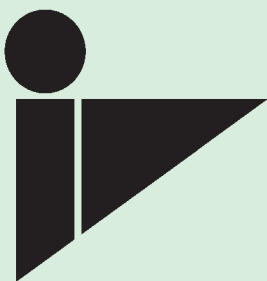
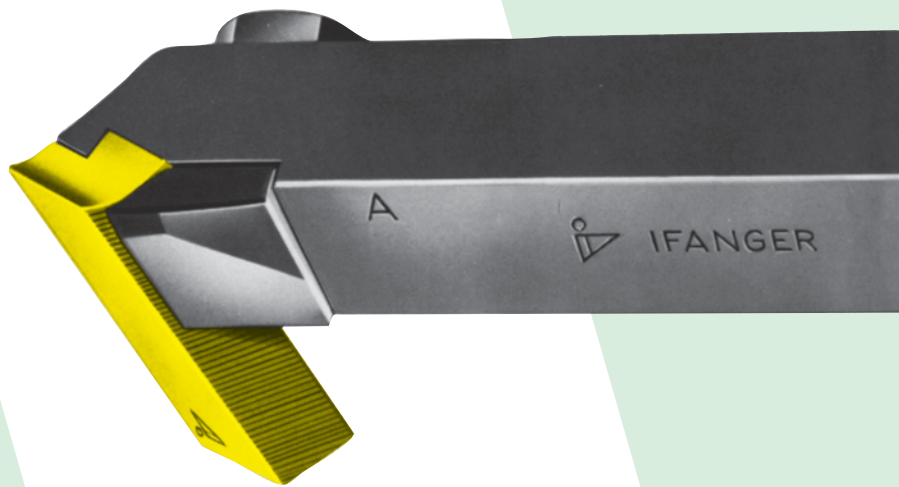
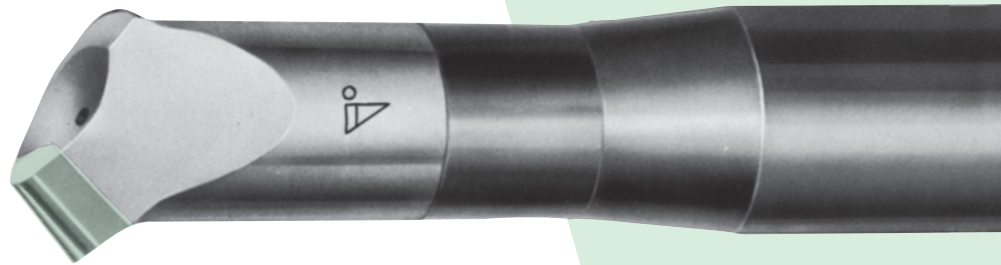


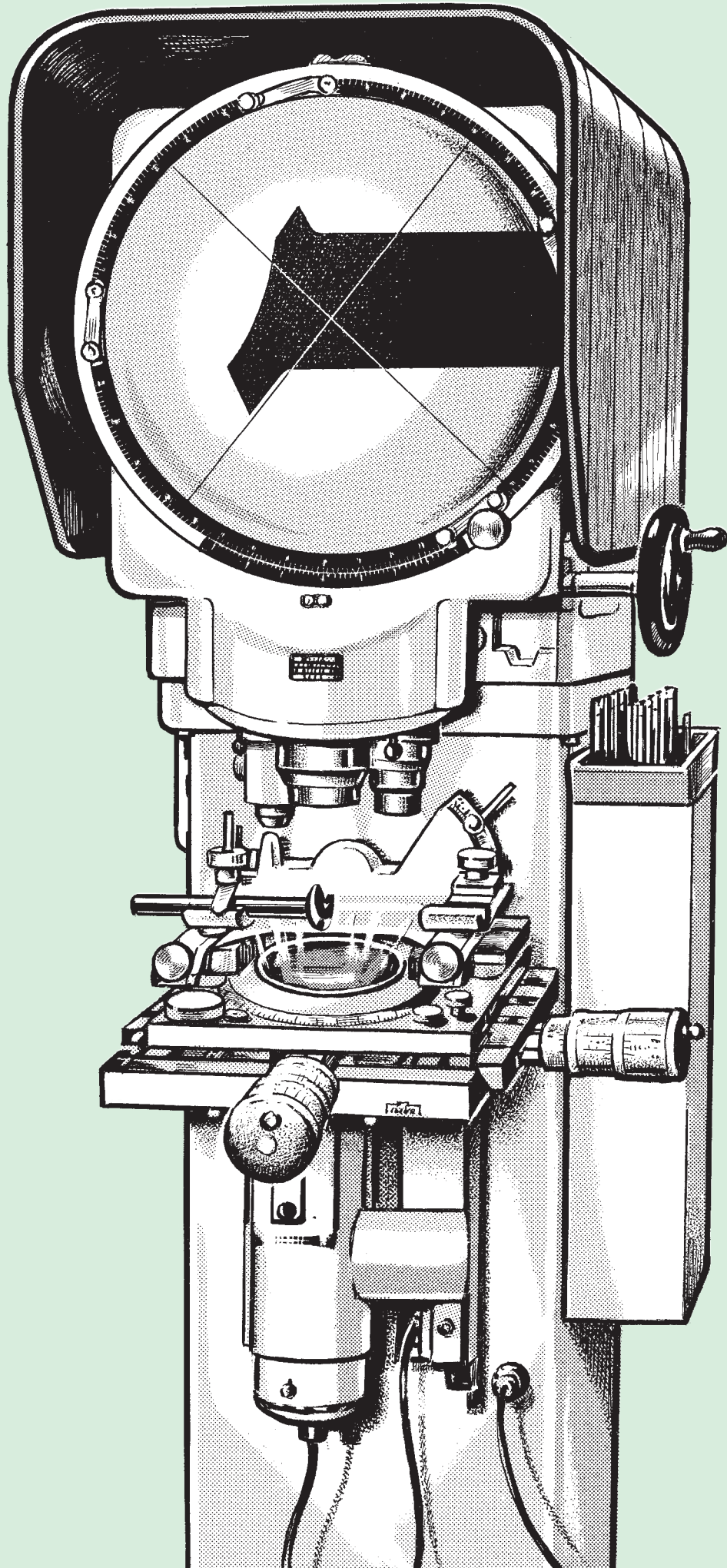
HIGH PERFORMANCE CUTTING TOOLS










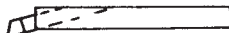












IFANGER

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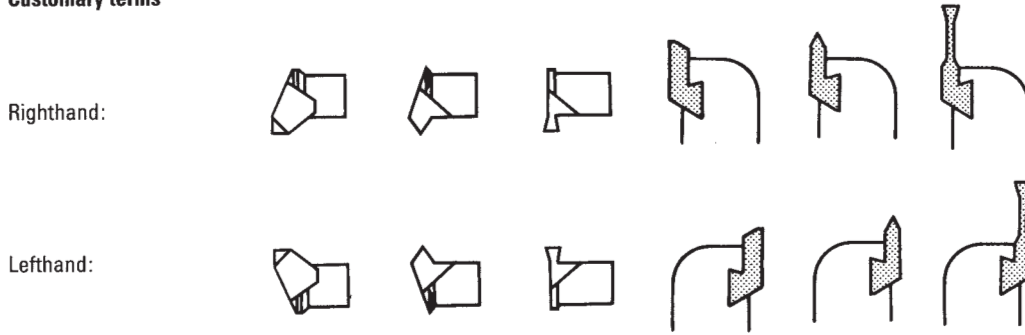


Quality control:
Measuring of profile

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General Information on IFANGER Tools

Customary terms



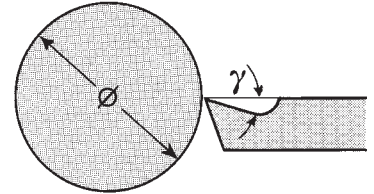
- Head:** Cutting part of an assembled boring tool.
- Cutter:** Cutting part of an assembled boring, turning tool or counterbore/countersink tool.
- Shank:** Part carrying the head of a boring tool or the cutter of a counterbore/countersink tool, made of ECN case-hardened.
- Toolholder:** Part carrying 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.
The use of TiN-coated tools is particularly recommended for machining:
– soft materials like steel up to 500 N/mm², aluminum, copper, a.s.o.
– materials with abrasive qualities
– high-temperature resisting alloys and stainless steel
– internal turning of small diameters and grooving tools
– 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
P 10	High hardness, limited shock resistance	steel, cast steel, high cutting speed, small or medium chip section
P 30	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)
K 10	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 mm ²	Example for "s" × "t"	HSS-CO (Kob)	HSS (Rap)	TiN	Carbide P30 K10		HSS-CO/HSS/TiN	Carbide P30 K10	
Steel up to 50 kg/mm ² tensile strength	0.3	0.1×3/0.2×1.5	60	40	100	200		25	18	
	0.6	0.3×2/0.2×3	50	35	90	200				
	1.5	0.3×5/0.5×3	40	30	75	150				
	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/mm ² tensile strength	0.3	0.1×3/0.2×1.5	50	35	90	150		20	12	
	0.6	0.2×3/0.3×2	40	30	75	150				
	1.5	0.3×5/0.5×3	35	25	60	100				
	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	15		10
	0.6	0.2×3/0.3×2	30	25	50		100			
	1.5	0.3×5/0.5×3	25	20	45		100			
	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	30		20
	1	0.2×5/0.4×2.5	150	100	240		400			
Copper	2	0.4×5/0.2×10	100	70	180		400			
	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	5		5
	1	0.2×5/0.4×2.5	100	70	180		300			
	2	0.4×5/0.2×10	70	50	125		300			
	5	0.4×12/0.6×8	50	35	90		200			
	10	0.6×17/1×10	35	25			150			

Piece to be machined \varnothing mm	Number of revolutions at cutting speed (m/min) of														
	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

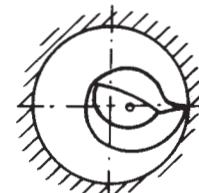
Fitting of replacement cutters on shanks



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.

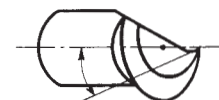


Resharpener of IFANGER boring tools

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

Boring tools ASB:

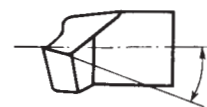
of HSS-CO, HSS, TiN-coated	20°
with carbide tips for steel	20°
for cast iron	15°



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°



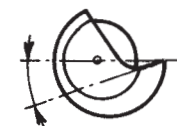
Bottoming and facing tools ECS radial:

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.

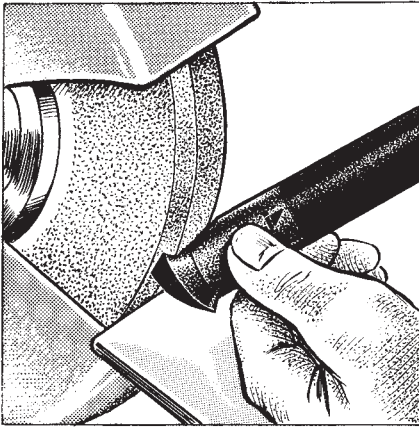
Recommended rake angles on ASB, ECS, NUS, HAS, GRS and FLG:

Material to be machined	Rake angles	
	HSS-CO, HSS and TiN-coated	Carbide tipped
Steel 30–50 kg/mm ²	25°	20°
Steel 50–80 kg/mm ²	20°	15°
Grey cast iron	10°–15°	10°
Aluminum	30°	20°–25°
Copper	30°	20°–25°
Brass	0°–10°	0°–10°

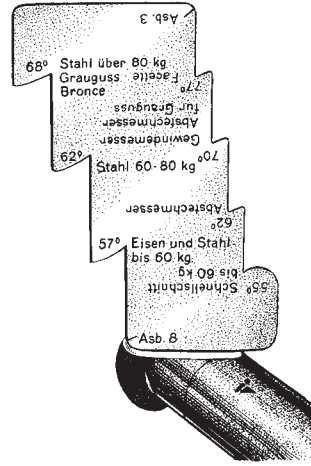


Freehand-Resharpener of Boring Tools IFANGER

Boring tools ASB and Facing and Bottoming tools ECS

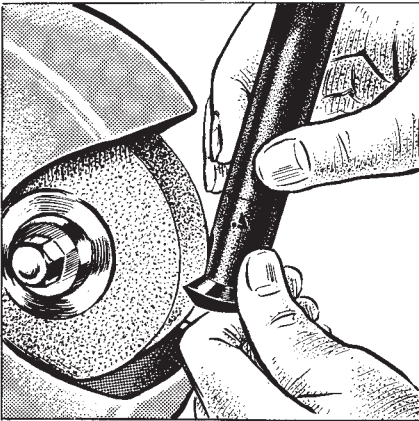


Manual resharpener with IFANGER tool grinding machines for freehand grinding.
 Recommended equipment of grinding machines:
 Grinding wheels of aluminumoxide 46 and 60 J for HSS-CO and HSS.
 Grinding wheels of silicone carbide of 46 to 120 grains per square inch,
 hardness H for carbide.



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

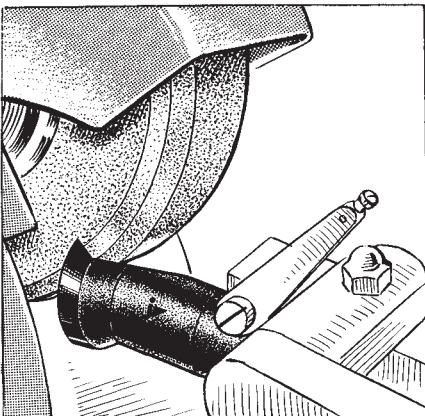


Manual resharpener.
 Diameter of grinding wheel: 50 to 100 mm.
 Grinding wheels of aluminumoxide 60 J for HSS-CO and HSS.
 Grinding wheels of silicone carbide 80 H or diamond grinding wheels for carbide.



