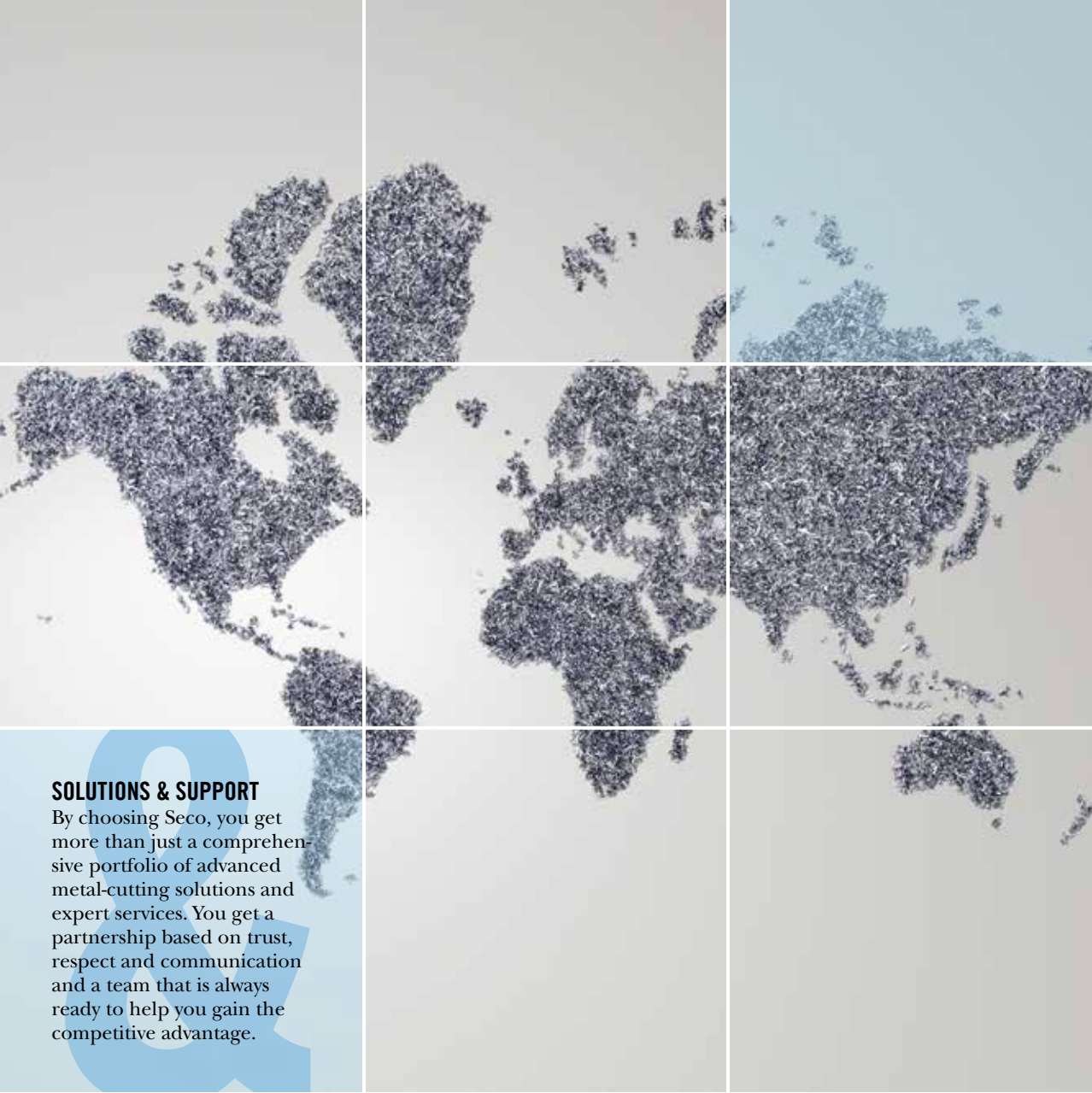




UPDATE 2016-1



SOLUTIONS & SUPPORT

By choosing Seco, you get more than just a comprehensive portfolio of advanced metal-cutting solutions and expert services. You get a partnership based on trust, respect and communication and a team that is always ready to help you gain the competitive advantage.

Globally headquartered in Fagersta, Sweden and present in more than 50 countries, Seco develops cutting tools, processes and services for high productivity and profitability. Our team of over 5,000 dedicated employees maintains partnerships around the world to identify and overcome the challenges faced by today's manufacturers.

Our broad selection of milling, turning, holmaking and toolholding solutions include over 30,000 standard products, custom items for special applications and a team of metal-cutting experts who help customers identify and implement cost-effective solutions.

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Milling

Solid end mills

Turning

Holemaking

Tooling

Slotting and contouring

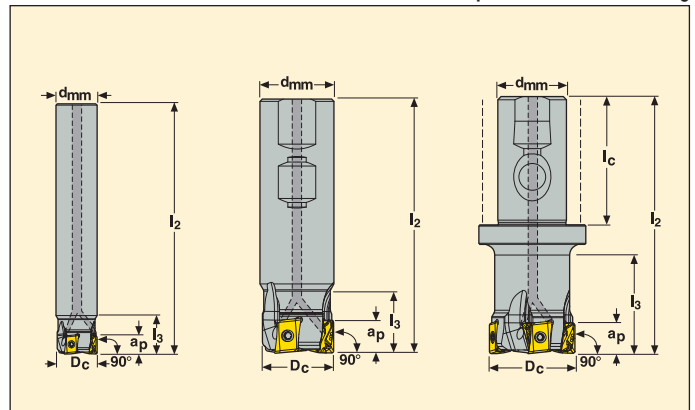
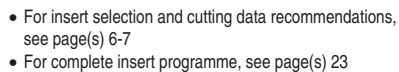


-
- The image contains three technical drawings of a 90° V-block with a central hole, showing front, top, and side views with dimensions.
- Front View (Left):** Shows the 90° angle of the V-block. The width of the top surface is labeled d_{mm} . The total height is l_2 . The height of the V-section is l_3 . The distance from the center of the hole to the side face is a_p . The diameter of the hole is D_c .
 - Top View (Middle):** Shows the top surface of the V-block. The width is d_{mm} . The total height is l_2 . The height of the V-section is l_3 . The distance from the center of the hole to the side face is a_p . The diameter of the hole is D_c .
 - Side View (Right):** Shows the side profile of the V-block. The width is d_{mm} . The total height is l_2 . The height of the V-section is l_3 . The distance from the center of the hole to the side face is a_p . The diameter of the hole is D_c .

[illegible][illegible]

2

Optimized for contouring



Spare Parts

[illegible]

3

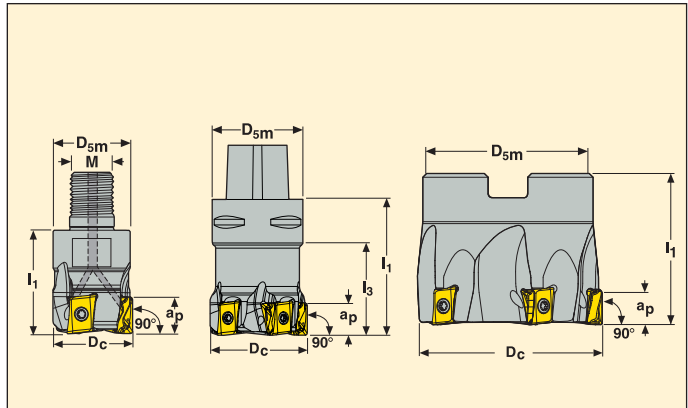
Square shoulder and slot milling cutters

Square T4 – R217/220.94-12

Slotting and contouring



- For insert selection and cutting data recommendations, see page(s) 6-7
- For complete insert programme, see page(s) 23



Part No.	Type of mounting	Dimensions in mm										Insert
		a _p	D _c	D _{5m}	dm _m	M	l ₁	l ₃				
R217.94 -1632.RE-12-3A	Combimaster	12	32	32	–	M16	40	30	3	0,3	11100	LOEX12
R217.94 -2040.RE-12-3A	Combimaster	12	40	36	–	M20	40	30	3	0,4	9900	LOEX12
R220.94 -0040-12-4A	Arbor	12	40	35	16	–	40	–	4	0,3	11800	LOEX12
C4-R217.94 -044-12-4A	Seco-Capto	12	44	40	–	–	60	60	4	0,6	11300	LOEX12
R220.94 -0050-12-5A	Arbor	12	50	47	22	–	40	–	5	0,5	10600	LOEX12
C5-R217.94 -054-12-5A	Seco-Capto	12	54	50	–	–	60	60	5	1,0	10200	LOEX12
R220.94 -0063-12-6A	Arbor	12	63	62	27	–	40	–	6	0,7	9400	LOEX12
C6-R217.94 -066-12-6A	Seco-Capto	12	66	63	–	–	60	60	6	1,6	8600	LOEX12
R220.94 -0080-12-7A	Arbor	12	80	62	27	–	50	–	7	1,3	8400	LOEX12
C6-R217.94 -080-12-9A	Seco-Capto	12	80	63	–	–	60	60	9	1,9	7800	LOEX12
R220.94 -0100-12-9A	Arbor	12	100	72	32	–	50	–	9	1,8	7500	LOEX12
R220.94 -0125-12-12A	Arbor	12	125	90	40	–	63	–	12	3,3	6700	LOEX12

Spigot size = dm_m

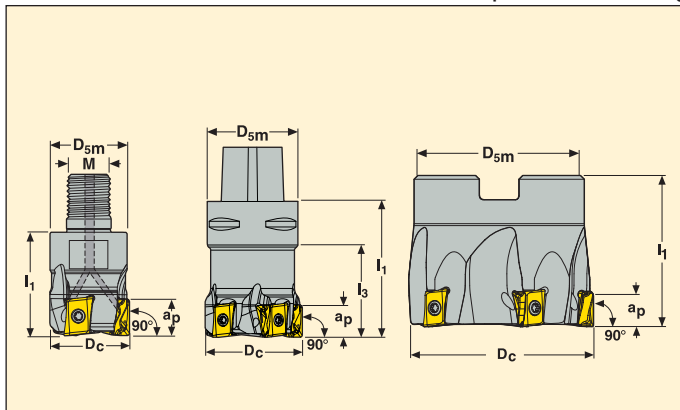
For Combimaster shanks and dimensions, see pages 572-581 MN2015 Milling

Spare Parts

For cutter	Insert screw	Insert key	Arbor screw	
R217.94-..	C04012-T15P	T15P-3	–	
R220.94-0040	C04012-T15P	T15P-3	TCEI0825	
C-R217.94-..	C04012-T15P	T15P-3	–	
R220.94-0050	C04012-T15P	T15P-3	220.17-692	
R220.94-0063	C04012-T15P	T15P-3	MLC6S12X30	
R220.94-0080	C04012-T15P	T15P-3	MC6S12X35	
R220.94-0100-0125	C04012-T15P	T15P-3	–	

Please check availability in current price and stock-list
Torque value 3,0. Torque keys, see page 672 MN2015 Milling

Optimized for contouring



- [illegible]

For Combimaster shanks and dimensions, see pages 572-581 MN2015 Milling

For cutter	Insert screw	Insert key	Arbor screw
R217.94-..	C04012-T15P	T15P-3	–
R220.94-0040	C04012-T15P	T15P-3	TCEI0825
C.-R217.94-..	C04012-T15P	T15P-3	–
R220.94-0050	C04012-T15P	T15P-3	220.17-692
R220.94-0063	C04012-T15P	T15P-3	MLC6S12X30
R220.94-0080	C04012-T15P	T15P-3	MC6S12X35
R220.94-0100-0125	C04012-T15P	T15P-3	–

5

R217/220.94-12 – Insert selection

SMG		a_p	f_z		
			100%	30%	10%
P1	LOEX120708TR-M12 F40M	6,0	0,18	0,20	0,30
P2	LOEX120708TR-M12 F40M	6,0	0,19	0,20	0,32
P3	LOEX120708TR-M12 MP2500	6,0	0,18	0,19	0,30
P4	LOEX120708TR-M12 MP2500	6,0	0,17	0,19	0,30
P5	LOEX120708TR-M12 MP2500	6,0	0,17	0,19	0,28
P6	LOEX120708TR-M12 MP2500	6,0	0,17	0,18	0,28
P7	LOEX120708TR-M12 MP2500	6,0	0,17	0,18	0,28
P8	LOEX120708TR-M12 MP2500	6,0	0,18	0,19	0,30
P11	LOEX120708TR-M12 MP3000	6,0	0,17	0,18	0,28
M1	LOEX120708TR-M12 F40M	6,0	0,19	0,20	0,32
M2	LOEX120708TR-M12 F40M	6,0	0,17	0,19	0,28
M3	LOEX120708TR-M12 F40M	5,0	0,14	0,15	0,22
M4	LOEX120708TR-M12 F40M	4,0	0,12	0,13	0,20
M5	LOEX120708TR-M12 F40M	4,0	0,12	0,13	0,20
K1	LOEX120708TR-MD13 MK2050	6,0	0,20	0,22	0,34
K2	LOEX120708TR-MD13 MK2050	6,0	0,18	0,20	0,30
K3	LOEX120708TR-MD13 MK2050	6,0	0,18	0,20	0,30
K4	LOEX120708TR-MD13 MK2050	6,0	0,18	0,20	0,30
K5	LOEX120708TR-MD13 MK2050	6,0	0,17	0,18	0,28
K6	LOEX120708TR-MD13 MK2050	6,0	0,18	0,20	0,30
K7	LOEX120708TR-MD13 MK2050	6,0	0,17	0,18	0,28
N1	LOEX120708TR-M12 F40M	6,0	0,24	0,26	0,40
N2	LOEX120708TR-M12 F40M	6,0	0,24	0,26	0,40
N3	LOEX120708TR-M12 F40M	6,0	0,24	0,26	0,40
N11	LOEX120708TR-M12 F40M	6,0	0,24	0,26	0,40
S1	LOEX120708TR-M12 T350M	4,0	0,12	0,13	0,20
S2	LOEX120708TR-M12 T350M	4,0	0,12	0,13	0,20
S3	LOEX120708TR-M12 T350M	4,0	0,11	0,12	0,19
S11	LOEX120708TR-M12 MS2050	4,5	0,14	0,15	0,24
S12	LOEX120708TR-M12 MS2050	4,5	0,14	0,15	0,24
S13	LOEX120708TR-M12 MS2050	4,0	0,12	0,13	0,20

SMG = Seco material group

f_z = mm/tooth

v_c = m/min

a_p/D_c = %

All cutting data are start values

R217/220.94-12 – Cutting data $v_c =$ (m/min)

SMG	MP1500			MP2500			MP3000			T350M			MK1500			MK2050		
	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	285	375	445	270	355	425	255	335	400	235	310	370	—	—	—	250	330	390
P2	275	365	435	260	345	405	245	330	385	225	300	355	—	—	—	240	320	380
P3	240	325	380	225	300	355	215	285	335	195	265	310	—	—	—	210	285	330
P4	215	285	335	200	265	315	190	250	295	175	230	275	—	—	—	185	250	290
P5	205	275	325	195	255	305	185	240	290	170	220	265	—	—	—	180	240	285
P6	230	305	365	215	290	340	205	275	325	190	255	300	—	—	—	200	265	320
P7	220	290	345	205	275	325	195	260	305	180	240	280	—	—	—	190	250	300
P8	205	275	320	190	255	300	180	240	285	165	220	260	—	—	—	175	240	280
P11	215	280	335	200	265	315	190	250	295	175	230	275	—	—	—	185	245	290
M1	—	—	—	185	250	290	185	245	285	175	235	270	—	—	—	—	—	—
M2	—	—	—	155	205	245	155	200	240	145	190	230	—	—	—	—	—	—
M3	—	—	—	125	170	200	125	165	195	120	155	185	—	—	—	—	—	—
K1	220	290	345	205	275	320	195	260	305	—	—	—	275	365	430	260	345	410
K2	195	260	310	185	240	290	175	230	275	—	—	—	245	325	385	235	310	365
K3	165	220	260	155	205	245	145	195	230	—	—	—	210	275	330	195	260	310
K4	160	210	250	150	195	235	140	185	220	—	—	—	200	260	315	190	250	295
K5	95	130	150	90	120	140	85	115	135	—	—	—	120	160	190	115	155	180
K6	140	185	220	130	170	205	125	165	195	—	—	—	175	230	275	165	220	260
K7	125	165	195	115	155	180	110	145	170	—	—	—	155	205	245	145	195	230
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
S1	—	—	—	—	—	—	46	60	70	43	55	65	—	—	—	—	—	—
S2	—	—	—	—	—	—	37	49	55	35	46	55	—	—	—	—	—	—
S3	—	—	—	—	—	—	32	43	50	31	41	48	—	—	—	—	—	—
S11	—	—	—	—	—	—	65	85	100	60	80	95	—	—	—	—	—	—
S12	—	—	—	—	—	—	36	48	55	34	46	55	—	—	—	—	—	—
S13	—	—	—	—	—	—	30	39	46	28	37	43	—	—	—	—	—	—

R217/220.94-12 – Cutting data $v_c =$ (m/min)

SMG	F40M			MM4500			MS2050			T25M		
	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	205	270	320	165	220	260	—	—	—	225	295	355
P2	195	260	305	160	215	250	—	—	—	215	290	335
P3	170	230	270	140	185	220	—	—	—	190	250	295
P4	155	200	235	125	165	190	—	—	—	170	220	260
P5	145	195	230	120	155	185	—	—	—	160	210	255
P6	165	220	260	135	180	210	—	—	—	180	240	285
P7	155	205	245	125	170	200	—	—	—	170	230	270
P8	145	195	225	115	155	185	—	—	—	160	210	250
P11	150	200	235	120	165	190	—	—	—	165	220	260
M1	155	210	245	135	180	215	205	260	295	175	235	270
M2	130	175	205	115	150	180	170	215	245	145	190	230
M3	105	140	170	90	120	145	140	165	185	115	155	185
M4	85	110	130	75	95	110	105	125	135	90	120	145
M5	70	95	110	60	80	95	85	105	115	75	100	120
K1	155	210	245	—	—	—	—	—	—	170	230	265
K2	140	185	220	—	—	—	—	—	—	155	200	240
K3	120	155	185	—	—	—	—	—	—	130	170	205
K4	110	150	175	—	—	—	—	—	—	125	160	195
K5	70	90	105	—	—	—	—	—	—	75	100	120
K6	100	130	155	—	—	—	—	—	—	110	145	170
K7	90	115	140	—	—	—	—	—	—	100	130	150
N1	570	760	900	—	—	—	—	—	—	—	—	—
N2	460	610	720	—	—	—	—	—	—	—	—	—
N3	305	410	480	—	—	—	—	—	—	—	—	—
N11	350	465	550	—	—	—	—	—	—	—	—	—
S1	39	50	60	22	29	34	37	49	55	—	—	—
S2	32	42	49	18	24	28	30	39	45	—	—	—
S3	28	37	43	16	21	24	27	35	41	—	—	—
S11	55	70	85	31	41	48	47	65	75	—	—	—
S12	31	42	49	24	31	37	36	49	60	—	—	—
S13	25	34	39	19	25	30	32	42	48	—	—	—

Slotting and contouring



-

**All corner radii can be used in front row, modification of body needed for radii >3,1mm

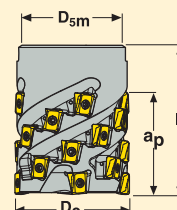
For cutter	Insert screw	Insert key	Arbor screw
R217.94-..	C04012-T15P	T15P-3	—
R220.94-00050-00063	C04012-T15P	T15P-3	MC6S12X60

8

Contouring only



-
- Technical drawing of a mechanical assembly. The drawing shows a vertical shaft with a flange at the top and a base. Dimensions are indicated as follows:
- dm_m : Diameter of the shaft at the top.
 - l_c : Length of the shaft section above the flange.
 - l_p : Total length of the assembly.
 - l_3 : Length of the base section.
 - a_p : Distance from the center of the base to the center of the shaft.
 - D_c : Diameter of the base.



