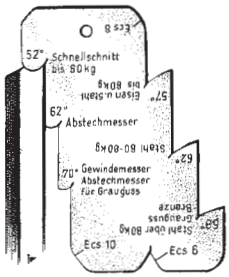



Rake angles can easily be checked with IFANGER grinding gauge.

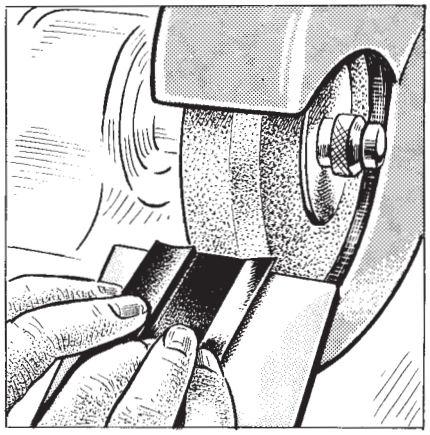



Grinding of the abrasion facet. It protects the cutter from excessive wear. Use grindstones or grinding wheels of a grit of 100 or finer.

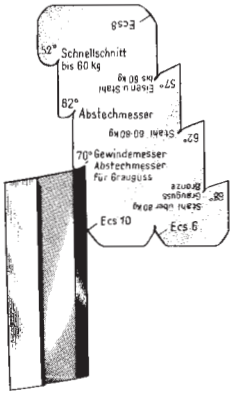
Facet on the cutting angle under 77°, width 0.1 to 0.3 mm.



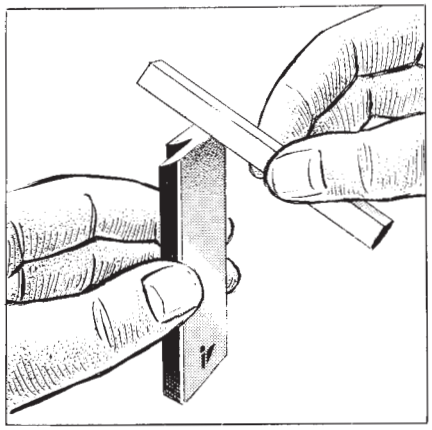

Use of the gauge when grinding the groove for chip evacuation.



Grinding of threading and parting off cutters on IFANGER grinding machine with aluminumoxide grinding wheel grit 60, hardness J or K and slight facet.




The only way to guarantee a correct angle of profile of thread on the work piece.



On all cutters an abrasion facet should be applied on the cutting edge with a whetstone.
(Whetstones available ex stock: round, triangular, square.)

**Recommended rake angles**

| Material to be machined | Rake angles | |
|---|---|---|
| | HSS-CO, HSS and TiN-coated | Carbide tipped |
| Steel 30–50 kg/mm² | 25° | 20° |
| Steel 50–80 kg/mm² | 20° | 15° |
| Grey cast iron | 10°–15° | 10° |
| Aluminum | 30° | 20°–25° |
| Copper | 30° | 20°–25° |
| Brass | 0°–10° | 0°–10° |

## Resharpening of IFANGER Turning Tools with Carbide Tips

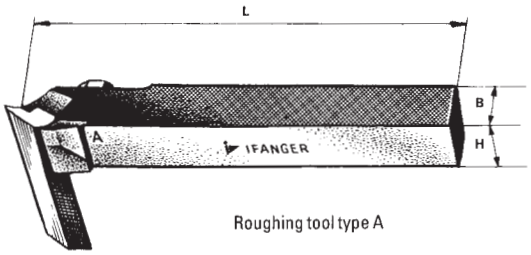
Tools with carbide tips should always be resharpened with abundant liquid cooling. To cut down the risk of cracks in the carbide tips avoid dry resharpening and never chill warm carbide tips with liquid.

Roughing cutters A, B, X and Y as well as side cutters D and E are provided with grooves for chip evacuation. These grooves should be adapted to the cutting conditions and the material to be machined.

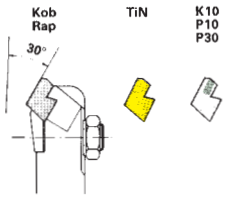
After every resharpening of a carbide cutter an abrasion facet should be applied under an angle of 30° by means of a diamond file. Width of facet: 0.5×feed (diamond files available ex stock).

Recommended grinding wheels:
grinding wheels of silicone carbide of 46 to 120 H, diamond grinding wheels, metal- or synthetic-bonded.

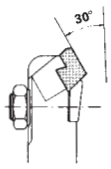
# Roughing Tools A and B of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips
# Chamfering Cutters of HSS-CO (Kob) and TiN-coated



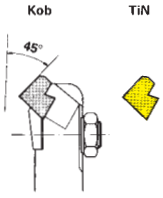
Roughing tool type A



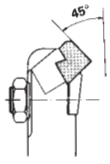
Type A (righthand)



Type B (lefthand)



Chamfering cutter Type A 45° (righthand)



Type B 45° (lefthand)

How to order (example): 5 pieces 3-A-45-Kob.

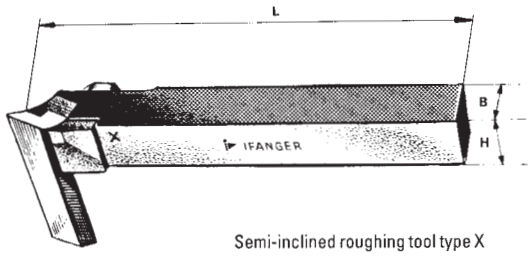
| Size | For height of centers above tool rest mm normal | relieved | Holder Measurements H×B×L mm | Code number | Availability | Length mm | Code number | Cutter Availability Kob | Rap | TiN | K10 | P10 | P30 | Chamfering cutter Code number | Availability Kob | TiN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type A** | | | | | | | | | | | | | | | | |
| 1/12 | 12 | | 10×10×120 | *1/12-AH* | ● | 40 | *1-A-...* | ● | ● | ● | ● | ● | ● | *1-A-45-...* | ● | ● |
| 1 | 16 | 15–12* | 14×13×120 | *1-AH* | ● | 40 | *1-A-...* | ● | ● | ● | ● | ● | ● | *1-A-45-...* | ● | ● |
| 2 | 20 | 19–16* | 18×16×140 | *2-AH* | ● | 50 | *2-A-...* | ● | ● | ● | ● | ● | ● | *2-A-45-...* | ● | ● |
| 3 | 25 | 24–20* | 23×19×160 | *3-AH* | ● | 60 | *3-A-...* | ● | ● | ● | ● | ● | ● | *3-A-45-...* | ● | ● |
| 4 | 30 | 29–25* | 28×22×180 | *4-AH* | ● | 70 | *4-A-...* | ● | ● | ● | ● | ● | ● | *4-A-45-...* | ● | ● |
| 5 | 36 | 35–30* | 34×28×200 | *5-AH* | ● | 80 | *5-A-...* | ● | | ○ | ● | ● | ● | — | | |
| 6 | 45 | 44–36* | 42×32×225 | *6-AH* | ● | 90 | *6-A-...* | ● | | ○ | ● | ● | ● | — | | |
| **Type B** | | | | | | | | | | | | | | | | |
| 1/12 | 12 | | 10×10×120 | *1/12-BH* | ● | 40 | *1-B-...* | ● | ● | ● | ● | ● | ● | *1-B-45-...* | ● | ● |
| 1 | 16 | 15–12* | 14×13×120 | *1-BH* | ● | 40 | *1-B-...* | ● | ● | ● | ● | ● | ● | *1-B-45-...* | ● | ● |
| 2 | 20 | 19–16* | 18×16×140 | *2-BH* | ● | 50 | *2-B-...* | ● | ● | ● | ● | ● | ● | *2-B-45-...* | ● | ● |
| 3 | 25 | 24–20* | 23×19×160 | *3-BH* | ● | 60 | *3-B-...* | ● | ● | ● | ● | ● | ● | *3-B-45-...* | ● | ● |
| 4 | 30 | 29–25* | 28×22×180 | *4-BH* | ● | 70 | *4-B-...* | ● | ● | ● | ● | ● | ● | *4-B-45-...* | ● | ● |
| 5 | 36 | 35–30* | 34×28×200 | *5-BH* | ● | 80 | *5-B-...* | ● | | ○ | ● | ● | ● | — | | |
| 6 | 45 | 44–36* | 42×32×225 | *6-BH* | ● | 90 | *6-B-...* | ● | | ○ | ● | ● | ● | — | | |

▲ Please indicate here the alloy or grade of carbide required ▲

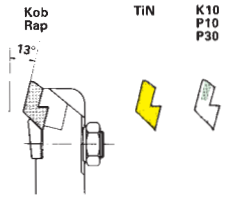
* When requiring intermediate measures, please indicate height of center or of shank (quick change tool posts), e.g. 2-AH-h.-center 18 or 2-AH-h.-shank 16.



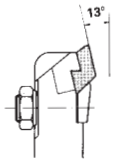
# Semi-Inclined Roughing Tools X and Y of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips



Semi-inclined roughing tool type X



Type X (righthand)



Type Y (lefthand)

How to order (example): 10 pieces 3-X-P30

| Size | For height of centers above tool rest mm normal | relieved | Measurements of holders H×B×L mm | Type X Holder Code number | Avail-ability | Length mm | Cutter Code number | Availability Kob | Rap | TiN | K10 | P10 | P30 | Type Y Holder Code number | Avail-ability | Length mm | Cutter Code number | Availability Kob | Rap | TiN | K10 | P10 | P30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/12 | 12 | | 10×10×120 | *1/12-XH* | ● | 40 | *1-X-...* | ● | ● | ○ | ● | ● | ● | *1/12-YH* | ● | 40 | *1-Y-...* | ● | ● | ○ | ● | ● | ● |
| 1 | 16 | 15–12* | 14×13×120 | *1-XH* | ● | 40 | *1-X-...* | ● | ● | ○ | ● | ● | ● | *1-YH* | ● | 40 | *1-Y-...* | ● | ● | ○ | ● | ● | ● |
| 2 | 20 | 19–16* | 18×16×140 | *2-XH* | ● | 50 | *2-X-...* | ● | ● | ○ | ● | ● | ● | *2-YH* | ● | 50 | *2-Y-...* | ● | ● | ○ | ● | ● | ● |
| 3 | 25 | 24–20* | 23×19×160 | *3-XH* | ● | 60 | *3-X-...* | ● | ● | ○ | ● | ● | ● | *3-YH* | ● | 60 | *3-Y-...* | ● | ● | ○ | ● | ● | ● |
| 4 | 30 | 29–25* | 28×22×180 | *4-XH* | ● | 70 | *4-X-...* | ● | ● | ○ | ● | ● | ● | *4-YH* | ● | 70 | *4-Y-...* | ● | ● | ○ | ● | ● | ● |
| 5 | 36 | 35–30* | 34×28×200 | *5-XH* | ● | 80 | *5-X-...* | ● | | ○ | ● | ● | ● | *5-YH* | ● | 80 | *5-Y-...* | ● | | ○ | ● | ● | ● |

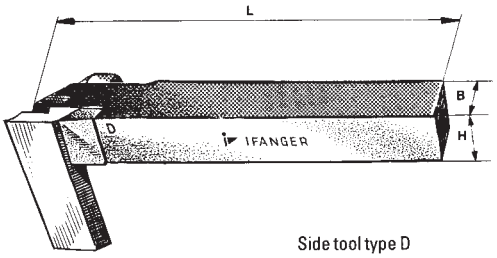
▲ Please indicate here the alloy or grade of carbide required ▲

* When requiring intermediate measures, please indicate height of center or of shank (quick change tool posts), e.g. 1-XH-h.-center 13 or 1-XH-h.-shank 11.

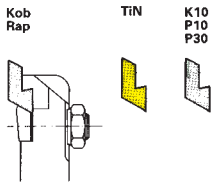
Availability: ● ex stock / ○ within short notice

# D/E

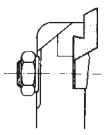
## Side Tools D and E of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips
## Copying Cutters with Carbide Tips



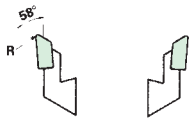

Side tool type D




Type D (righthand)



Type E (lefthand)




Copying cutter
Type D 58° (righthand)
Type E 58° (lefthand)

How to order (example): 10 pieces 3-D-Kob.
1 piece 3-DH

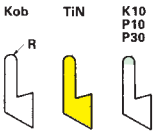
| Size | For height of centers above tool rest mm normal | relieved | Holder Measurements H×B×L mm | Code number | Avail-ability | Length mm | Cutter Code number | Availability Kob | Rap | TiN | K10 | P10 | P30 | Copying cutter Radius R mm | Code number | Availability K10 | P10 | P30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type D** | | | | | | | | | | | | | | | | | | |
| 1/12 | 12 | | 10×10×120 | *1/12-DH* | ● | 40 | *1-D-...* | ● | ● | ● | ● | ● | ● | 0.5 | *1-D-58-...* | ● | ● | ● |
| 1 | 16 | 15–12* | 14×13×120 | *1-DH* | ● | 40 | *1-D-...* | ● | ● | ● | ● | ● | ● | 0.5 | *1-D-58-...* | ● | ● | ● |
| 2 | 20 | 19–16* | 18×16×140 | *2-DH* | ● | 50 | *2-D-...* | ● | ● | ● | ● | ● | ● | 0.5 | *2-D-58-...* | ● | ● | ● |
| 3 | 25 | 24–20* | 23×19×160 | *3-DH* | ● | 60 | *3-D-...* | ● | ● | ● | ● | ● | ● | 0.5 | *3-D-58-...* | ● | ● | ● |
| 4 | 30 | 29–25* | 28×22×180 | *4-DH* | ● | 70 | *4-D-...* | ● | ● | ● | ● | ● | ● | 1 | *4-D-58-...* | ● | ● | ● |
| 5 | 36 | 35–30* | 34×28×200 | *5-DH* | ● | 80 | *5-D-...* | ● | | ○ | ● | ● | ● | 1 | *5-D-58-...* | ● | ● | ● |
| **Type E** | | | | | | | | | | | | | | | | | | |
| 1/12 | 12 | | 10×10×120 | *1/12-EH* | ● | 40 | *1-E-...* | ● | ● | ● | ● | ● | ● | 0.5 | *1-E-58-...* | ● | ● | ● |
| 1 | 16 | 15–12* | 14×13×120 | *1-EH* | ● | 40 | *1-E-...* | ● | ● | ● | ● | ● | ● | 0.5 | *1-E-58-...* | ● | ● | ● |
| 2 | 20 | 19–16* | 18×16×140 | *2-EH* | ● | 50 | *2-E-...* | ● | ● | ● | ● | ● | ● | 0.5 | *2-E-58-...* | ● | ● | ● |
| 3 | 25 | 24–20* | 23×19×160 | *3-EH* | ● | 60 | *3-E-...* | ● | ● | ● | ● | ● | ● | 0.5 | *3-E-58-...* | ● | ● | ● |
| 4 | 30 | 29–25* | 28×22×180 | *4-EH* | ● | 70 | *4-E-...* | ● | ● | ● | ● | ● | ● | 1 | *4-E-58-...* | ● | ● | ● |
| 5 | 36 | 35–30* | 34×28×200 | *5-EH* | ● | 80 | *5-E-...* | ● | | ○ | ● | ● | ● | 1 | *5-E-58-...* | ● | ● | ● |

▲ Please indicate here alloy or grade of carbide required ▲

* When requiring intermediate measures, please indicate height of center or of shank (quick change tool posts), e.g. 3-DH-h.-center 22 or 3-DH-h.-shank 20.