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

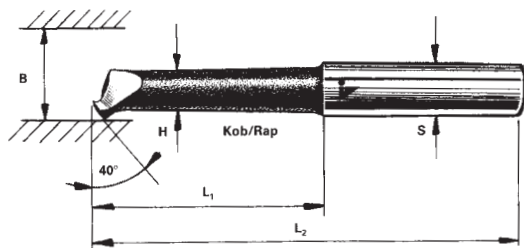
Mechanical Resharpener of IFANGER Boring Tools ASB and ECS



Resharpener with sharpening fixture or mechanical sharpening machine.
 Special grinding wheel of aluminumoxide for HSS-CO and HSS.
 Special diamond grinding wheel for carbide.



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



ASB nos. 0000-2R



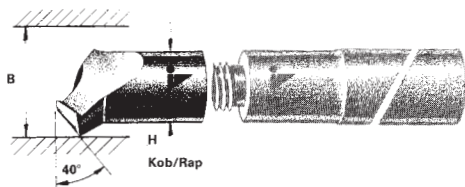
How to order (example): 10 pieces ASB-00-R-N-Rap. (Original box of 5 pieces)

For sets refer to page 21

Size ASB	Code number for righthand-side cutting (for lefthand-side cutting: replace "R" by "L")	Availability					Recommended minimum bore B / mm	Ø of neck H mm	Ø S-h7 of shank mm	Length of neck L ₁ mm	Total length L ₂ mm
		"R"		"L"							
		Kob	Rap	TiN	Kob	TiN					
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)

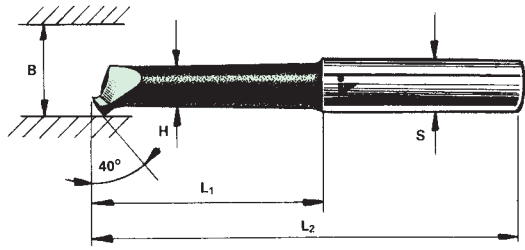
Size ASB/ADK	Code number for righthand-side cutting ASB (for lefthand-side cutting: replace "R" by "L")	Availability						Code number for ADK 2nd flank relief-ground for use on boring heads	Availability						Recommended minimum bore B / mm	Ø of neck H mm	Thread
		ASB "R"			ASB "L"				ADK "R"			ADK "L"					
		Kob	Rap	TiN	Kob	TiN	Kob		Rap	TiN	Kob	Rap	TiN				
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



Boring Tools ASB (for thru holes) with Carbide Tips



ASB nos. 0000-000R



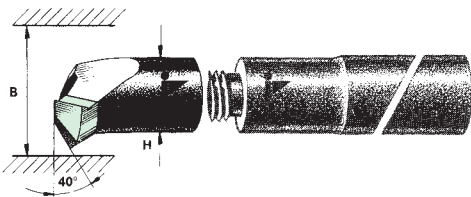
ASB nos. 00-2R

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						Recommended minimum bore B / mm	Ø of neck H mm	Ø S-h7 of shank mm	Length of neck L ₁ mm	Total length L ₂ mm
		"R"			"L"							
		K10	P10	P30	K10	P10	P30					
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

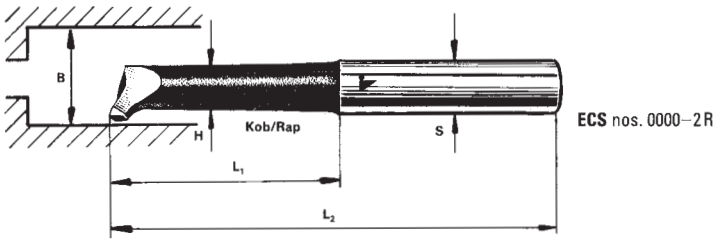
How to order (example): 5 pieces ASB-5-R-K10

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

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



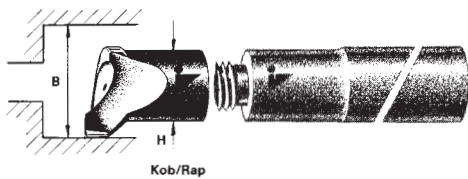
How to order (example): 10 pieces ECS-0-R-N-Rap. (Original box of 5 pieces)

For sets refer to page 21

Size ECS	Code number for righthand-side cutting (for lefthand-side cutting: replace "R" by "L")	Availability					Recommended minimum bore B / mm	Ø of neck H mm	Ø S-h7 of shank mm	Length of neck L ₁ mm	Total length L ₂ mm
		"R"			"L"						
		Kob	Rap	TiN	Kob	TiN					
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)

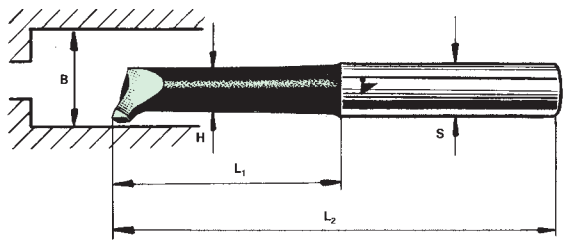
Size ECS	Code number for righthand-side cutting (for lefthand-side cutting: replace "R" by "L")	Availability					Recommended minimum bore B/mm	Ø of neck H mm	Thread
		"R"			"L"				
		Kob	Rap	TiN	Kob	TiN			
3	ECS-3-R...	●	●	●	●	○	17	10	M6
4	ECS-4-R...	●	●	●	●	○	21	12	M8
5	ECS-5-R...	●	●	●	●	○	24	14	M10×20TPI
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. 0000-000R



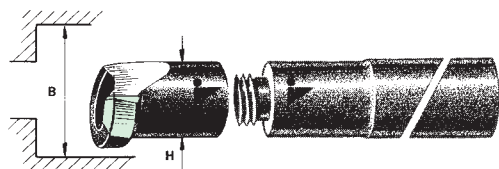
ECS nos. 00-2R

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						Recommended minimum bore B / mm	Ø of neck H mm	Ø S-h7 of shank mm	Length of neck L ₁ mm	Total length L ₂ mm
		"R"			"L"							
		K10	P10	P30	K10	P10	P30					
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

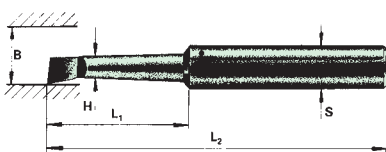
How to order (example): 5 pieces ECS-6-R-K10

Size ECS	Code number for righthand-side cutting (for lefthand-side cutting: replace "R" by "L")	Availability						Recommended minimum bore B / mm	Ø of neck H mm	Thread
		"R"			"L"					
		K10	P10	P30	K10	P10	P30			
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

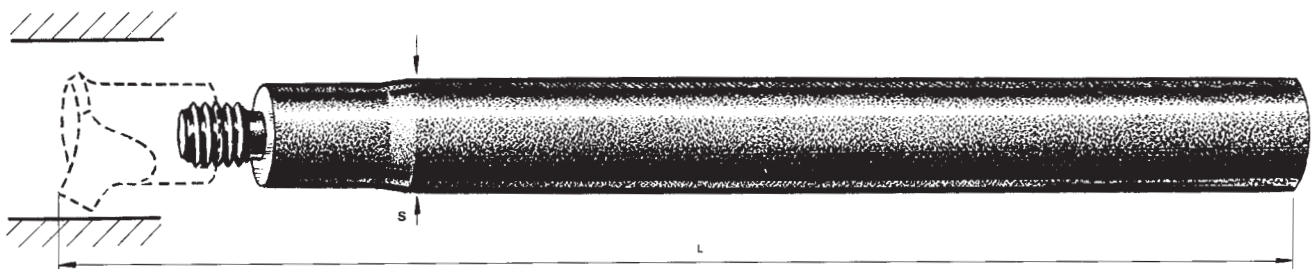
Size MDK	Code number	Availability	Ø S-h7 of shank mm	Ø of neck H mm	Recomm. minimum bore B / mm	Length of neck L ₁ mm	Total length L ₂ mm
		Carbide					
4/0.8	MDK-4/0.8-HM	●	4	0.8	1	5	30
4/1	MDK-4/1-HM	●	4	1	1.2	7	30
4/1.2	MDK-4/1.2-HM	●	4	1.2	1.5	8	30
4/1.5	MDK-4/1.5-HM	●	4	1.5	1.8	9	30
4/2	MDK-4/2-HM	●	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

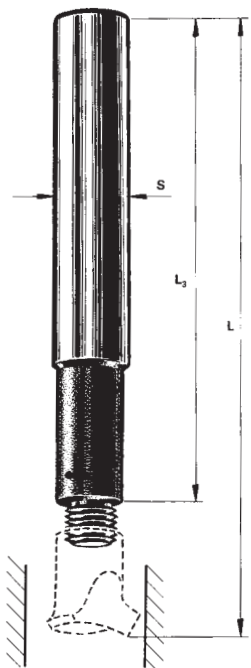
Normal series						
Size SCH	Code number for righthand-side (for lefthand-side: replace "R" by "L")	Availability		Ø S-h11 of shank mm	Thread	Total length L mm
		"R"	"L"			
3	SCH-3-R-N	●	●	10	M6	100
	SCH-3-R-T	●	●	10	M6	125
	SCH-3-R-V	●	●	12	M6	200
4	SCH-4-R-N	●	●	13	M8	230
5	SCH-5-R-N	●	●	15	M10×20TPI	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		Ø S-h11 of shank mm	Thread	Total length L mm
		"R"	"L"			
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	Ø S-h7 of shank mm	Length of shank L ₃ mm	Code number for righthand-side (for lefthand-side: replace "R" by "L")	Availability		Thread	Total length L mm
				"R"	"L"		
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

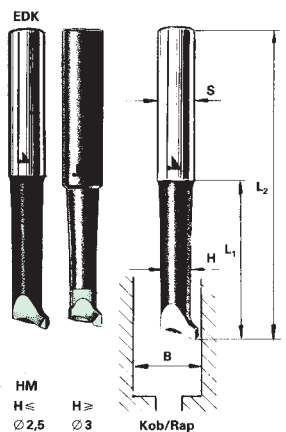
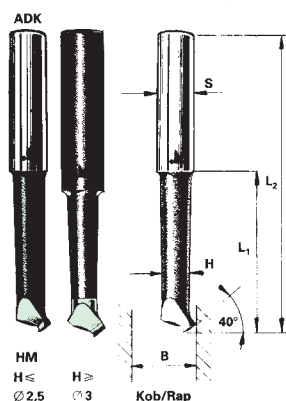
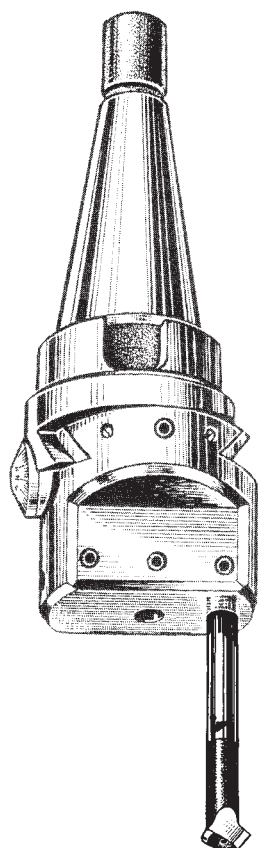
Availability: ● ex stock / ○ within short notice



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



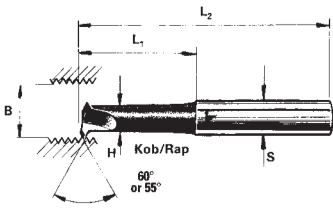
Size ADK or EDK	Code number for righthand-side cutting ADK	Availability ADK-...-R-...					Code number for righthand-side cutting EDK	Availability EDK-...-R-...					Ø S-h7 of shank mm	Ø of neck H mm	Recomm. minimum bore B / mm	Length of neck L1 mm	Total length L2 mm
		Kob	Rap	TiN	K10	P30		Kob	Rap	TiN	K10	P30					
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. 000-2A

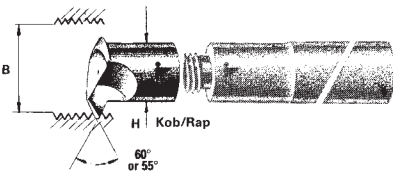


How to order (example): 10 pieces G60-1-A-T-Kob. (Original box of 5 pieces)

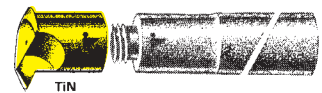
For sets refer to page 21

Size GWS	Code number Cutting form for: righthand thread by forward movement	Availability			Code number Cutting form for: lefthand thread by forward movement	Availability		Recommended minimum bore B/ mm	Ø of neck H mm	Ø S-h7 of shank mm	Length of neck L ₁ mm	Total length L ₂ mm
		Kob	Rap	TiN		Kob	TiN					
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. 3-11A 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			Code number Cutting form for: lefthand thread by forward movement	Availability		Recomm. minimum bore B/ mm	Ø of neck H mm	Thread
		Kob	Rap	TiN		Kob	TiN			
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

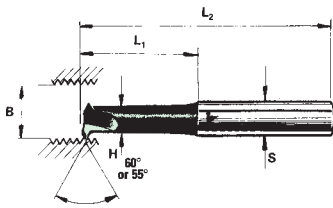
▲ Please indicate here alloy required ▲

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

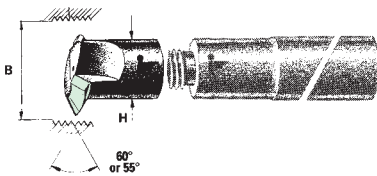


G60(55) nos. 00-2

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

Size GWS	Code number cutting form for: righthand thread by forward movement	Availability		Code number cutting form for: lefthand thread by forward movement	Availability		Recommended minimum bore B / mm	Ø of neck H mm	Ø S-h7 of shank mm	Length of neck L ₁ mm	Total length L ₂ mm
		K10	P30		K10	P30					
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

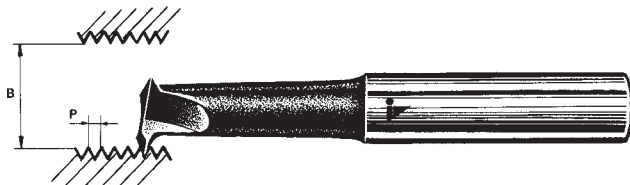
Size GWS	Code number cutting form for: righthand thread by forward movement	Availability		Code number cutting form for: lefthand thread by forward movement	Availability		Recomm. minimum bore B / mm	Ø of neck H mm	Thread
		K10	P30		K10	P30			
3 60°	G60-3-A-...	●	●	G60-3-B-...	●	●	17	10	M6
3 55°	G55-3-A-...	●	●	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

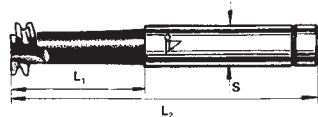
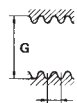


Size		000	00	0	1	2	3	4	5	6	7	8	9	10	11
Maximum pitch possible P	in mm	1.25	1.5	1.75	2	2.5	3.5	4	5	5.5	6.5	7.5	8	10	12
	in threads per inch	20	16	14	12	10	7	6	5	4 1/2	3 1/2	3	2 3/4	2 1/2	2
Minimum bore \varnothing B in mm		5	6.5	9	11	13	17	21	24	28	31	34	37	42	50
Suitable for	metric thread	M6	M8	M10	M12-16	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)	 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...)	 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...)
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.)		Code number: replace letter "A" in code for type A by "C".	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-4-28x8G-R-Kob.