Spare Parts

Torque value 3,0. Torque keys, see page 672 MN2015 Milling

R217/220.94-12 – Insert selection

SMG		f_z		
		100%	30%	10%
P1	LOEX120708TR-M12 F40M	–	0,16	0,24
P2	LOEX120708TR-M12 F40M	–	0,16	0,24
P3	LOEX120708TR-M12 F40M	0,14	0,15	0,24
P4	LOEX120708TR-M12 F40M	0,14	0,15	0,24
P5	LOEX120708TR-M12 MP2500	0,14	0,15	0,22
P6	LOEX120708TR-M12 MP2500	0,13	0,15	0,22
P7	LOEX120708TR-M12 MP2500	0,13	0,15	0,22
P8	LOEX120708TR-M12 MP2500	0,14	0,15	0,24
P11	LOEX120708TR-M12 T350M	0,13	0,15	0,22
M1	LOEX120708TR-M12 F40M	–	0,16	0,24
M2	LOEX120708TR-M12 F40M	–	0,15	0,22
M3	LOEX120708TR-M12 F40M	–	0,12	0,18
M4	LOEX120708TR-M12 F40M	–	0,10	0,16
M5	LOEX120708TR-M12 F40M	–	0,10	0,16
K1	LOEX120708TR-MD13 MK2050	0,16	0,17	0,26
K2	LOEX120708TR-MD13 MK2050	0,15	0,16	0,24
K3	LOEX120708TR-MD13 MK2050	0,15	0,16	0,24
K4	LOEX120708TR-MD13 MK2050	0,15	0,16	0,24
K5	LOEX120708TR-MD13 MK2050	0,13	0,14	0,22
K6	LOEX120708TR-MD13 MK2050	0,15	0,16	0,24
K7	LOEX120708TR-MD13 MK2050	0,13	0,14	0,22
S1	LOEX120708TR-M12 F40M	–	0,10	0,16
S2	LOEX120708TR-M12 F40M	–	0,10	0,16
S3	LOEX120708TR-M12 F40M	–	0,095	0,15
S11	LOEX120708TR-M12 MS2050	–	0,12	0,18
S12	LOEX120708TR-M12 MS2050	–	0,12	0,18
S13	LOEX120708TR-M12 MS2050	–	0,10	0,16

SMG = Seco material group

f_z = mm/tooth

v_c = m/min

a_e/D_c = %

All cutting data are start values

R217/220.94-12 – Cutting data $v_c =$ (m/min)

SMG	MP1500			MP2500			MP3000			T350M			F40M		
	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	160	180	190	155	175	190	155	175	185	150	165	180	140	160	170
P2	160	180	190	155	175	185	150	170	185	145	165	175	135	155	170
P3	150	170	180	145	165	175	145	160	175	135	155	165	130	145	160
P4	140	160	175	140	155	170	135	155	165	130	150	160	120	140	150
P5	140	160	170	135	155	165	130	150	165	125	145	155	115	135	150
P6	150	165	180	145	160	175	140	160	170	135	155	165	125	145	155
P7	145	160	175	140	160	170	135	155	165	130	150	160	120	140	150
P8	140	155	170	135	155	165	130	150	160	125	145	155	115	135	145
P11	145	160	170	140	155	170	135	150	165	130	145	160	120	140	150
M1	—	—	—	135	155	165	130	150	165	130	150	160	120	140	155
M2	—	—	—	120	140	150	120	140	150	115	135	145	110	130	140
M3	—	—	—	105	125	135	105	125	135	100	120	135	95	115	125
M4	—	—	—	90	110	120	90	110	120	85	105	115	80	100	110
M5	—	—	—	80	100	110	75	95	105	75	95	105	70	85	95
K1	145	165	175	140	160	170	135	155	165	—	—	—	120	140	150
K2	135	155	165	130	150	165	130	145	160	—	—	—	115	130	145
K3	125	145	155	120	140	150	115	135	150	—	—	—	100	120	135
K4	120	140	155	115	135	150	115	135	145	—	—	—	100	120	130
K5	90	110	120	85	105	115	80	100	110	—	—	—	65	85	95
K6	115	130	145	110	130	140	105	125	135	—	—	—	90	110	120
K7	105	125	135	100	120	130	100	115	130	—	—	—	85	105	115
S1	—	—	—	—	—	—	44	60	70	42	55	65	38	50	60
S2	—	—	—	—	—	—	35	47	55	34	45	50	30	41	47
S3	—	—	—	—	—	—	31	41	48	29	39	46	27	36	41
S11	—	—	—	—	—	—	60	80	90	60	75	85	50	70	80
S12	—	—	—	—	—	—	35	47	55	33	44	50	30	40	48
S13	—	—	—	—	—	—	28	38	44	27	36	42	24	33	38

R217/220.94-12 – Cutting data $v_c =$ (m/min)

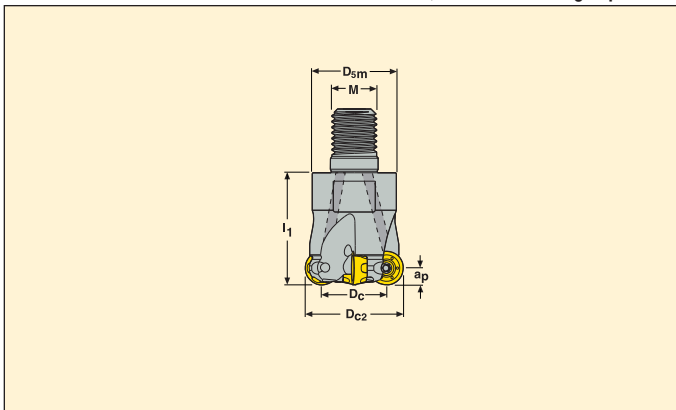
SMG	MK1500			MK2050			MM4500			MS2050		
	100%	30%	10%	100%	30%	10%	100%	30%	10%	100%	30%	10%
P1	—	—	—	150	170	185	125	145	155	—	—	—
P2	—	—	—	150	170	180	125	140	155	—	—	—
P3	—	—	—	140	160	170	115	135	145	—	—	—
P4	—	—	—	135	155	165	105	125	135	—	—	—
P5	—	—	—	130	150	160	105	120	135	—	—	—
P6	—	—	—	140	155	170	110	130	140	—	—	—
P7	—	—	—	135	155	165	110	125	140	—	—	—
P8	—	—	—	130	150	160	105	120	130	—	—	—
P11	—	—	—	135	150	165	105	125	135	—	—	—
M1	—	—	—	—	—	—	115	130	145	140	155	160
M2	—	—	—	—	—	—	100	120	130	125	140	150
M3	—	—	—	—	—	—	85	105	115	110	120	125
M4	—	—	—	—	—	—	70	90	100	90	100	105
M5	—	—	—	—	—	—	60	75	85	80	85	95
K1	160	180	190	155	175	185	—	—	—	—	—	—
K2	150	170	180	145	165	180	—	—	—	—	—	—
K3	140	160	170	135	155	165	—	—	—	—	—	—
K4	135	155	170	135	150	165	—	—	—	—	—	—
K5	105	125	135	100	120	130	—	—	—	—	—	—
K6	130	150	160	125	145	155	—	—	—	—	—	—
K7	120	140	150	120	135	150	—	—	—	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—	—	—	—	—
S1	—	—	—	—	—	—	21	29	33	38	50	55
S2	—	—	—	—	—	—	17	23	27	31	41	46
S3	—	—	—	—	—	—	15	20	23	27	36	41
S11	—	—	—	—	—	—	30	39	47	50	65	75
S12	—	—	—	—	—	—	23	30	36	38	50	60
S13	—	—	—	—	—	—	18	25	29	33	43	49

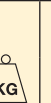
R217.29I-06

Cutters with round inserts, max. axial cutting depth 6 mm



- For insert selection and cutting data recommendations, see page(s) 17-18
- For complete insert programme, see page(s) 26
- For helical interpolation, see page(s) 664-665 MN2015 Milling



Part No.	Type of mounting	Dimensions in mm						a (°)*				Insert
		a _p	D _{c2}	D _c	D _{5m}	l ₁	M					
R217.29I -1225.RE-06.2A	Combimaster	6	25	13	23	35	M16	13	2	1,0	17700	RP..1204
R217.29I -1232.RE-06.3A	Combimaster	6	32	20	23	40	M16	7	3	0,2	15600	RP..1204
-1632.RE-06.3A	Combimaster	6	32	20	30	40	M16	7	3	0,2	15600	RP..1204
R217.29I -1635.RE-06.3A	Combimaster	6	35	23	30	40	M16	10	3	0,2	15000	RP..1204
-1635.RE-06.4A	Combimaster	6	35	23	30	40	M16	6	4	0,2	15000	RP..1204
R217.29I -1640.RE-06.3A	Combimaster	6	40	28	30	40	M16	8	3	0,2	14000	RP..1204
-1640.RE-06.4A	Combimaster	6	40	28	30	40	M16	8	4	0,2	14000	RP..1204
R217.29I -2040.RE06.4A	Combimaster	6	40	28	36,5	45	M20	8	4	0,4	14000	RP..1204
R217.29I -1642.RE-06.5A	Combimaster	6	42	30	30	40	M16	4	5	0,3	13600	RP..1204
R217.29I -2042.RE-06.5A	Combimaster	6	42	30	36,5	45	M20	4,2	5	0,4	13600	RP..1204

Ramping angle = α°

For Combimaster shanks and dimensions, see pages 572-581 MN2015 Milling

Spare Parts

For cutter	Screw	Key	Insert screw	Insert key
R217.29I-25/35-4A/42	SX2035-T05P	T05P-2	C03508-T15P	T15P-4
R217.29I-32/35-3A/40	SX2035-T05P	T05P-2	C03509-T15P	T15P-4

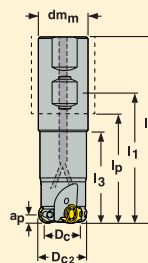
Please check availability in current price- and stock-list
Torque value 3,0 Nm. Torque keys, see page 672 MN2015 Milling

R217.291-06

Cutters with round inserts, max. axial cutting depth 6 mm



- For insert selection and cutting data recommendations, see page(s) 17-18
- For complete insert programme, see page(s) 26
- For helical interpolation, see page(s) 664-665 MN2015 Milling

[illegible]

Ramping angle = α°

Centre coolant hole possibility by removing centre screw

Spare Parts

For cutter	Screw	Key	Insert screw	Insert key	Centre screw
					
R217.29I-.. ø 25	SX2035-T05P	T05P-2	C03508-T15P	T15P-4	—
R217.29I-.. ø 32-40	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	—
R217.29I-..ø 32-40-4A	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	SH3040

Please check availability in current price- and stock-list

Torque value 3,0 Nm. Torque keys, see page 672 MN2015 Milling

Cutters with round inserts, max. axial cutting depth 6 mm



-
- Technical drawing of a mechanical part, likely a bracket or support, showing dimensions:
- D_{5m} : Top width dimension.
 - l_1 : Total height dimension.
 - a_p : Distance from the bottom edge to the center of the mounting holes.
 - D_c : Distance between the centers of the two mounting holes.
 - D_{c2} : Total width dimension at the base.

Ramping angle = α° . Spigot size = dm_m

For cutter	Screw	Key	Insert screw	Insert key	Arbor screw
R220.29I-...ø 40	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	220.17-689
R220.29I-...ø 44	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	220.17-689
R220.29I-...ø 50-63	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	220.17-692

14

Cutters with round inserts, max. axial cutting depth 6 mm



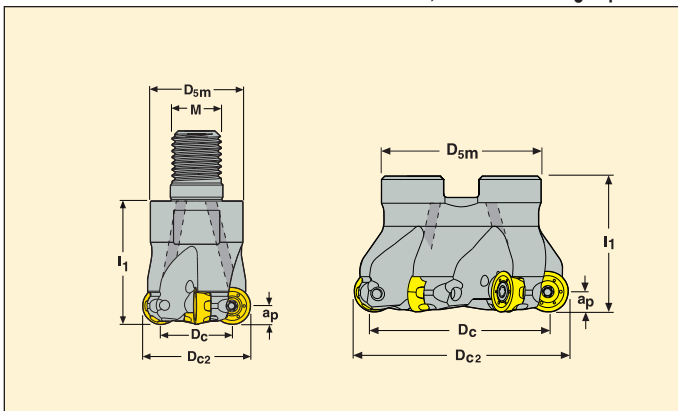
-
- Technical drawing of a mechanical part, likely a bracket or support, showing dimensions:
- D_{sm} : Diameter of the top cylindrical section.
 - l_1 : Height of the top cylindrical section.
 - a_p : Thickness of the base plate.
 - D_c : Diameter of the central mounting hole.
 - D_{c2} : Diameter of the outer mounting holes.

Ramping angle = α° . Spigot size = dm_m

For cutter	Screw	Key	Insert screw	Insert key	Arbor screw
R220.29I-...ø 66-80	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	MC6S12X35
R220.29I-...ø 92-112	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	950E1645
R220.29I-...ø 125-137	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	MC6S20X50

15

Cutters with round inserts, max. axial cutting depth 6 mm



- For insert selection and cutting data recommendations, see page(s) 17-18
- For complete insert programme, see page(s) 26
- For helical interpolation, see page(s) 664-665 MN2015 Milling

[illegible]

Ramping angle = α° . Spigot size = dm_m

For Combimaster shanks and dimensions, see pages 572-581 MN2015 Milling

Spare Parts

For cutter	Screw	Key	Insert screw	Insert key	Arbor screw
					
R217.29-..	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	—
R220.29-0040	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	220.17-689
R220.29-0050-0052	SX2035-T05P	T05P-2	C03509-T15P	T15P-4	220.17-692

Please check availability in current price and stock-list

Torque value 3,0 Nm. Torque keys, see page 672 MN2015 Milling

R217/220.29-06 – Insert selection

SMG		a_p	f_z			
			100%	30%	10%	5%
P1	RPHT1204M0T-6-M08 T350M	2,5	0,24	0,26	0,42	0,60
P2	RPHT1204M0T-6-M08 T350M	2,5	0,26	0,28	0,42	0,60
P3	RPHT1204M0T-6-M08 T350M	2,5	0,24	0,26	0,40	0,55
P4	RPHT1204M0T-6-M08 T350M	2,5	0,24	0,26	0,40	0,55
P5	RPKT1204M0T-6-M15 MP2500	2,5	0,42	0,46	0,75	1,0
P6	RPKT1204M0T-6-M15 MP2500	2,5	0,42	0,46	0,70	1,0
P7	RPKT1204M0T-6-M15 MP2500	2,5	0,42	0,46	0,70	1,0
P8	RPKT1204M0T-6-M15 MP2500	2,5	0,44	0,48	0,75	1,1
P11	RPHT1204M0T-6-M08 MP2500	2,5	0,22	0,24	0,38	0,55
M1	RPHT1204M0T-6-ME07 T350M	2,5	0,22	0,24	0,36	0,50
M2	RPHT1204M0T-6-ME07 T350M	2,5	0,20	0,22	0,34	0,46
M3	RPHT1204M0T-6-ME07 T350M	1,9	0,18	0,20	0,30	0,42
M4	RPHT1204M0T-6-M08 T350M	1,5	0,20	0,22	0,34	0,48
M5	RPHT1204M0T-6-M08 T350M	1,5	0,20	0,22	0,34	0,48
K1	RPKT1204M0T-6-M15 MK2050	2,5	0,46	0,50	0,80	1,1
K2	RPKT1204M0T-6-M15 MK2050	2,5	0,42	0,46	0,75	1,0
K3	RPKT1204M0T-6-M15 MK2050	2,5	0,42	0,46	0,75	1,0
K4	RPKT1204M0T-6-M15 MK2050	2,5	0,42	0,46	0,75	1,0
K5	RPKT1204M0T-6-M15 MK2050	2,5	0,38	0,42	0,65	0,90
K6	RPKT1204M0T-6-M15 MK2050	2,5	0,42	0,46	0,75	1,0
K7	RPKT1204M0T-6-M15 MK2050	2,5	0,38	0,42	0,65	0,90
N1	RPHT1204M0-6-E05 H25	2,5	0,20	0,22	0,34	0,46
N2	RPHT1204M0-6-E05 H25	2,5	0,20	0,22	0,34	0,46
N3	RPHT1204M0-6-E05 H25	2,5	0,20	0,22	0,34	0,46
N11	RPHT1204M0-6-E05 H25	2,5	0,20	0,22	0,34	0,46
S1	RPHT1204M0T-6-M13 MS2500	1,5	0,34	0,36	0,55	0,80
S2	RPHT1204M0T-6-M13 MS2500	1,5	0,34	0,36	0,55	0,80
S3	RPHT1204M0T-6-M13 MS2500	1,5	0,32	0,34	0,55	0,75
S11	RPHT1204M0T-6-M13 MS2050	1,7	0,36	0,40	0,60	0,85
S12	RPHT1204M0T-6-M13 MS2050	1,7	0,36	0,40	0,60	0,85
S13	RPHT1204M0T-6-M13 MS2050	1,5	0,34	0,36	0,55	0,80
H5	RPHW1204M0T-6-MD12 MH1000	1,9	0,26	0,30	0,46	0,65
H8	RPHW1204M0T-6-MD12 MH1000	1,7	0,22	0,24	0,36	0,50
H11	RPHW1204M0T-6-MD12 MH1000	1,9	0,26	0,30	0,46	0,65
H12	RPHT1204M0T-6-M13 T350M	1,9	0,28	0,32	0,48	0,70
H21	RPHW1204M0T-6-MD12 MH1000	1,7	0,22	0,24	0,36	0,50

SMG = Seco material group

f_z = mm/tooth

v_c = m/min

a_p/D_c = %

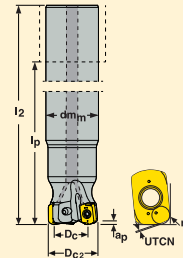
All cutting data are start values

R217.21

High feed cutters - L006



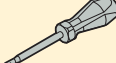
- For insert selection and cutting data recommendations, see page(s) 21-22
- For complete insert programme, see page(s) 24
- For helical interpolation, see page(s) 664-665 MN2015 Milling

[illegible]

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.