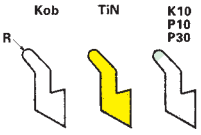
# P/Q – T/U – V/W

## Finishing Cutters of HSS-CO (Kob), TiN-coated and with Carbide Tips



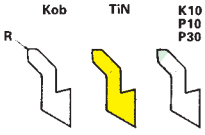

Finishing cutter
Type P
(righthand)

Type Q
(lefthand)




Cranked finishing cutter
Type T
(righthand)

Type U
(lefthand)




Cranked corner cutter
Type V
(righthand)

Type W
(lefthand)

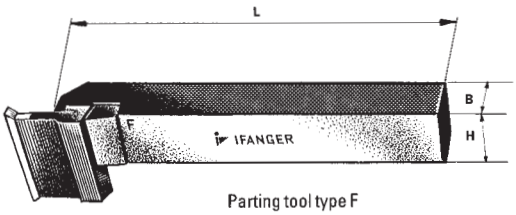
How to order (example): 5 pieces 3-T-P30

| Size | To be used on holder: Type D (Meas. on p. 26) Code number | Availability | Type F (only for P) (Meas. on p. 27) Code number | Availability | Type K (Meas. on p. 29) Code number | Availability | Cutter: Type P Radius R mm | Code number | Availability Kob | TiN | K10 | P10 | P30 | Type T Radius R Kob TiN | Radius R K10 P10 P30 | Code number | Availability Kob | TiN | K10 | P10 | P30 | Type V Radius R mm | Code number | Availability Kob | TiN | K10 | P10 | P30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *1/12-DH* | ● | *1/12-FH* | ● | *0-KH* | ● | 1.25 | *1-P-...* | ● | ● | ● | ● | ● | 1 | 1.25 | *1-T-...* | ● | ● | ● | ● | ● | 0.3 | *1-V-...* | ● | ● | ● | ● | ● |
| 1 | *1-DH* | ● | *1-FH* | ● | *1-KH* | ● | 1.25 | *1-P-...* | ● | ● | ● | ● | ● | 1 | 1.25 | *1-T-...* | ● | ● | ● | ● | ● | 0.3 | *1-V-...* | ● | ● | ● | ● | ● |
| 2 | *2-DH* | ● | *2-FH* | ● | *2-KH* | ● | 1.5 | *2-P-...* | ● | ● | ● | ● | ● | 1.25 | 1.5 | *2-T-...* | ● | ● | ● | ● | ● | 0.3 | *2-V-...* | ● | ● | ● | ● | ● |
| 3 | *3-DH* | ● | *3-FH* | ● | *3-KH* | ● | 1.75 | *3-P-...* | ● | ● | ● | ● | ● | 1.5 | 1.75 | *3-T-...* | ● | ● | ● | ● | ● | 0.5 | *3-V-...* | ● | ● | ● | ● | ● |
| 4 | *4-DH* | ● | *4-FH* | ● | *4-KH* | ● | 2.25 | *4-P-...* | ● | ● | ● | ● | ● | 2 | 2.25 | *4-T-...* | ● | ● | ● | ● | ● | 0.5 | *4-V-...* | ● | ● | ● | ● | ● |
| 5 | *5-DH* | ● | *5-FH* | ● | *5-KH* | ● | 2.75 | *5-P-...* | ● | ○ | ● | ● | ● | – | – | – | | | | | | – | – | | | | | |
| | **Type E** (Meas. on p. 26) | | **Type G** (only for Q) (Meas. on p. 27) | | **Type L** (Meas. on p. 29) | | **Type Q** | | | | | | | **Type U** | | | | | | | | **Type W** | | | | | | |
| 1 | *1/12-EH* | ● | *1/12-GH* | ● | *0-LH* | ● | 1.25 | *1-Q-...* | ● | ○ | ● | ● | ● | 1 | 1.25 | *1-U-...* | ● | ○ | ● | ● | ● | 0.3 | *1-W-...* | ● | ○ | ● | ● | ● |
| 1 | *1-EH* | ● | *1-GH* | ● | *1-LH* | ● | 1.25 | *1-Q-...* | ● | ○ | ● | ● | ● | 1 | 1.25 | *1-U-...* | ● | ○ | ● | ● | ● | 0.3 | *1-W-...* | ● | ○ | ● | ● | ● |
| 2 | *2-EH* | ● | *2-GH* | ● | *2-LH* | ● | 1.5 | *2-Q-...* | ● | ○ | ● | ● | ● | 1.25 | 1.5 | *2-U-...* | ● | ○ | ● | ● | ● | 0.3 | *2-W-...* | ● | ○ | ● | ● | ● |
| 3 | *3-EH* | ● | *3-GH* | ● | *3-LH* | ● | 1.75 | *3-Q-...* | ● | ○ | ● | ● | ● | 1.5 | 1.75 | *3-U-...* | ● | ○ | ● | ● | ● | 0.5 | *3-W-...* | ● | ○ | ● | ● | ● |
| 4 | *4-EH* | ● | *4-GH* | ● | *4-LH* | ● | 2.25 | *4-Q-...* | ● | ○ | ● | ● | ● | 2 | 2.25 | *4-U-...* | ● | ○ | ● | ● | ● | 0.5 | *4-W-...* | ● | ○ | ● | ● | ● |
| 5 | *5-EH* | ● | *5-GH* | ● | *5-LH* | ● | 2.75 | *5-Q-...* | ● | ○ | ● | ● | ● | – | – | – | | | | | | – | – | | | | | |

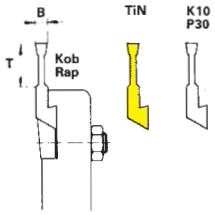
Please indicate here alloy or grade of carbide required ▲ ▲ ▲

Availability: ● ex stock / ○ within short notice

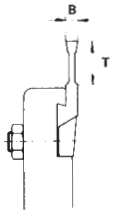
# Parting Tools F and G of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips




Parting tool type F




Type F (righthand)




Type G (lefthand)

How to order (example): 10 pieces 2-F-N-TiN (Original box of 5 pieces)

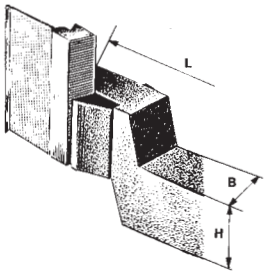
| Size | For height of centers above tool rest mm | | Holder Measurements H×B×L | Code number | Avail-ability | Cutter Length | B $^{+0}_{-0,5}$ | T | Code number | normal depth Availability | | | | | T | Code number | extra depth Availability | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | normal | relieved | mm | | | mm | mm | mm | | Kob | Rap | TiN | K10 | P30 | mm | | Kob | Rap | TiN |
| **Type F** | | | | | | | | | | | | | | | | | | | |
| 1/12 | 12 | | 12×10×110 | *1/12-FH* | ● | 25 | 3 | 11 | *1-F-N-...* | ● | ● | ● | ● | ● | 16 | *1-F-T-...* | ● | ● | ● |
| 1 | 16 | 15–12* | 16×12×110 | *1-FH* | ● | 25 | 3 | 11 | *1-F-N-...* | ● | ● | ● | ● | ● | 16 | *1-F-T-...* | ● | ● | ● |
| 2 | 20 | 19–16* | 20×15×140 | *2-FH* | ● | 32 | 3.5 | 14 | *2-F-N-...* | ● | ● | ● | ● | ● | 19 | *2-F-T-...* | ● | ● | ● |
| 3 | 25 | 24–20* | 25×18×160 | *3-FH* | ● | 41 | 4 | 17 | *3-F-N-...* | ● | ● | ● | ● | ● | 24 | *3-F-T-...* | ● | ● | ● |
| 4 | 30 | 29–25* | 30×21×180 | *4-FH* | ● | 50 | 4.5 | 23.5 | *4-F-N-...* | ● | ● | ● | ● | ● | 33.5 | *4-F-T-...* | ● | ● | ● |
| 5 | 36 | 35–30* | 36×25×200 | *5-FH* | ● | 60 | 5.5 | 30 | *5-F-N-...* | ● | ● | ○ | ● | ● | 40 | *5-F-T-...* | ● | ● | ○ |
| **Type G** | | | | | | | | | | | | | | | | | | | |
| 1/12 | 12 | | 12×10×110 | *1/12-GH* | ● | 25 | 3 | 11 | *1-G-N-...* | ● | ● | ● | ● | ● | 16 | *1-G-T-...* | ● | ● | ● |
| 1 | 16 | 15–12* | 16×12×110 | *1-GH* | ● | 25 | 3 | 11 | *1-G-N-...* | ● | ● | ● | ● | ● | 16 | *1-G-T-...* | ● | ● | ● |
| 2 | 20 | 19–16* | 20×15×140 | *2-GH* | ● | 32 | 3.5 | 14 | *2-G-N-...* | ● | ● | ● | ● | ● | 19 | *2-G-T-...* | ● | ● | ● |
| 3 | 25 | 24–20* | 25×18×160 | *3-GH* | ● | 41 | 4 | 17 | *3-G-N-...* | ● | ● | ● | ● | ● | 24 | *3-G-T-...* | ● | ● | ● |
| 4 | 30 | 29–25* | 30×21×180 | *4-GH* | ● | 50 | 4.5 | 23.5 | *4-G-N-...* | ● | ● | ● | ● | ● | 33.5 | *4-G-T-...* | ● | ● | ● |
| 5 | 36 | 35–30* | 36×25×200 | *5-GH* | ● | 60 | 5.5 | 30 | *5-G-N-...* | ● | ● | ○ | ● | ● | 40 | *5-G-T-...* | ● | ● | ○ |

▲ Please indicate here the alloy or grade of carbide required ▲

* When requiring intermediate measures, please indicate height of center or of shank (quick change tool posts), e.g. 4-FH-h.-center 28 or 4-FH-h.-shank 28.



# Parting Tool Holder GHS




This toolholder is specifically designed for use on old machines which lack rigidity. The cutting edge of the blade faces downwards and parts with workpiece rotating in the opposite direction to normal.

How to order (example): 1 piece 4-GHS

| Size | For height of centers above tool rest mm | | Holder GHS Measurements H×B×L | Code number | Avail-ability | Cutters for use on holder GHS Length | B $^{+0}_{-0,5}$ | T | Code number | Normal depth Availability | | | | | T | Code number | Extra depth Availability | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | normal | relieved | mm | | | mm | mm | mm | | Kob | Rap | TiN | K10 | P30 | mm | | Kob | Rap | TiN |
| 1 | 14 | 13–12* | 16×12×120 | *1-GHS* | ● | 25 | 3 | 11 | *1-G-N-...* | ● | ● | ● | ● | ● | 16 | *1-G-T-...* | ● | ● | ● |
| 2 | 16 | 15–14* | 20×15×140 | *2-GHS* | ● | 32 | 3.5 | 14 | *2-G-N-...* | ● | ● | ● | ● | ● | 19 | *2-G-T-...* | ● | ● | ● |
| 3 | 18 | 17–16* | 25×18×160 | *3-GHS* | ● | 41 | 4 | 17 | *3-G-N-...* | ● | ● | ● | ● | ● | 24 | *3-G-T-...* | ● | ● | ● |

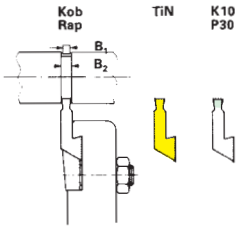
▲ Please indicate here the alloy or grade of carbide required ▲

* When requiring intermediate measures, please indicate height of center or of shank (quick change tool posts), e.g. 1-GHS-h.-center 12 or 1-GHS-h.-shank 12.

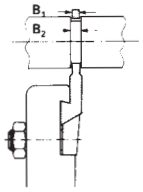
Availability: ● ex stock / ○ within short notice

# FSE – GSE

## Circlip Groove Cutters FSE and GSE of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips for circlip grooves according to DIN 472




Holder type F
Cutting type FSE
(righthand)




Holder type G
Cutting type GSE
(lefthand)

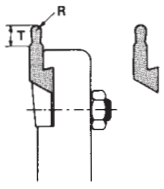
How to order (example): 5 pieces 3-FSE-2.5-Kob.