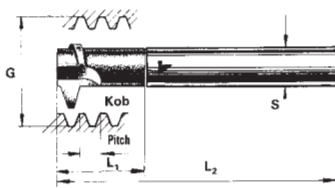
\varnothing G of thread	Size RDG	Pitch of thread 10 TPI Code number	Pitch of thread 8 TPI Code number	Pitch of thread 6 TPI Code number	Pitch of thread 4 TPI Code number	\varnothing S-h7, mm	Thread	Lengths	
								L1, mm	L2, mm
12	0/1	RDG-0/1-12x10G-R-Kob	●			8		31	60
14	1	RDG-1-14x10G-R-Kob	●			8		30	64
16	1/2	RDG-1/2-16x10G-R-Kob	●			8		35	69
18	2	RDG-2-18x10G-R-Kob	●			8		—	80
20	2	RDG-2-20x10G-R-Kob	●	RDG-2-20x8G-R-Kob	●	8		—	80
22	2		RDG-2-22x8G-R-Kob	●		8		—	80
22	3	RDG-3-22x10G-R-Kob	●				M6		
25	3	RDG-3-25x10G-R-Kob	●	RDG-3-25x8G-R-Kob	●		M6		
25	4			RDG-4-25x6G-R-Kob	●		M8		
28	4		RDG-4-28x8G-R-Kob	●	RDG-4-28x6G-R-Kob	●	M8		
30	4	RDG-4-30x10G-R-Kob	●	RDG-4-30x8G-R-Kob	●		M8		
30	5			RDG-5-30x6G-R-Kob	●		M10x20 TPI		
32	5		RDG-5-32x8G-R-Kob	●			M10x20 TPI		
35	4	RDG-4-35x10G-R-Kob	●				M8		
35	5			RDG-5-35x6G-R-Kob	●		M10x20 TPI		
35	6		RDG-6-35x8G-R-Kob	●	RDG-6-35x4G-R-Kob	●	M12x20 TPI		
38	6		RDG-6-38x8G-R-Kob	●	RDG-6-38x6G-R-Kob	●	RDG-6-38x4G-R-Kob	●	M12x20 TPI
40	5	RDG-5-40x10G-R-Kob	●				M10x20 TPI		
40	6		RDG-6-40x8G-R-Kob	●	RDG-6-40x6G-R-Kob	●	RDG-6-40x4G-R-Kob	●	M12x20 TPI
45	5	RDG-5-45x10G-R-Kob	●				M10x20 TPI		
45	6		RDG-6-45x8G-R-Kob	●			M12x20 TPI		
45	8			RDG-8-45x6G-R-Kob	●	RDG-8-45x4G-R-Kob	●	M15x20 TPI	
50	6	RDG-6-50x10G-R-Kob	●				M12x20 TPI		
50	8		RDG-8-50x8G-R-Kob	●	RDG-8-50x6G-R-Kob	●	RDG-8-50x4G-R-Kob	●	M15x20 TPI
55	8		RDG-8-55x8G-R-Kob	●	RDG-8-55x6G-R-Kob	●	RDG-8-55x4G-R-Kob	●	M15x20 TPI
60	6	RDG-6-60x10G-R-Kob	●				M12x20 TPI		
60	8		RDG-8-60x8G-R-Kob	●	RDG-8-60x6G-R-Kob	●	RDG-8-60x4G-R-Kob	●	M15x20 TPI
70	8		RDG-8-70x8G-R-Kob	●	RDG-8-70x6G-R-Kob	●			M15x20 TPI
70	10						RDG-10-70x4G-R-Kob	●	M18x20 TPI
80	8	RDG-8-80x10G-R-Kob	●	RDG-8-80x8G-R-Kob	●				M15x20 TPI
80	10			RDG-10-80x6G-R-Kob	●	RDG-10-80x4G-R-Kob	●		M18x20 TPI
100	8		RDG-8-100x8G-R-Kob	●					M15x20 TPI
100	10			RDG-10-100x6G-R-Kob	●	RDG-10-100x4G-R-Kob	●		M18x20 TPI
120	10						RDG-10-120x4G-R-Kob	●	M18x20 TPI
150	10						RDG-10-150x4G-R-Kob	●	M18x20 TPI

* Availability: ● ex stock for righthand thread

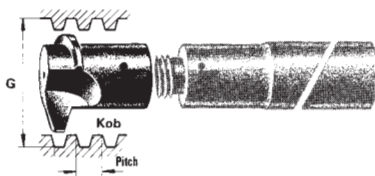


Tools TRG of HSS-CO (Kob), TiN-coated and Carbide Tipped for Cutting Trapezoidal Threads
Tools FLG of HSS-CO (Kob), TiN-coated and Carbide Tipped for Cutting Square Threads

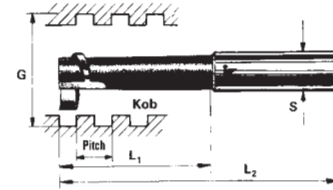
TRG nos. 0-2R



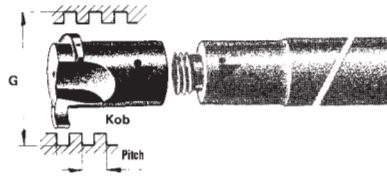
Heads: TRG nos. 3-12R
Shanks see page 12



FLG nos. 0-2R



Heads: FLG nos. 3-12R
Shanks see page 12



How to order (example): 5 TRG-4x3-R-Kob.
5 FLG-0x2-R-Kob.

Pitch	Thread Range of \varnothing G	Size TRG or FLG	Code number for tools for righthand threads during forward movement (for lefthand threads during forward movement replace "R" by "L")	Availability TRG								Code number for tools for righthand threads during forward movement (for lefthand threads during forward movement replace "R" by "L")	Availability FLG								\varnothing S-h7 of shank	Thread	Length	
				"R"				"L"					"R"				"L"						L ₁	L ₂
mm	mm		TRG	Kob	TiN	K10	P30	Kob	TiN	K10	P30	FLG	Kob	TiN	K10	P30	Kob	TiN	K10	P30	mm		mm	
2	14- 10	0	TRG-0x2-R...	●	○	×	×	●	○	×	×	FLG-0x2-R...	●	○	×	×	●	○	×	×	8	—	20	55
2	22- 14	2	TRG-2x2-R...	●	○	×	×	●	○	×	×	FLG-2x2-R...	●	○	×	×	●	○	×	×	8	—	—	80
2	45- 20	3	TRG-3x2-R...	●	○	×	×	●	○	×	×	FLG-3x2-R...	●	○	×	×	●	○	×	×	8	M6	—	—
2	90- 28	5	TRG-5x2-R...	●	○	×	×	●	○	×	×	FLG-5x2-R...	●	○	×	×	●	○	×	×	8	M10x20TPI	20	55
3	13- 10	0	TRG-0x3-R...	●	○	×	×	●	○	×	×	FLG-0x3-R...	●	○	×	×	●	○	×	×	8	—	30	64
3	19- 14	1	TRG-1x3-R...	●	○	×	×	●	○	×	×	FLG-1x3-R...	●	○	×	×	●	○	×	×	8	—	—	—
3	32- 20	3	TRG-3x3-R...	●	○	×	×	●	○	×	×	FLG-3x3-R...	●	○	×	×	●	○	×	×	8	M6	—	—
3	45- 25	4	TRG-4x3-R...	●	○	×	×	●	○	×	×	FLG-4x3-R...	●	○	×	×	●	○	×	×	8	M8	—	—
3	70- 30	6	TRG-6x3-R...	●	○	×	×	●	○	×	×	FLG-6x3-R...	●	○	×	×	●	○	×	×	8	M12x20TPI	—	—
3	120- 40	8	TRG-8x3-R...	●	○	×	×	●	○	×	×	FLG-8x3-R...	●	○	×	×	●	○	×	×	8	M15x20TPI	—	—
4	17- 14	1	TRG-1x4-R...	●	○	×	×	●	○	×	×	FLG-1x4-R...	●	○	×	×	●	○	×	×	8	—	30	64
4	24- 18	2	TRG-2x4-R...	●	○	×	×	●	○	×	×	FLG-2x4-R...	●	○	×	×	●	○	×	×	8	—	—	80
4	30- 20	3	TRG-3x4-R...	●	○	×	×	●	○	×	×	FLG-3x4-R...	●	○	×	×	●	○	×	×	8	M6	—	—
4	40- 26	4	TRG-4x4-R...	●	○	×	×	●	○	×	×	FLG-4x4-R...	●	○	×	×	●	○	×	×	8	M8	—	—
4	70- 35	6	TRG-6x4-R...	●	○	×	×	●	○	×	×	FLG-6x4-R...	●	○	×	×	●	○	×	×	8	M12x20TPI	—	—
4	120- 45	8	TRG-8x4-R...	●	○	×	×	●	○	×	×	FLG-8x4-R...	●	○	×	×	●	○	×	×	8	M15x20TPI	—	—
5	22- 18	2	TRG-2x5-R...	●	○	×	×	●	○	×	×	FLG-2x5-R...	●	○	×	×	●	○	×	×	8	—	—	80
5	30- 22	3	TRG-3x5-R...	●	○	×	×	●	○	×	×	FLG-3x5-R...	●	○	×	×	●	○	×	×	8	M6	—	—
5	40- 28	4	TRG-4x5-R...	●	○	×	×	●	○	×	×	FLG-4x5-R...	●	○	×	×	●	○	×	×	8	M8	—	—
5	60- 35	6	TRG-6x5-R...	●	○	×	×	●	○	×	×	FLG-6x5-R...	●	○	×	×	●	○	×	×	8	M12x20TPI	—	—
5	150- 45	8	TRG-8x5-R...	●	○	×	×	●	○	×	×	FLG-8x5-R...	●	○	×	×	●	○	×	×	8	M15x20TPI	—	—
6	34- 26	4	TRG-4x6-R...	●	○	×	×	●	○	×	×	FLG-4x6-R...	●	○	×	×	●	○	×	×	8	M8	—	—
6	40- 30	5	TRG-5x6-R...	●	○	×	×	●	○	×	×	FLG-5x6-R...	●	○	×	×	●	○	×	×	8	M10x20TPI	—	—
6	50- 34	6	TRG-6x6-R...	●	○	×	×	●	○	×	×	FLG-6x6-R...	●	○	×	×	●	○	×	×	8	M12x20TPI	—	—
6	90- 45	8	TRG-8x6-R...	●	○	×	×	●	○	×	×	FLG-8x6-R...	●	○	×	×	●	○	×	×	8	M15x20TPI	—	—
6	180- 60	10	TRG-10x6-R...	●	○	×	×	●	○	×	×	FLG-10x6-R...	●	○	×	×	●	○	×	×	8	M18x20TPI	—	—
7	48- 35	6	TRG-6x7-R...	●	○	×	×	●	○	×	×	FLG-6x7-R...	●	○	×	×	●	○	×	×	8	M12x20TPI	—	—
7	60- 40	7	TRG-7x7-R...	●	○	×	×	●	○	×	×	FLG-7x7-R...	●	○	×	×	●	○	×	×	8	M14x20TPI	—	—
7	70- 45	8	TRG-8x7-R...	●	○	×	×	●	○	×	×	FLG-8x7-R...	●	○	×	×	●	○	×	×	8	M15x20TPI	—	—
7	180- 60	10	TRG-10x7-R...	●	○	×	×	●	○	×	×	FLG-10x7-R...	●	○	×	×	●	○	×	×	8	M18x20TPI	—	—
8	46- 35	6	TRG-6x8-R...	●	○	×	×	●	○	×	×	FLG-6x8-R...	●	○	×	×	●	○	×	×	8	M12x20TPI	—	—
8	55- 40	7	TRG-7x8-R...	●	○	×	×	●	○	×	×	FLG-7x8-R...	●	○	×	×	●	○	×	×	8	M14x20TPI	—	—
8	65- 45	8	TRG-8x8-R...	●	○	×	×	●	○	×	×	FLG-8x8-R...	●	○	×	×	●	○	×	×	8	M15x20TPI	—	—
8	240- 60	10	TRG-10x8-R...	●	○	×	×	●	○	×	×	FLG-10x8-R...	●	○	×	×	●	○	×	×	8	M18x20TPI	—	—
9	62- 45	8	TRG-8x9-R...	●	○	×	×	●	○	×	×	FLG-8x9-R...	●	○	×	×	●	○	×	×	8	M12x20TPI	—	—
9	240- 60	10	TRG-10x9-R...	●	○	×	×	●	○	×	×	FLG-10x9-R...	●	○	×	×	●	○	×	×	8	M18x20TPI	—	—
10	65- 48	8	TRG-8x10-R...	●	○	×	×	●	○	×	×	FLG-8x10-R...	●	○	×	×	●	○	×	×	8	M15x20TPI	—	—
10	90- 60	10	TRG-10x10-R...	●	○	×	×	●	○	×	×	FLG-10x10-R...	●	○	×	×	●	○	×	×	8	M18x20TPI	—	—
10	240- 80	11	TRG-11x10-R...	●	○	×	×	●	○	×	×	FLG-11x10-R...	●	○	×	×	●	○	×	×	8	M21x14TPI	—	—
12	80- 55	10	TRG-10x12-R...	●	○	×	×	●	○	×	×	FLG-10x12-R...	●	○	×	×	●	○	×	×	8	M18x20TPI	—	—
12	110- 70	11	TRG-11x12-R...	●	○	×	×	●	○	×	×	FLG-11x12-R...	●	○	×	×	●	○	×	×	8	M21x14TPI	—	—
12	400-100	12	TRG-12x12-R...	●	○	×	×	●	○	×	×	FLG-12x12-R...	●	○	×	×	●	○	×	×	8	M25x14TPI	—	—