Ramping angle = α°

Spare Parts

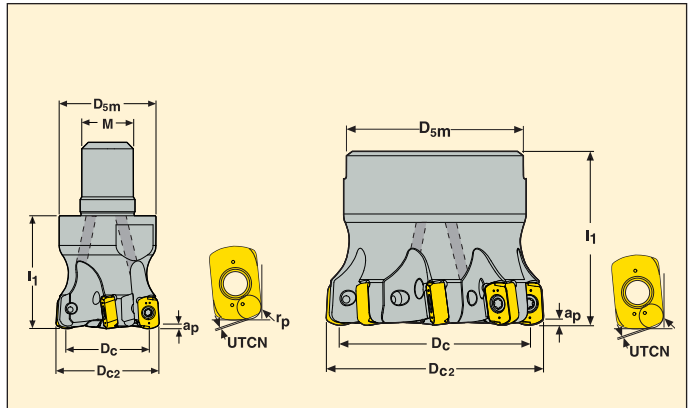
For cutter	Insert screw	Insert key	
			
R217.21-..	C02508-T08P	T08P-3	

Please check availability in current price and stock-list

Torque value 1,2 Nm. Torque keys, see page 672 MN2015 Milling



- For insert selection and cutting data recommendations, see page(s) 21-22
- For complete insert programme, see page(s) 24
- For helical interpolation, see page(s) 664-665 MN2015 Milling



Part No.	Type of mounting	Dimensions in mm										α° max				Insert
		a _p	D _{c2}	D _c	D _{5m}	dm _m	M	I ₁	UTCN	r _p						
R217.21 -1020.RE-LO06.2A	Combimaster	0,9	20	13,3	18,5	—	M10	28	0,38	1,8	1	2	0,1	35000	LO..06	
R217.21 -1225.RE-LO06.3A	Combimaster	0,9	25	18,3	23	—	M12	30	0,38	1,8	0,8	3	0,1	30000	LO..06	
-1225.RE-LO06.4A	Combimaster	0,9	25	18,3	23	—	M12	30	0,38	1,8	0,8	4	0,1	30000	LO..06	
R217.21 -1632.RE-LO06.4A	Combimaster	0,9	32	25,3	30	—	M16	35	0,38	1,8	0,5	4	0,2	27000	LO..06	
-1632.RE-LO06.5A	Combimaster	0,9	32	25,3	30	—	M16	35	0,38	1,8	0,5	5	0,2	27000	LO..06	
R217.21 -1635.RE-LO06.5A	Combimaster	0,9	35	28,3	30	—	M16	35	0,38	1,8	0,5	5	0,2	26000	LO..06	
R220.21 -0035-LO06.6A	Arbor	0,9	35	28,3	32	16	—	35	0,38	1,8	0,5	6	0,2	24500	LO..06	
R217.21 -1640.RE-LO06.5A	Combimaster	0,9	40	33,3	30	—	M16	35	0,38	1,8	0,4	5	0,2	18000	LO..06	
-2040.RE-LO06.6A	Combimaster	0,9	40	33	36,5	—	M20	40	0,38	1,8	0,4	6	0,4	18000	LO..06	
R220.21 -0040-LO06.7A	Arbor	0,9	40	33,3	35	16	—	40	0,38	1,8	0,4	7	0,2	18000	LO..06	
-0042-LO06.7A	Arbor	0,9	42	35,3	35	16	—	40	0,38	1,8	0,4	7	0,2	18000	LO..06	
R220.21 -0050-LO06.8A	Arbor	0,9	50	43,3	42	22	—	40	0,38	1,8	0,3	8	0,3	16000	LO..06	
-0052-LO06.8A	Arbor	0,9	52	45,3	42	22	—	40	0,38	1,8	0,3	8	0,4	16000	LO..06	
R220.21 -0063-LO06.9A	Arbor	0,9	63	56,3	47	22	—	40	0,38	1,8	0,25	9	0,5	15000	LO..06	

UTCN = Uncut thickness, deviation between programmed corner radii (r_p) and generated machined profile.

Ramping angle = α° . Spigot size = dm_m

For Combimaster shanks and dimensions, see pages 572-581 MN2015 Milling

Spare Parts

For cutter	Insert screw	Insert key	Arbor screw	
R217.21-..	C02508-T08P	T08P-3	—	
R220.21- Dia 35	C02508-T08P	T08P-3	MC6S8X25	
R220.21- Dia 40-42	C02508-T08P	T08P-3	220.17-689	
R220.21- Dia 50-63	C02508-T08P	T08P-3	220.17-692	

Please check availability in current price and stock-list

Torque value 1,2. Torque keys, see page 672 MN2015 Milling

R217/220.21-L006 – Insert selection

SMG		a_p	f_z		
			100%	70%	30%
P1	LOHT060310TR-ME06 T350M	0,90	0,50	0,50	0,55
P2	LOHT060310TR-ME06 T350M	0,90	0,50	0,50	0,55
P3	LOHT060310TR-ME06 T350M	0,90	0,48	0,48	0,55
P4	LOHT060310TR-M07 MP2500	0,90	0,55	0,55	0,60
P5	LOHT060310TR-M07 MP2500	0,90	0,55	0,55	0,60
P6	LOHT060310TR-M07 MP2500	0,90	0,55	0,55	0,60
P7	LOHT060310TR-M07 MP2500	0,90	0,55	0,55	0,60
P8	LOHT060310TR-MD07 MP2500	0,90	0,55	0,55	0,60
P11	LOHT060310TR-M07 MP2500	0,90	0,55	0,55	0,60
M1	LOHT060310TR-ME06 T350M	0,90	0,50	0,50	0,55
M2	LOHT060310TR-ME06 T350M	0,90	0,46	0,46	0,50
M3	LOHT060310TR-ME06 T350M	0,70	0,42	0,42	0,46
M4	LOHT060310TR-ME06 T350M	0,54	0,42	0,42	0,46
M5	LOHT060310TR-ME06 T350M	0,54	0,42	0,42	0,46
K1	LOHT060310TR-MD07 MK2050	0,90	0,60	0,60	0,65
K2	LOHT060310TR-MD07 MK2050	0,90	0,55	0,55	0,60
K3	LOHT060310TR-MD07 MK2050	0,90	0,55	0,55	0,60
K4	LOHW060310TR-D07 MP1500	0,90	0,55	0,55	0,60
K5	LOHW060310TR-D07 MP1500	0,90	0,48	0,48	0,55
K6	LOHT060310TR-MD07 MK2050	0,90	0,55	0,55	0,60
K7	LOHT060310TR-MD07 MK2050	0,90	0,48	0,48	0,55
S1	LOHT060310TR-ME06 MS2500	0,54	0,42	0,42	0,46
S2	LOHT060310TR-ME06 MS2500	0,54	0,42	0,42	0,46
S3	LOHT060310TR-M07 F40M	0,54	0,46	0,46	0,50
S11	LOHT060310TR-ME06 MS2050	0,63	0,44	0,44	0,48
S12	LOHT060310TR-ME06 MS2050	0,63	0,44	0,44	0,48
S13	LOHT060310TR-ME06 MS2050	0,54	0,42	0,42	0,46
H5	LOHW060310TR-D07 MH1000	0,55	0,40	0,40	0,44
H8	LOHW060310TR-D07 MH1000	0,48	0,34	0,34	0,36
H11	LOHT060310TR-M07 T350M	0,55	0,40	0,40	0,44
H12	LOHT060310TR-M07 T350M	0,55	0,40	0,40	0,44
H21	LOHW060310TR-D07 MH1000	0,48	0,34	0,34	0,36

SMG = Seco material group

f_z = mm/tooth

v_c = m/min

a_e/D_c = %

All cutting data are start values

R217/220.21-LO06 – Cutting data $v_c =$ (m/min)

SMG	MP1500			MP2500			MP3000			T350M			F40M			MM4500		
	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	280	315	385	270	305	375	260	290	355	260	295	360	205	235	285	185	210	255
P2	270	305	375	265	300	365	250	285	345	255	290	350	200	225	275	180	205	245
P3	240	270	330	235	265	320	220	250	305	220	250	300	175	200	245	155	175	210
P4	210	240	290	205	230	285	195	220	270	195	220	270	155	175	215	140	155	190
P5	200	225	275	195	220	270	185	210	255	190	215	260	150	170	205	135	150	185
P6	225	255	310	220	250	305	210	235	285	210	240	290	165	190	230	150	170	205
P7	215	240	295	210	235	285	195	220	270	200	225	275	160	180	215	140	160	195
P8	200	225	275	195	220	270	185	210	255	185	210	255	150	170	205	130	150	180
P11	205	235	285	200	230	280	190	215	265	195	220	265	155	175	210	135	155	190
M1	—	—	—	190	215	265	190	210	260	195	220	270	160	180	225	155	175	210
M2	—	—	—	160	180	220	155	175	215	165	185	225	135	150	185	130	145	175
M3	—	—	—	130	145	175	125	140	170	130	150	180	110	125	150	105	115	140
M4	—	—	—	100	115	135	100	110	135	105	115	140	85	95	115	80	90	110
M5	—	—	—	85	95	115	85	95	110	85	95	115	70	80	95	65	75	90
K1	215	245	295	210	235	290	200	225	275	—	—	—	160	180	220	—	—	—
K2	190	215	265	185	210	255	175	200	245	—	—	—	140	160	195	—	—	—
K3	160	185	225	160	180	215	150	170	205	—	—	—	120	135	165	—	—	—
K4	155	175	210	150	170	205	145	160	195	—	—	—	115	130	155	—	—	—
K5	95	110	130	95	105	125	90	100	120	—	—	—	70	80	95	—	—	—
K6	135	155	185	135	150	185	125	140	175	—	—	—	100	115	140	—	—	—
K7	120	140	165	120	135	160	115	130	155	—	—	—	90	100	125	—	—	—
S1	—	—	—	—	—	—	47	50	65	48	55	65	40	45	55	25	28	33
S2	—	—	—	—	—	—	37	42	50	39	43	50	32	36	44	20	22	27
S3	—	—	—	—	—	—	33	37	44	34	38	46	28	32	38	17	20	23
S11	—	—	—	—	—	—	65	75	90	70	75	90	55	65	75	35	39	46
S12	—	—	—	—	—	—	38	42	50	39	44	50	33	36	44	27	30	36
S13	—	—	—	—	—	—	30	34	41	31	35	42	26	29	35	21	24	29
H5	47	55	65	42	47	55	41	46	55	44	49	60	35	39	47	—	—	—
H8	50	55	70	44	50	60	43	49	60	47	50	60	37	42	50	—	—	—
H11	60	70	80	55	60	70	50	60	70	55	65	75	45	50	60	—	—	—
H12	90	100	125	80	90	110	80	90	105	85	95	115	65	75	90	—	—	—
H21	50	55	70	44	50	60	43	49	60	47	50	60	37	42	50	—	—	—

R217/220.21-LO06 – Cutting data $v_c =$ (m/min)

SMG	MK2050			MS2050			MS2500			MH1000		
	100%	70%	30%	100%	70%	30%	100%	70%	30%	100%	70%	30%
P1	245	275	335	275	300	340	295	335	410	—	—	—
P2	235	265	325	265	290	330	290	325	400	—	—	—
P3	210	235	290	230	255	285	255	290	350	—	—	—
P4	185	210	255	205	225	250	225	255	310	—	—	—
P5	175	200	240	195	215	235	215	240	295	—	—	—
P6	195	225	270	220	240	265	240	270	330	—	—	—
P7	185	210	255	205	225	250	225	255	315	—	—	—
P8	175	200	240	195	215	240	215	240	295	—	—	—
P11	180	205	250	200	220	245	220	250	305	—	—	—
M1	—	—	—	230	255	290	205	235	285	—	—	—
M2	—	—	—	190	210	230	170	195	235	—	—	—
M3	—	—	—	145	160	170	140	155	190	—	—	—
M4	—	—	—	105	115	120	110	125	150	—	—	—
M5	—	—	—	90	100	100	90	100	125	—	—	—
K1	255	290	355	—	—	—	—	—	—	200	225	275
K2	225	255	315	—	—	—	—	—	—	175	200	240
K3	190	215	265	—	—	—	—	—	—	150	170	205
K4	185	205	250	—	—	—	—	—	—	140	160	195
K5	115	130	155	—	—	—	—	—	—	90	100	120
K6	160	180	220	—	—	—	—	—	—	125	140	170
K7	145	165	195	—	—	—	—	—	—	110	125	150
N1	—	—	—	—	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—	—	—	—	—
S1	—	—	—	45	48	60	55	60	75	—	—	—
S2	—	—	—	36	38	48	43	48	60	—	—	—
S3	—	—	—	33	35	43	38	42	50	—	—	—
S11	—	—	—	60	65	80	75	85	100	—	—	—
S12	—	—	—	47	50	60	44	49	60	—	—	—
S13	—	—	—	39	41	50	35	39	47	—	—	—
H5	—	—	—	—	—	—	—	—	—	44	49	60
H8	—	—	—	—	—	—	—	—	—	46	50	65
H11	—	—	—	—	—	—	—	—	—	55	60	75
H12	—	—	—	—	—	—	—	—	—	85	95	115
H21	—	—	—	—	—	—	—	—	—	46	50	65

r_s = Insert corner radii
 B = Wiper flat width

Size	Dimensions in mm	
	W	L
LOEX12...-M12	7,5	12
LOEX12...-MD13	7,5	12

[illegible]

■ **Stock standard**
Subject to change refer to current price- and stock-list

Size	Dimensions in mm	
	W	s
0603	6,35	3,57
0603	6,35	3,56
0603	6,35	3,45

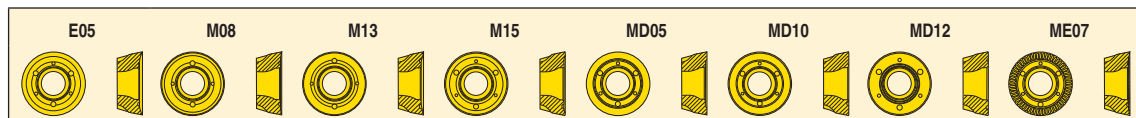
M07	D07	MD07	ME06
			

[illegible]

24

Technical drawing of a tapered roller bearing. The front view (left) shows an outer ring with diameter D . The side view (right) shows the tapered rollers with a lead angle of 11° and a width s .

Size	Dimensions in mm	
	D	s
1204	12,0	4,76



■ **Stock standard**
Subject to change refer to current price- and stock-list

Size	Dimensions in mm	
	l	s
15	15,87	4,76

[illegible]

■ Stock standard
Subject to change refer to current price- and stock-list

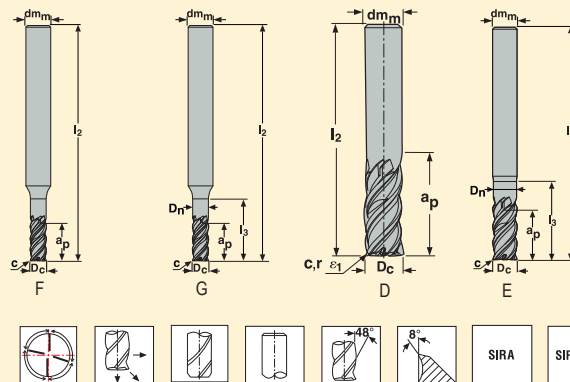
Size	Dimensions in mm			
	l	d	m	s
TNHF12	22,17	12,8	2,271	4,762

[illegible]

Subject to change refer to current price- and stock-list

			
			
Name		JS554	JHF980
Page		30-35	36-39
Family		JS ²	HFM
Type of mill			
Shank	Cylindrical	■	■
	Weldon	■	
Number of flutes		4	2,3,4,5
ICC			
Diameter range	Metric	3-25	1-12
	Inch	1/4-1	
Lengths available, based on length index		 2,3	 1,2,3,4
Operation			
			
SMG			
P1-8		•	•
P11		•	•
M1-3		•	•
M4-5		•	•
K1-7		•	•
S1-3		•	•
S11-13		•	•
H5 H8 H11 H12 H21		•	○
N1		•	
N2		•	
N11		•	
TS1		•	
TP1		•	
GR		○	

■ Stock standard □ Weldon available, delivery time is 3 days. • Preferred choice, ○ Alternative choice

 $D_c = e7$ [illegible]

■ Stock standard. Subject to change refer to current price and stock-list.