| Circlip thickn. $B_1$ mm | Width $B_2-H_{13}$ of groove mm | Size | 1 | | | | | | 2 | | | | | | 3 | | | | | | 4 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Length of cutter in mm | 27 | | | | | | 33 | | | | | | 40 | | | | | | 48 | | | | | |
| | | | Code number | Availability Kob | Rap | TiN | K10 | P30 | Code number | Availability Kob | Rap | TiN | K10 | P30 | Code number | Availability Kob | Rap | TiN | K10 | P30 | Code number | Availability Kob | Rap | TiN | K10 | P30 |
| | | Holder (Meas. p. 27) | *1/12-FH* | ● | | | | | — | | | | | | — | | | | | | — | | | | | |
| | | | *1-FH* | ● | | | | | *2-FH* | ● | | | | | *3-FH* | ● | | | | | *4-FH* | ● | | | | |
| 0.8 | 0.9 | Circlip groove cutter | *1-FSE-0.8-...* | | ● | ● | ● | ● | ● | *2-FSE-0.8-...* | | ● | ● | ● | ● | ● | *3-FSE-0.8-...* | | ● | ● | ● | ● | ● | — | | | | | |
| 1.0 | 1.1 | | *1-FSE-1.0-...* | | ● | ● | ● | ● | ● | *2-FSE-1.0-...* | | ● | ● | ● | ● | ● | *3-FSE-1.0-...* | | ● | ● | ● | ● | ● | *4-FSE-1.0-...* | | ● | ● | ● | ● | ● |
| 1.2 | 1.3 | | *1-FSE-1.2-...* | | ● | ● | ● | ● | ● | *2-FSE-1.2-...* | | ● | ● | ● | ● | ● | *3-FSE-1.2-...* | | ● | ● | ● | ● | ● | *4-FSE-1.2-...* | | ● | ● | ● | ● | ● |
| 1.5 | 1.6 | | *1-FSE-1.5-...* | | ● | ● | ● | ● | ● | *2-FSE-1.5-...* | | ● | ● | ● | ● | ● | *3-FSE-1.5-...* | | ● | ● | ● | ● | ● | *4-FSE-1.5-...* | | ● | ● | ● | ● | ● |
| 1.75 | 1.85 | | *1-FSE-1.75-...* | | ● | ● | ● | ● | ● | *2-FSE-1.75-...* | | ● | ● | ● | ● | ● | *3-FSE-1.75-...* | | ● | ● | ● | ● | ● | *4-FSE-1.75-...* | | ● | ● | ● | ● | ● |
| 2.0 | 2.15 | | *1-FSE-2.0-...* | | ● | ● | ● | ● | ● | *2-FSE-2.0-...* | | ● | ● | ● | ● | ● | *3-FSE-2.0-...* | | ● | ● | ● | ● | ● | *4-FSE-2.0-...* | | ● | ● | ● | ● | ● |
| 2.5 | 2.65 | | — | | | | | | *2-FSE-2.5-...* | | ● | ● | ● | ● | ● | *3-FSE-2.5-...* | | ● | ● | ● | ● | ● | *4-FSE-2.5-...* | | ● | ● | ● | ● | ● |
| 3.0 | 3.15 | | — | | | | | | — | | | | | | *3-FSE-3.0-...* | | ● | ● | ● | ● | ● | *4-FSE-3.0-...* | | ● | ● | ● | ● | ● |
| 4.0 | 4.15 | | — | | | | | | — | | | | | | — | | | | | | *4-FSE-4.0-...* | | ● | ● | ● | ● | ● |
| | | Holder (Meas. p. 27) | *1/12-GH* | ● | | | | | — | | | | | | — | | | | | | — | | | | | |
| | | | *1-GH* | ● | | | | | *2-GH* | ● | | | | | *3-GH* | ● | | | | | *4-GH* | ● | | | | |
| 0.8 | 0.9 | Circlip groove cutter | *1-GSE-0.8-...* | | ○ | ○ | ○ | ○ | ○ | *2-GSE-0.8-...* | | ○ | ○ | ○ | ○ | ○ | *3-GSE-0.8-...* | | ○ | ○ | ○ | ○ | ○ | — | | | | | |
| 1.0 | 1.1 | | *1-GSE-1.0-...* | | ○ | ○ | ○ | ○ | ○ | *2-GSE-1.0-...* | | ○ | ○ | ○ | ○ | ○ | *3-GSE-1.0-...* | | ○ | ○ | ○ | ○ | ○ | *4-GSE-1.0-...* | | ○ | ○ | ○ | ○ | ○ |
| 1.2 | 1.3 | | *1-GSE-1.2-...* | | ○ | ○ | ○ | ○ | ○ | *2-GSE-1.2-...* | | ○ | ○ | ○ | ○ | ○ | *3-GSE-1.2-...* | | ○ | ○ | ○ | ○ | ○ | *4-GSE-1.2-...* | | ○ | ○ | ○ | ○ | ○ |
| 1.5 | 1.6 | | *1-GSE-1.5-...* | | ○ | ○ | ○ | ○ | ○ | *2-GSE-1.5-...* | | ○ | ○ | ○ | ○ | ○ | *3-GSE-1.5-...* | | ○ | ○ | ○ | ○ | ○ | *4-GSE-1.5-...* | | ○ | ○ | ○ | ○ | ○ |
| 1.75 | 1.85 | | *1-GSE-1.75-...* | | ○ | ○ | ○ | ○ | ○ | *2-GSE-1.75-...* | | ○ | ○ | ○ | ○ | ○ | *3-GSE-1.75-...* | | ○ | ○ | ○ | ○ | ○ | *4-GSE-1.75-...* | | ○ | ○ | ○ | ○ | ○ |
| 2.0 | 2.15 | | *1-GSE-2.0-...* | | ○ | ○ | ○ | ○ | ○ | *2-GSE-2.0-...* | | ○ | ○ | ○ | ○ | ○ | *3-GSE-2.0-...* | | ○ | ○ | ○ | ○ | ○ | *4-GSE-2.0-...* | | ○ | ○ | ○ | ○ | ○ |
| 2.5 | 2.65 | | — | | | | | | *2-GSE-2.5-...* | | ○ | ○ | ○ | ○ | ○ | *3-GSE-2.5-...* | | ○ | ○ | ○ | ○ | ○ | *4-GSE-2.5-...* | | ○ | ○ | ○ | ○ | ○ |
| 3.0 | 3.15 | | — | | | | | | — | | | | | | *3-GSE-3.0-...* | | ○ | ○ | ○ | ○ | ○ | *4-GSE-3.0-...* | | ○ | ○ | ○ | ○ | ○ |
| 4.0 | 4.15 | | — | | | | | | — | | | | | | — | | | | | | *4-GSE-4.0-...* | | ○ | ○ | ○ | ○ | ○ |

Please indicate here alloy or grade of carbide required ▲ ▲ ▲ ▲

# FR

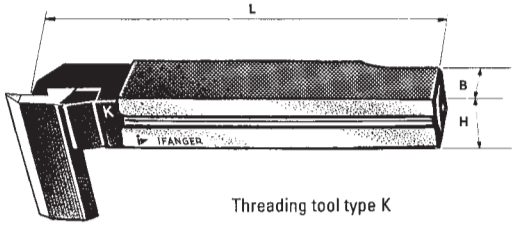
## Groove cutters with radius and clearance in all directions




| Size | to be used on holder (measurements on page 27) | Radius R mm | Cutter Grooving depth T mm | Code number | Availability |
|---|---|---|---|---|---|
| 1 | 1/12-FH | 1.25 | 5 | *1-FR-Rap* | ● |
| 1 | 1-FH | 1.25 | 5 | *1-FR-Rap* | ● |
| 2 | 2-FH | 1.5 | 7 | *2-FR-Rap* | ● |
| 3 | 3-FH | 1.75 | 9 | *3-FR-Rap* | ● |

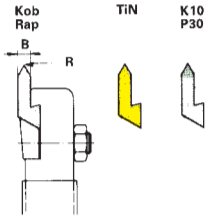
Availability: ● ex stock / ○ within short notice

# Threading Tools K and L of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips

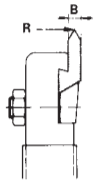



Threading tool type K

**Thread at 60°**




Type K (righthand)




Type L (lefthand)

**Please note:**
Type L only indicates the position of the cutter in the holder, but **not** the direction of thread to be cut. Direction of thread is determined by the inclination of the **toolholder KH or LH** in the sleeve.

How to order (example): 10 pieces 2-K60-N-Kob. (Original box of 5 pieces)

| Size | For height of centers above tool rest mm | Holder Measurem. H×B×L mm | Holder Code number | Holder Avail-ability | Cutter 60° normal width Length mm | HSS+TiN B=max. pitch mm | K10+P30 B=max. pitch mm | $R^{+0.05}_{0}$ | Code number | Availability Kob | Rap | TiN | K10 | P30 | Cutter 60° extra width B mm | max. pitch mm | $R^{+0.05}_{0}$ | Code number | Avail-ability Kob | TiN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type K** | | | | | | | | | | | | | | | | | | | | |
| 0 | 13–10 | 16×12×100 | *0-KH* | ● | 40 | 2.5 | 3 | 0.07 | *0/1-K60-N-...* | ● | ● | ● | ● | ● | 3.5 | 3.5 | 0.3 | *0/1-K60-E-...* | ● | ● |
| 1 | 17–14 | 18×15×110 | *1-KH* | ● | 40 | 2.5 | 3 | 0.07 | *0/1-K60-N-...* | ● | ● | ● | ● | ● | 3.5 | 3.5 | 0.3 | *0/1-K60-E-...* | ● | ● |
| 2 | 22–18 | 20×18×140 | *2-KH* | ● | 50 | 3 | 3.5 | 0.1 | *2-K60-N-...* | ● | ● | ● | ● | ● | 4.5 | 4.5 | 0.35 | *2-K60-E-...* | ● | ● |
| 3 | 27–23 | 25×22×160 | *3-KH* | ● | 60 | 3.5 | 4.5 | 0.12 | *3-K60-N-...* | ● | ● | ● | ● | ● | 5.5 | 5.5 | 0.45 | *3-K60-E-...* | ● | ● |
| 4 | 33–28 | 32×25×180 | *4-KH* | ● | 70 | 4.5 | 5.5 | 0.2 | *4-K60-N-...* | ● | ● | ● | ● | ● | 6.5 | 6.5 | 0.6 | *4-K60-E-...* | ● | ● |
| 5 | 37–34 | 36×28×200 | *5-KH* | ● | 80 | 5.5 | 6.5 | 0.2 | *5-K60-N-...* | ● | ● | ○ | ● | ● | 8.5 | 8.5 | 0.75 | *5-K60-E-...* | ● | ○ |
| **Type L** | | | | | | | | | | | | | | | | | | | | |
| 0 | 13–10 | 16×12×100 | *0-LH* | ● | 40 | 2.5 | 3 | 0.07 | *0/1-L60-N-...* | ● | | ● | ● | ● | 3.5 | 3.5 | 0.3 | *0/1-L60-E-...* | ○ | ○ |
| 1 | 17–14 | 18×15×110 | *1-LH* | ● | 40 | 2.5 | 3 | 0.07 | *0/1-L60-N-...* | ● | | ● | ● | ● | 3.5 | 3.5 | 0.3 | *0/1-L60-E-...* | ○ | ○ |
| 2 | 22–18 | 20×18×140 | *2-LH* | ● | 50 | 3 | 3.5 | 0.1 | *2-L60-N-...* | ● | | ● | ● | ● | 4.5 | 4.5 | 0.35 | *2-L60-E-...* | ○ | ○ |
| 3 | 27–23 | 25×22×160 | *3-LH* | ● | 60 | 3.5 | 4.5 | 0.12 | *3-L60-N-...* | ● | | ● | ● | ● | 5.5 | 5.5 | 0.45 | *3-L60-E-...* | ○ | ○ |
| 4 | 33–28 | 32×25×180 | *4-LH* | ● | 70 | 4.5 | 5.5 | 0.2 | *4-L60-N-...* | ● | | ● | ● | ● | 6.5 | 6.5 | 0.6 | *4-L60-E-...* | ○ | ○ |
| 5 | 37–34 | 36×28×200 | *5-LH* | ● | 80 | 5.5 | 6.5 | 0.2 | *5-L60-N-...* | ● | | ○ | ● | ● | 8.5 | 8.5 | 0.75 | *5-L60-E-...* | ○ | ○ |

▲ Please indicate here alloy or grade of carbide required ▲

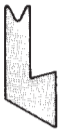
**ISO threads at 60°:**
On request the 60° thread cutters are also available with radius for metric bolt threads ISO. In case of such requirement, please, indicate pitch of thread.

**Thread at 55°**

| Size | For height of centers above tool rest mm | Holder Measurem. H×B×L mm | Holder Code number | Holder Avail-ability | Cutter 55° normal width Length mm | HSS+TiN B mm | HSS+TiN max. pitch TPI | K10+P30 B mm | K10+P30 max. pitch TPI | $R^{+0.05}_{0}$ | Code number | Availability Kob | Rap | TiN | K10 | P30 | Cutter 55° extra width B mm | max. pitch TPI | $R^{+0.1}_{0}$ | Code number | Avail-ability Kob | TiN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type K** | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 13–10 | 16×12×100 | *0-KH* | ● | 40 | 2.5 | 11 | 3 | 9 | 0.07 | *0/1-K55-N-...* | ● | ● | ● | ● | ● | 3.5 | 8 | 0.3 | *0/1-K55-E-...* | ● | ● |
| 1 | 17–14 | 18×15×110 | *1-KH* | ● | 40 | 2.5 | 11 | 3 | 9 | 0.07 | *0/1-K55-N-...* | ● | ● | ● | ● | ● | 3.5 | 8 | 0.3 | *0/1-K55-E-...* | ● | ● |
| 2 | 22–18 | 20×18×140 | *2-KH* | ● | 50 | 3 | 9 | 3.5 | 8 | 0.1 | *2-K55-N-...* | ● | ● | ● | ● | ● | 4.5 | 6 | 0.35 | *2-K55-E-...* | ● | ● |
| 3 | 27–23 | 25×22×160 | *3-KH* | ● | 60 | 3.5 | 8 | 4.5 | 6 | 0.12 | *3-K55-N-...* | ● | ● | ● | ● | ● | 5.5 | 5 | 0.45 | *3-K55-E-...* | ● | ● |
| 4 | 33–28 | 32×25×180 | *4-KH* | ● | 70 | 4.5 | 6 | 5.5 | 5 | 0.2 | *4-K55-N-...* | ● | ● | ● | ● | ● | 6.5 | 4 | 0.6 | *4-K55-E-...* | ● | ● |
| 5 | 37–34 | 36×28×200 | *5-KH* | ● | 80 | 5.5 | 5 | 6.5 | 4 | 0.2 | *5-K55-N-...* | ● | ● | ○ | ● | ● | 8.5 | 3 | 0.75 | *5-K55-E-...* | ● | ○ |
| **Type L** | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 13–10 | 16×12×100 | *0-LH* | ● | 40 | 2.5 | 11 | 3 | 9 | 0.07 | *0/1-L55-N-...* | ● | | ● | ● | ● | 3.5 | 8 | 0.3 | *0/1-L55-E-...* | ○ | ○ |
| 1 | 17–14 | 18×15×110 | *1-LH* | ● | 40 | 2.5 | 11 | 3 | 9 | 0.07 | *0/1-L55-N-...* | ● | | ● | ● | ● | 3.5 | 8 | 0.3 | *0/1-L55-E-...* | ○ | ○ |
| 2 | 22–18 | 20×18×140 | *2-LH* | ● | 50 | 3 | 9 | 3.5 | 8 | 0.1 | *2-L55-N-...* | ● | | ● | ● | ● | 4.5 | 6 | 0.35 | *2-L55-E-...* | ○ | ○ |
| 3 | 27–23 | 25×22×160 | *3-LH* | ● | 60 | 3.5 | 8 | 4.5 | 6 | 0.12 | *3-L55-N-...* | ● | | ● | ● | ● | 5.5 | 5 | 0.45 | *3-L55-E-...* | ○ | ○ |
| 4 | 33–28 | 32×25×180 | *4-LH* | ● | 70 | 4.5 | 6 | 5.5 | 5 | 0.2 | *4-L55-N-...* | ● | | ● | ● | ● | 6.5 | 4 | 0.6 | *4-L55-E-...* | ○ | ○ |
| 5 | 37–34 | 36×28×200 | *5-LH* | ● | 80 | 5.5 | 5 | 6.5 | 4 | 0.2 | *5-L55-N-...* | ● | | ○ | ● | ● | 8.5 | 3 | 0.75 | *5-L55-E-...* | ○ | ○ |

▲ Please indicate here alloy or grade of carbide required ▲

## Special Thread Cutters



Full profile cutters for usual pitches on threads of 60° or 55° partly available ex stock.