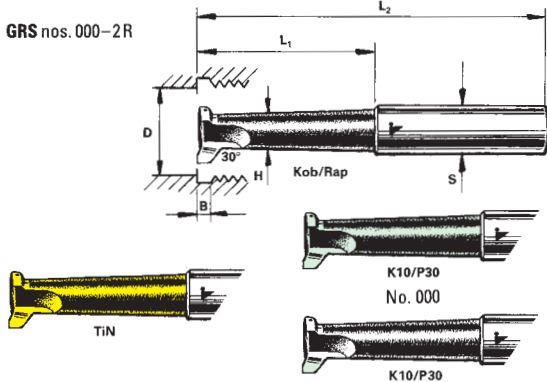
▲ Please indicate here alloy or grade of carbide required ▲

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

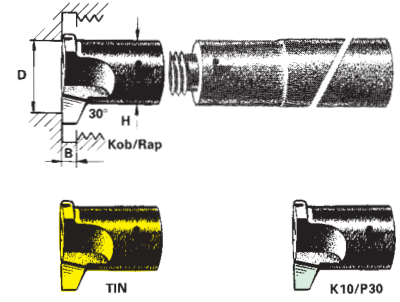
Availability: ● ex stock / ○ within short notice / × on request

GRS

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



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



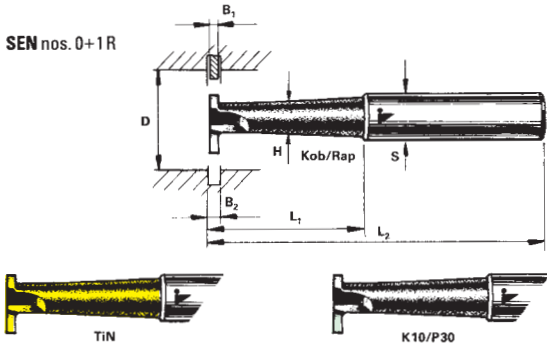
How to order (example): 5 pieces GRS-1-R-TiN No. 00-2

Size GRS	Code number for righthand-side cutting (for lefthand-side cutting replace "R" by "L")	Availability								Recomm. minimum bore D / mm	Width B mm	Ø of neck H mm	Ø S-h7 of shank mm	Thread	Length of neck L ₁ mm	Total length L ₂ mm	
		"R"				"L"											
		Kob	Rap	TiN	K10	P30	Kob	TiN	K10	P30							
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			

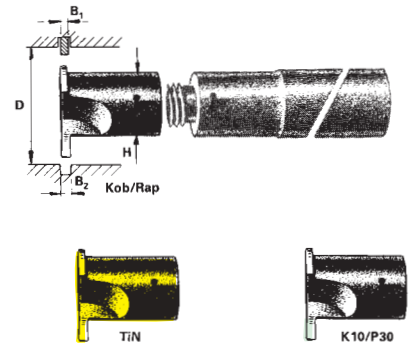
▲ Please indicate here alloy or grade of carbide required

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



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



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

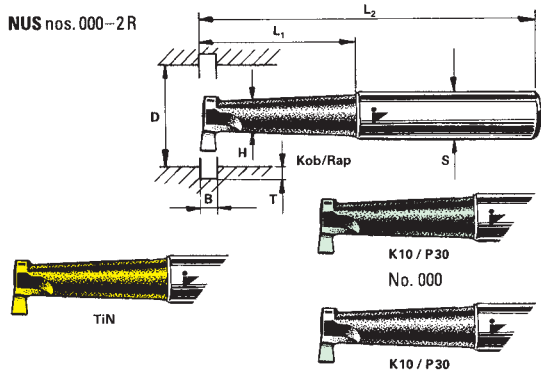
Size SEN	Code number for righthand-side cutting (for lefthand-side cutting replace "R" by "L")	Availability								Circlip thickness B ₁ mm	Width of groove B ₂ -H13 mm	For bore D mm	Ø of neck H mm	Ø S-h7 of shank mm	Thread	Length of neck L ₁ mm	Total length L ₂ mm	
		"R"				"L"												
		Kob	Rap	TiN	K10	P30	Kob	TiN	K10	P30								
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

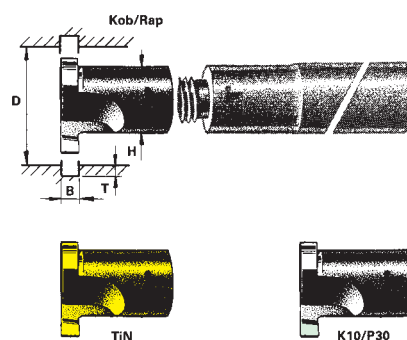
Availability: ● ex stock / ○ within short notice



Groove Finishing Tools NUS of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips



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

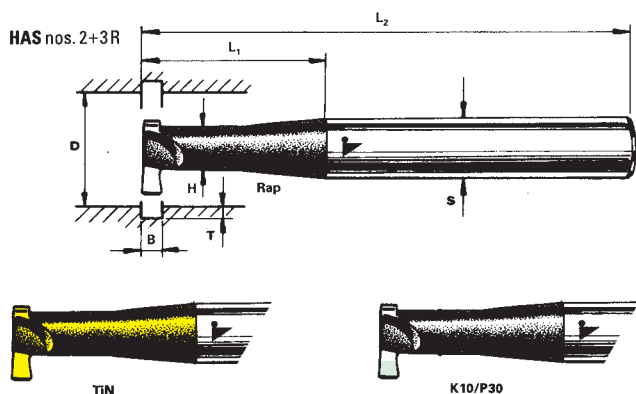


How to order (example): 5 pieces NUS-6-R-Kob. No. 00-2

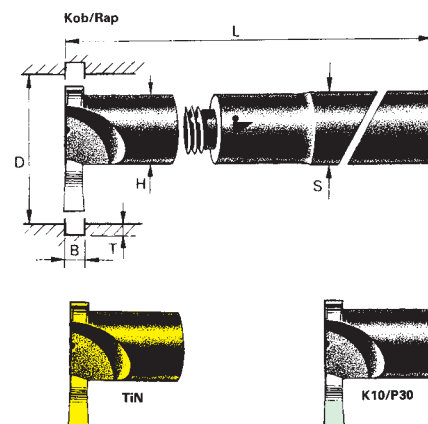
Size NUS	Code number for righthand-side cutting (for lefthand-side cutting replace "R" by "L")	Availability								Recomm. minimum bore D / mm	Width B mm	Max. groove depth T mm	Ø of neck H mm	Ø S-h7 of shank mm	Thread	Length neck L ₁ mm	Total length L ₂ mm		
		"R"				"L"													
		Kob	Rap	TiN	K10	P30	Kob	Rap	TiN	K10	P30								
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	—	—	—	—
4	NUS-4-R...	●	●	●	●	●	○	○	○	○	○	21	3	3.5	12	M6 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



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								Recomm. minimum bore D / mm	Width B mm	Max. groove depth T mm	Ø of neck H mm	Ø S-h7 of shank mm	Thread	Length neck L ₁ mm	Total length L ₂ mm		
		"R"				"L"													
		Kob	Rap	TiN	K10	P30	Kob	Rap	TiN	K10	P30								
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	—	—	—	—
6	HAS-6-R...	●	●	●	●	●	○	○	○	○	○	34	5	10	16.3	M8	—	—	
8	HAS-8-R...	●	●	●	●	●	○	○	○	○	○	40	6.5	11.5	20	M12×20TPI	—	—	
10	HAS-10-R...	●	●	●	●	●	○	○	○	○	○	48	8	13	25	M15×20TPI M18×20TPI	—	—	

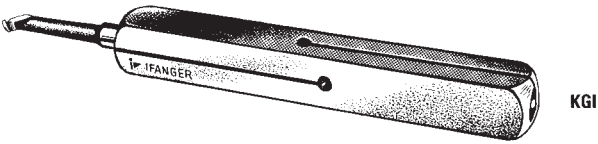
▲ Please indicate here alloy or grade of carbide required

Availability: ● ex stock / ○ within short notice

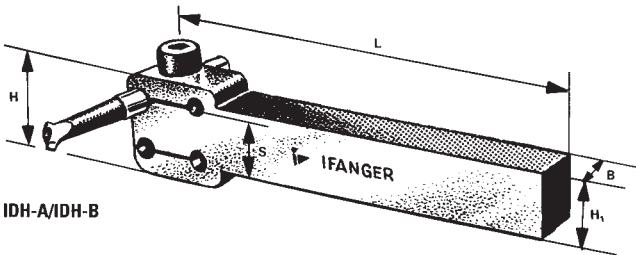
KGI

Standard Tool Holders for Boring Tools

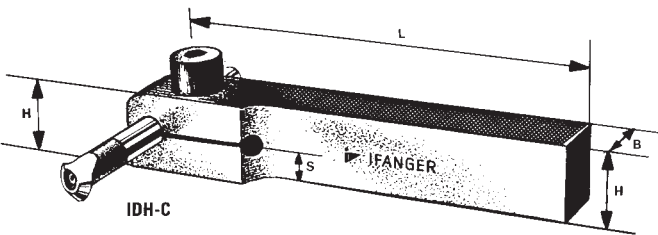
Clamping holders KGI



IDH Tool holders IDH for internal turning tools sizes 0000-3



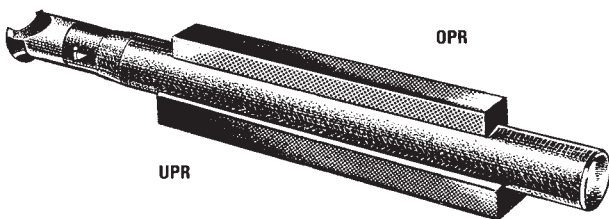
IDH-A/IDH-B



IDH-C

OPR – UPR

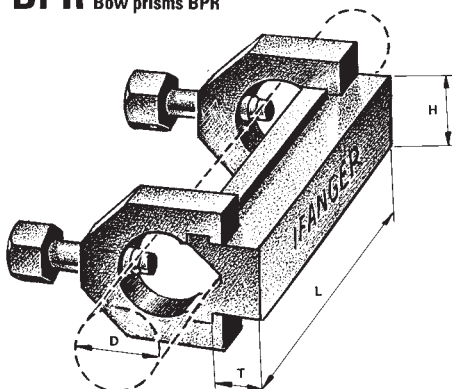
Prisms



UPR

OPR

BPR Bow prisms BPR



How to order (example): 5 pieces KGI

For tools of sizes	For \varnothing 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

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

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

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

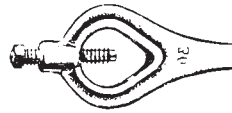
How to order (example): 1 piece BPR-20

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

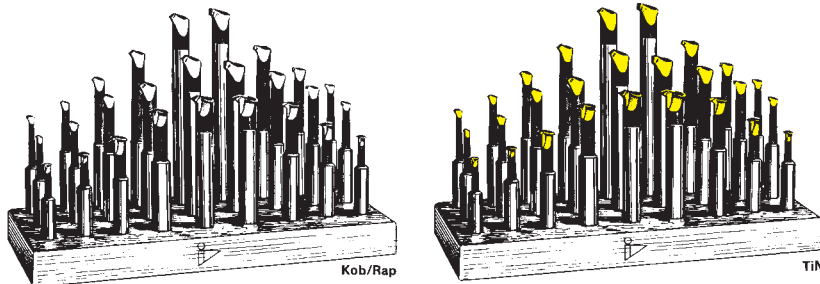


How to order (example): 1 piece DRH-40

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			Quantity of tools	Set consisting in:					
		Kob	Rap	TiN		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

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

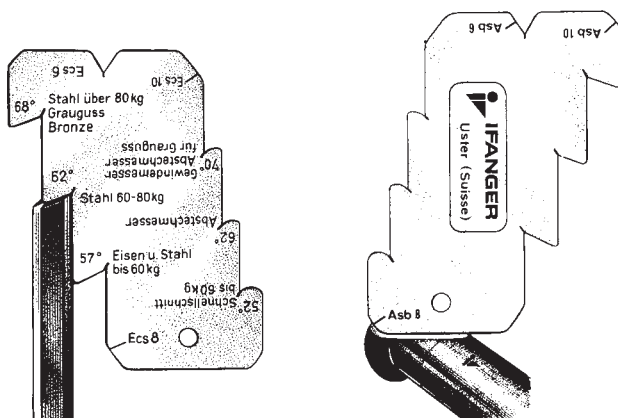
SA

Type SA of set	Code number	Availability			Quantity of tools	Set consisting in:			
		Kob	Rap	TiN		ADK	EDK	ADK	EDK
						∅-h7 of shank mm	∅ of neck mm	∅-h7 of shank mm	∅ 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