JS554 – Solid carbide end mill – cylindrical – four flute – corner radius – unequal flute spacing – OD-reduction

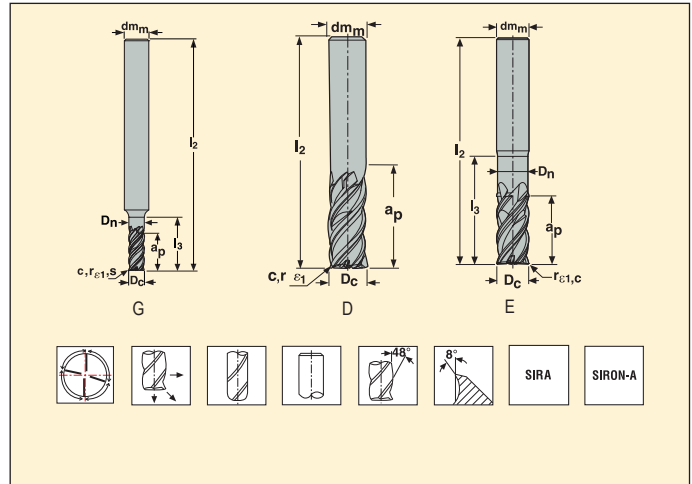


Tolerances:

$dm_m = h5$

$D_c = e7$

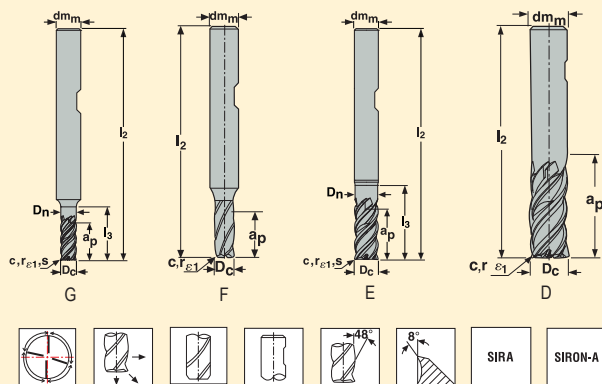
$r_{e1} = +/ - 0,02 \text{ mm}$



Part No.	Length index	Tool shape	Dimensions in mm						r_{e1}	z_n	Cylindrical
			D_c	dm_m	a_p	l_2	l_3	D_n			
JS554030G2R015.0Z4-SIRA	2	G	3	6	7	57	10	2,85	0,15	4	■
JS554040G2R020.0Z4-SIRA	2	G	4	6	10	57	13	3,8	0,2	4	■
JS554050G2R020.0Z4-SIRA	2	G	5	6	12	57	16	4,75	0,2	4	■
554060R020Z4.0-SIRON-A	2	D	6	6	14	55	—	—	0,2	4	■
JS554060E2R020.0Z4-SIRA	2	E	6	6	14	57	18	5,7	0,2	4	■
JS554060E2R050.0Z4-SIRA	2	E	6	6	14	57	18	5,7	0,5	4	■
JS554060E2R100.0Z4-SIRA	2	E	6	6	14	57	18	5,7	1	4	■
554080R050Z4.0-SIRON-A	2	D	8	8	18	60	—	—	0,5	4	■
JS554080E2R050.0Z4-SIRA	2	E	8	8	18	63	25	7,6	0,5	4	■
JS554080E2R100.0Z4-SIRA	2	E	8	8	18	63	25	7,6	1	4	■
554100R050Z4.0-SIRON-A	2	D	10	10	22	70	—	—	0,5	4	■
JS554100E2R050.0Z4-SIRA	2	E	10	10	22	72	29	9,5	0,5	4	■
554100R100Z4.0-SIRON-A	2	D	10	10	22	70	—	—	1	4	■
JS554100E2R100.0Z4-SIRA	2	E	10	10	22	72	29	9,5	1	4	■
JS554100E2R200.0Z4-SIRA	2	E	10	10	22	72	29	9,5	2	4	■
JS554100E2R250.0Z4-SIRA	2	E	10	10	22	72	29	9,5	2,5	4	■
554120R050Z4.0-SIRON-A	2	D	12	12	26	80	—	—	0,5	4	■
JS554120E2R050.0Z4-SIRA	2	E	12	12	26	83	35	11,4	0,5	4	■
554120R100Z4.0-SIRON-A	2	D	12	12	26	80	—	—	1	4	■
JS554120E2R100.0Z4-SIRA	2	E	12	12	26	83	35	11,4	1	4	■
JS554120E2R200.0Z4-SIRA	2	E	12	12	26	83	35	11,4	2	4	■
JS554120E2R250.0Z4-SIRA	2	E	12	12	26	83	35	11,4	2,5	4	■
JS554120E2R300.0Z4-SIRA	2	E	12	12	26	83	35	11,4	3	4	■
554160R050Z4.0-SIRON-A	2	D	16	16	34	90	—	—	0,5	4	■
JS554160E2R050.0Z4-SIRA	2	E	16	16	34	92	42	15,2	0,5	4	■
554160R100Z4.0-SIRON-A	2	D	16	16	34	90	—	—	1	4	■
554160R200Z4.0-SIRON-A	2	D	16	16	34	90	—	—	2	4	■
554160R310Z4.0-SIRON-A	2	D	16	16	34	90	—	—	3,1	4	■
554160R400Z4.0-SIRON-A	2	D	16	16	34	90	—	—	4	4	■
554200R050Z4.0-SIRON-A	2	D	20	20	42	100	—	—	0,5	4	■
554200R100Z4.0-SIRON-A	2	D	20	20	42	100	—	—	1	4	■
JS554200E2R200.0Z4-SIRA	2	E	20	20	42	110	54	19	2	4	■
554200R250Z4.0-SIRON-A	2	D	20	20	42	100	—	—	2,5	4	■
554200R310Z4.0-SIRON-A	2	D	20	20	42	100	—	—	3,1	4	■
554200R400Z4.0-SIRON-A	2	D	20	20	42	100	—	—	4	4	■
JS554200E2R600.0Z4-SIRA	2	E	20	20	42	109	54	19	6	4	■
554250R050Z4.0-SIRON-A	2	D	25	25	52	125	—	—	0,5	4	■
554250R100Z4.0-SIRON-A	2	D	25	25	52	125	—	—	1	4	■
554250R310Z4.0-SIRON-A	2	D	25	25	52	125	—	—	3,1	4	■
554250R400Z4.0-SIRON-A	2	D	25	25	52	125	—	—	4	4	■

■ Stock standard. Subject to change refer to current price-and stock-list.

c x 45° = see page 4 MN2015 Solid end mills.

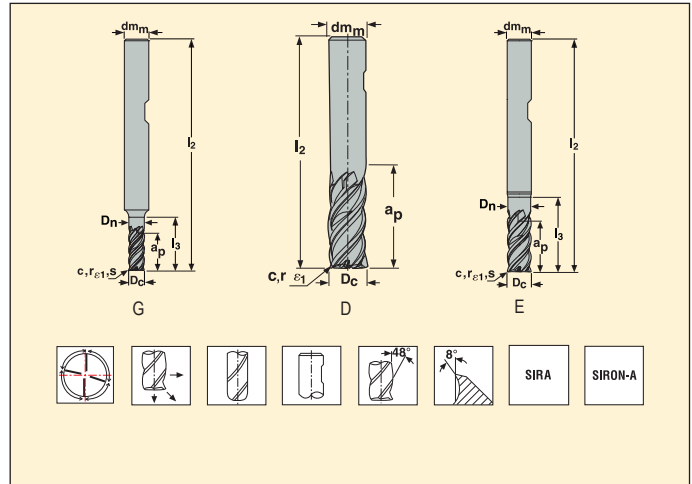


■ Stock standard. Subject to change refer to current price-and stock-list.

JS554 – Solid carbide end mill – Weldon – four flute – corner radius – unequal flute spacing – OD reduction



Tolerances:
 $dm_m = h5$
 $D_c = e7$
 $r_{e1} = \pm 0,02 \text{ mm}$



Part No.	Length index	Tool shape	Dimensions in mm						r_{e1}	z_n	Weldon
			D_c	dm_m	a_p	l_2	l_3	D_n			
	2	G	3	6	7	57	10	2,85	0,15	4	■
JS554030G2R015.3Z4-SIRA	2	G	4	6	10	57	13	3,8	0,2	4	■
JS554050G2R020.3Z4-SIRA	2	G	5	6	12	57	16	4,75	0,2	4	■
554060R020Z4.3-SIRON-A	2	D	6	6	14	55	—	—	0,2	4	■
JS554060E2R020.3Z4-SIRA	2	E	6	6	14	57	18	5,7	0,2	4	■
JS554060E2R050.3Z4-SIRA	2	E	6	6	14	57	18	5,7	0,5	4	■
JS554060E2R100.3Z4-SIRA	2	E	6	6	14	57	18	5,7	1	4	■
554080R050Z4.3-SIRON-A	2	D	8	8	18	60	—	—	0,5	4	■
JS554080E2R050.3Z4-SIRA	2	E	8	8	18	63	25	7,6	0,5	4	■
JS554080E2R100.3Z4-SIRA	2	E	8	8	18	63	25	7,6	1	4	■
554100R050Z4.3-SIRON-A	2	D	10	10	22	70	—	—	0,5	4	■
JS554100E2R050.3Z4-SIRA	2	E	10	10	22	72	29	9,5	0,5	4	■
554100R100Z4.3-SIRON-A	2	D	10	10	22	70	—	—	1	4	■
JS554100E2R100.3Z4-SIRA	2	E	10	10	22	72	29	9,5	1	4	■
JS554100E2R200.3Z4-SIRA	2	E	10	10	22	72	29	9,5	2	4	■
JS554100E2R250.3Z4-SIRA	2	E	10	10	22	72	29	9,5	2,5	4	■
554120R050Z4.3-SIRON-A	2	D	12	12	26	80	—	—	0,5	4	■
JS554120E2R050.3Z4-SIRA	2	E	12	12	26	83	35	11,4	0,5	4	■
554120R100Z4.3-SIRON-A	2	D	12	12	26	80	—	—	1	4	■
JS554120E2R100.3Z4-SIRA	2	E	12	12	26	83	35	11,4	1	4	■
JS554120E2R200.3Z4-SIRA	2	E	12	12	26	83	35	11,4	2	4	■
JS554120E2R250.3Z4-SIRA	2	E	12	12	26	83	35	11,4	2,5	4	■
JS554120E2R300.3Z4-SIRA	2	E	12	12	26	83	35	11,4	3	4	■
554160R050Z4.3-SIRON-A	2	D	16	16	34	90	—	—	0,5	4	■
JS554160E2R050.3Z4-SIRA	2	E	16	16	34	92	42	15,2	0,5	4	■
554160R100Z4.3-SIRON-A	2	D	16	16	34	90	—	—	1	4	■
554160R200Z4.3-SIRON-A	2	D	16	16	34	90	—	—	2	4	■
554160R310Z4.3-SIRON-A	2	D	16	16	34	90	—	—	3,1	4	■
554160R400Z4.3-SIRON-A	2	D	16	16	34	90	—	—	4	4	■
554200R050Z4.3-SIRON-A	2	D	20	20	42	100	—	—	0,5	4	■
554200R100Z4.3-SIRON-A	2	D	20	20	42	100	—	—	1	4	■
JS554200E2R200.3Z4-SIRA	2	E	20	20	42	110	54	19	2	4	■
554200R250Z4.3-SIRON-A	2	D	20	20	42	100	—	—	2,5	4	■
554200R310Z4.3-SIRON-A	2	D	20	20	42	100	—	—	3,1	4	■
554200R400Z4.3-SIRON-A	2	D	20	20	42	100	—	—	4	4	■
JS554200E2R600.3Z4-SIRA	2	E	20	20	42	109	54	19	6	4	■
554250R050Z4.3-SIRON-A	2	D	25	25	52	125	—	—	0,5	4	■
554250R100Z4.3-SIRON-A	2	D	25	25	52	125	—	—	1	4	■
554250R310Z4.3-SIRON-A	2	D	25	25	52	125	—	—	3,1	4	■

■ Stock standard. Subject to change refer to current price-and stock-list.

Cutting data – JS554 Slotting

SMG		a_p / D_c	f_z										v_c
			3	4	5	6	8	10	12	16	20	25	
P1	M/A/D/E	1,0	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,095	0,12	0,15	180 (160 — 200)
P2	M/A/D/E	1,0	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,095	0,12	0,15	170 (150 — 190)
P3	M/A/D/E	1,0	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,095	0,12	0,15	160 (140 — 180)
P4	M/A/D/E	1,0	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,095	0,12	0,15	150 (130 — 170)
P5	M/A/D/E	1,0	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,095	0,12	0,15	140 (100 — 160)
P6	M/A/D/E	1,0	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,095	0,12	0,15	155 (110 — 180)
P7	M/A/D/E	1,0	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,095	0,12	0,15	150 (105 — 170)
P8	M/A/D/E	1,0	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,095	0,12	0,15	140 (100 — 160)
P11	M/A/D/E	1,0	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,095	0,12	0,15	145 (105 — 165)
M1	E	0,80	0,012	0,016	0,020	0,024	0,032	0,040	0,048	0,065	0,080	0,10	80 (70 — 90)
M2	E	0,80	0,012	0,016	0,020	0,024	0,032	0,040	0,048	0,065	0,080	0,10	65 (55 — 75)
M3	E	0,60	0,0095	0,013	0,016	0,019	0,026	0,032	0,038	0,050	0,065	0,080	50 (40 — 60)
M4	E	0,44	0,0095	0,013	0,016	0,019	0,026	0,032	0,038	0,050	0,065	0,080	37 (30 — 45)
M5	E	0,44	0,0095	0,013	0,016	0,019	0,026	0,032	0,038	0,050	0,065	0,080	31 (25 — 37)
K1	E	1,0	0,015	0,020	0,026	0,030	0,040	0,050	0,060	0,080	0,10	0,13	160 (140 — 180)
K2	E	1,0	0,015	0,020	0,026	0,030	0,040	0,050	0,060	0,080	0,10	0,13	140 (120 — 155)
K3	E	1,0	0,015	0,020	0,026	0,030	0,040	0,050	0,060	0,080	0,10	0,13	115 (105 — 130)
K4	E	1,0	0,015	0,020	0,026	0,030	0,040	0,050	0,060	0,080	0,10	0,13	110 (100 — 125)
K5	E	0,70	0,015	0,020	0,026	0,030	0,040	0,050	0,060	0,080	0,10	0,13	140 (120 — 160)
K6	E	0,70	0,015	0,020	0,026	0,030	0,040	0,050	0,060	0,080	0,10	0,13	160 (140 — 180)
K7	E	0,70	0,015	0,020	0,026	0,030	0,040	0,050	0,060	0,080	0,10	0,13	160 (140 — 180)
N1	E	0,50	0,015	0,020	0,026	0,030	0,040	0,050	0,060	0,080	0,10	0,13	620 (520 — 730)
N2	E	0,50	0,015	0,020	0,026	0,030	0,040	0,050	0,060	0,080	0,10	0,13	350 (295 — 410)
N11	E	0,60	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,095	0,12	0,15	300 (250 — 350)
S1	E	0,30	0,0095	0,013	0,016	0,019	0,026	0,032	0,038	0,050	0,065	0,080	40 (30 — 50)
S2	E	0,30	0,0095	0,013	0,016	0,019	0,026	0,032	0,038	0,050	0,065	0,080	32 (24 — 40)
S3	E	0,30	0,0095	0,013	0,016	0,019	0,026	0,032	0,038	0,050	0,065	0,080	25 (15 — 35)
S11	E	0,50	0,012	0,016	0,020	0,024	0,032	0,040	0,050	0,065	0,080	0,10	85 (60 — 110)
S12	E	0,50	0,012	0,016	0,020	0,024	0,032	0,040	0,050	0,065	0,080	0,10	65 (48 — 85)
S13	E	0,44	0,012	0,016	0,020	0,024	0,032	0,040	0,050	0,065	0,080	0,10	50 (37 — 65)
H5	M/A/D	0,44	0,0075	0,010	0,012	0,015	0,020	0,024	0,028	0,036	0,042	0,050	49 (39 — 60)
H8	M/A/D	0,40	0,0060	0,0080	0,010	0,012	0,016	0,020	0,024	0,032	0,040	0,050	50 (41 — 60)
H11	M/A/D	0,44	0,0075	0,010	0,012	0,015	0,020	0,024	0,028	0,036	0,042	0,050	65 (50 — 75)
H12	M/A/D	0,44	0,0075	0,010	0,012	0,015	0,020	0,024	0,028	0,036	0,042	0,050	95 (75 — 115)
H21	M/A/D	0,40	0,0060	0,0080	0,010	0,012	0,016	0,020	0,024	0,032	0,040	0,050	50 (41 — 60)
TS1	A	0,70	0,030	0,040	0,050	0,060	0,080	0,10	0,12	0,15	0,17	0,19	250 (150 — 350)
TP1	A	0,70	0,030	0,040	0,050	0,060	0,080	0,10	0,12	0,15	0,17	0,19	250 (150 — 350)
GR1	A	0,80	0,030	0,040	0,050	0,060	0,080	0,10	0,12	0,15	0,17	0,19	500 (400 — 600)

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JS554 Side milling roughing $a_e/D_c = 0,4$

SMG		a_p / D_c	f_z										v_c
			3	4	5	6	8	10	12	16	20	25	
P1	M/A/D/E	1,0	0,030	0,040	0,050	0,060	0,080	0,10	0,12	0,15	0,17	0,19	200 (180 — 220)
P2	M/A/D/E	1,0	0,030	0,040	0,050	0,060	0,080	0,10	0,12	0,15	0,17	0,19	190 (165 — 210)
P3	M/A/D/E	1,0	0,028	0,038	0,048	0,055	0,075	0,095	0,11	0,14	0,16	0,18	180 (155 — 200)
P4	M/A/D/E	1,0	0,028	0,038	0,046	0,055	0,075	0,095	0,11	0,14	0,16	0,18	170 (145 — 190)
P5	M/A/D/E	1,0	0,028	0,036	0,046	0,055	0,075	0,090	0,11	0,13	0,16	0,18	160 (115 — 180)
P6	M/A/D/E	1,0	0,028	0,036	0,046	0,055	0,075	0,090	0,11	0,13	0,15	0,17	180 (130 — 205)
P7	M/A/D/E	1,0	0,028	0,036	0,046	0,055	0,075	0,090	0,11	0,13	0,15	0,17	170 (120 — 195)
P8	M/A/D/E	1,0	0,028	0,038	0,048	0,055	0,075	0,095	0,11	0,14	0,16	0,18	155 (110 — 180)
P11	M/A/D/E	1,0	0,028	0,036	0,046	0,055	0,075	0,090	0,11	0,13	0,15	0,17	165 (115 — 190)
M1	E	1,0	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,090	0,10	0,12	90 (80 — 105)
M2	E	1,0	0,017	0,022	0,028	0,034	0,044	0,055	0,065	0,080	0,095	0,11	75 (65 — 85)
M3	E	0,90	0,015	0,020	0,026	0,030	0,040	0,050	0,060	0,075	0,085	0,095	55 (45 — 70)
M4	E	0,70	0,013	0,018	0,022	0,026	0,036	0,044	0,055	0,065	0,075	0,085	44 (35 — 55)
M5	E	0,70	0,013	0,018	0,022	0,026	0,036	0,044	0,055	0,065	0,075	0,085	36 (29 — 44)
K1	E	1,2	0,024	0,032	0,040	0,048	0,065	0,080	0,095	0,12	0,14	0,16	180 (160 — 205)
K2	E	1,2	0,022	0,030	0,038	0,044	0,060	0,075	0,090	0,11	0,13	0,14	160 (140 — 180)
K3	E	1,2	0,022	0,030	0,038	0,044	0,060	0,075	0,090	0,11	0,13	0,14	135 (120 — 150)
K4	E	1,2	0,022	0,030	0,038	0,044	0,060	0,075	0,090	0,11	0,13	0,14	130 (110 — 145)
K5	E	1,0	0,024	0,032	0,040	0,048	0,065	0,080	0,095	0,12	0,14	0,16	160 (135 — 180)
K6	E	1,0	0,028	0,036	0,046	0,055	0,070	0,090	0,11	0,13	0,15	0,17	175 (155 — 195)
K7	E	1,0	0,024	0,032	0,040	0,048	0,065	0,080	0,095	0,12	0,14	0,16	180 (160 — 205)
N1	E	1,0	0,024	0,032	0,040	0,048	0,065	0,080	0,095	0,12	0,14	0,16	700 (580 — 820)
N2	E	1,0	0,024	0,032	0,040	0,048	0,065	0,080	0,095	0,12	0,14	0,16	395 (330 — 460)
N11	E	1,2	0,024	0,032	0,040	0,048	0,065	0,080	0,095	0,12	0,14	0,16	350 (290 — 410)
S11	E	0,70	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,090	0,10	0,12	100 (70 — 130)
S12	E	0,70	0,018	0,024	0,030	0,036	0,048	0,060	0,070	0,090	0,10	0,12	75 (55 — 100)
S13	E	0,60	0,016	0,022	0,026	0,032	0,042	0,055	0,065	0,080	0,090	0,10	60 (43 — 80)
TS1	A	1,1	0,030	0,040	0,050	0,060	0,080	0,10	0,12	0,15	0,17	0,20	315 (190 — 440)
TP1	A	1,1	0,030	0,040	0,050	0,060	0,080	0,10	0,12	0,15	0,17	0,20	315 (190 — 440)
GR1	A	1,2	0,030	0,040	0,050	0,060	0,080	0,10	0,12	0,15	0,17	0,20	630 (500 — 750)