## Cutter KRU of HSS-CO (Kob), for cutting round threads acc. to DIN 405

**KRU**

**Cutter KRU**
(righthand)

How to order (example): 5 pieces 2-KRU-8G-Kob.

| Pitch TPI | Size | 2 Code number | 2 Avail-ability | 3 Code number | 3 Avail-ability | 4 Code number | 4 Avail-ability |
|---|---|---|---|---|---|---|---|
| | Length of cutter | 50 mm | | 60 mm | | 70 mm | |
| Pitch TPI | Holder Measurements | 2-KH 20×18×140 | ● | 3-KH 25×22×160 | ● | 4-KH 32×25×180 | ● |
| 10 | Round thread cutter | *2-KRU-10G-Kob* | ● | *3-KRU-10G-Kob* | ● | | |
| 8 | | *2-KRU-8G-Kob* | ● | *3-KRU-8G-Kob* | ● | *4-KRU-8G-Kob* | ● |
| 6 | | *2-KRU-6G-Kob* | ● | *3-KRU-6G-Kob* | ● | *4-KRU-6G-Kob* | ● |
| 4 | | | | *3-KRU-4G-Kob* | ● | *4-KRU-4G-Kob* | ● |

Availability: ● ex stock / ○ within short notice

# K/L30

## Trapezoidal Thread Cutters K30 and L30 of HSS-CO (Kob), TiN-coated and with Carbide Tips

(Table at top)

Cutter K30 (righthand)

Cutter L30 (lefthand)

How to order (example): 5 pieces 3-K30-7-P30

| Pitch mm | Size | 0/1 | | | 2 | | | 3 | | | 4 | | | 5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Length of cutter | 40 mm | | | 50 mm | | | 60 mm | | | 70 mm | | | 80 mm | | |
| | | B mm | Code number | Availability | B mm | Code number | Availability | B mm | Code number | Availability | B mm | Code number | Availability | B mm | Code number | Availability |
| | Holder (Meas. p. 29) | | 0-KH<br>1-KH | ●<br>● | | 2-KH | ● | | 3-KH | ● | | 4-KH | ● | | 5-KH | ● |
| 2 | Cutter for trapezoidal threads 30° | 2.5 | 0/1-K30-2-... | ●○●● | 3 | 2-K30-2-... | ●○●● | 3.5 | 3-K30-2-... | ●○●● | | | | | | |
| 3 | | 2.5 | 0/1-K30-3-... | ●○●● | 3 | 2-K30-3-... | ●○●● | 3.5 | 3-K30-3-... | ●○●● | 4.5 | 4-K30-3-... | ●○●● | | | |
| 4 | | 3.5 | 0/1-K30-4-... | ●○●● | 3 | 2-K30-4-... | ●○●● | 3.5 | 3-K30-4-... | ●○●● | 4.5 | 4-K30-4-... | ●○●● | | | |
| 5 | | 3.5 | 0/1-K30-5-... | ●○●● | 4.5 | 2-K30-5-... | ●○●● | 3.5 | 3-K30-5-... | ●○●● | 4.5 | 4-K30-5-... | ●○●● | 5.5 | 5-K30-5-... | ●○●● |
| 6 | | | | | 4.5 | 2-K30-6-... | ●○●● | 5.5 | 3-K30-6-... | ●○●● | 4.5 | 4-K30-6-... | ●○●● | 5.5 | 5-K30-6-... | ●○●● |
| 7 | | | | | | | | 5.5 | 3-K30-7-... | ●○●● | 6.5 | 4-K30-7-... | ●○●● | 5.5 | 5-K30-7-... | ●○●● |
| 8 | | | | | | | | 5.5 | 3-K30-8-... | ●○●● | 6.5 | 4-K30-8-... | ●○●● | 5.5 | 5-K30-8-... | ●○●● |
| 9 | | | | | | | | | | | 6.5 | 4-K30-9-... | ●○●● | 8.5 | 5-K30-9-... | ●○●● |
| 10 | | | | | | | | | | | | | | 8.5 | 5-K30-10-... | ●○●● |
| 12 | | | | | | | | | | | | | | 8.5 | 5-K30-12-... | ●○●● |
| | Holder (Meas. p. 29) | | 0-LH<br>1-LH | ●<br>● | | 2-LH | ● | | 3-LH | ● | | 4-LH | ● | | 5-LH | ● |
| 2 | Cutter for trapezoidal threads 30° | 2.5 | 0/1-L30-2-... | ○○○○ | 3 | 2-L30-2-... | ○○○○ | 3.5 | 3-L30-2-... | ○○○○ | | | | | | |
| 3 | | 2.5 | 0/1-L30-3-... | ○○○○ | 3 | 2-L30-3-... | ○○○○ | 3.5 | 3-L30-3-... | ○○○○ | 4.5 | 4-L30-3-... | ○○○○ | | | |
| 4 | | 3.5 | 0/1-L30-4-... | ○○○○ | 3 | 2-L30-4-... | ○○○○ | 3.5 | 3-L30-4-... | ○○○○ | 4.5 | 4-L30-4-... | ○○○○ | | | |
| 5 | | 3.5 | 0/1-L30-5-... | ○○○○ | 4.5 | 2-L30-5-... | ○○○○ | 3.5 | 3-L30-5-... | ○○○○ | 4.5 | 4-L30-5-... | ○○○○ | 5.5 | 5-L30-5-... | ○○○○ |
| 6 | | | | | 4.5 | 2-L30-6-... | ○○○○ | 5.5 | 3-L30-6-... | ○○○○ | 4.5 | 4-L30-6-... | ○○○○ | 5.5 | 5-L30-6-... | ○○○○ |
| 7 | | | | | | | | 5.5 | 3-L30-7-... | ○○○○ | 6.5 | 4-L30-7-... | ○○○○ | 5.5 | 5-L30-7-... | ○○○○ |
| 8 | | | | | | | | 5.5 | 3-L30-8-... | ○○○○ | 6.5 | 4-L30-8-... | ○○○○ | 5.5 | 5-L30-8-... | ○○○○ |
| 9 | | | | | | | | | | | 6.5 | 4-L30-9-... | ○○○○ | 8.5 | 5-L30-9-... | ○○○○ |
| 10 | | | | | | | | | | | | | | 8.5 | 5-L30-10-... | ○○○○ |
| 12 | | | | | | | | | | | | | | 8.5 | 5-L30-12-... | ○○○○ |

Please indicate here alloy required ▲ ▲ ▲ ▲ ▲

On request we are also producing cutters for trapezoidal threads of larger pitches or ACME.

# K/L180

## Square Thread Cutters K180 and L180 of HSS-CO (Kob), TiN-coated and with Carbide Tips

(Table at bottom)

Cutter K180 (righthand)

Cutter L180 (lefthand)

How to order (example): 5 pieces 2-K180-5-Kob.

| Pitch mm | Size | 0/1 | | | 2 | | | 3 | | | 4 | | | 5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Length of cutter | 27 mm | | | 33 mm | | | 40 mm | | | 48 mm | | | 55 mm | | |
| | | B mm | Code number | Availability | B mm | Code number | Availability | B mm | Code number | Availability | B mm | Code number | Availability | B mm | Code number | Availability |
| | Holder (Meas. p. 29) | | 0-KH<br>1-KH | ●<br>● | | 2-KH | ● | | 3-KH | ● | | 4-KH | ● | | 5-KH | ● |
| 2 | Cutters for square threads 180° | 2.5 | 0/1-K180-2-... | ●○●● | 3 | 2-K180-2-... | ●○●● | | | | | | | | | |
| 3 | | 2.5 | 0/1-K180-3-... | ●○●● | 3 | 2-K180-3-... | ●○●● | 3.5 | 3-K180-3-... | ●○● | | | | | | |
| 4 | | 2.5 | 0/1-K180-4-... | ●○●● | 3 | 2-K180-4-... | ●○●● | 3.5 | 3-K180-4-... | ●○● | 4.5 | 4-K180-4-... | ●○●● | | | |
| 5 | | | | | 3 | 2-K180-5-... | ●○●● | 3.5 | 3-K180-5-... | ●○● | 4.5 | 4-K180-5-... | ●○●● | 5.5 | 5-K180-5-... | ●○●● |
| 6 | | | | | | | | 3.5 | 3-K180-6-... | ●○● | 4.5 | 4-K180-6-... | ●○●● | 5.5 | 5-K180-6-... | ●○●● |
| 7 | | | | | | | | | | | 4.5 | 4-K180-7-... | ●○●● | 5.5 | 5-K180-7-... | ●○●● |
| 8 | | | | | | | | | | | 4.5 | 4-K180-8-... | ●○●● | 5.5 | 5-K180-8-... | ●○●● |
| 9 | | | | | | | | | | | | | | 5.5 | 5-K180-9-... | ●○●● |
| 10 | | | | | | | | | | | | | | 5.5 | 5-K180-10-... | ●○●● |
| | Holder (Meas. p. 29) | | 0-LH<br>1-LH | ●<br>● | | 2-LH | ● | | 3-LH | ● | | 4-LH | ● | | 5-LH | ● |
| 2 | Cutters for square threads 180° | 2.5 | 0/1-L180-2-... | ○○○○ | 3 | 2-L180-2-... | ○○○○ | | | | | | | | | |
| 3 | | 2.5 | 0/1-L180-3-... | ○○○○ | 3 | 2-L180-3-... | ○○○○ | 3.5 | 3-L180-3-... | ○○○○ | | | | | | |
| 4 | | 2.5 | 0/1-L180-4-... | ○○○○ | 3 | 2-L180-4-... | ○○○○ | 3.5 | 3-L180-4-... | ○○○○ | 4.5 | 4-L180-4-... | ○○○○ | | | |
| 5 | | | | | 3 | 2-L180-5-... | ○○○○ | 3.5 | 3-L180-5-... | ○○○○ | 4.5 | 4-L180-5-... | ○○○○ | 5.5 | 5-L180-5-... | ○○○○ |
| 6 | | | | | | | | 3.5 | 3-L180-6-... | ○○○○ | 4.5 | 4-L180-6-... | ○○○○ | 5.5 | 5-L180-6-... | ○○○○ |
| 7 | | | | | | | | | | | 4.5 | 4-L180-7-... | ○○○○ | 5.5 | 5-L180-7-... | ○○○○ |
| 8 | | | | | | | | | | | 4.5 | 4-L180-8-... | ○○○○ | 5.5 | 5-L180-8-... | ○○○○ |
| 9 | | | | | | | | | | | | | | 5.5 | 5-L180-9-... | ○○○○ |
| 10 | | | | | | | | | | | | | | 5.5 | 5-L180-10-... | ○○○○ |

Please indicate here alloy required ▲ ▲ ▲ ▲ ▲

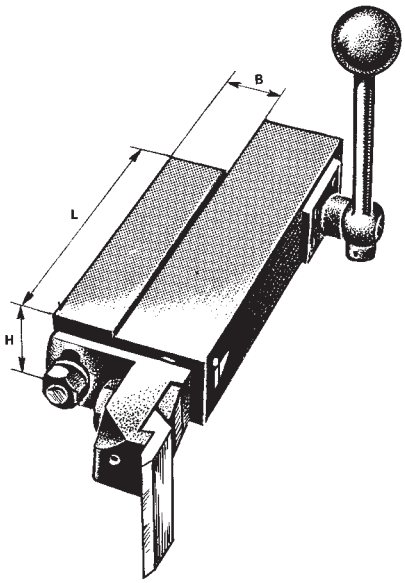
On request we are also producing cutters for square threads of larger pitches or TPI.

Availability: ● ex stock / ○ within short notice



IFANGER CH-8610 USTER PHONE 044 943 16 16 FAX 044 943 16 17 www.ifanger.com

## Special Threading Tool Holder RS




This holder permits to cut threads at a high number of revolutions. This is due to the fact that the cutter can be withdrawn instantly at any time.
Moreover, feed is given during return of tool. All cutter K can be used on these holders.

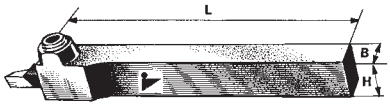
How to order (example): 1 piece 2-RS

| Size | For height of centers above tool rest mm | Measurements of clamping block h×b×l mm | Code number | Availability | Stroke mm |
|---|---|---|---|---|---|
| 2 | 18 | 20×19× 80 | *2-RS* | ● | 4 |
| 3 | 24 | 30×20× 89 | *3-RS* | ● | 4 |
| 4 | 26 | 32×23×100 | *4-RS* | ● | 6 |

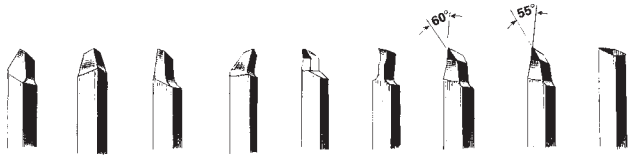
## Small Tools S

S

for all turning on bench lathes with height of centers of 8 mm and more.




Small tool type S




How to order (example): 1 piece SH
10 pieces S60

| Holder Measurements H×B×L mm | Code number | Sundry Rapid bits, 6×6×50 mm, code number Roughing right | Roughing left | Side cutting right | Side cutting left | Finishing | Parting off | Threading 60° 55° | without profile |
|---|---|---|---|---|---|---|---|---|---|
| 13×10×95 | *SH* | *S-A* | *S-B* | *S-D* | *S-E* | *S-P* | *S-F* | *S60 S55* | *S-O* |
| Availability | ● | ● | ● | ● | ● | ● | ● | ● | ● |

## Wrenches CLE for IFANGER Tool Holders

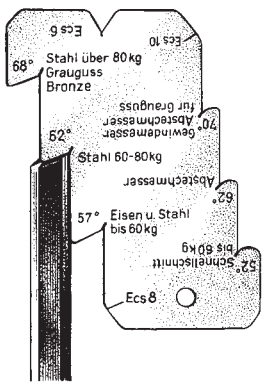
CLE

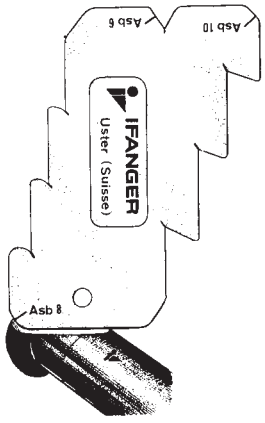
How to order (example): 5 pieces CLE-11

| For holder of size no. | 0.1/12+1 | 2 | 3 | 4–6 |
|---|---|---|---|---|
| Spanner opening mm | 11 | 13 | 16 | 20 |
| Code number | *CLE-11* | *CLE-13* | *CLE-16* | *CLE-20* |
| Availability | ● | ● | ● | ● |

## Universal Grinding Gauge SL for Boring and Turning Tools (same page 21)

SL




– only one grinding gauge for all IFANGER boring and turning tools

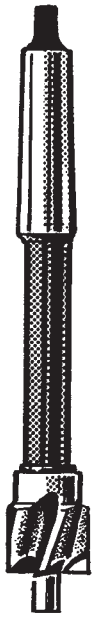
– indispensable for correct and accurate grinding of IFANGER boring and turning tools

How to order (example): 1 piece SL-D

| Grinding gauge | Marking German | Marking French | Marking English |
|---|---|---|---|
| Code number | *SL-D* | *SL-F* | *SL-E* |
| Availability | ● | ● | ● |

Availability: ● ex stock

# IFANGER Counterbore and Countersink Tools



**Advantages of the system**

– unlimited possibilities of combination between cutter, shank and pilot
– all parts hardened
– only the cutter to be replaced after being used up
– easy resharpening of the cutters by screwing-out the hindering pilot and the long shank
– cutters to be resharpened only on the front cutting edge

**How to use IFANGER counterbore and countersink tools**

In order to achieve the best results when using IFANGER counterbore and countersink tools it is recommended to use a high number of revolutions and a small feed.

For counterbore tools up to 20 mm ∅, the **feed** per revolution should **not exceed 0.05 mm.**

For mass production in soft metal, copper, brass, etc., counterbore tools with corresponding cutting angles are available.

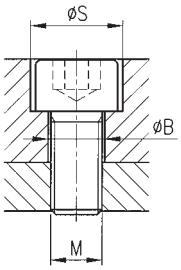
The detachable pilots are always ground below the nominal dimension of the bore in the piece to be machined. Therefore, please, watch that there always is play for the hardened pilot of the counterbore tool in the rough drilled bore and that the pilot never jams in it.

When the pilot used is of equal diameter or only slightly larger than its thread it is recommended to place a distance sink bolt into the counterbore cutter between the shank and the pilot. (Ask for these bolts!)