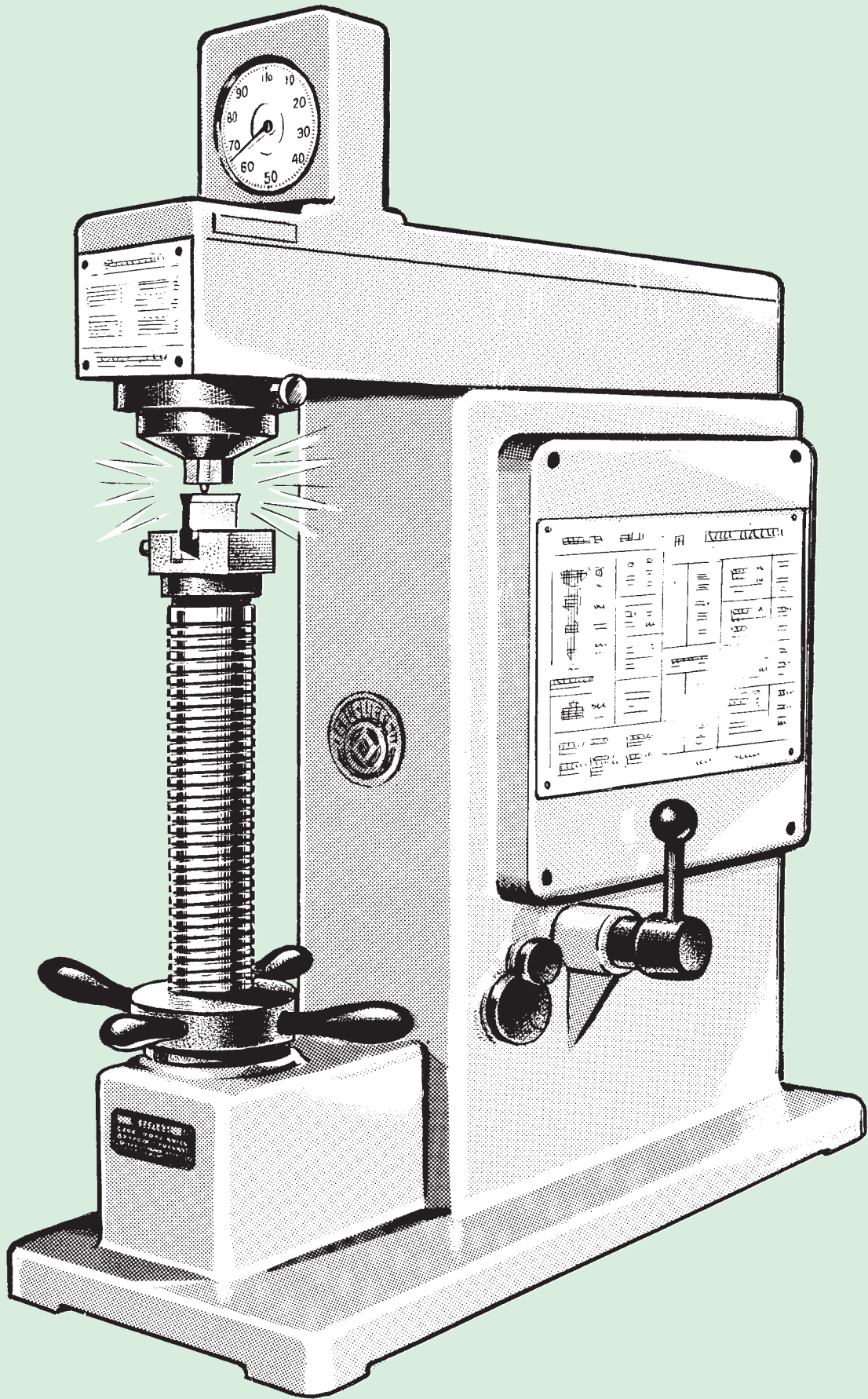
- indispensable for correct and accurate grinding of IFANGER turning tools

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

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

Availability: ● ex stock / ○ within short notice





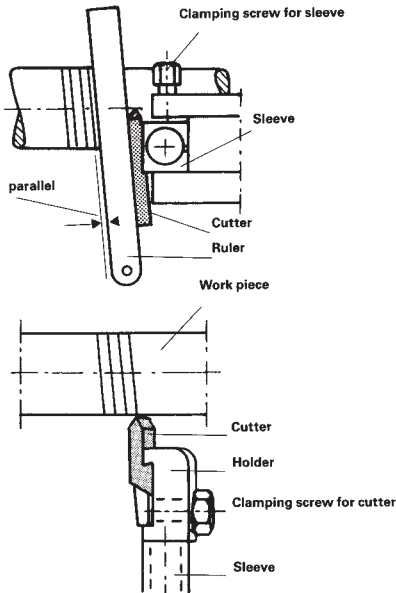
Quality control:
Hardness

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 older lathes it is recommended to use the holder GHS and to cut off in reverse.

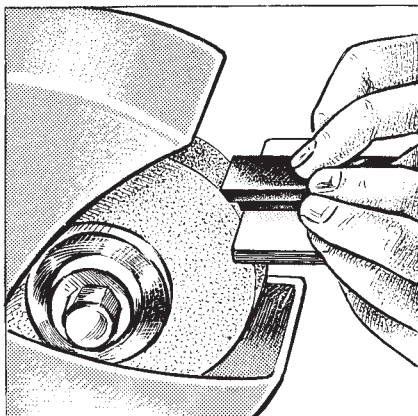
Threading cutters

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).

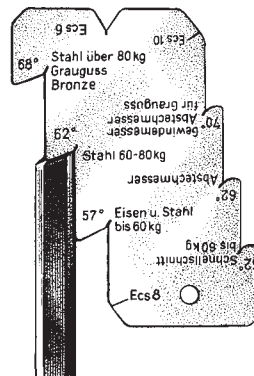
To reach the correct angle of inclination of the cutter in relation to the angle of pitch on the work piece, the following procedure is recommended:

- 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.

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

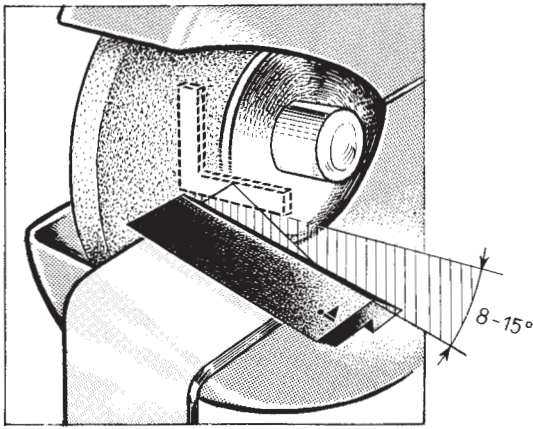


IFANGER cutters are only to be resharpened on the face for chip evacuation. Grinding wheels of aluminumoxide, grit 46 and 60, hardness J and K are recommended.

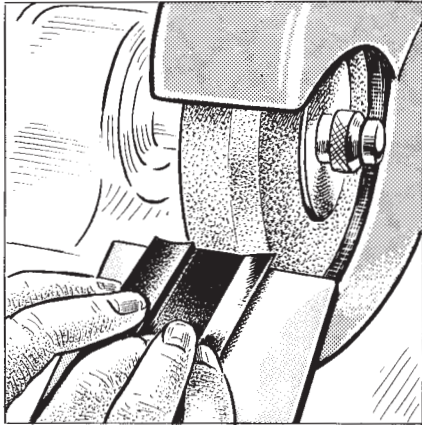


Rake angles can easily be checked with IFANGER grinding gauge.

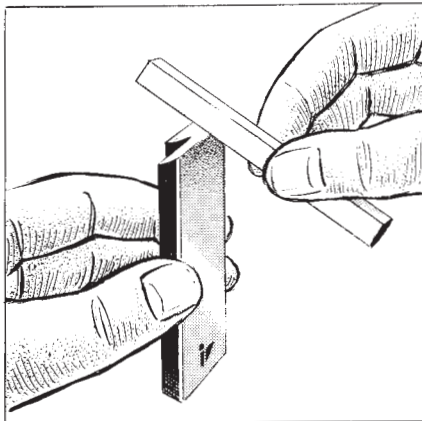




Grinding of the abrasion facet. It protects the cutter from excessive wear. Use grindstones or grinding wheels of a grit of 100 or finer.



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



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

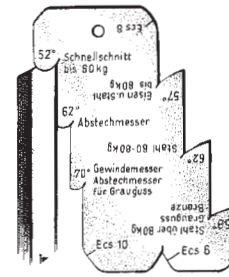
Resharpener of IFANGER Turning Tools with Carbide Tips

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.

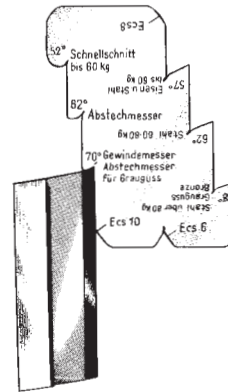
Roughing cutters A, B, X and Y as well as side cutters D and E are provided with grooves for chip evacuation. These grooves should be adapted to the cutting conditions and the material to be machined.



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.



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

Recommended rake angles

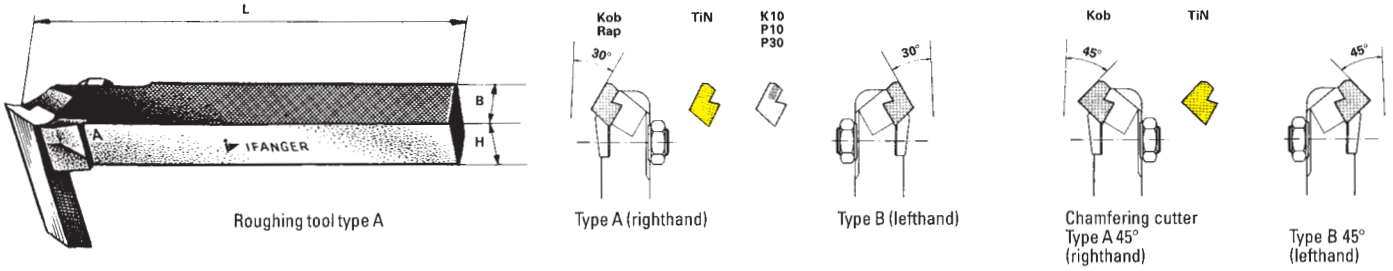
Material to be machined	Rake angles	
	HSS-CO, HSS and TiN-coated	Carbide tipped
Steel 30–50 kg/mm ²	25°	20°
Steel 50–80 kg/mm ²	20°	15°
Grey cast iron	10°–15°	10°
Aluminum	30°	20°–25°
Copper	30°	20°–25°
Brass	0°–10°	0°–10°

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: $0.5 \times \text{feed}$ (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



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

Size	For height of centers above tool rest mm		Measurements H×B×L mm	Holder Code number	Availability	Length mm	Code number	Cutter Availability						Chamfering cutter Code number		Availability	
	normal	relieved						Kob	Rap	TiN	K10	P10	P30	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



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

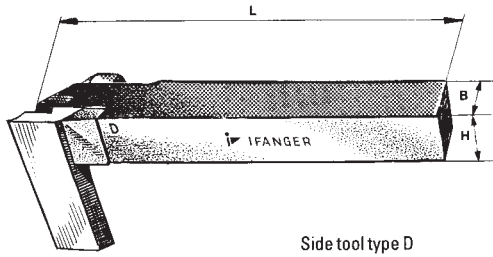
Size	For height of centers above tool rest mm		Measurements of holders H×B×L mm	Holder		Type X Cutter						Holder		Type Y Cutter									
	normal	relieved		Code number	Availability	Length mm	Code number	Kob	Rap	TiN	K10	P10	P30	Code number	Availability	Length mm	Code number	Kob	Rap	TiN	K10	P10	P30
1/12	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 ▲

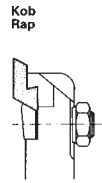
* When requiring intermediate measures, please indicate height of center or of shank (quick change tool posts), e.g. 1-XH-h-center 13 or 1-XH-h-shank 11.

Availability: ● ex stock / ○ within short notice

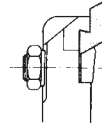
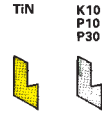
Side Tools D and E of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips Copying Cutters with Carbide Tips



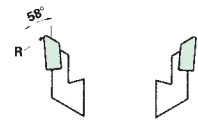
Side tool type D



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

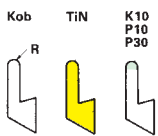
Size	For height of centers above tool rest mm		Measurements H×B×L mm	Holder		Length mm	Code number	Cutter						Radius R mm	Copying cutter		Availability			
	normal	relieved		Code number	Availability			Kob	Rap	TiN	K10	P10	P30		Code number	K10	P10	P30		
Type D																				
1/12	12		10×10×120	1/12-DH	●	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-...	●	●	●	●

* 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.