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

JHF980 – Solid carbide end mill – cylindrical – high feed geometry



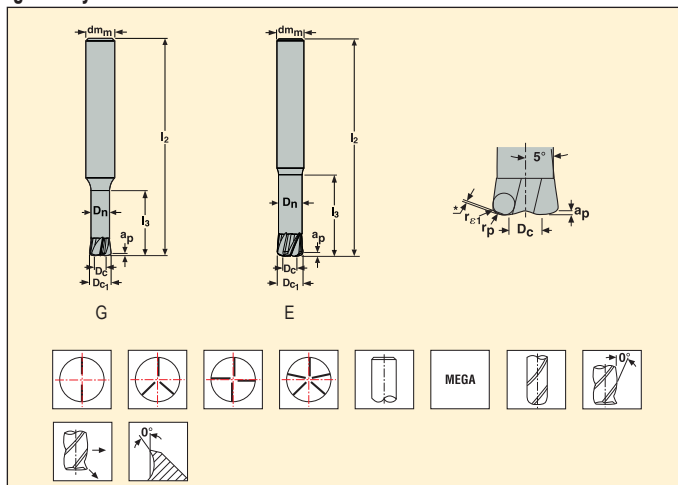
Tolerances:

$dm_m = h5$

$D_c = 0,02/-0,04 \text{ mm}$

$r_{c1} = \pm 0,05 \text{ mm}$

$\alpha^\circ = \text{collision angle}$



Part No.	Length index	Tool shape	Dimensions in mm							r_{c1}	r_p	UTCN	α°	β	z_n	Cylindrical
			D_{c1}	D_c	dm_m	a_p	l_2	l_3	D_n							
980K080Z3-MEGA	1	E	8	4	8	0,4	70	12	3	0,6	0,935	0,198	–	–	3	■
JHF980080E1H.0Z5-MEGA	1	E	8	4	8	0,4	70	12	7	0,6	0,935	0,198	–	–	5	■
980K100Z3-MEGA	1	E	10	5	10	0,45	80	15	3,8	0,8	1,176	0,232	–	–	3	■
JHF980100E1H.0Z5-MEGA	1	E	10	5	10	0,45	80	15	8,8	0,8	1,176	0,232	–	–	5	■
980K120Z3-MEGA	1	E	12	6	12	0,5	80	18	4,6	1	1,417	0,266	–	–	3	■
JHF980120E1H.0Z5-MEGA	1	E	12	6	12	0,5	80	18	10,6	1	1,417	0,265	–	–	5	■
980010-MEGA	2	G	1	0,5	6	0,07	40	3	0,7	0,07	0,127	0,028	19,5	–	2	■
980015-MEGA	2	G	1,5	0,75	6	0,1	40	4,5	1,2	0,1	0,183	0,043	14	–	2	■
980020-MEGA	2	G	2	1	6	0,15	40	6	1,7	0,15	0,269	0,055	11	–	2	■
980030-MEGA	2	G	3	1,5	6	0,2	50	9	2,6	0,2	0,366	0,085	7	–	2	■
JHF980030G2H.0Z4-MEGA	2	G	3	1,5	6	0,2	50	9	2,6	0,2	0,366	0,085	7,12	–	4	■
980040-MEGA	2	G	4	2	6	0,25	60	12	3,5	0,3	0,503	0,107	4	–	2	■
JHF980040G2H.0Z4-MEGA	2	G	4	2	6	0,25	60	12	3,5	0,3	0,503	0,107	4	–	4	■
980050-MEGA	2	G	5	2,5	6	0,3	60	15	4,4	0,4	0,641	0,128	2	–	2	■
JHF980050G2H.0Z4-MEGA	2	G	5	2,5	6	0,3	60	15	4,4	0,4	0,641	0,128	1,77	–	4	■
980060-MEGA	2	G	6	3	8	0,35	60	18	5,2	0,5	0,778	0,150	3	–	2	■
JHF980060G2H.0Z4-MEGA	2	G	6	3	8	0,35	60	18	5,2	0,5	0,778	0,15	2,86	–	4	■
980080-MEGA	2	E	8	4	8	0,4	70	24	7	0,6	0,935	0,198	–	–	2	■
JHF980080E2H.0Z5-MEGA	2	E	8	4	8	0,4	70	24	7	0,6	0,935	0,198	–	–	5	■
980100-MEGA	2	E	10	5	10	0,45	80	30	8,8	0,8	1,176	0,232	–	–	2	■
980100Z3-MEGA	2	E	10	5	10	0,45	80	30	8,8	0,8	1,176	0,232	–	–	3	■
JHF980100E2H.0Z5-MEGA	2	E	10	5	10	0,45	80	30	8,8	0,8	1,176	0,232	–	–	5	■
980120-MEGA	2	E	12	6	12	0,5	80	36	10,6	1	1,417	0,266	–	–	2	■
980120Z3-MEGA	2	E	12	6	12	0,5	80	36	10,6	1	1,417	0,266	–	–	3	■
JHF980120E2H.0Z5-MEGA	2	E	12	6	12	0,5	80	36	10,6	1	1,417	0,265	–	–	5	■
980ML010-MEGA	3	G	1	0,5	6	0,07	40	5	0,7	0,07	0,127	0,028	15,5	–	2	■
980ML015-MEGA	3	G	1,5	0,75	6	0,1	40	7,5	1,2	0,1	0,183	0,043	10,5	–	2	■
980ML020-MEGA	3	G	2	1	6	0,15	40	10	1,7	0,15	0,269	0,055	8	–	2	■
JHF980020G3H.0Z4-MEGA	3	G	2	1	6	0,15	40	10	1,7	0,15	0,269	0,055	8,46	–	4	■
980ML030-MEGA	3	G	3	1,5	6	0,2	50	15	2,6	0,2	0,366	0,085	5	–	2	■
JHF980030G3H.0Z4-MEGA	3	G	3	1,5	6	0,2	50	15	2,6	0,2	0,366	0,085	4,79	–	4	■
980ML040-MEGA	3	G	4	2	6	0,25	70	20	3,5	0,3	0,503	0,107	2,5	–	2	■
JHF980040G3H.0Z4-MEGA	3	G	4	2	6	0,25	70	20	3,5	0,3	0,503	0,107	2,59	–	4	■
980ML050-MEGA	3	G	5	2,5	6	0,3	80	25	4,4	0,4	0,641	0,128	1,5	–	2	■
JHF980050G3H.0Z4-MEGA	3	G	5	2,5	6	0,3	80	25	4,4	0,4	0,641	0,128	1,12	–	4	■
980ML060-MEGA	3	G	6	3	8	0,35	80	30	5,2	0,5	0,778	0,150	2	–	2	■
JHF980060G3H.0Z4-MEGA	3	G	6	3	8	0,35	80	30	5,2	0,5	0,778	0,15	1,8	–	4	■

* UTCN=uncut-thickness

■ Stock standard. Subject to change refer to current price-and stock-list.

Technical drawings of a shaft-hub assembly. The left drawing (J) shows a shaft with diameter dm_1 and length l_2 , and a hub with bore diameter D_n , outer diameter D_c , and length l_3 . The right drawing (E) shows a similar assembly with a fillet at the transition. Below are various cross-sectional views and a detail of the fillet.

[illegible]

■ Stock standard. Subject to change refer to current price-and stock-list.

Cutting data – JHF980 Slotting

SMG		a_p / D_c	f_z										v_c
			0.5	0.75	1	1.5	2	2.5	3	4	5	6	
P1	E/M/A	0,065	0,070	0,085	0,10	0,12	0,14	0,16	0,17	0,20	0,26	0,32	330 (275 — 385)
P2	E/M/A	0,065	0,070	0,085	0,10	0,12	0,14	0,16	0,17	0,20	0,26	0,32	320 (270 — 375)
P3	E/M/A	0,065	0,065	0,085	0,095	0,12	0,13	0,15	0,17	0,20	0,26	0,32	290 (260 — 325)
P4	E/M/A	0,065	0,065	0,080	0,095	0,11	0,13	0,15	0,16	0,20	0,26	0,32	255 (230 — 285)
P5	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,15	0,16	0,20	0,26	0,32	245 (220 — 275)
P6	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,14	0,16	0,20	0,26	0,32	180 (155 — 210)
P7	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,14	0,16	0,20	0,26	0,32	170 (145 — 195)
P8	E/M/A	0,065	0,065	0,085	0,095	0,12	0,13	0,15	0,17	0,20	0,26	0,32	160 (140 — 185)
P11	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,14	0,16	0,20	0,26	0,32	165 (145 — 190)
M1	E/M/A	0,048	0,050	0,060	0,070	0,090	0,10	0,11	0,12	0,16	0,20	0,24	135 (120 — 150)
M2	E/M/A	0,048	0,050	0,060	0,070	0,090	0,10	0,11	0,12	0,16	0,20	0,24	110 (95 — 125)
M3	E/M/A	0,048	0,050	0,060	0,070	0,090	0,10	0,11	0,12	0,16	0,20	0,24	105 (85 — 120)
M4	E/M/A	0,034	0,055	0,065	0,075	0,095	0,11	0,12	0,13	0,16	0,20	0,24	80 (65 — 90)
M5	E/M/A	0,034	0,055	0,065	0,075	0,095	0,11	0,12	0,13	0,16	0,20	0,24	65 (55 — 75)
K1	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,15	0,16	0,20	0,26	0,32	180 (155 — 210)
K2	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,15	0,16	0,20	0,26	0,32	160 (135 — 180)
K3	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,15	0,16	0,20	0,26	0,32	135 (115 — 150)
K4	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,15	0,16	0,20	0,26	0,32	125 (110 — 145)
K5	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,15	0,16	0,20	0,26	0,32	130 (105 — 155)
K6	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,15	0,16	0,20	0,26	0,32	190 (155 — 230)
K7	E/M/A	0,065	0,065	0,080	0,090	0,11	0,13	0,15	0,16	0,20	0,26	0,32	165 (135 — 200)
S1	E	0,032	0,030	0,038	0,044	0,055	0,060	0,075	0,090	0,12	0,15	0,18	55 (43 — 65)
S2	E	0,032	0,030	0,038	0,044	0,055	0,060	0,075	0,090	0,12	0,15	0,18	43 (34 — 50)
S3	E	0,032	0,030	0,038	0,044	0,055	0,060	0,075	0,090	0,12	0,15	0,18	32 (21 — 43)
S11	E	0,032	0,046	0,055	0,065	0,080	0,090	0,10	0,11	0,14	0,18	0,22	155 (135 — 175)
S12	E	0,032	0,046	0,055	0,065	0,080	0,090	0,10	0,11	0,14	0,18	0,22	120 (105 — 135)
S13	E	0,028	0,044	0,055	0,060	0,075	0,085	0,095	0,11	0,14	0,18	0,22	95 (80 — 105)
H5	M/A/D	0,048	0,050	0,060	0,070	0,090	0,10	0,11	0,12	0,16	0,20	0,24	140 (115 — 160)
H8	M/A/D	0,040	0,046	0,055	0,065	0,080	0,090	0,10	0,12	0,16	0,20	0,24	140 (115 — 160)
H21	M/A/D	0,040	0,046	0,055	0,065	0,080	0,090	0,10	0,12	0,16	0,20	0,24	140 (115 — 160)
H31	M/A/D	0,040	0,040	0,050	0,055	0,070	0,080	0,10	0,12	0,16	0,20	0,24	105 (90 — 120)

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JHF980 Side milling $a_p/D_c \neq 0,3$

SMG		a_p / D_c	f_z										v_c
			0.5	0.75	1	1.5	2	2.5	3	4	5	6	
P1	E/M/A	0,065	0,085	0,13	0,17	0,26	0,32	0,36	0,38	0,44	0,50	0,55	430 (360 — 500)
P2	E/M/A	0,065	0,085	0,13	0,17	0,26	0,32	0,36	0,40	0,46	0,50	0,55	420 (350 — 490)
P3	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,34	0,38	0,42	0,48	0,50	385 (340 — 425)
P4	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,34	0,36	0,42	0,46	0,50	340 (305 — 380)
P5	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,32	0,36	0,40	0,46	0,50	325 (290 — 360)
P6	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,32	0,36	0,40	0,46	0,48	240 (205 — 275)
P7	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,32	0,36	0,40	0,46	0,48	225 (195 — 260)
P8	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,34	0,38	0,42	0,48	0,50	215 (180 — 245)
P11	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,32	0,36	0,40	0,46	0,48	220 (190 — 250)
M1	E/M/A	0,048	0,065	0,10	0,13	0,20	0,22	0,26	0,28	0,32	0,36	0,38	180 (155 — 200)
M2	E/M/A	0,048	0,065	0,10	0,13	0,18	0,20	0,24	0,26	0,30	0,32	0,34	145 (130 — 165)
M3	E/M/A	0,048	0,065	0,10	0,13	0,20	0,22	0,26	0,28	0,32	0,36	0,38	135 (115 — 155)
M4	E/M/A	0,048	0,065	0,10	0,13	0,17	0,20	0,22	0,24	0,28	0,32	0,34	105 (85 — 120)
M5	E/M/A	0,048	0,065	0,10	0,13	0,17	0,20	0,22	0,24	0,28	0,32	0,34	85 (70 — 100)
K1	E/M/A	0,065	0,085	0,13	0,17	0,26	0,32	0,36	0,40	0,46	0,50	0,55	235 (205 — 270)
K2	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,32	0,36	0,40	0,46	0,50	210 (180 — 240)
K3	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,32	0,36	0,40	0,46	0,50	175 (150 — 200)
K4	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,32	0,36	0,40	0,46	0,50	170 (145 — 190)
K5	E/M/A	0,065	0,085	0,13	0,17	0,22	0,26	0,30	0,32	0,36	0,40	0,44	175 (140 — 210)
K6	E/M/A	0,065	0,085	0,13	0,17	0,26	0,30	0,32	0,36	0,40	0,46	0,50	255 (205 — 305)
K7	E/M/A	0,065	0,085	0,13	0,17	0,22	0,26	0,30	0,32	0,36	0,40	0,44	225 (180 — 270)
H5	M/A/D	0,048	0,065	0,10	0,13	0,20	0,22	0,26	0,28	0,32	0,36	0,38	180 (150 — 210)
H8	M/A/D	0,048	0,065	0,10	0,12	0,15	0,17	0,19	0,22	0,24	0,28	0,30	190 (160 — 220)
H21	M/A/D	0,048	0,065	0,10	0,12	0,15	0,17	0,19	0,22	0,24	0,28	0,30	190 (160 — 220)
H31	M/A/D	0,048	0,060	0,085	0,10	0,12	0,14	0,15	0,17	0,20	0,22	0,24	145 (125 — 170)

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

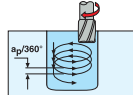
f_z = mm

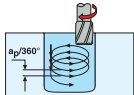
a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

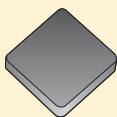
Recalculation (all values are percentages of original (100%) cutting data.)

STRAIGHT	Use original standard version side rough cutting data then recalculate parameters!									Use original standard version slotting cutting data then recalculate parameters!						
	Slotting		Side Rough			Side Finish				Ramping		Helical		Drilling		
																
	a_p	f_z	a_e	f_z	a_p	v_c	a_e (% of D_c)	f_z	a_p	a_p	f_z	f_z	$a_p/360^\circ$ (% of D_c)	hole $\varnothing$ ($\approx$ % of D_c)	f_z	a_p (% of D_c)
$\leq 30^\circ$ max ramping angle																
JS554 Standard (2) L (3)	100 40	100 60	100 38	100 105	100 200	110 110	3 3	53 53	150 250	100 50	100 50	100 60	3 3	130 130	X X	X X

STRAIGHT	Use original standard version side rough cutting data then recalculate parameters!									Use original standard version slotting cutting data then recalculate parameters!								
	Slotting		Side Rough			Side Finish				Ramping		Helical		Plunging				
																		
	v_c	f_z	v_c	f_z	a_p	v_c	a_e (% of D_c)	f_z	a_p	a_p	f_z	f_z	$a_p/360^\circ$ (% of D_c)	hole $\varnothing$ ($\geq$ % of D_c)	v_c	a_e (% of D_c)	f_z	plunge depth (% of D_{c1})
$\leq 1,5^\circ$ max ramping angle																		
JHF980 K+ Standard (1, 2)	100	100	100	100	100	X	X	X	X	100	100	100	3	130	70	30	33	200
ML (3)	80	85	80	85	80	X	X	X	X	80	85	85	3	130	70	30	33	200
TL (4)	50	70	50	70	60	X	X	X	X	60	70	70	3	130	70	30	33	200

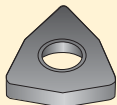
Selection of insert types

Solid insert



According to the geometry, two sides can be used.

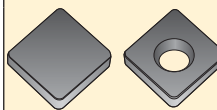
Grades:
CH0550, CBN060K, CH2540,
CBN010P, CBN300P, CBN400C,
CBN010, CBN170, CBN200,
CBN300, CBN500, CBN600



Toolholder styles:
D, P, C and M

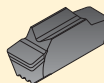
CBN060K and CBN300 are also, in some geometries, available with hole.