Counterbore and countersink tools have to be resharpened on a mechanical sharpening machine. Therefore, if not adequately equipped, it is recommended to send the tools to the producer or to a sharpening shop, when resharpening is required.

| Material to be machined | Alloy of counterbore cutter | m/min | Recommended number of revolutions (rev/min) for counterbore cutter of ... diameter | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 7 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 25 | 27 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| Steel | Rapid | 25 | 1140 | 990 | 800 | 660 | 570 | 500 | 440 | 400 | 360 | 320 | 290 | 270 | 230 | 200 | 180 | 160 | 140 | 130 |
| | TiN | 40 | 1820 | 1590 | 1270 | 1060 | 910 | 800 | 710 | 640 | 580 | 510 | 470 | 420 | 360 | 320 | 280 | 250 | 230 | 210 |
| Cast Iron | Rapid | 20 | 910 | 800 | 640 | 530 | 450 | 400 | 350 | 320 | 290 | 250 | 240 | 210 | 180 | 160 | 140 | 130 | 120 | 110 |
| | TiN | 35 | 1590 | 1390 | 1110 | 930 | 800 | 700 | 620 | 560 | 510 | 450 | 410 | 370 | 320 | 280 | 250 | 220 | 200 | 190 |
| | Carbide tip. | 60 | – | – | 1910 | 1590 | 1360 | 1190 | 1060 | 950 | 870 | 760 | 710 | 640 | 550 | 480 | 420 | 380 | 350 | 320 |
| Aluminium Copper | Rapid | 80 | 3640 | 3180 | 2550 | 2120 | 1820 | 1590 | 1410 | 1270 | 1160 | 1020 | 940 | 850 | 730 | 640 | 570 | 510 | 460 | 420 |
| | TiN | 130 | 5910 | 5170 | 4140 | 3450 | 2960 | 2590 | 2300 | 2070 | 1880 | 1660 | 1530 | 1380 | 1180 | 1030 | 920 | 830 | 750 | 690 |
| | Carbide tip. | 300 | – | – | 9550 | 7960 | 6820 | 5970 | 5310 | 4770 | 4340 | 3820 | 3540 | 3180 | 2730 | 2390 | 2120 | 1910 | 1740 | 1590 |
| Brass | Rapid | 45 | 2050 | 1790 | 1430 | 1190 | 1020 | 900 | 800 | 720 | 650 | 570 | 530 | 480 | 410 | 360 | 320 | 290 | 260 | 240 |
| | TiN | 80 | 3640 | 3180 | 2550 | 2120 | 1820 | 1590 | 1410 | 1270 | 1160 | 1020 | 940 | 850 | 730 | 640 | 570 | 510 | 460 | 420 |
| | Carbide tip. | 150 | – | – | 4770 | 3980 | 3410 | 2980 | 2650 | 2390 | 2170 | 1910 | 1770 | 1590 | 1360 | 1190 | 1060 | 950 | 870 | 800 |

# Standardizing Table of Counterbores and Countersinks for Screw Heads

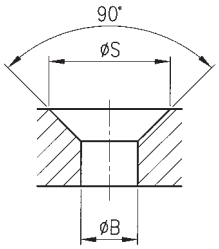



**Flat counterbores according to DIN 974-1**

| ∅ M of thread | M2 | M2,5 | M3 | M4 | M5 | M6 | M8 | M10 | M12 | M16 | M20 | M24 | M30 | M36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ∅ S mm of bore | 4,4 | 5,5 | 6,5 | 8 | 10 | 11 | 15 | 18 | 20 | 26 | 33 | 40 | 50 | 58 |
| ∅ B mm of passing bore fine | 2,2 | 2,7 | 3,2 | 4,3 | 5,3 | 6,4 | 8,4 | 10,5 | 13 | 17 | 21 | 25 | – | – |
| ∅ B mm of passing bore medium | 2,4 | 2,9 | 3,4 | 4,5 | 5,5 | 6,6 | 9 | 11 | 13,5 | 17,5 | 22 | 26 | 33 | 39 |

**Flat counterbores according to SN 213.183**

| ∅ M of thread | M2 | M2,5 | M3 | M4 | M5 | M6 | M8 | M10 | M12 | M16 | M20 | M24 | M30 | M36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ∅ S mm of bore | 4,3 | 5 | 6 | 8 | 10 | 11 | 15 | 18 | 20 | 26 | 33 | 40 | 48 | 57 |
| ∅ B mm of passing bore fine | 2,6 | 3,1 | 3,6 | 4,8 | 5,8 | 7 | 9 | 11 | 13,5 | 17,5 | 22 | 26 | 33 | 39 |




**90° countersinks according to DIN 66**

| ∅ M of thread | M2 | M2,5 | M3 | M4 | M5 | M6 | M8 | M10 | M12 | M16 | M20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ∅ S mm of bore | 4,4 | 5,5 | 6,3 | 9,4 | 10,4 | 12,6 | 17,3 | 20 | 24 | 32 | 40 |
| ∅ B mm of passing bore | 2,4 | 2,9 | 3,4 | 4,5 | 5,5 | 6,6 | 9 | 11 | 13,5 | 17,5 | 22 |

**90° countersinks for screws with hexagon socket according to DIN 74-1**

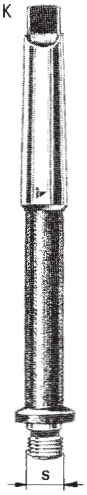
| ∅ M of thread | M3 | M4 | M5 | M6 | M8 | M10 | M12 | M16 | M20 |
|---|---|---|---|---|---|---|---|---|---|
| ∅ S mm of bore | 7,5 | 10 | 12,5 | 14,5 | 19 | 23,5 | 28 | 35 | 41,5 |
| ∅ B mm of passing bore | 3,4 | 4,5 | 5,5 | 6,6 | 9 | 11 | 13,5 | 17,5 | 22 |

# Counterbore Cutters VFL of HSS (Rap) and TiN-coated for Flat Counterbores

Shanks VMK / VKK / VSZ / VLD see page 37
Pilots VFZ / VRZ / VFR see page 38

How to order (example): 2 pieces VFL-25.5-Rap.

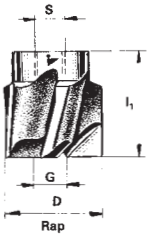
MT shank
VMK




Straight shank
VSZ

see page 37

Counterbore cutter
VFL



Pilots
VFZ/VRZ

see page 38

| Counterbore cutter | | | | | | |
|---|---|---|---|---|---|---|
| ∅ D mm | Code number | Availability Rap | Availability TiN | $l_1$ mm | Thread G for pilot | Thread S for shank |
| 8.0 | *VFL-8.0-...* | ● | ● | 26 | M3 | M6 |
| 8.5 | *VFL-8.5-...* | ● | ● | | | |
| 9.0 | *VFL-9.0-...* | ● | ● | | | |
| 9.5 | *VFL-9.5-...* | ● | ● | | | |
| 10.0 | *VFL-10.0-...* | ● | ● | | M3.5 | |
| 10.5 | *VFL-10.5-...* | ● | ● | | | |
| 11.0 | *VFL-11.0-...* | ● | ● | 28 | | |
| 11.5 | *VFL-11.5-...* | ● | ● | | | |
| 12.0 | *VFL-12.0-...* | ● | ● | 33 | M4.5 | M8 |
| 12.5 | *VFL-12.5-...* | ● | ● | | | |
| 13.0 | *VFL-13.0-...* | ● | ● | | | |
| 13.5 | *VFL-13.5-...* | ● | ● | | | |
| 14.0 | *VFL-14.0-...* | ● | ● | | M5 | |
| 14.5 | *VFL-14.5-...* | ● | ● | | | |
| 15.0 | *VFL-15.0-...* | ● | ● | | | |
| 15.5 | *VFL-15.5-...* | ● | ● | | | |
| 16.0 | *VFL-16.0-...* | ● | ● | | | |
| 16.5 | *VFL-16.5-...* | ● | ● | | | |
| 17.0 | *VFL-17.0-...* | ● | ● | | | |
| 17.5 | *VFL-17.5-...* | ● | ● | | | |
| 18.0 | *VFL-18.0-...* | ● | ● | M6 | | M10×20TPI |
| 18.5 | *VFL-18.5-...* | ● | ● | | | |
| 19.0 | *VFL-19.0-...* | ● | ● | | | |
| 19.5 | *VFL-19.5-...* | ● | ● | | | |
| 20.0 | *VFL-20.0-...* | ● | ● | | | |
| 20.5 | *VFL-20.5-...* | ● | ● | | | |
| 21.0 | *VFL-21.0-...* | ● | ● | | | |
| 21.5 | *VFL-21.5-...* | ● | ● | | | |
| 22.0 | *VFL-22.0-...* | ● | ● | 34 | | M12×20TPI |
| 22.5 | *VFL-22.5-...* | ● | ● | | | |
| 23.0 | *VFL-23.0-...* | ● | ● | | | |
| 23.5 | *VFL-23.5-...* | ● | ● | | | |
| 24.0 | *VFL-24.0-...* | ● | ● | M7 | | |
| 24.5 | *VFL-24.5-...* | ● | ● | | | |
| 25.0 | *VFL-25.0-...* | ● | ● | 35 | | |
| 25.5 | *VFL-25.5-...* | ● | ● | | | |
| 26.0 | *VFL-26.0-...* | ● | ● | | | |
| 26.5 | *VFL-26.5-...* | ● | ● | | | |
| 27.0 | *VFL-27.0-...* | ● | ● | | | M14×20TPI |
| 27.5 | *VFL-27.5-...* | ● | ● | | | |
| 28.0 | *VFL-28.0-...* | ● | ● | 36 | | |
| 28.5 | *VFL-28.5-...* | ● | ● | | | |
| 29.0 | *VFL-29.0-...* | ● | ● | | | |
| 29.5 | *VFL-29.5-...* | ● | ● | | | |
| 30.0 | *VFL-30.0-...* | ● | ● | | | |
| 30.5 | *VFL-30.5-...* | ● | ● | | | |
| 31.0 | *VFL-31.0-...* | ● | ● | | | M15×20TPI |
| 31.5 | *VFL-31.5-...* | ● | ● | | | |
| 32.0 | *VFL-32.0-...* | ● | ● | 37 | | |
| 32.5 | *VFL-32.5-...* | ● | ● | | | |
| 33.0 | *VFL-33.0-...* | ● | ● | | M8 | |
| 33.5 | *VFL-33.5-...* | ● | ● | | | |
| 34.0 | *VFL-34.0-...* | ● | ● | | | |
| 34.5 | *VFL-34.5-...* | ● | ● | | | |
| 35.0 | *VFL-35.0-...* | ● | ● | 38 | | |
| 35.5 | *VFL-35.5-...* | ● | ● | | | |
| 36.0 | *VFL-36.0-...* | ● | ○ | | | M18×20TPI |
| 36.5 | *VFL-36.5-...* | ● | ○ | | | |
| 37.0 | *VFL-37.0-...* | ● | ○ | | | |
| 37.5 | *VFL-37.5-...* | ● | ○ | | | |

▲ Please indicate here alloy required

| Counterbore cutter | | | | | | |
|---|---|---|---|---|---|---|
| ∅ D mm | Code number | Availability Rap | Availability TiN | $l_1$ mm | Thread G for pilot | Thread S for shank |
| 38.0 | *VFL-38.0-...* | ● | ○ | 38 | M8 | M18×20TPI |
| 38.5 | *VFL-38.5-...* | ● | ○ | | | |
| 39.0 | *VFL-39.0-...* | ● | ○ | 40 | | |
| 39.5 | *VFL-39.5-...* | ● | ○ | | | |
| 40.0 | *VFL-40.0-...* | ● | ● | | | |
| 40.5 | *VFL-40.5-...* | ● | ● | | | |
| 41.0 | *VFL-41.0-...* | ● | ○ | | | |
| 41.5 | *VFL-41.5-...* | ● | ○ | | | |
| 42.0 | *VFL-42.0-...* | ● | ○ | 44 | | M21×14TPI |
| 42.5 | *VFL-42.5-...* | ● | ○ | | | |
| 43.0 | *VFL-43.0-...* | ● | ○ | | | |
| 43.5 | *VFL-43.5-...* | ● | ○ | | | |
| 44.0 | *VFL-44.0-...* | ● | ○ | | | |
| 44.5 | *VFL-44.5-...* | ● | ○ | | | |
| 45.0 | *VFL-45.0-...* | ● | ○ | 48 | M10 | |
| 45.5 | *VFL-45.5-...* | ● | ○ | | | |
| 46.0 | *VFL-46.0-...* | ● | ○ | | | |
| 46.5 | *VFL-46.5-...* | ● | ○ | | | |
| 47.0 | *VFL-47.0-...* | ● | ○ | | | |
| 47.5 | *VFL-47.5-...* | ● | ○ | | | |
| 48.0 | *VFL-48.0-...* | ● | ○ | | | |
| 48.5 | *VFL-48.5-...* | ● | ○ | | | |
| 49.0 | *VFL-49.0-...* | ● | ○ | | | |
| 49.5 | *VFL-49.5-...* | ● | ○ | | | |
| 50.0 | *VFL-50.0-...* | ● | ○ | 53 | | M25×14TPI |
| 50.5 | *VFL-50.5-...* | ● | ○ | | | |
| 51.0 | *VFL-51.0-...* | ● | ○ | | | |
| 51.5 | *VFL-51.5-...* | ● | ○ | | | |
| 52.0 | *VFL-52.0-...* | ● | ○ | | | |
| 52.5 | *VFL-52.5-...* | ● | ○ | | | |
| 53.0 | *VFL-53.0-...* | ● | ○ | | | |
| 53.5 | *VFL-53.5-...* | ● | ○ | | | |
| 54.0 | *VFL-54.0-...* | ● | ○ | | | |
| 54.5 | *VFL-54.5-...* | ● | ○ | | | |
| 55.0 | *VFL-55.0-...* | ● | ○ | | | M30 |
| 55.5 | *VFL-55.5-...* | ● | ○ | | | |
| 56.0 | *VFL-56.0-...* | ● | ○ | | | |
| 56.5 | *VFL-56.5-...* | ● | ○ | | | |
| 57.0 | *VFL-57.0-...* | ● | ○ | | | |
| 57.5 | *VFL-57.5-...* | ● | ○ | | | |
| 58.0 | *VFL-58.0-...* | ● | ○ | | | |
| 58.5 | *VFL-58.5-...* | ● | ○ | | | |
| 59.0 | *VFL-59.0-...* | ● | ○ | | | |
| 59.5 | *VFL-59.5-...* | ● | ○ | | | |
| 60.0 | *VFL-60.0-...* | ● | ○ | | | |
| 60.5 | *VFL-60.5-...* | ● | ○ | | | |

▲ Please indicate here alloy required

Counterbore cutters are also available with intermediate diameter.

For exclusive use in materials different from steel ask for counterbore cutters with special drill:

for aluminum, copper, soft plastics

for brass, bronze

Availability: ● ex stock / ○ within short notice

# VFL

## Counterbore Cutters VFL, Carbide Tipped (Grade K10) for Flat Counterbores

Shanks VMK / VKK / VSZ / VLD see page 37
Pilots VFZ / VRZ / VFR see page 38

How to order (example): 1 piece VFL-20.5-HM

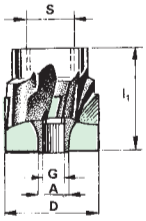
**Important:** The diameter of pilot may not be smaller than the measure "A" on the carbide tipped counterbore tool.