▲ Please indicate here alloy or grade of carbide required ▲

P/Q – T/U – V/W

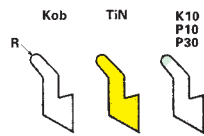
Finishing Cutters of HSS-CO (Kob), TiN-coated and with Carbide Tips



Finishing cutter Type P (righthand)



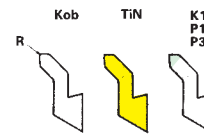
Type Q (lefthand)



Cranked finishing cutter Type T (righthand)



Type U (lefthand)



Cranked corner cutter Type V (righthand)



Type W (lefthand)

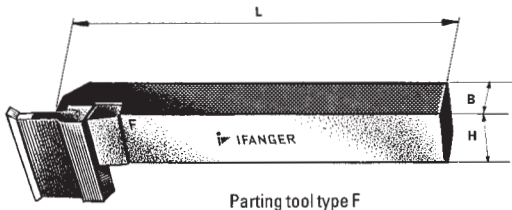
How to order (example): 5 pieces 3-T-P30

Size	To be used on holder						Cutter																					
	Type D (Meas. on p. 26)		Type F (only for P) (Meas. on p. 27)		Type K (Meas. on p. 29)		Type P					Type T					Type V											
	Code number	Availability	Code number	Availability	Code number	Availability	Radius R mm	Code number	Availability					Radius R mm	Code number	Availability					Radius R mm	Code number	Availability					
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		Type G (only for Q)		Type L																							
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-...	●	○	●	●	●	-	-	-	●	○	●	●	●	-	-	●	○	●	●	●

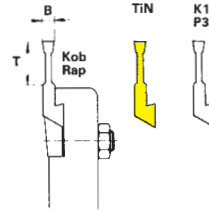
▲ Please indicate here alloy or grade of carbide required ▲

Availability: ● ex stock / ○ within short notice

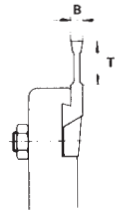
Parting Tools F and G of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips



Parting tool type F



Type F (righthand)



Type G (lefthand)

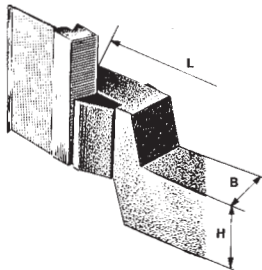
How to order (example): 10 pieces 2-F-N-TiN (Original box of 5 pieces)

Size	For height of centers above tool rest		Measurements H×B×L	Holder Code number	Availability	Length	B _{±0.05}	T	Cutter Code number	Cutter Availability					T	extra depth Code number	Availability											
										normal	relieved	mm	mm	mm			mm	mm	normal depth					mm	mm	Kob	Rap	TiN
																			Kob	Rap	TiN	K10	P30					
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		Measurements H×B×L	Holder GHS Code number	Availability	Length	B _{±0.05}	T	Cutter Code number	Cutters for use on holder GHS Availability					T	Extra depth Code number	Availability											
										normal	relieved	mm	mm	mm			mm	mm	Normal depth					mm	mm	Kob	Rap	TiN
																			Kob	Rap	TiN	K10	P30					
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...	●	●	●									

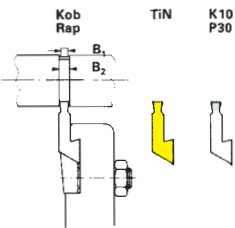
▲ Please indicate here the alloy or grade of carbide required ▲

* 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.

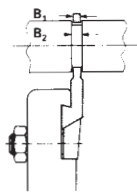
Availability: ● ex stock / ○ within short notice

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)

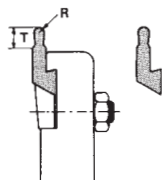
How to order (example): 5 pieces 3-FSE-2.5-Kob.

Circlip thickn. B ₁	Width B ₂ -H ₁₃ of groove	Size Length of cutter in mm	1					2					3					4					
			27					33					40					48					
			Code number	Availability				Code number	Availability				Code number	Availability				Code number	Availability				
mm	mm	mm	Kob	Rap	TiN	K10	P30	Kob	Rap	TiN	K10	P30	Kob	Rap	TiN	K10	P30	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...	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1.0	1.1		1-FSE-1.0...	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1.2	1.3		1-FSE-1.2...	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1.5	1.6		1-FSE-1.5...	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1.75	1.85		1-FSE-1.75...	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2.0	2.15		1-FSE-2.0...	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2.5	2.65		—																				
3.0	3.15		2-FSE-2.5...	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
4.0	4.15		—																				
			3-FSE-3.0...	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
			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...	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
1.0	1.1		1-GSE-1.0...	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
1.2	1.3		1-GSE-1.2...	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
1.5	1.6		1-GSE-1.5...	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
1.75	1.85		1-GSE-1.75...	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
2.0	2.15		1-GSE-2.0...	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
2.5	2.65		—																				
3.0	3.15		2-GSE-2.5...	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
4.0	4.15		—																				
			3-GSE-3.0...	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
			4-GSE-4.0...	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Please indicate here alloy or grade of carbide required ▲

FR

Groove cutters with radius and clearance in all directions

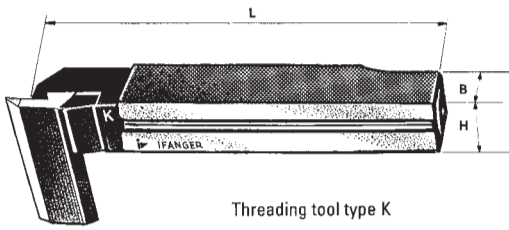


Size	to be used on holder (measurements on page 27)	Radius R mm	Cutter Grooving depth T mm	Code number	Availability
1	1/12-FH	1.25	5	1-FR-Rap	●
1	1-FH	1.25	5	1-FR-Rap	●
2	2-FH	1.5	7	2-FR-Rap	●
3	3-FH	1.75	9	3-FR-Rap	●

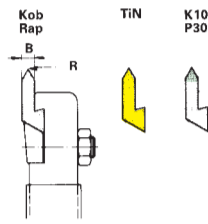
Availability: ● ex stock / ○ within short notice



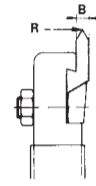
Threading Tools K and L of HSS-CO (Kob), HSS (Rap), TiN-coated and with Carbide Tips



Threading tool type K



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.

Thread at 60°

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			Length mm	Cutter 60° normal width			Code number	Availability					B mm	max. pitch mm	R _{0.05}	Code number	Availability	
		Measur. H×B×L mm	Code number	Avail-ability		HSS+TiN B=max. pitch mm	K10+P30 B=max. pitch mm	R _{0.05}		Kob	Rap	TiN	K10	P30					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			Length mm	Cutter 55° normal width			Code number	Availability					B mm	max. pitch TPI	R _{0.05}	Code number	Availability			
		Measur. H×B×L mm	Code number	Avail-ability		HSS+TiN B mm max. pitch TPI	K10+P30 B mm max. pitch TPI	R _{0.05}		Kob	Rap	TiN	K10	P30					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 ▲

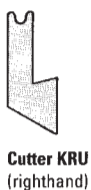
Special Thread Cutters



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

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



Cutter KRU (righthand)

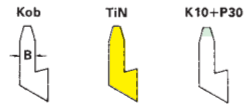
Pitch TPI	Holder Measurements	Size 2		Size 3		Size 4	
		50 mm		60 mm		70 mm	
		Code number	Avail-ability	Code number	Avail-ability	Code number	Avail-ability
10	Round thread cutter	2-KRU-10G-Kob	●	3-KRU-10G-Kob	●	4-KRU-8G-Kob	●
8		2-KRU-8G-Kob	●	3-KRU-8G-Kob	●	4-KRU-8G-Kob	●
6		2-KRU-6G-Kob	●	3-KRU-6G-Kob	●	4-KRU-8G-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)

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 3-K30-7-P30

Pitch mm	Size		0/1			2			3			4			5			
	Length of cutter	B	40 mm			50 mm			60 mm			70 mm			80 mm			
			Code number	Availability	B	Code number	Availability	B	Code number	Availability	B	Code number	Availability	B	Code number	Availability		
	Holder (Meas. p. 29)		0-KH 1-KH			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...	●	4.5	4-K30-3...	●	5.5	5-K30-5...	●		
3		2.5	0/1-K30-3...	●	3	2-K30-3...	●	3.5	3-K30-3...	●	4.5	4-K30-4...	●	5.5	5-K30-6...	●		
4		3.5	0/1-K30-4...	●	3	2-K30-4...	●	3.5	3-K30-4...	●	4.5	4-K30-5...	●	5.5	5-K30-7...	●		
5		3.5	0/1-K30-5...	●	4.5	2-K30-5...	●	3.5	3-K30-5...	●	4.5	4-K30-6...	●	5.5	5-K30-8...	●		
6					4.5	2-K30-6...	●	5.5	3-K30-6...	●	4.5	4-K30-7...	●	5.5	5-K30-9...	●		
7							5.5	3-K30-7...	●	6.5	4-K30-8...	●	5.5	5-K30-10...	●			
8							5.5	3-K30-8...	●	6.5	4-K30-9...	●	8.5	5-K30-11...	●			
9												8.5	5-K30-12...	●				
10												8.5						
12												8.5						
		Holder (Meas. p. 29)		0-LH 1-LH	●		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...	○	4.5	4-L30-3...	○	5.5	5-L30-5...	○	
3	2.5		0/1-L30-3...	○	3	2-L30-3...	○	3.5	3-L30-3...	○	4.5	4-L30-4...	○	5.5	5-L30-6...	○		
4	3.5		0/1-L30-4...	○	3	2-L30-4...	○	3.5	3-L30-4...	○	4.5	4-L30-5...	○	5.5	5-L30-7...	○		
5	3.5		0/1-L30-5...	○	4.5	2-L30-5...	○	3.5	3-L30-5...	○	4.5	4-L30-6...	○	5.5	5-L30-8...	○		
6					4.5	2-L30-6...	○	5.5	3-L30-6...	○	4.5	4-L30-7...	○	5.5	5-L30-9...	○		
7							5.5	3-L30-7...	○	6.5	4-L30-8...	○	5.5	5-L30-10...	○			
8							5.5	3-L30-8...	○	6.5	4-L30-9...	○	8.5	5-L30-11...	○			
9												8.5	5-L30-12...	○				
10												8.5						
12												8.5						

Please indicate here alloy required ▲

K/L180

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

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

Pitch mm	Size		0/1			2			3			4			5		
	Length of cutter	B	27 mm			33 mm			40 mm			48 mm			55 mm		
			Code number	Availability	B	Code number	Availability	B	Code number	Availability	B	Code number	Availability	B	Code number	Availability	
	Holder (Meas. p. 29)		0-KH 1-KH	●		2-KH	●		3-KH	●		4-KH	●		5-KH	●	
2	Cutters for square threads 180°	2.5	0/1-K180-2...	●	3	2-K180-2...	●	3.5	3-K180-3...	●	4.5	4-K180-4...	●	5.5	5-K180-5...	●	
3		2.5	0/1-K180-3...	●	3	2-K180-3...	●	3.5	3-K180-4...	●	4.5	4-K180-5...	●	5.5	5-K180-6...	●	
4		2.5	0/1-K180-4...	●	3	2-K180-4...	●	3.5	3-K180-5...	●	4.5	4-K180-6...	●	5.5	5-K180-7...	●	
5					3	2-K180-5...	●	3.5	3-K180-6...	●	4.5	4-K180-7...	●	5.5	5-K180-8...	●	
6								3.5	3-K180-8...	●	4.5	4-K180-9...	●	5.5	5-K180-10...	●	
7												4.5	4-K180-11...	●			
8												4.5	4-K180-12...	●			
9																	
10																	
		Holder (Meas. p. 29)		0-LH 1-LH	●		2-LH	●		3-LH	●		4-LH	●		5-LH	●
2	Cutters for square threads 180°	2.5	0/1-L180-2...	○	3	2-L180-2...	○	3.5	3-L180-3...	○	4.5	4-L180-4...	○	5.5	5-L180-5...	○	
3		2.5	0/1-L180-3...	○	3	2-L180-3...	○	3.5	3-L180-4...	○	4.5	4-L180-5...	○	5.5	5-L180-6...	○	
4		2.5	0/1-L180-4...	○	3	2-L180-4...	○	3.5	3-L180-5...	○	4.5	4-L180-6...	○	5.5	5-L180-7...	○	
5					3	2-L180-5...	○	3.5	3-L180-6...	○	4.5	4-L180-7...	○	5.5	5-L180-8...	○	
6								3.5	3-L180-8...	○	4.5	4-L180-9...	○	5.5	5-L180-9...	○	
7												4.5	4-L180-10...	○			
8												4.5	4-L180-11...	○			
9																	
10																	

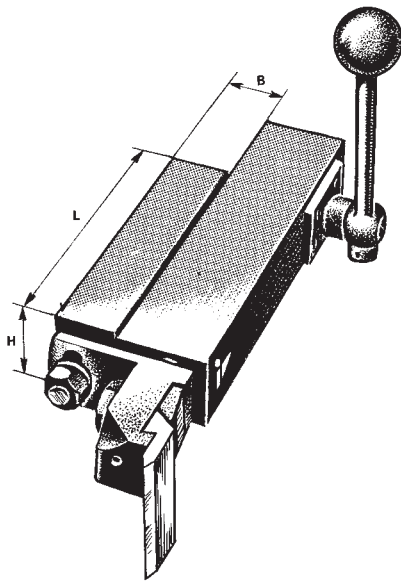
Please indicate here alloy required ▲

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

Availability: ● ex stock / ○ within short notice



Special Threading Tool Holder RS



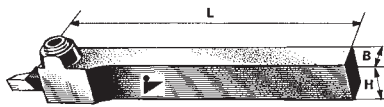
This holder permits to cut threads at a high number of revolutions. This is due to the fact that the cutter can be withdrawn instantly at any time. Moreover, feed is given during return of tool. All cutter K can be used on these holders.