Sintered layer insert -LF



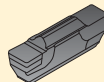
CBN layer sintered on to carbide. One side is usable.

Grades:
CBN060K, CBN160C, CBN010,
CBN150, CBN200, CH3515
Toolholder styles: S, C and M

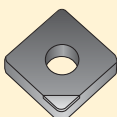


MDT

Grades:
CBN010, CBN170, CBN200
Toolholder styles: C (MDT)

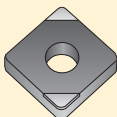


Brazed tip -L1 (single and double sided) and -L2

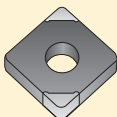


CBN brazed onto standard carbide inserts.

Grades:
CH0550, CBN060K, CH2540,
CH3515, CBN160C, CBN010,
CBN150, CBN170, CBN200



Toolholder styles:
D, P, S and M



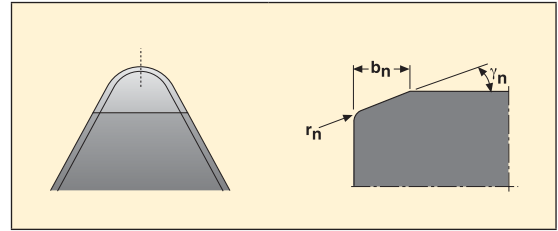
Geometry recommendations

Strong cutting edge geometries are always preferred.

- Negative cutting geometry
- Chamfered cutting edge
- Large nose radius

Sharp positive cutting edge geometry can be advantageous when:

- Finishing of small hardened bores without interruptions
- Finishing of unstable components without interruptions
- Finishing of pearlitic grey cast iron



b_n = Chamfer width
 γ_n = Chamfer angle
 r_n = Hone radius

Edge preparation

E	=	Honed
E25	=	Extra honed, intended for Nickel-based superalloys
S	=	Chamfered and honed
S25	=	Chamfered and extra honed intended for PM material
WZ	=	High Feed (Wiper) geometry
WZP	=	High Feed (Wiper) geometry Positive
WZN	=	High Feed (Wiper) geometry Negative

Chamfer size and angle

Solid CBN inserts

CH0550	=	0,15 mm x 25°
CBN060K	=	0,15 mm x 25°
CH2540	=	0,15 mm x 25°
CBN400C	=	0,20 mm x 20°
CBN010	=	0,10 mm x 20°
CBN200	=	0,20 mm x 20°
CBN300	=	0,20 mm x 20°
CBN500	=	0,20 mm x 20°
CBN600	=	0,20 mm x 20°
S-04015	=	0,40 mm x 15°
X-05015	=	0,50 mm x 15°

Design

LF	=	Complete top layer
B	=	Brazed tips (single sided), Insert geometry C, D and V
C	=	Brazed tips (single sided), Insert geometry T and W
D	=	Brazed tips (single sided), Insert geometry S
U	=	Brazed tips (double sided), Insert geometry C, D and V
V	=	Brazed tips (double sided), Insert geometry T and W

Brazed CBN inserts

CH0550	
L1	= 0,10 mm x 15°
L1	= 0,15 mm x 25°
CBN160C, CBN060K, CH2540	
LF	= 0,15 mm x 25°
L1	= 0,15 mm x 25°
CH3515	
L1	= 0,05 mm x 40°
L1	= 0,20 mm x 20°
LF	= 0,20 mm x 20°
CBN010	
L1	= 0,10 mm x 20°
L2	= 0,20 mm x 20°
LF	= 0,10 mm x 20°
LF-MDT	= 0,10 mm x 25°
CBN200	
L1	= 0,20 mm x 20° (L1-WZ = 0,10mm x 20°)
L2	= 0,20 mm x 20°
LF	= 0,20 mm x 20°
LF-MDT	= 0,10 mm x 25°
X4	= 0,10 mm x 20°
CBN150	
L1	= 0,15 mm x 25° (positive C-lock inserts, 0,10 mm x 20°)
LF	= 0,15 mm x 25°

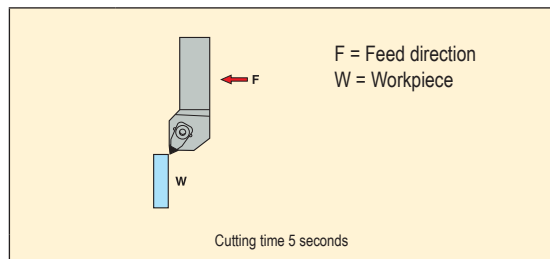
Plunge Turning

The vast majority of heat treated components in the metalworking industry are machined to their final geometrical form after hardening. Seco have developed a method in hard turning, the Seco patented Plunge Turning.

The plunging process consists of an orthogonal cut, using the solid CBN010, CBN060K or CH0550.

Using the Plunge Turning method gives two great advantages compared to conventional hard turning, reduction in cutting time (up to 90%) and improved surface integrity.

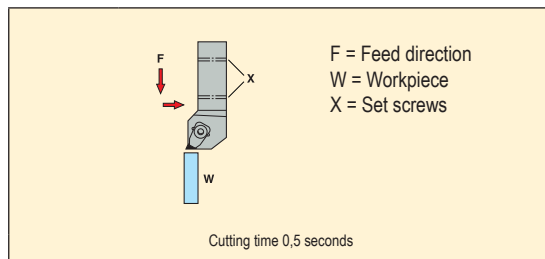
Conventional Turning



General cutting data recommendation for Plunge Turning is $v_c = 200\text{--}400$ m/min and $f = 0,04$ mm/rev.

To avoid the cutting edge profile affecting surface finish, complete the operation with a small axial movement.

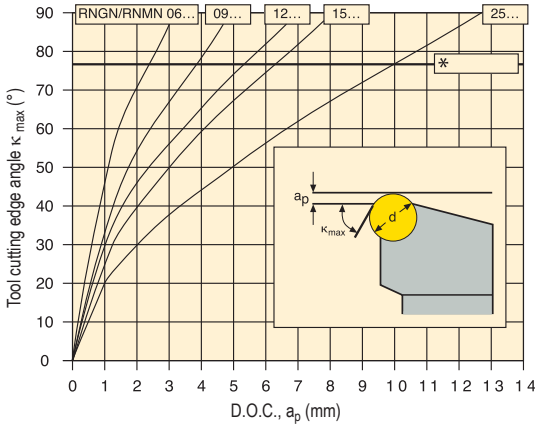
Plunge Turning



In addition to the introduction of the Plunge Turning method there are also some standard toolholders. These toolholders have set screws which give the possibility to adjust the toolholder to an exact setting angle. The toolholders have a designation ending with – PL, and are available for inserts in sizes T..11 and T..16.

Maximum depth of cut recommendations

Round inserts



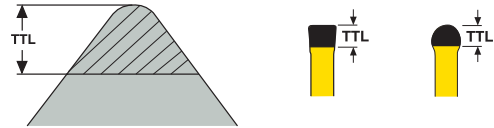
* = κ_{max} limited

The tool cutting edge angle is limited to 75° resulting in maximum depth of cut (a_p).

Max. D.O.C. a_p (mm)	Number of usable cutting edges/side at 80% utilization		
	R...06	R...09	R...12
0,10	20	24	—
0,15	16	20	23
0,20	14	17	20
0,25	12	15	18
0,30	11	14	16
0,40	10	12	14
0,50	8	10	12
0,80	7	8	10
1,00	6	7	9
1,20	5	7	8
1,50	5	6	7
1,80	4	5	6
2,00	4	5	6
2,50	3	4	5
3,00	3	4	5
3,50	—	4	4
4,00	—	3	4
4,50	—	—	4
5,00	—	—	3

Type	Grade	Max. D.O.C. a_p (mm)
L1	CH0550	0,5
	CBN060K	0,5
	CH2540	0,5
	CH3515	1,0
	CBN060K	0,5
	CBN160C	0,5
	CBN170	0,5
	CBN010	0,5
	CBN150	0,5
	CBN200	1,0
L2	CBN010	0,5
LF	CBN160C	0,5
	CBN010	0,5
	CBN150	0,5
	CBN200	30% of cutting edge length
	CH3515	30% of cutting edge length
Solid	CH0550	0,5
	CBN060K	0,5
	CH2540	0,5
	CBN010	0,5
	CBN200	30% of cutting edge length
	CBN300	30% of cutting edge length
	CBN400C	30% of cutting edge length
	CBN500	30% of cutting edge length
	CBN600	30% of cutting edge length

MDT		
Type	Grade	Max. D.O.C. a_p (mm)
-LF	CBN010 CBN170 CBN200	0,5
M0-LF	CBN010 CBN170 CBN200	1,5



True tip length (TTL) in mm per nose radius (r_e) and tip type

Insert shape	Nose angle	$r_e = 0,4 \text{ mm}$		$r_e = 0,8 \text{ mm}$		$r_e = 1,2 \text{ mm}$	MDT size	..LF	..M0-LF	MDT size	..LF	..M0-LF
		L1	L2	L1	L2	L1						
C	80°	2,7	–	2,4	–	2,2	LC..13..	2,2	2,4	LC..1603..	2,5	2,5
D	55°	3,2	–	2,7	–	2,2	LC..1304..	2,4	2,4	LC..1604..	2,5	3,1
S	90°	–	–	2,2	–	–				LC..1605..	2,8	3,1
T	60°	2,6	–	2,2	–	1,8				LC..1606..	3,2	3
V	35°	–	5,1	–	4,2	–						

The Secomax™ PCBN range of grades consists of both coated and uncoated grades.

The application areas for the Secomax™ grades are shown below.

The black areas in the chart indicate a grade's main ISO application groups and the white areas indicate other supplementary application groups.

Uncoated grades:

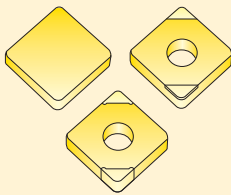
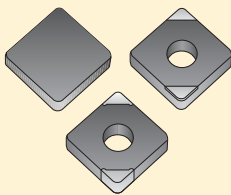
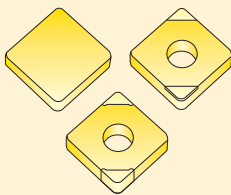
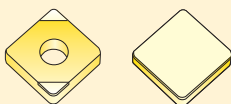
CBN010
CBN150
CBN170
CBN200
CBN300
CBN500
CBN600

PVD coated grades:

CH0550
CBN060K
CH2540
CH3515
CBN160C
CBN300P
CBN400C

	P					M					K					N				S				H					
	P01	P10	P20	P30	P40	P50	M01	M10	M20	M30	M40	K01	K10	K20	K30	K40	N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30	H40
CBN010																													
CBN150																													
CBN170																													
CBN200																													
CBN300																													
CBN500																													
CBN600																													
CH0550																													
CBN060K																													
CH2540																													
CH3515																													
CBN160C																													
CBN300P																													
CBN400C																													

Grades

CH0550 	Format: Solid & brazed tips (single & double sided). Composition: 40% cBN bi-modal grain size distribution with average grain size of 3 µm and a TiCN ceramic binder. Coating: (Ti, Al, Cr)N coating.
CBN060K 	Format: Solid, full-face layer and brazed tips (single and double sided). Composition: 60% cBN content grade with an average grain size of 1-2 µm and a TiCN ceramic binder. Coating: (Ti, Si, Al)N coating.
CH2540 	Format: Solid & brazed tips (single & double sided). Composition: 65% cBN bi-modal grain size distribution with average grain size of 6 µm and a TiCN ceramic binder. Coating: (Ti, Si)N coating.
CH3515 	Format: Full-faced brazed layer and brazed tips (single sided). Composition: 90% cBN average grain size of 4 µm and a AlN ceramic binder. Coating: (Ti, Al)N coating.

Hard Materials

SMG	Properties	Reference	Recommendations
H3	Case hardened steels	16 MnCr 5 60 HRC	Dry machining is preferable. Coolant can be used. The chips should be fully annealed and brittle. First choice for finish machining: CH0550. Universal grade for finish machining: CBN010. For high surface finish requirements, use CH0550. In interrupted machining: Moderate interruptions, use CBN060K/CBN010. Aggressive interruptions, use CH2540/CH3515/CBN150. Reduce the feed rate. Machine without coolant. If possible, chamfer any sharp edges of the workpiece before machining.
H5	Quenched & Tempered steels	42 CrMo 4 50 HRC	Dry machining is preferable. Coolant can be used. The chips should be fully annealed and brittle. First choice for finish machining: CBN060K. Universal grade for finish machining: CBN010. For high surface finish requirements, use CH0550. In interrupted machining: Moderate interruptions, use CBN060K/CBN010. Aggressive interruptions, use CH2540/CH3515/CBN150. Reduce the feed rate. Machine without coolant. If possible, chamfer any sharp edges of the workpiece before machining.
H7	Quenched & Tempered steels Bearing steels	100 Cr 6 60 HRC	Dry machining is preferable. Coolant can be used. The chips should be fully annealed and brittle. First choice for finish machining: CBN060K. Universal grade for finish machining: CBN010. For rough machining, use CBN200/CBN300. For high surface finish requirements, use CH0550. In interrupted machining: Moderate interruptions, use CBN060K/CBN010. Aggressive interruptions, use CH2540/CH3515/CBN150. Reduce the feed rate. Machine without coolant. If possible, chamfer any sharp edges of the workpiece before machining.
H8	Tool steels High Speed Steels	X 40 CrMoV 5 1 50 HRC	First choice for finish machining: CBN010. First choice for rough machining: CBN200. Interrupted machining of high speed steels can not be done.
H11	Martensitic stainless steels	X 20 Cr 13 45 HRC	First choice for finish machining: CBN010. First choice for rough machining: CBN300. In interrupted machining: Moderate interruptions, use CBN010. Aggressive interruptions, use CH2540/CH3515/CBN150.
H21	Manganese steels	X 120 Mn 12 50 HRC	First choice CBN300. When a tougher grade is needed use CBN500. Use chamfered inserts. Use stable toolholder and rigid clamping of the workpiece. Machine without coolant. Chamfer workpiece edges first.
H31	White cast irons	EN-GJN- HV600(XCr11) 55 HRC	Use CBN300 or when centerlock inserts are used CBN200. When a tougher grade is needed use CBN500. Universal option: CBN600. Adjust the depth of cut to get under the casting skin and blow holes. Dry machining is preferable.

Other Difficult Materials

SMG	Properties	Reference	Recommendations
PM1	Low alloy PM materials	F-0008 Fe-0.7C	PCBN tools can be used on PM parts as soft as 25 HRC. The critical parameter is particle hardness, when the particle hardness exceeds 50 HRC, PCBN is useful, no matter what the bulk hardness is. First choice CBN200. For rough machining CBN300 is an alternative. Use chamfered inserts, S25 edge preparation. Do not use coolant for interrupted cut.
PM2	Medium alloy PM materials	FLC-4608 Fe2Cu1.8Ni0.5Mo0.2Mn0.8C	PCBN tools can be used on PM parts as soft as 25 HRC. The critical parameter is particle hardness, when the particle hardness exceeds 50 HRC, PCBN is useful, no matter what the bulk hardness is. First choice CBN200. For rough machining CBN300 is an alternative. Use chamfered inserts, S25 edge preparation. Do not use coolant for interrupted cut.
PM3	High alloy PM materials Exhaust valve seat materials		First choice CBN150. Second choice CBN010. Use positive inserts. Use chamfered and honed edges for longer tool life. Use honed edges when tight tolerances are required. Machining can be carried out either with or without coolant.
HF1	Hard facing alloys Welded or plasma deposited iron based alloys		Cr-based alloys – Hardness <60 HRC. Co-based alloys – Hardness >35 HRC. Ni-based alloys – Hardness >35 HRC. Fe-based alloys – Hardness >35 HRC. First choice for finish machining: CBN010. First choice for rough machining: CBN500, or when centerlock inserts are used: CBN200. Use round inserts if possible. Use chamfered inserts. Adjust the depth of cut to get under the welding skin and blow holes. Dry machining is preferable. Remove any weld spatter before machining.
HF2	Hard facing alloys Welded or plasma deposited cobalt and nickel based alloys		Cr-based alloys – Hardness <60 HRC. Co-based alloys – Hardness >35 HRC. Ni-based alloys – Hardness >35 HRC. Fe-based alloys – Hardness >35 HRC. First choice for finish machining: CBN010. First choice for rough machining: CBN500, or when centerlock inserts are used: CBN200. Use round inserts if possible. Use chamfered inserts. Adjust the depth of cut to get under the welding skin and blow holes. Dry machining is preferable. Remove any weld spatter before machining.
CC1	Sintered tungsten carbide	G50	Sintered tungsten carbide with a Co content >17%. Basic conditions: Use CBN300. When a tougher grade is needed use CBN500. Use round inserts. Use chamfered inserts. Machining with coolant is preferable. Chamfer the workpiece at entry and exit.