MT shank
VMK

Straight shank
VSZ

see page 37

Counterbore cutter
VFL




Pilots
VFZ/VRZ

see page 38

| Counterbore cutter | | | | | | |
|---|---|---|---|---|---|---|
| ∅ D mm | Code number | Availability | $l_1$ mm | A mm | Thread G for pilot | Thread S for shank |
| 10.0 | *VFL-10.0-HM* | ● | 26 | 5 | M3 | M6 |
| 10.5 | *VFL-10.5-HM* | ● | | | | |
| 11.0 | *VFL-11.0-HM* | ● | 28 | 5.5 | | |
| 11.5 | *VFL-11.5-HM* | ● | | | | |
| 12.0 | *VFL-12.0-HM* | ● | 33 | 6.5 | M3.5 | M8 |
| 12.5 | *VFL-12.5-HM* | ● | | | | |
| 13.0 | *VFL-13.0-HM* | ● | | 6 | | |
| 13.5 | *VFL-13.5-HM* | ● | | | | |
| 14.0 | *VFL-14.0-HM* | ● | | 7 | | |
| 14.5 | *VFL-14.5-HM* | ● | | | | |
| 15.0 | *VFL-15.0-HM* | ● | | 6.5 | M4.5 | |
| 15.5 | *VFL-15.5-HM* | ● | | | | |
| 16.0 | *VFL-16.0-HM* | ● | | 7 | | |
| 16.5 | *VFL-16.5-HM* | ● | | | | |
| 17.0 | *VFL-17.0-HM* | ● | | 6.5 | | |
| 17.5 | *VFL-17.5-HM* | ● | | | | |
| 18.0 | *VFL-18.0-HM* | ● | | 7 | M5 | M10×20TPI |
| 18.5 | *VFL-18.5-HM* | ● | | | | |
| 19.0 | *VFL-19.0-HM* | ● | | 8 | | |
| 19.5 | *VFL-19.5-HM* | ● | | | | |
| 20.0 | *VFL-20.0-HM* | ● | | | | |
| 20.5 | *VFL-20.5-HM* | ● | | | | |
| 21.0 | *VFL-21.0-HM* | ● | | 7 | | |
| 21.5 | *VFL-21.5-HM* | ● | | | | |
| 22.0 | *VFL-22.0-HM* | ● | 34 | 8 | M6 | M12×20TPI |
| 22.5 | *VFL-22.5-HM* | ● | | | | |
| 23.0 | *VFL-23.0-HM* | ● | | | | |
| 23.5 | *VFL-23.5-HM* | ● | | | | |
| 24.0 | *VFL-24.0-HM* | ● | | 9 | | |
| 24.5 | *VFL-24.5-HM* | ● | | | | |
| 25.0 | *VFL-25.0-HM* | ● | 35 | 8 | | |
| 25.5 | *VFL-25.5-HM* | ● | | | | |
| 26.0 | *VFL-26.0-HM* | ● | | 8.5 | | |
| 26.5 | *VFL-26.5-HM* | ● | | | | |
| 27.0 | *VFL-27.0-HM* | ● | | 9.5 | | M14×20TPI |
| 27.5 | *VFL-27.5-HM* | ● | | | | |
| 28.0 | *VFL-28.0-HM* | ● | 36 | 8 | | |
| 28.5 | *VFL-28.5-HM* | ● | | | | |
| 29.0 | *VFL-29.0-HM* | ● | | 8.5 | | |
| 29.5 | *VFL-29.5-HM* | ● | | | | |
| 30.0 | *VFL-30.0-HM* | ● | | 9.5 | M7 | |
| 30.5 | *VFL-30.5-HM* | ● | | | | |
| 31.0 | *VFL-31.0-HM* | ● | 36 | 10.5 | | M15×20TPI |
| 31.5 | *VFL-31.5-HM* | ● | | | | |
| 32.0 | *VFL-32.0-HM* | ● | 37 | 11.5 | | |
| 32.5 | *VFL-32.5-HM* | ● | | | | |
| 33.0 | *VFL-33.0-HM* | ● | | 9.5 | | |
| 33.5 | *VFL-33.5-HM* | ● | | | | |
| 34.0 | *VFL-34.0-HM* | ● | | 10.0 | | |
| 34.5 | *VFL-34.5-HM* | ● | | | | |
| 35.0 | *VFL-35.0-HM* | ● | 38 | 11.0 | | |
| 35.5 | *VFL-35.5-HM* | ● | | | | |

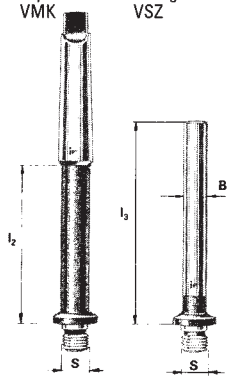
| Counterbore cutter | | | | | | |
|---|---|---|---|---|---|---|
| ∅ D mm | Code number | Availability | $l_1$ mm | A mm | Thread G for pilot | Thread S for shank |
| 36.0 | *VFL-36.0-HM* | ● | 38 | 11.5 | M7 | M18×20TPI |
| 36.5 | *VFL-36.5-HM* | ● | | | | |
| 37.0 | *VFL-37.0-HM* | ● | | 9.0 | | |
| 37.5 | *VFL-37.5-HM* | ● | | | | |
| 38.0 | *VFL-38.0-HM* | ● | | 9.5 | | |
| 38.5 | *VFL-38.5-HM* | ● | | | | |
| 39.0 | *VFL-39.0-HM* | ● | 40 | 10.5 | M8 | |
| 39.5 | *VFL-39.5-HM* | ● | | | | |
| 40.0 | *VFL-40.0-HM* | ● | | 11.5 | | |
| 40.5 | *VFL-40.5-HM* | ● | | | | |
| 41.0 | *VFL-41.0-HM* | ● | | 13.5 | | |
| 41.5 | *VFL-41.5-HM* | ● | | | | |
| 42.0 | *VFL-42.0-HM* | ● | 44 | | | M21×14TPI |
| 42.5 | *VFL-42.5-HM* | ● | | | | |
| 43.0 | *VFL-43.0-HM* | ● | | 12 | | |
| 43.5 | *VFL-43.5-HM* | ● | | | | |
| 44.0 | *VFL-44.0-HM* | ● | | 13 | | |
| 44.5 | *VFL-44.5-HM* | ● | | | | |
| 45.0 | *VFL-45.0-HM* | ● | 48 | | | |
| 45.5 | *VFL-45.5-HM* | ● | | | | |
| 46.0 | *VFL-46.0-HM* | ● | | 15 | | |
| 46.5 | *VFL-46.5-HM* | ● | | | | |
| 47.0 | *VFL-47.0-HM* | ● | | 11 | | |
| 47.5 | *VFL-47.5-HM* | ● | | | | |
| 48.0 | *VFL-48.0-HM* | ● | | 11.5 | | |
| 48.5 | *VFL-48.5-HM* | ● | | | | |
| 49.0 | *VFL-49.0-HM* | ● | | 13 | | |
| 49.5 | *VFL-49.5-HM* | ● | | | | |
| 50.0 | *VFL-50.0-HM* | ● | 53 | 13.5 | | M25×14TPI |
| 50.5 | *VFL-50.5-HM* | ● | | | | |
| 51.0 | *VFL-51.0-HM* | ○ | | 15 | | |
| 51.5 | *VFL-51.5-HM* | ○ | | | | |
| 52.0 | *VFL-52.0-HM* | ● | | 15.5 | M10 | |
| 52.5 | *VFL-52.5-HM* | ● | | | | |
| 53.0 | *VFL-53.0-HM* | ○ | | 17 | | |
| 53.5 | *VFL-53.5-HM* | ○ | | | | |
| 54.0 | *VFL-54.0-HM* | ● | | 18 | | |
| 54.5 | *VFL-54.5-HM* | ● | | | | |
| 55.0 | *VFL-55.0-HM* | ● | | 18.5 | | M30 |
| 55.5 | *VFL-55.5-HM* | ● | | | | |
| 56.0 | *VFL-56.0-HM* | ○ | | 20 | | |
| 56.5 | *VFL-56.5-HM* | ○ | | | | |
| 57.0 | *VFL-57.0-HM* | ○ | | 21 | | |
| 57.5 | *VFL-57.5-HM* | ○ | | | | |
| 58.0 | *VFL-58.0-HM* | ○ | | 22 | | |
| 58.5 | *VFL-58.5-HM* | ○ | | | | |
| 59.0 | *VFL-59.0-HM* | ○ | | 23 | | |
| 59.5 | *VFL-59.5-HM* | ○ | | | | |
| 60.0 | *VFL-60.0-HM* | ● | | 23.5 | | |
| 60.5 | *VFL-60.5-HM* | ● | | | | |

Availability: ● ex stock / ○ within short notice

# Countersink Cutter VKO of HSS (Rap) (for use with pilot) for Countersinks at 90°

Shanks VMK / VKK / VSZ / VLD see page 37
Pilots VFZ / VRZ / VFR see page 38

Taper shank VMK




see page 37

Straight shank VSZ

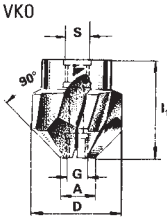
How to order (example): 1 piece VKO-19.0

**Important:** The diameter of pilot may not be smaller than the measure "A" on the countersink cutter.

| Countersink cutter | | | | | | |
|---|---|---|---|---|---|---|
| ∅ D mm | Code number | Availability | $l_1$ mm | A mm | Thread G for pilot | Thread S for shank |
| 8.0 | *VKO-8.0-Rap* | ● | 26 | 4 | M3 | M6 |
| 8.3 | *VKO-8.3-Rap* | ● | | | | |
| 9.0 | *VKO-9.0-Rap* | ● | | 4.5 | | |
| 10.0 | *VKO-10.0-Rap* | ● | | 5 | M3.5 | |
| 10.4 | *VKO-10.4-Rap* | ● | | | | |
| 11.0 | *VKO-11.0-Rap* | ● | 28 | 5.5 | | |
| 11.5 | *VKO-11.5-Rap* | ● | | 6 | M4.5 | M8 |
| 12.0 | *VKO-12.0-Rap* | ● | 33 | | | |
| 12.4 | *VKO-12.4-Rap* | ● | | | | |
| 13.0 | *VKO-13.0-Rap* | ● | | | | |
| 14.0 | *VKO-14.0-Rap* | ● | | 6.5 | M5 | |
| 15.0 | *VKO-15.0-Rap* | ● | | 7 | | |
| 16.0 | *VKO-16.0-Rap* | ● | | | | |
| 16.5 | *VKO-16.5-Rap* | ● | | | | |
| 17.0 | *VKO-17.0-Rap* | ● | | 8 | | |

| Countersink cutter | | | | | | |
|---|---|---|---|---|---|---|
| ∅ D mm | Code number | Availability | $l_1$ mm | A mm | Thread G for pilot | Thread S for shank |
| 18.0 | *VKO-18.0-Rap* | ● | 33 | 9 | M6 | M10×20TPI |
| 19.0 | *VKO-19.0-Rap* | ● | | 9.5 | | |
| 20.0 | *VKO-20.0-Rap* | ● | | | | |
| 20.5 | *VKO-20.5-Rap* | ● | | | | |
| 21.0 | *VKO-21.0-Rap* | ● | | 10 | | |
| 23.0 | *VKO-23.0-Rap* | ● | 34 | 10.5 | | M12×20TPI |
| 24.0 | *VKO-24.0-Rap* | ● | | 12 | M7 | |
| 25.0 | *VKO-25.0-Rap* | ● | | | | |
| 26.0 | *VKO-26.0-Rap* | ● | 35 | | | |
| 28.0 | *VKO-28.0-Rap* | ● | 36 | 13 | | M14×20TPI |
| 30.0 | *VKO-30.0-Rap* | ● | | 14 | | |
| 31.0 | *VKO-31.0-Rap* | ● | | | | M15×20TPI |
| 34.0 | *VKO-34.0-Rap* | ● | 37 | 15 | M8 | |
| 37.0 | *VKO-37.0-Rap* | ● | 38 | 16 | | M18×20TPI |
| 40.0 | *VKO-40.0-Rap* | ● | 40 | 17 | | |

Countersink cutter 90° VKO




Pilots VFZ / VRZ

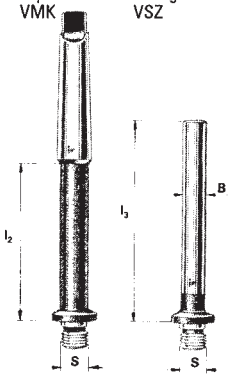
see page 38



# Countersink Tools VSP of HSS (Rap) (for use without pilot) for Countersinks at 90°

Shanks VMK / VKK / VSZ / VLD see page 37

Taper shank VMK



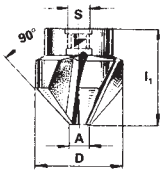

see page 37

Straight shank VSZ

How to order (example): 2 pieces VSP-30

| Countersink cutter | | | | | |
|---|---|---|---|---|---|
| ∅ D mm | Code number | Availability | $l_1$ mm | A mm | Thread S for shank |
| 10 | *VSP-10-Rap* | ● | 26 | 1 | M6 |
| 12 | *VSP-12-Rap* | ● | 33 | 2 | M8 |
| 15 | *VSP-15-Rap* | ● | | 3 | |
| 20 | *VSP-20-Rap* | ● | | 4 | M10×20TPI |
| 25 | *VSP-25-Rap* | ● | 35 | 6 | M12×20TPI |
| 30 | *VSP-30-Rap* | ● | 36 | 8 | M14×20TPI |
| 35 | *VSP-35-Rap* | ● | 38 | 10 | M15×20TPI |
| 40 | *VSP-40-Rap* | ● | 40 | 12 | M18×20TPI |
| 50 | *VSP-50-Rap* | ● | 53 | 14 | M25×14TPI |
| 60 | *VSP-60-Rap* | ● | | 16 | M30 |