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

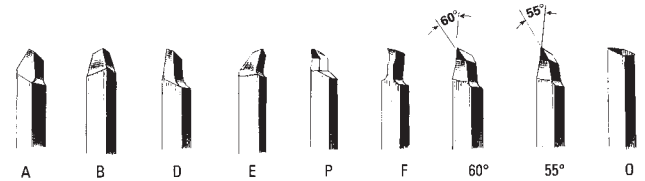
Small Tools S

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		Side cutting		Finishing	Parting off	Threading		without profile
		right	left	right	left					
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

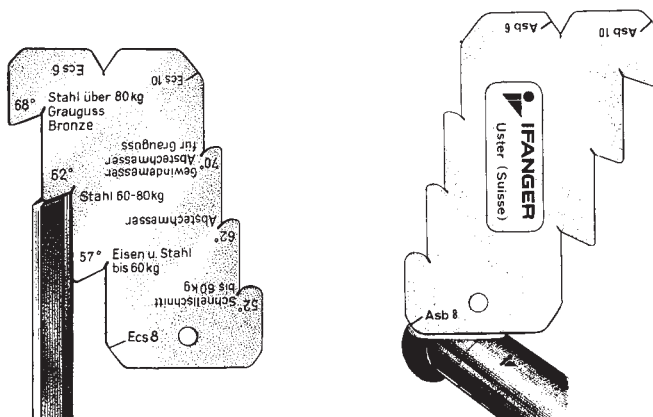


How to order (example): 5 pieces CLE-11

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 as page 21)

- 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	German	Marking French	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 \varnothing , 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.

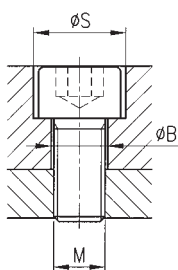
When the pilot used is of equal diameter or only slightly larger than its thread it is recommended to place a distance sink bolt into the counterbore cutter between the shank and the pilot. (Ask for these bolts!)

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

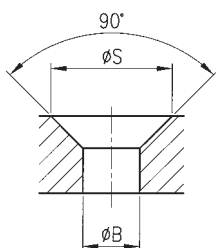


\varnothing M of thread	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24	M30	M36
\varnothing S mm of bore	4,4	5,5	6,5	8	10	11	15	18	20	26	33	40	50	58
\varnothing B mm of passing bore fine	2,2	2,7	3,2	4,3	5,3	6,4	8,4	10,5	13	17	21	25	-	-
\varnothing B mm of passing bore medium	2,4	2,9	3,4	4,5	5,5	6,6	9	11	13,5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

Flat counterbores according to SN 213.183

\varnothing M of thread	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24	M30	M36
\varnothing S mm of bore	4,3	5	6	8	10	11	15	18	20	26	33	40	48	57
\varnothing 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



\varnothing M of thread	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20
\varnothing S mm of bore	4,4	5,5	6,3	9,4	10,4	12,6	17,3	20	24	32	40
\varnothing 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

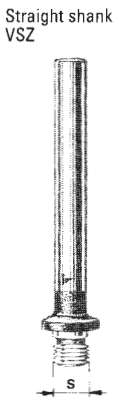
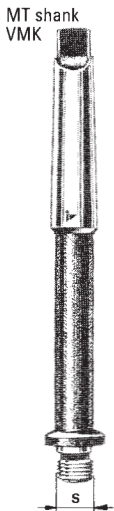
\varnothing M of thread	M3	M4	M5	M6	M8	M10	M12	M16	M20
\varnothing S mm of bore	7,5	10	12,5	14,5	19	23,5	28	35	41,5
\varnothing B mm of passing bore	3,4	4,5	5,5	6,6	9	11	13,5	17,5	22



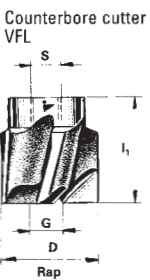
Counterbore Cutters VFL of HSS (Rap) and TiN-coated for Flat Counterbores

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.



see page 37



TiN



see page 38

Counterbore cutter		Availability		I ₁ mm	Thread G for pilot	Thread S for shank
∅ D mm	Code number	Rap	TiN			
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...	●	●	28	M3.5	M8
10.5	VFL-10.5...	●	●			
11.0	VFL-11.0...	●	●	33	M4.5	M8
11.5	VFL-11.5...	●	●			
12.0	VFL-12.0...	●	●			
12.5	VFL-12.5...	●	●			
13.0	VFL-13.0...	●	●	34	M5	M10×20TPI
13.5	VFL-13.5...	●	●			
14.0	VFL-14.0...	●	●			
14.5	VFL-14.5...	●	●	35	M6	M12×20TPI
15.0	VFL-15.0...	●	●			
15.5	VFL-15.5...	●	●			
16.0	VFL-16.0...	●	●			
16.5	VFL-16.5...	●	●	36	M7	M14×20TPI
17.0	VFL-17.0...	●	●			
17.5	VFL-17.5...	●	●			
18.0	VFL-18.0...	●	●			
18.5	VFL-18.5...	●	●	37	M8	M15×20TPI
19.0	VFL-19.0...	●	●			
19.5	VFL-19.5...	●	●			
20.0	VFL-20.0...	●	●			
20.5	VFL-20.5...	●	●	38	M18×20TPI	M30
21.0	VFL-21.0...	●	●			
21.5	VFL-21.5...	●	●			
22.0	VFL-22.0...	●	●			
22.5	VFL-22.5...	●	●	39	M10	M25×14TPI
23.0	VFL-23.0...	●	●			
23.5	VFL-23.5...	●	●			
24.0	VFL-24.0...	●	●			
24.5	VFL-24.5...	●	●	40	M8	M21×14TPI
25.0	VFL-25.0...	●	●			
25.5	VFL-25.5...	●	●			
26.0	VFL-26.0...	●	●			
26.5	VFL-26.5...	●	●	41	M10	M25×14TPI
27.0	VFL-27.0...	●	●			
27.5	VFL-27.5...	●	●			
28.0	VFL-28.0...	●	●			
28.5	VFL-28.5...	●	●	42	M8	M18×20TPI
29.0	VFL-29.0...	●	●			
29.5	VFL-29.5...	●	●			
30.0	VFL-30.0...	●	●			
30.5	VFL-30.5...	●	●	43	M10	M25×14TPI
31.0	VFL-31.0...	●	●			
31.5	VFL-31.5...	●	●			
32.0	VFL-32.0...	●	●			
32.5	VFL-32.5...	●	●	44	M8	M18×20TPI
33.0	VFL-33.0...	●	●			
33.5	VFL-33.5...	●	●			
34.0	VFL-34.0...	●	●			
34.5	VFL-34.5...	●	●	45	M10	M25×14TPI
35.0	VFL-35.0...	●	●			
35.5	VFL-35.5...	●	●			
36.0	VFL-36.0...	●	●			
36.5	VFL-36.5...	●	○	46	M8	M18×20TPI
37.0	VFL-37.0...	●	○			
37.5	VFL-37.5...	●	○			
38.0	VFL-38.0...	●	○			

▲ Please indicate here alloy required

Counterbore cutter		Availability		I ₁ mm	Thread G for pilot	Thread S for shank
∅ D mm	Code number	Rap	TiN			
38.0	VFL-38.0...	●	○	38	M8	M18×20TPI
38.5	VFL-38.5...	●	○			
39.0	VFL-39.0...	●	○	40	M8	M18×20TPI
39.5	VFL-39.5...	●	○			
40.0	VFL-40.0...	●	○			
40.5	VFL-40.5...	●	○	44	M8	M21×14TPI
41.0	VFL-41.0...	●	○			
41.5	VFL-41.5...	●	○			
42.0	VFL-42.0...	●	○	48	M10	M25×14TPI
42.5	VFL-42.5...	●	○			
43.0	VFL-43.0...	●	○			
43.5	VFL-43.5...	●	○			
44.0	VFL-44.0...	●	○	53	M10	M25×14TPI
44.5	VFL-44.5...	●	○			
45.0	VFL-45.0...	●	○			
45.5	VFL-45.5...	●	○			
46.0	VFL-46.0...	●	○	53	M10	M25×14TPI
46.5	VFL-46.5...	●	○			
47.0	VFL-47.0...	●	○			
47.5	VFL-47.5...	●	○			
48.0	VFL-48.0...	●	○	53	M10	M25×14TPI
48.5	VFL-48.5...	●	○			
49.0	VFL-49.0...	●	○			
49.5	VFL-49.5...	●	○			
50.0	VFL-50.0...	●	○	53	M10	M25×14TPI
50.5	VFL-50.5...	●	○			
51.0	VFL-51.0...	●	○			
51.5	VFL-51.5...	●	○			
52.0	VFL-52.0...	●	○	53	M10	M25×14TPI
52.5	VFL-52.5...	●	○			
53.0	VFL-53.0...	●	○			
53.5	VFL-53.5...	●	○			
54.0	VFL-54.0...	●	○	53	M10	M25×14TPI
54.5	VFL-54.5...	●	○			
55.0	VFL-55.0...	●	○	53	M10	M25×14TPI
55.5	VFL-55.5...	●	○			
56.0	VFL-56.0...	●	○			
56.5	VFL-56.5...	●	○			
57.0	VFL-57.0...	●	○	53	M10	M25×14TPI
57.5	VFL-57.5...	●	○			
58.0	VFL-58.0...	●	○			
58.5	VFL-58.5...	●	○			
59.0	VFL-59.0...	●	○	53	M10	M25×14TPI
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

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

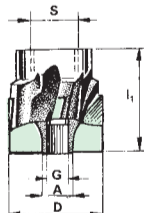


Straight shank
VSZ

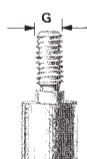


see page 37

Counterbore cutter
VFL



Pilots
VFZ / VRZ



see page 38

Ø D mm	Code number	Counterbore cutter					Thread G for pilot	Thread S for shank
		Avail- ability	l ₁ mm	A mm				
10.0 10.5	VFL-10.0-HM VFL-10.5-HM	●	26	5		M3	M6	
11.0 11.5	VFL-11.0-HM VFL-11.5-HM	●	28	5.5				
12.0 12.5	VFL-12.0-HM VFL-12.5-HM	●	33	6.5	M3.5	M8	M10×20TPI	
13.0 13.5	VFL-13.0-HM VFL-13.5-HM	●		6				
14.0 14.5	VFL-14.0-HM VFL-14.5-HM	●		7	M4.5			
15.0 15.5	VFL-15.0-HM VFL-15.5-HM	●		6.5				
16.0 16.5	VFL-16.0-HM VFL-16.5-HM	●	7	M5	M12×20TPI	M8	M21×14TPI	
17.0 17.5	VFL-17.0-HM VFL-17.5-HM	●	6.5					
18.0 18.5	VFL-18.0-HM VFL-18.5-HM	●	34	7	M5	M14×20TPI	M10	M30
19.0 19.5	VFL-19.0-HM VFL-19.5-HM	●		8				
20.0 20.5	VFL-20.0-HM VFL-20.5-HM	●		7	M6			
21.0 21.5	VFL-21.0-HM VFL-21.5-HM	●		8				
22.0 22.5	VFL-22.0-HM VFL-22.5-HM	●	35	9	M6	M15×20TPI	M10	M30
23.0 23.5	VFL-23.0-HM VFL-23.5-HM	●		8				
24.0 24.5	VFL-24.0-HM VFL-24.5-HM	●		9.5	M7			
25.0 25.5	VFL-25.0-HM VFL-25.5-HM	●		8				
26.0 26.5	VFL-26.0-HM VFL-26.5-HM	●	36	8.5	M6	M14×20TPI	M10	M25×14TPI
27.0 27.5	VFL-27.0-HM VFL-27.5-HM	●		9.5				
28.0 28.5	VFL-28.0-HM VFL-28.5-HM	●		8	M7			
29.0 29.5	VFL-29.0-HM VFL-29.5-HM	●		8.5				
30.0 30.5	VFL-30.0-HM VFL-30.5-HM	●	37	9.5	M7	M15×20TPI	M10	M30
31.0 31.5	VFL-31.0-HM VFL-31.5-HM	●		10.5				
32.0 32.5	VFL-32.0-HM VFL-32.5-HM	●		11.5	M7			
33.0 33.5	VFL-33.0-HM VFL-33.5-HM	●		9.5				
34.0 34.5	VFL-34.0-HM VFL-34.5-HM	●	38	10.0	M7	M15×20TPI	M10	M30
35.0 35.5	VFL-35.0-HM VFL-35.5-HM	●		11.0				

Ø D mm	Code number	Counterbore cutter					Thread G for pilot	Thread S for shank
		Avail- ability	l ₁ mm	A mm				
36.0 36.5	VFL-36.0-HM VFL-36.5-HM	●	38	11.5	M7	M18×20TPI	M8	M21×14TPI
37.0 37.5	VFL-37.0-HM VFL-37.5-HM	●		9.0				
38.0 38.5	VFL-38.0-HM VFL-38.5-HM	●	9.5	M8				
39.0 39.5	VFL-39.0-HM VFL-39.5-HM	●	10.5					
40.0 40.5	VFL-40.0-HM VFL-40.5-HM	●	40	11.5	M8	M12×20TPI	M10	M30
41.0 41.5	VFL-41.0-HM VFL-41.5-HM	●		13.5				
42.0 42.5	VFL-42.0-HM VFL-42.5-HM	●		12	M8			
43.0 43.5	VFL-43.0-HM VFL-43.5-HM	●		13				
44.0 44.5	VFL-44.0-HM VFL-44.5-HM	●	44	15	M8	M14×20TPI	M10	M30
45.0 45.5	VFL-45.0-HM VFL-45.5-HM	●		11				
46.0 46.5	VFL-46.0-HM VFL-46.5-HM	●		11.5	M8			
47.0 47.5	VFL-47.0-HM VFL-47.5-HM	●		13				
48.0 48.5	VFL-48.0-HM VFL-48.5-HM	●	48	13.5	M8	M15×20TPI	M10	M30
49.0 49.5	VFL-49.0-HM VFL-49.5-HM	●		15				
50.0 50.5	VFL-50.0-HM VFL-50.5-HM	●		17	M8			
51.0 51.5	VFL-51.0-HM VFL-51.5-HM	○		18				
52.0 52.5	VFL-52.0-HM VFL-52.5-HM	●	53	18.5	M8	M16×20TPI	M10	M30
53.0 53.5	VFL-53.0-HM VFL-53.5-HM	○		20				
54.0 54.5	VFL-54.0-HM VFL-54.5-HM	●		21	M8			
55.0 55.5	VFL-55.0-HM VFL-55.5-HM	●		22				
56.0 56.5	VFL-56.0-HM VFL-56.5-HM	○	53	23	M8	M17×20TPI	M10	M30
57.0 57.5	VFL-57.0-HM VFL-57.5-HM	○		23.5				
58.0 58.5	VFL-58.0-HM VFL-58.5-HM	○			M8			
59.0 59.5	VFL-59.0-HM VFL-59.5-HM	○						
60.0 60.5	VFL-60.0-HM VFL-60.5-HM	●						