PCBN, Finishing

SMG	CH0550		CBN060K		CH2540		CH3515	
	v_c	f	v_c	f	v_c	f	v_c	f
K2	—	—	150 — 350	0,050 — 0,22	120 — 325	0,060 — 0,24	—	—
K5	—	—	—	—	80 — 500	0,050 — 0,20	—	—
H3	100 — 300	0,030 — 0,24	100 — 240	0,030 — 0,28	100 — 220	0,030 — 0,24	90 — 220	0,050 — 0,24
H5	100 — 250	0,030 — 0,24	90 — 220	0,030 — 0,28	90 — 200	0,030 — 0,24	90 — 220	0,050 — 0,24
H7	110 — 230	0,060 — 0,20	100 — 230	0,060 — 0,20	100 — 210	0,070 — 0,20	100 — 210	0,070 — 0,20
H8	100 — 220	0,010 — 0,20	90 — 220	0,010 — 0,20	70 — 200	0,020 — 0,17	70 — 200	0,020 — 0,17
H11	110 — 230	0,030 — 0,18	100 — 230	0,030 — 0,18	80 — 210	0,040 — 0,18	—	—
H21	—	—	—	—	—	—	150 — 230	0,10 — 0,60
H31	—	—	—	—	—	—	50 — 120	0,15 — 0,44
PM1	—	—	—	—	110 — 250	0,050 — 0,24	130 — 300	0,050 — 0,24
PM2	—	—	—	—	90 — 200	0,050 — 0,20	120 — 250	0,050 — 0,20
PM3	—	—	—	—	80 — 170	0,050 — 0,15	100 — 200	0,050 — 0,15
HF1	—	—	—	—	50 — 150	0,020 — 0,18	—	—
HF2	—	—	—	—	100 — 200	0,020 — 0,17	—	—

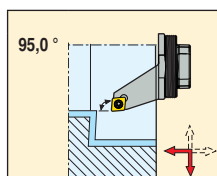
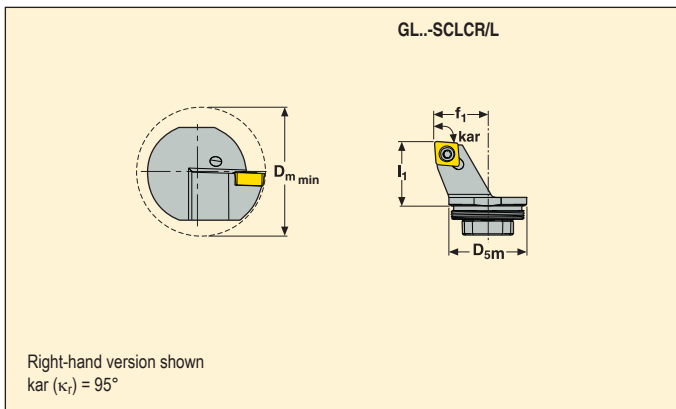
PCBN, Plunging

SMG	CH0550		CBN060K		CH2540	
	v_c	f	v_c	f	v_c	f
K2	—	—	150 — 350	0,050 — 0,22	120 — 325	0,060 — 0,24
K5	—	—	—	—	80 — 500	0,050 — 0,20
H3	270 — 450	0,020 — 0,080	270 — 430	0,020 — 0,090	250 — 420	0,020 — 0,090
H5	250 — 420	0,020 — 0,080	250 — 400	0,030 — 0,090	230 — 390	0,020 — 0,090
H7	300 — 500	0,010 — 0,070	300 — 480	0,020 — 0,080	300 — 470	0,010 — 0,080
H8	120 — 290	0,020 — 0,080	120 — 270	0,020 — 0,10	100 — 270	0,020 — 0,090
H11	110 — 230	0,030 — 0,18	100 — 230	0,030 — 0,18	80 — 210	0,040 — 0,18
H21	—	—	—	—	—	—
H31	—	—	—	—	—	—
PM1	—	—	—	—	110 — 250	0,050 — 0,24
PM2	—	—	—	—	150 — 250	0,030 — 0,12
PM3	—	—	—	—	100 — 200	0,030 — 0,12
HF1	—	—	—	—	50 — 150	0,020 — 0,18
HF2	—	—	—	—	100 — 200	0,020 — 0,17

Toolholders for inserts CCGT, CCGX and CCMT



- For insert programme, see page(s) 70 and MN 2015 Turning, page(s) 343-347, 400-401, 431
- γ_0 = Rake angle, λ_s = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_0°	λ_s°		
			D_{5m}	f_1	l_1	$D_{m \text{ min}}$				
GL32	06	GL32-SCLCR-22032-06	32	22,0	32	40	0	-2	0,1	CC..0602
		GL32-SCLCL-22032-06	32	22,0	32	40	0	-2	0,1	CC..0602
	09	GL32-SCLCR-22032-09	32	22,0	32	40	0	-2	0,1	CC..09T3
		GL32-SCLCL-22032-09	32	22,0	32	40	0	-2	0,1	CC..09T3
	12	GL32-SCLCR-22032-12	32	22,0	32	40	0	-8	0,1	CC..1204..
		GL32-SCLCL-22032-12	32	22,0	32	40	0	-8	0,1	CC..1204..
GL40	06	GL40-SCLCR-27032-06	40	27,0	32	50	0	-2	0,2	CC..0602
		GL40-SCLCL-27032-06	40	27,0	32	50	0	-2	0,2	CC..0602
	09	GL40-SCLCR-27032-09	40	27,0	32	50	0	-2	0,2	CC..09T3
		GL40-SCLCL-27032-09	40	27,0	32	50	0	-2	0,2	CC..09T3
	12	GL40-SCLCR-27032-12	40	27,0	32	50	0	-8	0,2	CC..1204..
		GL40-SCLCL-27032-12	40	27,0	32	50	0	-8	0,2	CC..1204..
GL50	06	GL50-SCLCR-32032-06	50	32,0	32	60	0	-2	0,3	CC..0602
		GL50-SCLCL-32032-06	50	32,0	32	60	0	-2	0,3	CC..0602
	09	GL50-SCLCR-32032-09	50	32,0	32	60	0	-2	0,3	CC..09T3
		GL50-SCLCL-32032-09	50	32,0	32	60	0	-2	0,3	CC..09T3
	12	GL50-SCLCR-32032-12	50	32,0	32	60	0	-5	0,3	CC..1204..
		GL50-SCLCL-32032-12	50	32,0	32	60	0	-5	0,3	CC..1204..

Spare Parts, Parts included in delivery

For size	Insert key	Insert screw	Insert shim	Shim screw	Shim key
..06	T07P-2	C02506-T07P	–	–	–
..09	T15P-2	C04008-T15P	–	–	–
..12	T15P-2	C05012-T15P	123.19-621	CA5008	5SMS795

Accessories*

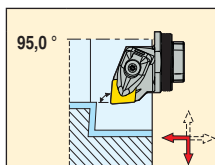
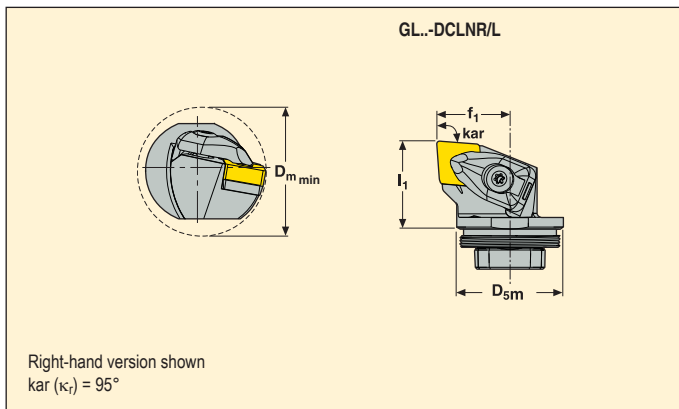
Please check availability in current price and stock-list

*To be ordered separately

Toolholders for inserts CNGG, CNMA, CNMG and CNMM



- For insert programme, see page(s) 71 and MN 2015 Turning page(s) 348-355, 402-403, 431
- γ_o° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_o°	λ_s°		
			D5m	f1	I1	Dm min				
GL32	12	GL32-DCLNR-22032-12	32	22,0	32	40	-6	-10	0,2	CN..1204..
		GL32-DCLNL-22032-12	32	22,0	32	40	-6	-10	0,2	CN..1204..
GL40	12	GL40-DCLNR-27032-12	40	27,0	32	50	-6	-10	0,2	CN..1204..
		GL40-DCLNL-27032-12	40	27,0	32	50	-6	-10	0,2	CN..1204..
GL50	12	GL50-DCLNR-32032-12	50	32,0	32	60	-6	-8	0,3	CN..1204..
		GL50-DCLNL-32032-12	50	32,0	32	60	-6	-8	0,3	CN..1204..
	16	GL50-DCLNR-32037-16	50	32,0	37	60	-5	-14	0,4	CN..1606..
		GL50-DCLNL-32037-16	50	32,0	37	60	-5	-14	0,4	CN..1606..
	19	GL50-DCLNR-32040-19	50	32,0	40	60	-5	-14	0,4	CN..1906..
		GL50-DCLNL-32040-19	50	32,0	40	60	-5	-14	0,4	CN..1906..

Spare Parts, Parts included in delivery

Accessories*

For size	Clamp pin	Clamp screw	Floating wedge clamp	Insert shim	Shim/clamp key	Shim screw	Spring	Clamp kit
...12	FP2012	L85021-T15P	CD12-S	DCO120310	T15P-7	C04008-T15P	S6912	CD12-S12
...16	FP2012	L86026-T20P	CD16-S	DCN160616	T20P-7L	C05010-T20P	S7010	CD16-S16
...19	FP2012	L86026-T20P	CD19-S	DCN190416	T20P-7L	C05010-T20P	S7010	CD19-S19

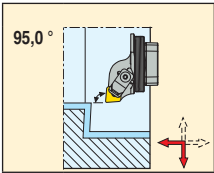
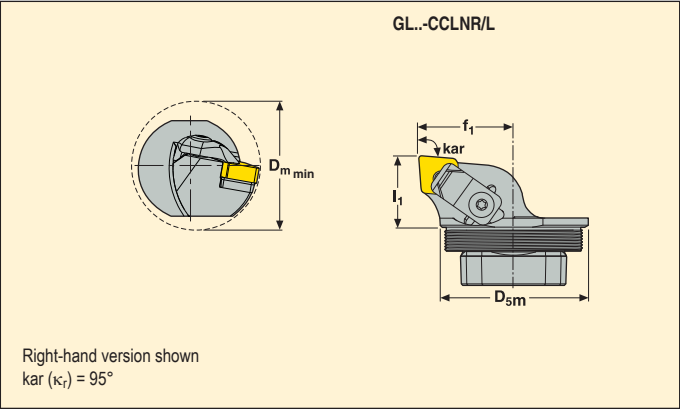
Please check availability in current price and stock-list

*To be ordered separately

Toolholders for PCBN inserts CNMN



- For insert programme, see MN 2015 Turning page(s) 403
- γ_o° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_o°	λ_s°		
			D _{5m}	f ₁	l ₁	D _{m min}				
GL50	12	GL50-CCLNR-32032-12	50	32,0	32	60	-6	-6	0,4	CNMN1204..
		GL50-CCLNL-32032-12	50	32,0	32	60	-6	-6	0,4	CNMN1204..
GL50	12									

Spare Parts, Parts included in delivery

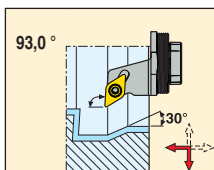
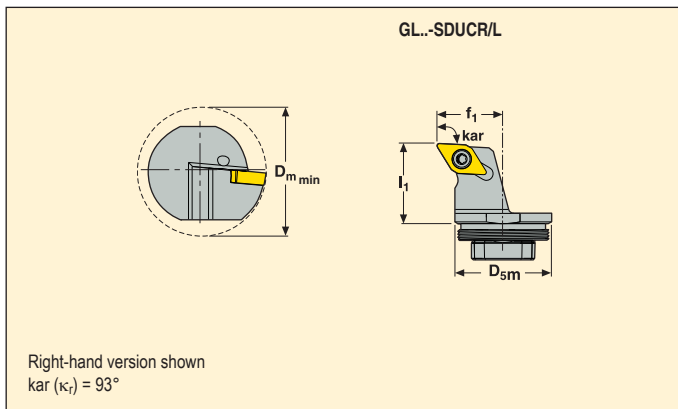
For size	Clamp	Insert shim	Key	Pressure plate	Shim screw
..12	CC17P	CCN120312	T09P-2	P1311	F94009-T09P

Please check availability in current price and stock-list

Toolholders for inserts DCGT, DCGW, DCMT, and DCMX



- For insert programme, see page(s) 69, 72, MN 2015 Turning page(s) 356-359, 404, 433 and Update 2015-2 page(s) 210-211
- γ_o° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_o°	λ_s°	KG	
			D5m	f1	l1	Dm min				
GL32	11	GL32-SDUCR-22032-11	32	22,0	32	44	0	-5	0,1	DC..11T3..
		GL32-SDUCL-22032-11	32	22,0	32	44	0	-5	0,1	DC..11T3..
GL40	11	GL40-SDUCR-27032-11	40	27,0	32	50	0	-5	0,2	DC..11T3..
		GL40-SDUCL-27032-11	40	27,0	32	50	0	-5	0,2	DC..11T3..
GL50	11	GL50-SDUCR-32032-11	50	32,0	32	60	0	-5	0,3	DC..11T3..
		GL50-SDUCL-32032-11	50	32,0	32	60	0	-5	0,3	DC..11T3..
GL50	11									

Spare Parts, Parts included in delivery

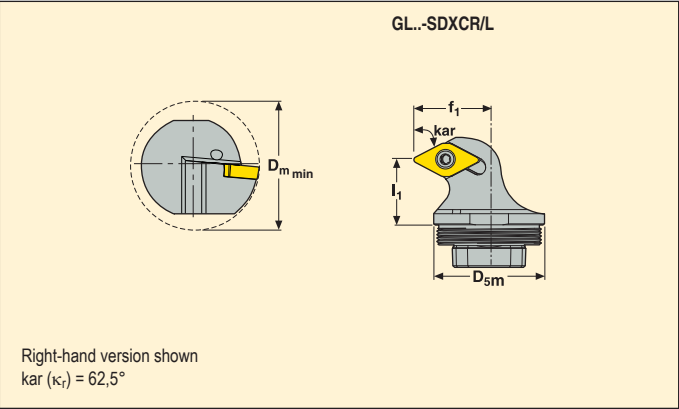
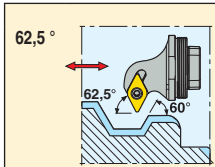
For size	Insert key	Insert screw
...11	T15P-2	C04008-T15P

Please check availability in current price and stock-list

Toolholders for inserts DCGT, DCGW, DCMT, DCMW and DCMX



- For insert programme, see page(s) 69, 72, MN 2015 Turning page(s) 356-359, 403, 433 and Update 2015-2 page(s) 210-211
- γ_0° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_0°	λ_s°		
			D _{5m}	f ₁	l ₁	D _{m min}				
GL32	11	GL32-SDXCR-22025-11	32	22,0	25	40	0	-5	0,2	DC..11T3..
		GL32-SDXCL-22025-11	32	22,0	25	40	0	-5	0,2	DC..11T3..
GL40	11	GL40-SDXCR-27025-11	40	27,0	25	50	0	-5	0,2	DC..11T3..
		GL40-SDXCL-27025-11	40	27,0	25	50	0	-5	0,2	DC..11T3..
GL50	11	GL50-SDXCR-32025-11	50	32,0	25	60	0	-5	0,3	DC..11T3..
		GL50-SDXCL-32025-11	50	32,0	25	60	0	-5	0,3	DC..11T3..
GL50	11									

Spare Parts, Parts included in delivery

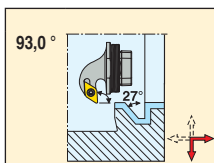
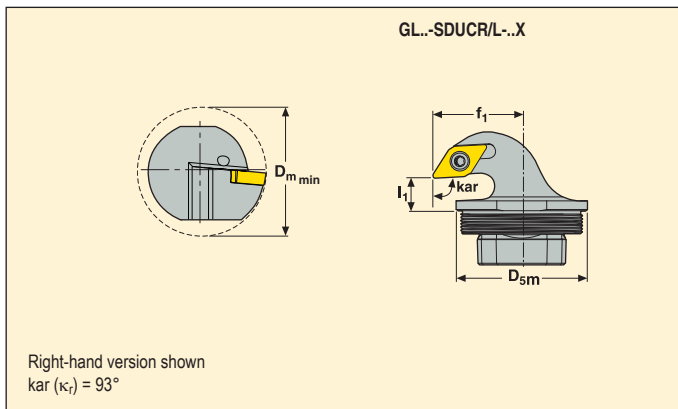
For size	Insert screw	Key
...11	C04008-T15P	T15P-2

Please check availability in current price and stock-list

Toolholders for inserts DCGT, DCGW, DCMT, DCMW and DCMX



- For insert programme, see page(s) 69, 72, MN 2015 Turning page(s) 356-359, 404, 433 and Update 2015-2 page(s) 210-211
- γ_o° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_o°	λ_s°	KG	
			D5m	f1	I1	Dm min				
GL32	11	GL32-SDUCR-22018-11X	32	22,0	18	44	0	-5	0,2	DC..11T3..
		GL32-SDUCL-22018-11X	32	22,0	18	44	0	-5	0,2	DC..11T3..
GL40	11	GL40-SDUCR-27017-11X	40	27,0	17	50	0	-5	0,2	DC..11T3..
		GL40-SDUCL-27017-11X	40	27,0	17	50	0	-5	0,2	DC..11T3..
GL50	11	GL50-SDUCR-32017-11X	50	32,0	17	60	0	-5	0,3	DC..11T3..
		GL50-SDUCL-32017-11X	50	32,0	17	60	0	-5	0,3	DC..11T3..
GL50	11									

Spare Parts, Parts included in delivery

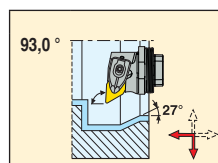
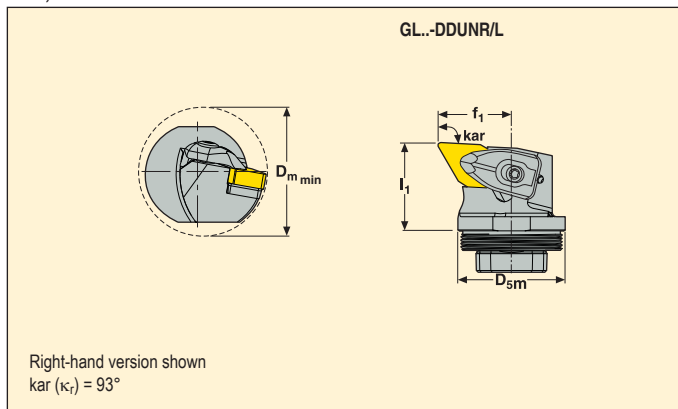
For size	Insert screw	Key
...11	C04008-T15P	T15P-2

Please check availability in current price and stock-list

Toolholders for inserts DNGG, DNGM, DNMA, DNMG, DNMM, DNMU and DNMX



- For insert programme, see page(s) 73, MN 2015 Turning page(s) 359-365, 406-408 and Update 2015-2 page(s) 212
- γ_0 = Rake angle, λ_s = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_0°	λ_s°	KG	
			D_{sm}	f_1	l_1	$D_{m \min}$				
GL32	11	GL32-DDUNR-22032-11	32	22,0	32	40	-6	-10	0,2	DN..1104..
		GL32-DDUNL-22032-11	32	22,0	32	40	-6	-10	0,2	DN..1104..
GL40	11	GL40-DDUNR-27032-11	40	27,0	32	50	-5	-10	0,2	DN..1104..
		GL40-DDUNL-27032-11	40	27,0	32	50	-5	-10	0,2	DN..1104..
GL32	15	GL32-DDUNR-22032-15	32	22,0	32	40	-6	-14	0,2	DN..1504..
		GL32-DDUNL-22032-15	32	22,0	32	40	-6	-14	0,2	DN..1504..
GL40	15	GL40-DDUNR-27032-15	40	27,0	32	50	-6	-12	0,2	DN..1504..
		GL40-DDUNL-27032-15	40	27,0	32	50	-6	-12	0,2	DN..1504..
GL50	15	GL50-DDUNR-32032-15	50	27,0	32	60	-6	-12	0,3	DN..1504..
		GL50-DDUNL-32032-15	50	27,0	32	60	-6	-12	0,3	DN..1504..