Countersink cutter 90° VSP

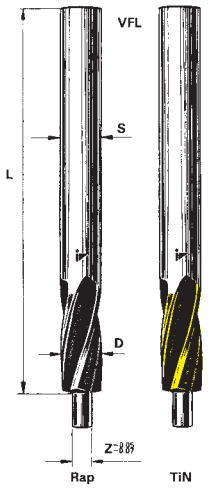



Availability: ● ex stock

# VFL

## Small Counterbore Tools VFL of HSS (Rap) and TiN-coated for Flat Counterbores

How to order (example): 5 pieces VFL-5.0-3.1-Rap.
5 pieces VFL-7.0-TiN



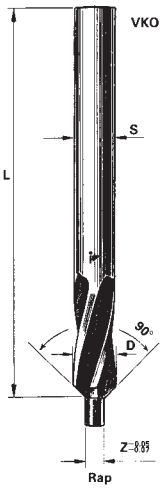

| D mm | Z mm | L1 mm | S mm | Code number | Availability Rap | Availability TiN |
|---|---|---|---|---|---|---|
| 4,3 | 1,6 | 46 | 4 | *VFL-4,3-1,6-...* | ○ | ○ |
| 4,3 | 2,6 | | | *VFL-4,3-2,6-...* | ● | ○ |
| 4,5 | 2,0 | | | *VFL-4,5-2,0-...* | ○ | ○ |
| 4,5 | 2,5 | | | *VFL-4,5-2,6-...* | ○ | ○ |
| 5,0 | 2,0 | 55 | 5 | *VFL-5,0-2,0-...* | ○ | ○ |
| 5,0 | 2,5 | | | *VFL-5,0-2,5-...* | ○ | ○ |
| 5,0 | 2,8 | | | *VFL-5,0-2,8-...* | ● | ○ |
| 5,0 | 3,1 | | | *VFL-5,0-3,1-...* | ● | ○ |
| 5,5 | 2,5 | | | *VFL-5,5-2,5-...* | ○ | ○ |
| 5,5 | 2,7 | | | *VFL-5,5-2,7-...* | ● | ○ |
| 5,5 | 2,9 | | | *VFL-5,5-2,9-...* | ● | ○ |
| 5,5 | 3,0 | | | *VFL-5,5-3,0-...* | ○ | ○ |
| 6,0 | 2,5 | | 6 | *VFL-6,0-2,5-...* | ○ | ○ |
| 6,0 | 3,0 | | | *VFL-6,0-3,0-...* | ○ | ○ |
| 6,0 | 3,6 | | | *VFL-6,0-3,6-...* | ● | ● |
| 6,5 | 3,0 | | | *VFL-6,5-3,0-...* | ○ | ○ |
| 6,5 | 3,2 | | | *VFL-6,5-3,2-...* | ○ | ○ |
| 6,5 | 3,4 | | | *VFL-6,5-3,4-...* | ○ | ○ |
| 6,5 | 3,5 | | | *VFL-6,5-3,5-...* | ○ | ○ |
| 6,5 | 4,0 | | | *VFL-6,5-4,0-...* | ○ | ○ |
| 7,0 | M3* | 70 | | *VFL-7,0-M3-...* | ● | ● |
| 7,2 | | | | *VFL-7,2-M3-...* | ● | ● |
| 7,5 | | | | *VFL-7,5-M3-...* | ● | ● |
| 8,0 | | | | *VFL-8,0-M3-...* | ● | ○ |
| 8,5 | | | | *VFL-8,5-M3-...* | ● | ○ |
| 9,0 | | | | *VFL-9,0-M3-...* | ● | ○ |

Please indicate here required alloy (Rap/TiN) ▲

# VKO

## Small Countersink Tools VKO of HSS (Rap) for Countersinks at 90°

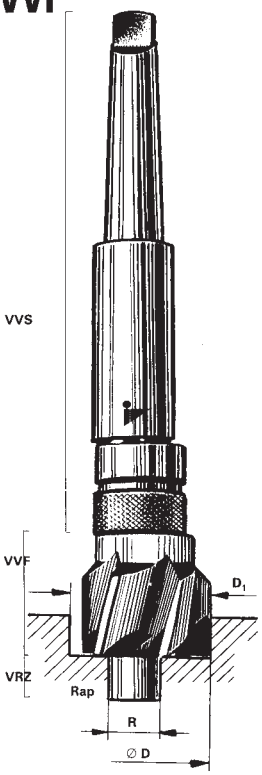
How to order (example): 5 pieces VKO-5.0-2.7-Rap.
5 pieces VKO-7.0-Rap.




| D mm | Z mm | $L_1$ mm | S mm | Code number | Availability |
|---|---|---|---|---|---|
| 4.3 | 1.6 | 46 | 4 | *VKO-4.3-1.6-Rap* | ○ |
| 4.3 | 2.2 | | | *VKO-4.3-2.2-Rap* | ● |
| 4.3 | 2.5 | | | *VKO-4.3-2.5-Rap* | ○ |
| 5.0 | 2.0 | 55 | 5 | *VKO-5.0-2.0-Rap* | ○ |
| 5.0 | 2.7 | | | *VKO-5.0-2.7-Rap* | ● |
| 6.0 | 2.5 | | 6 | *VKO-6.0-2.5-Rap* | ○ |
| 6.0 | 3.2 | | | *VKO-6.0-3.2-Rap* | ● |
| 6.3 | 3.2 | | | *VKO-6.3-3.2-Rap* | ● |
| 6.6 | 2.5 | | | *VKO-6.6-2.5-Rap* | ○ |
| 6.6 | 3.2 | | | *VKO-6.6-3.2-Rap* | ○ |
| 6.6 | 3.6 | | | *VKO-6.6-3.6-Rap* | ● |
| 7.0 | M3* | 70 | | *VKO-7.0-M3-Rap* | ● |

* with screw-on pilot (see page 38)

# VVF




## Adjustable Counterbore Tools VVF with Cutters of HSS (Rap)

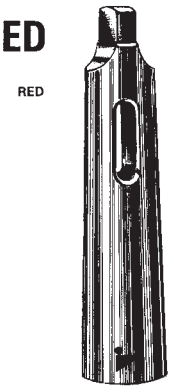
A tool for short series of counterbores of different diameters. The counterbore cutter, with its eccentric thread bore, is seated on an eccentrically turned shank thread. By rotating it suitably on the shank, the desired diameter of bore can be set and measured from the guide roller. The counternut (lefthand thread) locks the counterbore cutter (righthand thread) securely on the shank.

How to order (example): 2 pieces VVF-32 with 1 piece VVS-32
(pilots see page 38)

| Setting range | Counterbore cutter | | | Shank MT3 with counternut and pilot screw | | Pilot Roller VFR | |
|---|---|---|---|---|---|---|---|
| D1 mm | ∅ D mm | Code number | Availability | Code number | Availability | Thread | ∅ range of roller mm |
| 32–40 | 32 | *VVF-32-Rap* | ● | *VVS-32 + VKZ-M7* | ● | M7 | 10–21 |
| 40–50 | 40 | *VVF-40-Rap* | ● | *VVS-40 + VKZ-M8* | ● | M8 | 13–28 |
| 50–60 | 50 | *VVF-50-Rap* | ● | | | | |

The rolling pilot units are identical with the ones on normal counterbore and countersink cutters as per pages 40+41. When re-ordering rolling pilot units or parts of them, please, watch the size of thread G. Furthermore, the diameter of the roller pilot may under no circumstances be inferior than indicated in the above table.

# RED




## Adaptor Sleeves RED ground and hardened

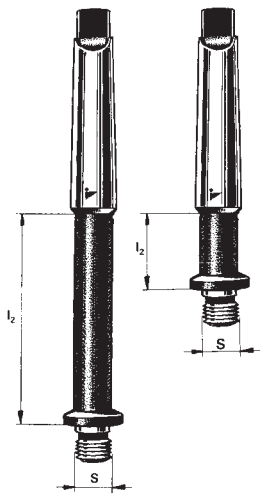
How to order (example): 5 pieces RED-4/3

| MT outside | 2 | 3 | 3 | 4 | 4 | 4 | 5 | 5 | 5 |
|---|---|---|---|---|---|---|---|---|---|
| MT inside | 1 | 1 | 2 | 1 | 2 | 3 | 2 | 3 | 4 |
| Code number | *RED-2/1* | *RED-3/1* | *RED-3/2* | *RED-4/1* | *RED-4/2* | *RED-4/3* | *RED-5/2* | *RED-5/3* | *RED-5/4* |
| Availability | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Availability: ● ex stock / ○ within short notice

## Shanks VMK and VKK with Morse Taper for Counterbore/Countersink Cutters

MT shanks
VMK VKK



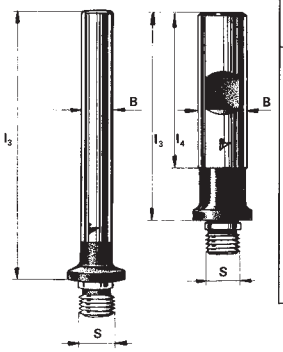

How to order (example): 5 pieces VMK-2-14

| for cutter of ∅ D | Thread S | MT | Shank long VMK $l_2$ mm | Code number | Availability | Shank short VKK $l_2$ mm | Code number | Availability |
|---|---|---|---|---|---|---|---|---|
| 8.0–11.5 | M6 | 1 | 70 | *VMK-1-M6* | ● | 6 | *VKK-1-M6* | ● |
| 12.0–17.5 | M8 | 1 | 70 | *VMK-1-M8* | ● | 8 | *VKK-1-M8* | ● |
| 18.0–21.5 | M10×20TPI | 1 | 70 | *VMK-1-10* | ● | 12 | *VKK-1-10* | ● |
| 22.0–26.5 | M12×20TPI | 2 | 85 | *VMK-2-12* | ● | 14 | *VKK-2-12* | ● |
| 27.0–30.5 | M14×20TPI | 2 | 85 | *VMK-2-14* | ● | 15 | *VKK-2-14* | ● |
| 31.0–35.5 | M15×20TPI | 2 | 85 | *VMK-2-15* | ● | 16 | *VKK-2-15* | ● |
| | | 3 | 100 | *VMK-3-15* | ● | 16 | *VKK-3-15* | ● |
| 36.0–41.5 | M18×20TPI | 3 | 100 | *VMK-3-18* | ● | 18 | *VKK-3-18* | ● |
| 42.0–49.5 | M21×14TPI | 3 | 100 | *VMK-3-21* | ● | 22 | *VKK-3-21* | ● |
| | | 4 | 122 | *VMK-4-21* | ● | 22 | *VKK-4-21* | ● |
| 50.0–54.5 | M25×14TPI | 3 | 100 | *VMK-3-25* | ● | 25 | *VKK-3-25* | ● |
| | | 4 | 122 | *VMK-4-25* | ● | 25 | *VKK-4-25* | ● |
| 55.0+ | M30 | 3 | 98 | *VMK-3-30* | ● | 30 | *VKK-3-30* | ● |
| | | 4 | 100 | *VMK-4-30* | ● | 30 | *VKK-4-30* | ● |



## Straight Shanks without (VSZ) and with (VLD) Weldon Flats

Straight shanks
VSZ VLD




How to order (example): 3 pieces VLD-M8

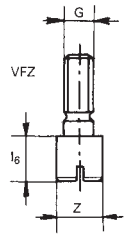
| for cutter of ∅ D | Thread S | Straight shank VSZ B ∅ mm | $l_3$ mm | Code number | Availability | Straight shank VLD B ∅ mm | $l_3$ mm | $l_4$ mm | Code number | Availability |
|---|---|---|---|---|---|---|---|---|---|---|
| 8.0–11.5 | M6 | 8 | 94 | *VSZ-M6* | ● | 10 | 46 | 40 | *VLD-M6* | ● |
| 12.0–17.5 | M8 | 10 | 100 | *VSZ-M8* | ● | 12 | 52 | 45 | *VLD-M8* | ● |
| 18.0–21.5 | M10×20TPI | 10 | 100 | *VSZ-10* | ● | 16 | 58 | 48 | *VLD-10* | ● |
| 22.0–26.5 | M12×20TPI | 12 | 109 | *VSZ-12* | ● | 16 | 62 | 48 | *VLD-12* | ● |
| 27.0–30.5 | M14×20TPI | 12 | 107 | *VSZ-14* | ● | 20 | 68 | 50 | *VLD-14* | ● |
| 31.0–35.5 | M15×20TPI | 12 | 107 | *VSZ-15* | ● | 20 | 71 | 50 | *VLD-15* | ● |
| 36.0–41.5 | M18×20TPI | 16 | 106 | *VSZ-18* | ● | 25 | 81 | 56 | *VLD-18* | ● |
| 42.0–49.5 | M21×14TPI | | | | | 25 | 83 | 56 | *VLD-21* | ● |
| 50.0–54.5 | M25×14TPI | | | | | 32 | 92 | 60 | *VLD-25* | ● |
| 55.0+ | M30 | | | | | 32 | 92 | 60 | *VLD-30* | ● |

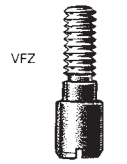
Shanks with different MT or different measurements B, $l_2$ or $l_3$ on request.

Availability: ● ex stock

# VFZ

## Fixed Pilot VFZ to Counterbore and Countersink Cutters




How to order (example): 5 pieces VFZ-M3.5-5

**Important:** The diameter of the fixed pilot "Z" may not be smaller than the measure "A" on carbide tipped counterbore cutters (pages 34) or countersink cutters (page 35).

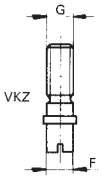
| for cutter of ∅ D HSS/TiN mm | for cutter of ∅ D Carbide mm | G | $l_4$ mm | Code number | Fixed pilot Available sizes ∅ Z Δ mm 3.5 | 3.7 | 4 | 4.2 | 4.3 | 4.5 | 4.8 | 5 | 5.3 | 5.5 | 5.8 | 6 | 6.4 | 6.5 | 7 | 7.5 | 8 | 8.5 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.0– 9.5 | 10.0–11.5 | M3 | 6 | *VFZ-M3-...* | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | | ● | ● | ● | | | | |
| 10.0–11.5 | 12.0–14.5 | M3.5 | 6 | *VFZ-M3.5-...* | | | ● | | | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| 12.0–13.5 | 15.0–17.5 | M4.5 | 7 | *VFZ-M4.5-...* | | | | | | | | ● | | ● | | ● | ● | ● | | | | | | |
| 14.0–17.5 | 18.0–21.5 | M5 | 8 | *VFZ-M5-...* | | | | | | | | ● | | ● | | ● | | ● | ● | | | | | |
| 18.0–23.5 | 22.0–29.5 | M6 | 9 | *VFZ-M6-...* | | | | | | | | | | | | ● | | ● | ● | ● | | | | |
| 24.0–32.5 | 30.0–38.5 | M7 | 10 | *VFZ-M7-...* | | | | | | | | | | | | | | | ● | ● | ● | | | |
| 33.0–44.5 | 39.0–51.5 | M8 | 12 | *VFZ-M8-...* | | | | | | | | | | | | | | | | | ● | | ● | ● |
| 45.0–60.5 | 52.0–60.5 | M10 | 12 | *VFZ-M10-...* | | | | | | | | | | | | | | | | | | | | ● |

Intermediate sizes on request ▲ Please indicate here required diameter

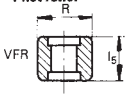
# VKZ – VFR – VRZ

## Pilot Screws VKZ, Pilot Rollers VFR and Rolling Pilot Units VRZ to Counterbore and Countersink Cutters

**Pilot screw**

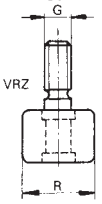


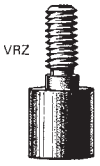

**Pilot roller**




**Head screw**

**Rolling pilot unit**




How to order (example): 1 piece VRZ-M8-14

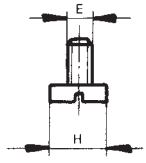
**Important:** The diameter of pilot roller "R" may not be smaller than the measure "A" on carbide tipped counterbore cutters (page 34) or countersink cutters (page 35).