Availability: ● ex stock / ○ within short notice



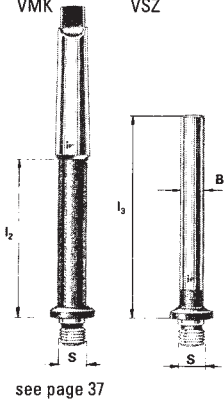
Countersink Cutter VKO of HSS (Rap) (for use with pilot) for Countersinks at 90°

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

Taper shank VMK
 Straight shank VSZ

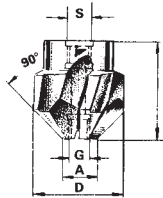
How to order (example): 1 piece VKO-19.0

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



see page 37

Countersink cutter 90° VKO



Pilots VFZ / VRZ



see page 38

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	●	28	5	M3.5		
10.4	VKO-10.4-Rap	●					
11.0	VKO-11.0-Rap	●		5.5			
11.5	VKO-11.5-Rap	●	33	6	M4.5	M8	
12.0	VKO-12.0-Rap	●					
12.4	VKO-12.4-Rap	●					
13.0	VKO-13.0-Rap	●	33	6.5	M5		
14.0	VKO-14.0-Rap	●					
15.0	VKO-15.0-Rap	●					
16.0	VKO-16.0-Rap	●	7	7	M5		
16.0	VKO-16.0-Rap	●					
16.5	VKO-16.5-Rap	●					
17.0	VKO-17.0-Rap	●	8				

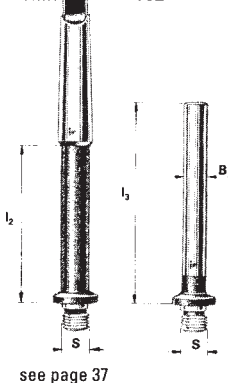
Countersink cutter						
∅ D mm	Code number	Availability	l ₁ mm	A mm	Thread G for pilot	Thread S for shank
18.0	VKO-18.0-Rap	●	33	9	M6	M10×20TPI
19.0	VKO-19.0-Rap	●		9.5		
20.0	VKO-20.0-Rap	●				
20.5	VKO-20.5-Rap	●				
21.0	VKO-21.0-Rap	●		10		
23.0	VKO-23.0-Rap	●	34	10.5	M7	M12×20TPI
24.0	VKO-24.0-Rap	●				
25.0	VKO-25.0-Rap	●				
26.0	VKO-26.0-Rap	●	12			
28.0	VKO-28.0-Rap	●	35	13		
26.0	VKO-26.0-Rap	●				
28.0	VKO-28.0-Rap	●				
30.0	VKO-30.0-Rap	●	36	14	M8	M14×20TPI
31.0	VKO-31.0-Rap	●				
34.0	VKO-34.0-Rap	●		15		
37.0	VKO-37.0-Rap	●	37	16	M8	M15×20TPI
40.0	VKO-40.0-Rap	●		17		

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

Shanks VMK / VKK / VSZ / VLD see page 37

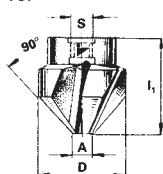
Taper shank VMK
 Straight shank VSZ

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



see page 37

Countersink cutter 90° VSP



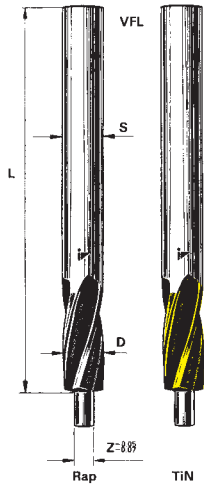
Countersink cutter					
∅ D mm	Code number	Availability	l ₁ mm	A mm	Thread S for shank
10	VSP-10-Rap	●	26	1	M6
12	VSP-12-Rap	●	33	2	M8
15	VSP-15-Rap	●		3	
20	VSP-20-Rap	●		4	
25	VSP-25-Rap	●	35	6	M12×20TPI
30	VSP-30-Rap	●	36	8	M14×20TPI
35	VSP-35-Rap	●	38	10	M15×20TPI
40	VSP-40-Rap	●	40	12	M18×20TPI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

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



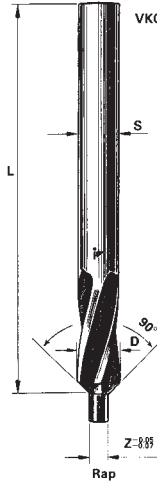
D mm	Z mm	L1 mm	S mm	Code number	Availability	
					Rap	TiN
4,3	1,6	46	4	VFL-4,3-1,6-...	○	○
4,3	2,6			●	○	
4,5	2,0			○	○	
4,5	2,5			VFL-4,5-2,6-...	○	○
5,0	2,0	55	5	VFL-5,0-2,0-...	○	○
5,0	2,5			○	○	
5,0	2,8			●	○	
5,0	3,1			●	○	
5,5	2,5			○	○	
5,5	2,7			○	○	
5,5	2,9			VFL-5,5-2,9-...	○	○
5,5	3,0		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

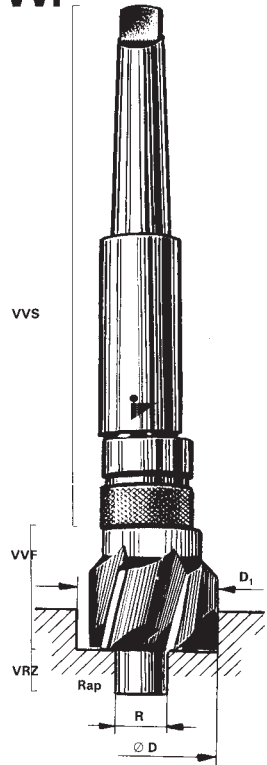
How to order (example): 5 pieces VKO-5.0-2.7-Rap.
5 pieces VKO-7.0-Rap.



D mm	Z mm	L1 mm	S mm	Code number	Availability	
					Rap	TiN
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	55	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)

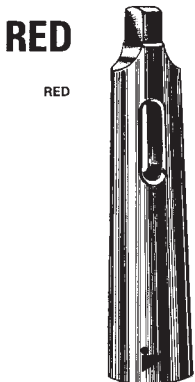
A tool for short series of counterbores of different diameters. The counterbore cutter, with its eccentric thread bore, is seated on an eccentrically turned shank thread. By rotating it suitably on the shank, the desired diameter of bore can be set and measured from the guide roller. The counternut (lefthand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

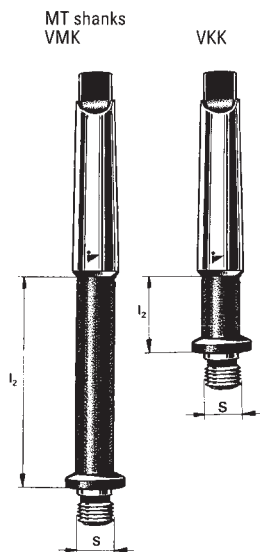
How to order (example): 5 pieces RED-4/3

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

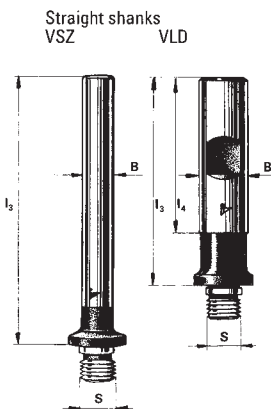


How to order (example): 5 pieces VMK-2-14

for cutter of $\varnothing D$	Thread S	MT	Shank long VMK			Shank short VKK		
			l_2 mm	Code number	Availability	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	M10×20 TPI	1	70	VMK-1-10	●	12	VKK-1-10	●
22.0–26.5	M12×20 TPI	2	85	VMK-2-12	●	14	VKK-2-12	●
27.0–30.5	M14×20 TPI	2	85	VMK-2-14	●	15	VKK-2-14	●
31.0–35.5	M15×20 TPI	2	85	VMK-2-15	●	16	VKK-2-15	●
36.0–41.5	M18×20 TPI	3	100	VMK-3-15	●	16	VKK-3-15	●
		3	100	VMK-3-18	●	18	VKK-3-18	●
42.0–49.5	M21×14 TPI	3	100	VMK-3-21	●	22	VKK-3-21	●
		4	122	VMK-4-21	●	22	VKK-4-21	●
50.0–54.5	M25×14 TPI	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	●

VSZ/VLD

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



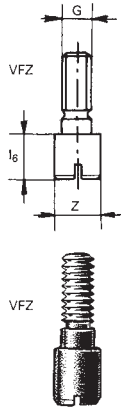
How to order (example): 3 pieces VLD-M8

for cutter of $\varnothing D$	Thread S	Straight shank VSZ				Straight shank VLD				
		B \varnothing mm	l_3 mm	Code number	Availability	B \varnothing 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	M10×20 TPI	10	100	VSZ-10	●	16	58	48	VLD-10	●
22.0–26.5	M12×20 TPI	12	109	VSZ-12	●	16	62	48	VLD-12	●
27.0–30.5	M14×20 TPI	12	107	VSZ-14	●	20	68	50	VLD-14	●
31.0–35.5	M15×20 TPI	12	107	VSZ-15	●	20	71	50	VLD-15	●
36.0–41.5	M18×20 TPI	16	106	VSZ-18	●	25	81	56	VLD-18	●
42.0–49.5	M21×14 TPI					25	83	56	VLD-21	●
50.0–54.5	M25×14 TPI					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

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).

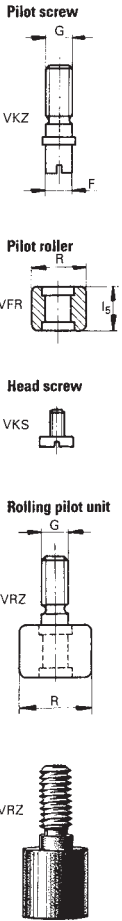
for cutter of \varnothing D		G	l ₄ mm	Code number	Fixed pilot																			
HSS/TiN mm	Carbide mm				Available sizes \varnothing Z Δ mm																			
7.0–9.5	10.0–11.5	M3	6	VFZ-M3...	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10.0–11.5	12.0–14.5	M3.5	6	VFZ-M3.5...			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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



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 \varnothing D		G	F mm	Pilot screw with head screw		Code number Pilot roller VFR-... Rolling pilot unit VRZ-...	Available sizes \varnothing R Δ mm																		
HSS/TiN mm	Carbide mm			Code number	*		l ₅ mm																		
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	Avail- ability
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	●

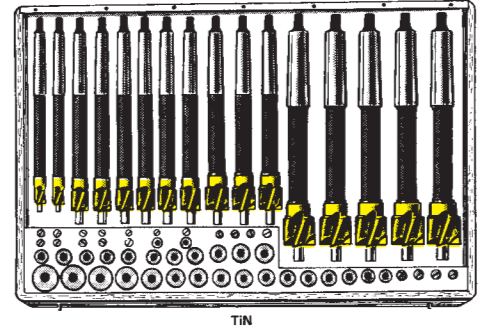
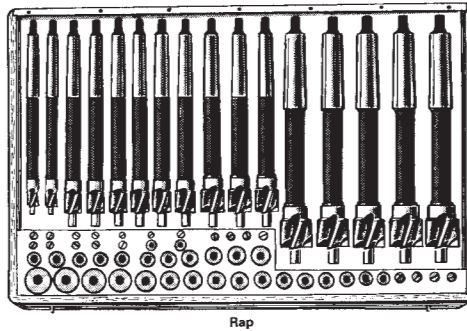
* Availability: ● ex stock

△ Tolerances of Diameters of Pilots

\varnothing 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

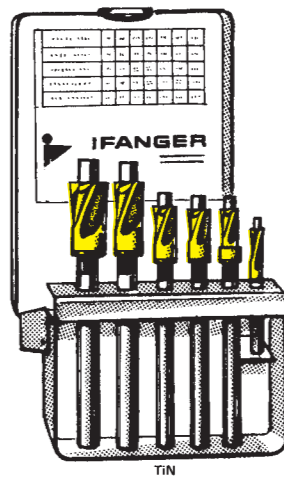
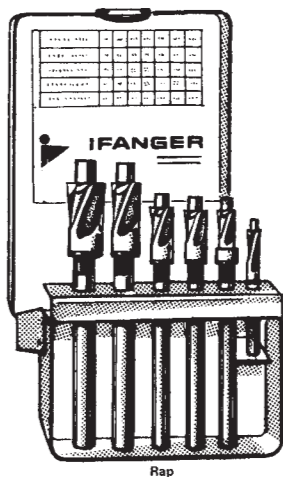


How to order (example): 1 piece SET-C-MK-Rap

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

Please indicate here alloy required ▲

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



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

Please indicate here required alloy ▲

Availability: ● ex stock







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)