| for cutter of ∅ D HSS/TiN mm | for cutter of ∅ D Carbide mm | G | F mm | Pilot screw with head screw Code number | * | $l_5$ mm | Code number Pilot roller VFR-... Rolling pilot unit VRZ-... | Available sizes ∅ R Δ mm 7 | 7.5 | 8 | 8.5 | 9 | 9.5 | 10 | 10.5 | 11 | 11.5 | 12 | 12.5 | 13 | 13.5 | 14 | 14.5 | 15 | 15.5 | 16 | 16.5 | 17 | 17.5 | 18 | 18.5 | 19 | 19.5 | 20 | 20.5 | 21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.0–13.5 | 15.0–17.5 | M4.5 | 5 | *VKZ-M4.5* | ● | 10 | *VFR-M5-...* *VRZ-M4.5-...* | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | | |
| 14.0–17.5 | 18.0–21.5 | M5 | 5 | *VKZ-M5* | ● | 10 | *VFR-M5-...* *VRZ-M5-...* | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | | | | |
| 18.0–23.5 | 22.0–29.5 | M6 | 6 | *VKZ-M6* | ● | 12 | *VFR-M6-...* *VRZ-M6-...* | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | | |
| | | | | | | | | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | |
| 24.0–32.5 | 30.0–38.5 | M7 | 7 | *VKZ-M7* | ● | 13.5 | *VFR-M7-...* *VRZ-M7-...* | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| 33.0–44.5 | 39.0–51.5 | M8 | 9 | *VKZ-M8* | ● | 16 | *VFR-M8-...* *VRZ-M8-...* | | | | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | | | | |
| 45.0–60.5 | 52.0–60.5 | M10 | 9 | *VKZ-M10* | ● | 16 | *VFR-M8-...* *VRZ-M10-...* | | | | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | | | | |

Different sizes on request ▲ Please indicate here required diameter

# VKS

## Head Screws VKS for Pilot Screws




How to order (example): 5 pieces VKS-M4.5/M5-M3

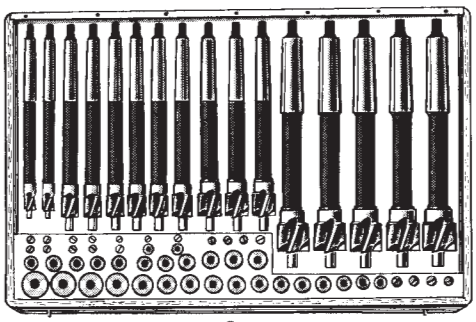
| Thread of pilot screw G | E | H mm | Head screw Code number | Availability |
|---|---|---|---|---|
| M4.5/M5 | M3 | 5.9 | *VKS-M4.5* | ● |
| M6 | M4 | 6.9 | *VKS-M6* | ● |
| M7 | M4 | 7.9 | *VKS-M7* | ● |
| M8/M10 | M5 | 10.9 | *VKS-M8* | ● |

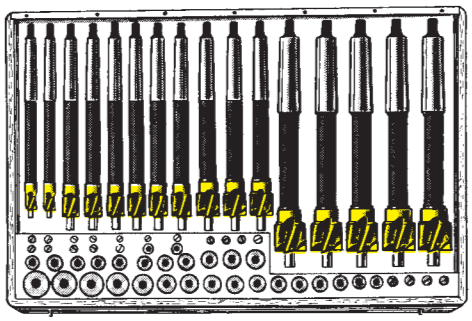
* Availability: ● ex stock

## Δ Tolerances of Diameters of Pilots

| ∅ Z or R mm | Tolerance mm |
|---|---|
| ≤ 6 | −0.05 −0.07 |
| 6.5–10 | −0.07 −0.09 |
| 10.1–20 | −0.09 −0.11 |
| ≥ 21 | −0.11 −0.13 |

# Sets of Counterbore Tools SET of HSS (Rap) and TiN-coated for Flat Counterbores


Rap

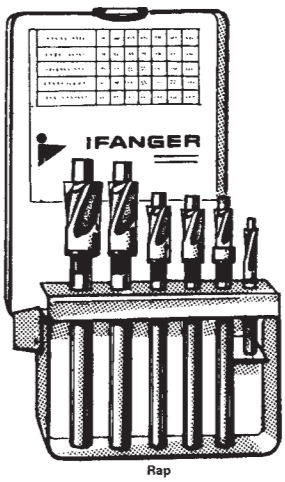

TiN

How to order (example): 1 piece SET-C-MK-Rap

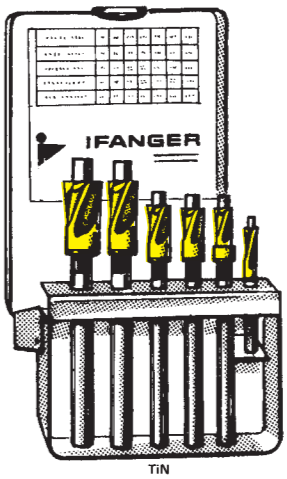
| | **Set A contains:** | **Set B equal set A plus:** | **Set C equal set B plus:** |
|---|---|---|---|
| Counterbore cutter ∅ D (1 piece each) | 10.5 11.5 12.5 13.5 14.5 15.5<br>16.5 17.5 18.5 19.5 20.5 | 22.5 24.5 25.5 27.5 30.5 | 35.5 40.5 |
| Shanks | Thread: Quantity Straight MT<br>M6: 2 ∅ 8 or 1<br>M8: 6 ∅ 10 or 1<br>M10×20TPI: 3 ∅ 10 or 1 | Thread: Quantity Straight MT<br>M12×20TPI: 3 ∅ 12 or 2<br>M14×20TPI: 2 ∅ 12 or 2 | Thread: Quantity Straight MT<br>M15×20TPI: 1 ∅ 12 or 3<br>M18×20TPI: 1 ∅16 or 3 |
| Fixed pilots (1 piece each) | Thread: ∅<br>M3.5: 4 4.5 5 5.5 6 6.5<br>M4.5: 5 5.5 6 6.5<br>M5: 5 5.5 6 6.5<br>M6: 6 6.5 7 7.5 | Thread: ∅<br>M7: 7 7.5 8 8.5 | Thread: ∅<br>M8: 8 9 10 11 |
| Pilot screw | Thread: Quantity<br>M4.5: 2<br>M5: 4<br>M6: 3 | Thread: Quantity<br>M6: 1<br>M7: 4 | Thread: Quantity<br>M8: 2 |
| Pilot rollers 1 piece each (M4.5 and M5 1 piece per ∅, as identical) | Thread: ∅<br>M4.5+M5: 7 7.5 8 8.5 9 9.5 10<br>M6: 8 8.5 9 9.5 10 10.5 11<br>11.5 12 12.5 13 13.5<br>14 14.5 15 | Thread: ∅<br>M7: 9 9.5 10 10.5<br>11 11.5 12 12.5<br>13 13.5 14 14.5<br>15 16 16.5 17<br>18 19 20 21 | Thread: ∅<br>M8: 12 13 14 15 16 17 18<br>20 21 22 24 25 28 |
| | Code number / Availability Rap TiN | Code number / Availability Rap TiN | Code number / Availability Rap TiN |
| Straight shanks<br>MT shanks | *SET-A-SZ-...*<br>*SET-A-MK-...* ● ● | *SET-B-SZ-...*<br>*SET-B-MK-...* ● ● | *SET-C-SZ-...*<br>*SET-C-MK-...* ● ● |
| | **Set AA contains:** | **Set BB equal set AA plus:** | **Set CC equal set BB plus:** |
| Counterbore cutter ∅ D (1 piece each) | 10.0 11.0 12.0 13.0 14.0 15.0<br>16.0 17.0 18.0 19.0 20.0 | 22.0 24.0 25.0 27.0 30.0 | 35.0 40.0 |
| | Shanks and pilots as set A | Shanks and pilots as set B | Shanks and pilots as set C |
| | Code number / Availability Rap TiN | Code number / Availability Rap TiN | Code number / Availability Rap TiN |
| Straight shanks<br>MT shanks | *SET-AA-SZ-...*<br>*SET-AA-MK-...* ● ● | *SET-BB-SZ-...*<br>*SET-BB-MK-...* ● ● | *SET-CC-SZ-...*<br>*SET-CC-MK-...* ● ● |

Please indicate here alloy required ▲ ▲ ▲

## SET-F of Counterbore Tools of Rapid and TiN-coated



Rap



TiN

| **Sets F, FF and FM contains** | | | |
|---|---|---|---|
| Counterbores acc. to:<br>for cylinder head bolts | SN 213.183<br>Set F<br>composed of: | DIN 974-2 fine<br>Set FF<br>composed of: | DIN 974-2 medium<br>Set FM<br>composed of: |
| M3 | VFL-6,0-3,6 | VFL-6,5-3,2 | VFL-6,5-3,4 |
| M4 | VFL-8,0<br>VSZ-M6<br>VFZ-M3-4,8 | VFL-8,0<br>VSZ-M6<br>VFZ-M3-4,3 | VFL-8,0<br>VSZ-M6<br>VFZ-M3-4,5 |
| M5 | VFL-10,0<br>VSZ-M6<br>VFZ-M3,5-5,8 | VFL-10,0<br>VSZ-M6<br>VFZ-M3,5-5,3 | VFL-10,0<br>VSZ-M6<br>VFZ-M3,5-5,5 |
| M6 | VFL-11,0<br>VSZ-M6<br>VFZ-M3,5-7 | VFL-11,0<br>VSZ-M6<br>VFZ-M3,5-6,4 | VFL-11,0<br>VSZ-M6<br>VFZ-M3,5-6,6 |
| M8 | VFL-15,0<br>VSZ-M8<br>VRZ-M5-9 | VFL-15,0<br>VSZ-M8<br>VRZ-M5-8,4 | VFL-15,0<br>VSZ-M8<br>VRZ-M5-9 |
| M10 | VFL-18,0<br>VSZ-M10<br>VRZ-M6-11 | VFL-18,0<br>VSZ-M10<br>VRZ-M6-10,5 | VFL-18,0<br>VSZ-M10<br>VRZ-M6-11 |
| Code number | *SET-F-...* Availability Rap ● TiN ● | *SET-FF-...* Availability Rap ● TiN ● | *SET-FM-...* Availability Rap ● TiN ● |

Availability: ● ex stock

Please indicate here required alloy ▲ ▲ ▲

# Terms of supply

**Basis of order:** Our manufactures are always up-to-date, in accordance with the most recent workshop experience. The illustrations and dimensions given in the catalogue are, therefore, not strictly binding.

**Time of delivery:** Normal tools according to catalogue can, as a rule, be delivered promptly from stock. Promised times of delivery will be observed as far as possible. However, any claims for compensation because of late delivery will not be recognized.

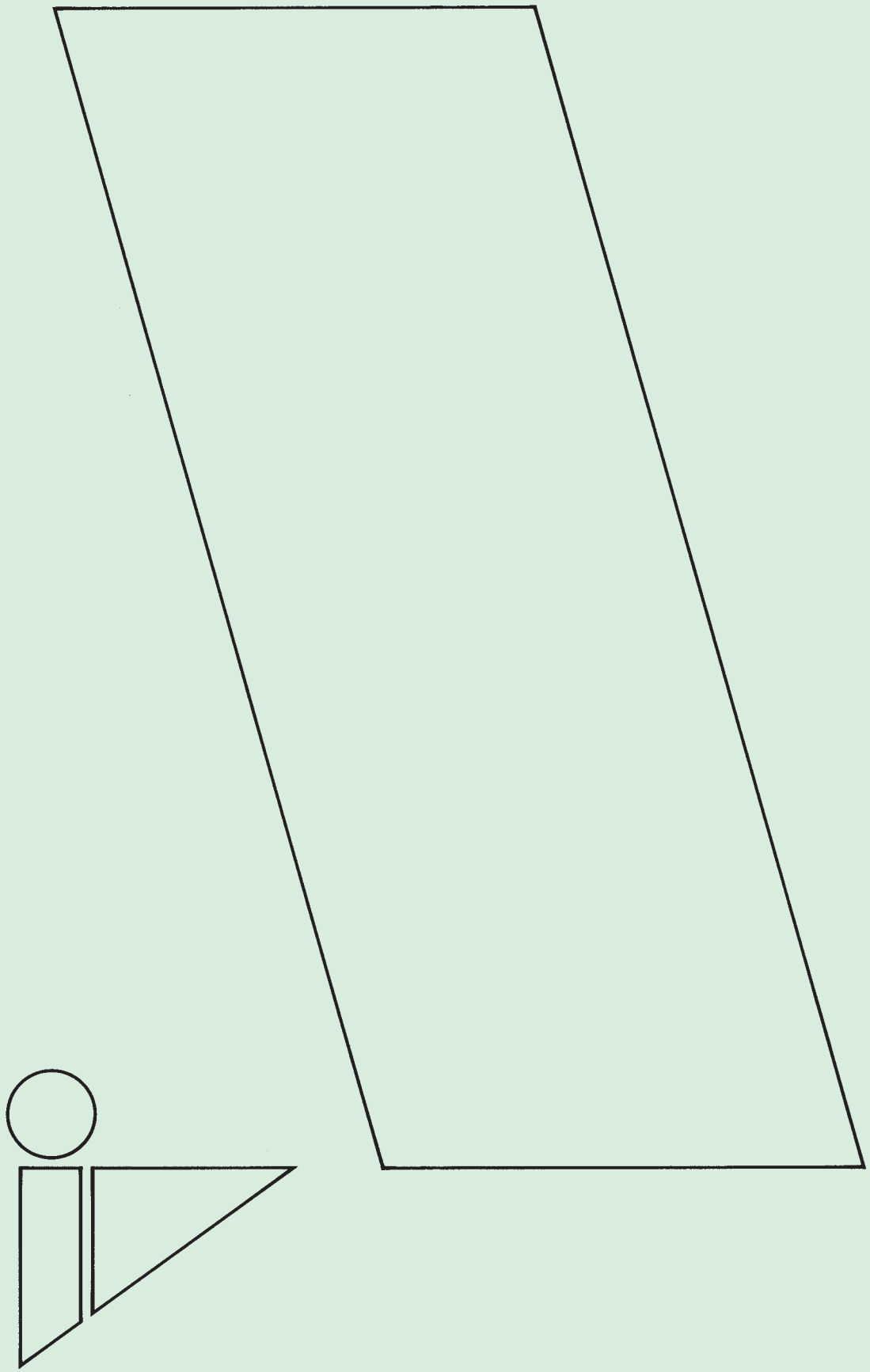
**Prices:** The prices in CHF quoted in this price list, together with any increment, are for goods unpacked ex works, sales tax excluded. For orders of a value of less than CHF 50.00 no discount can be granted. Minimum value of invoice: CHF 15.00 plus packing and shipping costs.

**Dispatch** is effected at purchaser's risk. If no special instructions are given for dispatching, we are free to choose the manner of forwarding.

**Packing and shipping costs** are invoiced in accordance with corresponding expense.

**Terms of payment:** Invoices are to be settled without any deduction within 30 days from their date of issue.

**Guarantee:** We guarantee that our tools are accurate, efficient and of robust construction. Any parts that are evidently faulty, possessing defects in material or hardening, will be replaced free-of-charge. For damages due to natural wear, faulty handling or undue stressing of the tool no claims for replacement will be accepted. Any claims for compensation of damages said to be due to faulty tools will be rejected.

**Retention of title:** The goods remain our property until receipt of the fully payment by us.

**Place of jurisdiction:** Uster (Switzerland)