Spare Parts, Parts included in delivery

For size	Clamp	Clamp pin	Clamp screw	Floating wedge clamp	Insert screw	Insert shim	Key	Shim/clamp key	Shim screw	Spring	Clamp kit
..11	—	FP1508	L84017-T09P	CD09-S	—	DDN110310	—	T09P-2	C03007-T09P	S5608	CD09-S09
GL32...15	CD12-S12	—	—	—	C04008-T15P	DDN150416	T15P-2	—	—	—	—
GL40/50...15	—	FP2012	L85021-T15P	CD12-S	—	DDN150416	—	T15P-7	C04008-T15P	S6912	CD12-S12

Accessories*

Please check availability in current price and stock-list

*To be ordered separately

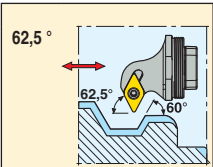
Toolholders for inserts DNGG, DNMA, DNMU and DNMX



- For insert programme, see MN 2015 Turning page(s) 364-365, 407 and Update 2015-2 page(s) 212
- γ_o° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148

GL...SDXNR/L

Right-hand version shown
kar (κ_r) = 62,5°



Size		Part No.	Dimensions in mm				γ_o°	λ_s°		
			D _{5m}	f ₁	l ₁	D _{m min}				
GL32	11	GL32-SDXNR-22025-11	32	22.0	25	40	-5	-11	0.2	DN..1104..
		GL32-SDXNL-22025-11	32	22.0	25	40	-5	-11	0.2	DN..1104..
GL32	11									

Spare Parts, Parts included in delivery

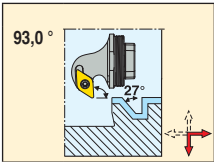
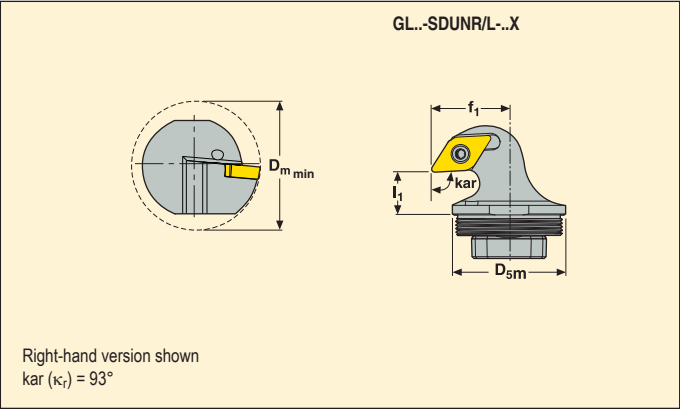
For size	Insert screw	Key
...-11	C03511-T09P	T09P-2

Please check availability in current price and stock-list

Toolholders for inserts DNMU and DNMX



- For insert programme, see MN 2015 Turning page(s) 364-365, 407 and Update 2015-2 page(s) 212
- γ_o° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_o°	λ_s°		
			D5m	f1	l1	Dm min				
GL32	11	GL32-SDUNR-22018-11X	32	22,0	18	40	-5	-11	0,2	DN..1104..
		GL32-SDUNL-22018-11X	32	22,0	18	40	-5	-11	0,2	DN..1104..
GL32	11									

Spare Parts, Parts included in delivery

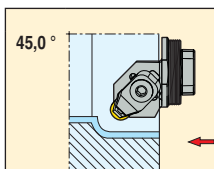
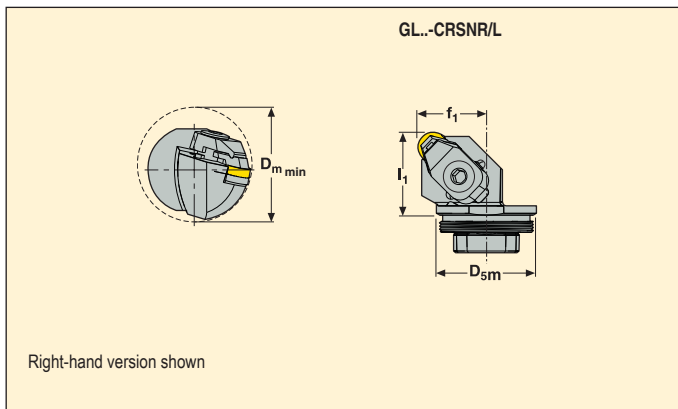
For size	Insert screw	Key
		
...11	C03511-T09P	T09P-2

Please check availability in current price and stock-list

Toolholders for PCBN inserts RNGN-LF, RNGN and RNMN



- For insert programme, see page(s) 74-75 and MN 2015 Turning page(s) 409-411, 434 and Update 2015-2 page(s) 223
- γ_o° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_o°	λ_s°		
			D _{5m}	f ₁	l ₁	D _{m min}				
GL32	09	GL32-CRSNR-22032-09	32	22.0	32	40	-6	-12	0,2	RN.N0903..
		GL32-CRSNL-22032-09	32	32.0	32	40	-6	-12	0,2	RN.N0903..
GL32	09									

Spare Parts, Parts included in delivery

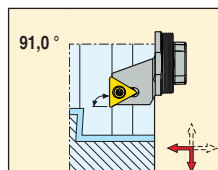
Accessories*

For size	Cantilever clamp	Clamp key	Insert shim	Pressure plate	Shim screw	Shim key
..09	CC17P-09	4SMS795	117.10-620	P1311-09	174.10-652-T07P	T07P-2

Please check availability in current price and stock-list

*To be ordered separately

-
- Technical drawing of the GL...-STFCR/L bracket. The drawing includes two views: a front view (left) and a side view (right).
- Front View (Left):** Shows a circular base with a central mounting hole. A bracket arm is attached to the side. The minimum diameter of the base is labeled $D_{m \min}$.
- Side View (Right):** Shows the bracket arm in profile. The height of the mounting plate is labeled l_1 . The distance from the center of the mounting hole to the center of the bracket arm is labeled f_1 . The angle between the mounting plate and the bracket arm is labeled kar . The diameter of the mounting hole is labeled D_{5m} .

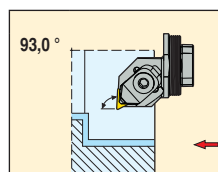
[illegible]

Accessories*

[illegible]

*To be ordered separately

- GL..-CTUNR/L
-
- Right-hand version shown
 $\text{kar } (\kappa_r) = 93^\circ$

[illegible]

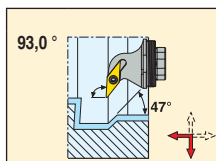
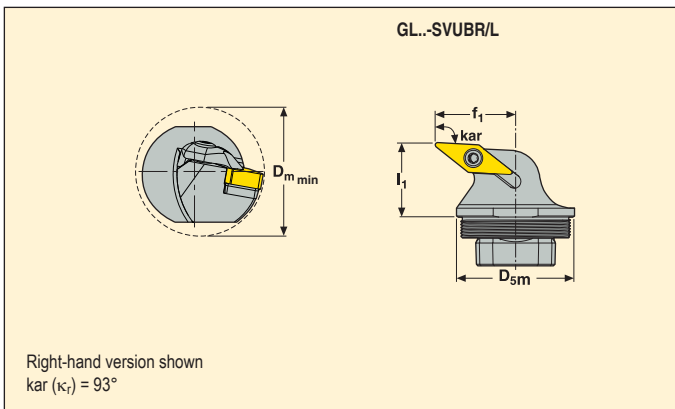
For size	Cantilever clamp	Clamp key	Insert shim	Pressure plate	Shim screw	Shim key
...11	CC17P-06	4SMS795	CTN110308	P1311-06	CS2507-T07P	T07P-2

*To be ordered separately

Toolholders for inserts VBGT, VBGW, VBMT abd VBMW



- For insert programme, see MN 2015 Turning page(s) 390-391, 426, 435
- γ_o° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_o°	λ_s°		
			D _{5m}	f ₁	l ₁	D _{m min}				
GL32	16	GL32-SVUBR-22032-16	32	22,0	32	40	0	-8	0,2	VBMT1604..
		GL32-SVUBL-22032-16	32	22,0	32	40	0	-8	0,2	VBMT1604..
GL40	16	GL40-SVUBR-27032-16	40	27,0	32	50	0	-8	0,2	VBMT1604..
		GL40-SVUBL-27032-16	40	27,0	32	50	0	-8	0,2	VBMT1604..
GL50	16	GL50-SVUBR-32032-16	50	32,0	32	63	0	-8	0,3	VBMT1604..
		GL50-SVUBL-32032-16	50	32,0	32	63	0	-8	0,3	VBMT1604..

Spare Parts, Parts included in delivery

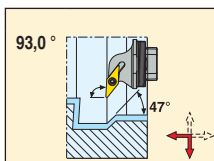
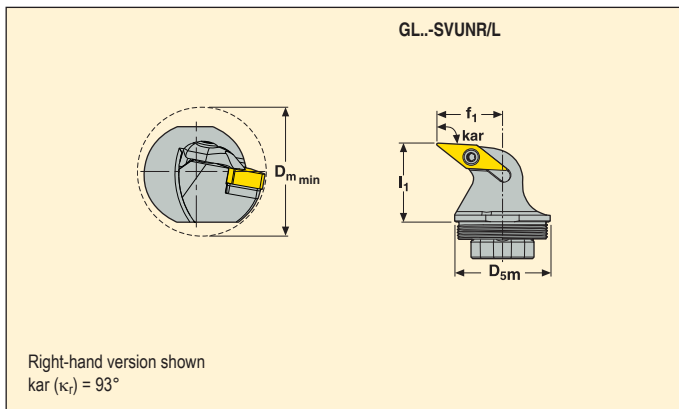
For size	Insert screw	Insert shim	Key	Shim screw
...16	C03510-T15P	171.19-620	T15P-2	CA3507

Please check availability in current price and stock-list

Toolholders for inserts VNMU



- For insert programme, see MN 2015 Turning page(s) 394 and Update 2015-2 page(s) 220
- γ_o° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_o°	λ_s°		
			D _{5m}	f ₁	I ₁	D _{m min}				
GL32	13	GL32-SVUNR-22032-13	32	22,0	32	40	-5	-11	0,2	VN..1304..
		GL32-SVUNL-22032-13	32	22,0	32	40	-5	-11	0,2	VN..1304..
GL32	13									

Spare Parts, Parts included in delivery

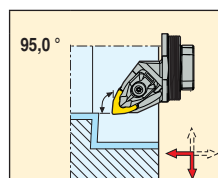
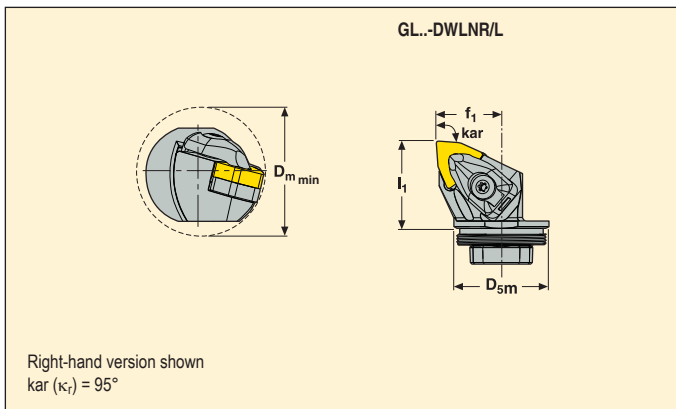
For size	Insert screw	Insert shim	Key	Shim screw
...13	C03512-T15P	PVN130308	T15P-2	CA3507

Please check availability in current price and stock-list

Toolholders for inserts WNGG, WNMA, WNMG and WNMM



- For insert programme, see page(s) 82 and MN 2015 Turning page(s) 395-399, 429-430 and Update 2015-2 page(s) 221
- γ_o° = Rake angle, λ_s° = Inclination angle
- For holder code key, see MN 2015 Turning page(s) 12-13
- For damping holders programme, see page(s) 144-148



Size		Part No.	Dimensions in mm				γ_o°	λ_s°		
			D _{5m}	f ₁	I ₁	D _{m min}				
GL32	06	GL32-DWLNR-22032-06	32	22,0	32	40	-5	-12	0,2	WN..0604..
		GL32-DWLNL-22032-06	32	22,0	32	40	-5	-12	0,2	WN..0604..
	08	GL32-DWLNR-22035-08	32	22,0	35	40	-5	-14	0,2	WN..0804..
		GL32-DWLNL-22035-08	32	22,0	35	40	-5	-14	0,2	WN..0804..
GL40	06	GL40-DWLNR-27032-06	40	27,0	32	50	-5	-12	0,2	WN..0604..
		GL40-DWLNL-27032-06	40	27,0	32	50	-5	-12	0,2	WN..0604..
	08	GL40-DWLNR-27037-08	40	27,0	37	50	-5	-12	0,2	WN..0804..
		GL40-DWLNL-27037-08	40	27,0	37	50	-5	-12	0,2	WN..0804..
GL50	06	GL50-DWLNR-32032-06	50	32,0	32	60	-5	-12	0,3	WN..0604..
		GL50-DWLNL-32032-06	50	32,0	32	60	-5	-12	0,3	WN..0604..
	08	GL50-DWLNR-32038-08	50	32,0	38	60	-5	-12	0,3	WN..0804..
		GL50-DWLNL-32038-08	50	32,0	38	60	-5	-12	0,3	WN..0804..

Spare Parts, Parts included in delivery

For size	Clamp pin	Clamp screw	Floating wedge clamp	Insert shim	Shim/clamp key	Shim screw	Spring	Clamp kit
..06	FP1508	L84017-T09P	CD09-S	DWN060310	T09P-2	C03007-T09P	S5608	CD09-S09
..08	FP2012	L85021-T15P	CD12-S	DWN080416	T15P-7	C04008-T15P	S6912	CD12-S12

Accessories*

Please check availability in current price and stock-list

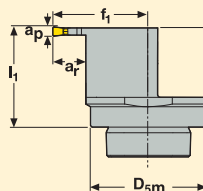
*To be ordered separately

Toolholders for LCGF, LCGN, LCMF and LCMR



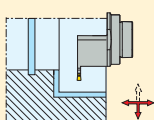
- For insert programme, see MN 2015 Turning page(s) 578-591, 593-594
- For damping holders programme, see page(s) 144-148

GL-CGJR/L-...JET



Right-hand version shown

GL-CGJR/L-...JET
90°



Size		Part No.	Dimensions in mm						
			D _{5m}	f ₁	l ₁	a _r	DCINN*		
GL32	2,0	GL32-CGJR-25032-1902JET	32	25,0	32,0	7,5	43	0,2	LC..1902..
		GL32-CGJL-25032-1902JET	32	25,0	32,0	7,5	43	0,2	LC..1902..
GL40	2,0	GL40-CGJR-29032-1902JET	40	29,0	32,0	7,5	51	0,2	LC..1902..
		GL40-CGJL-29032-1902JET	40	29,0	32,0	7,5	51	0,2	LC..1902..
GL50	2,0	GL50-CGJR-34032-1902JET	50	34,0	32,0	7,5	61	0,3	LC..1902..
		GL50-CGJL-34032-1902JET	50	34,0	32,0	7,5	61	0,3	LC..1902..

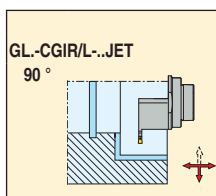
*DCINN – minimum bore diameter, see MN Turning 2015 page(s) 477

Spare Parts, Parts included in delivery

For size	Clamp key	Clamp screw
1902	T15P-7	L85011-T15P

Please check availability in current price and stock-list

- GL-CGIR/L...JET
-
- Technical drawing of a GL-CGIR/L...JET component, showing a cross-section with dimensions: f_1 , a_{p1} , a_r , l_1 , and D_{sm} .
- Right-hand version shown

[illegible]

Spare Parts, Parts included in delivery

[illegible]

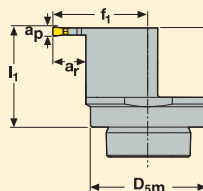
66

Toolholders for LCGF, LCGN, LCMF and LCMR



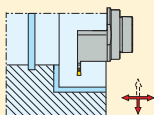
- For insert programme, see MN 2015 Turning page(s) 578-591, 593-594
- For damping holders programme, see page(s) 144-148

GL-CGHR/L-...JET



Right-hand version shown

GL-CGHR/L-...JET
90°



Size		Part No.	Dimensions in mm						
			D _{5m}	f ₁	l ₁	a _r	DCINN*		
GL32	4,0	GL32-CGHR-27032-1604JET	32	27,5	32,0	10,0	45	0,2	LC..1604..
		GL32-CGHL-27032-1604JET	32	27,5	32,0	10,0	45	0,2	LC..1604..
GL40	4,0	GL40-CGHR-31032-1604JET	40	31,5	32,0	10,0	53	0,2	LC..1604..
		GL40-CGHL-31032-1604JET	40	31,5	32,0	10,0	53	0,2	LC..1604..
GL50	4,0	GL50-CGHR-36032-1604JET	50	36,5	32,0	10,0	63	0,3	LC..1604..
		GL50-CGHL-36032-1604JET	50	36,5	32,0	10,0	63	0,3	LC..1604..
GL50	4,0								

*DCINN – minimum bore diameter, see MN Turning 2015 page(s) 477

Spare Parts, Parts included in delivery

For size	Clamp key	Clamp screw
1604	T15P-7	L85011-T15P

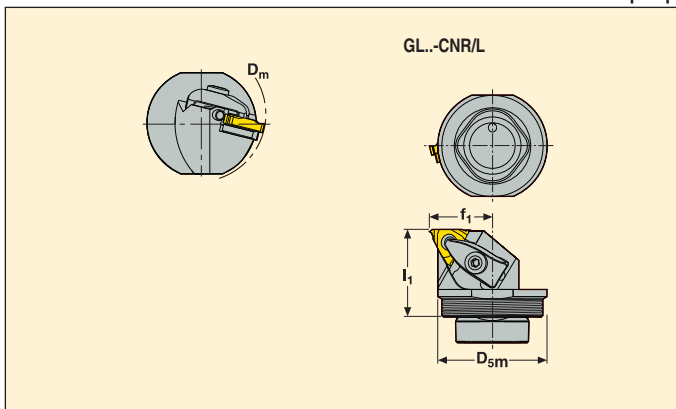
Please check availability in current price and stock-list

Toolholders with GL connection for S-inserts

Snap-Tap®



- For inserts programme, see MN Threading 2015



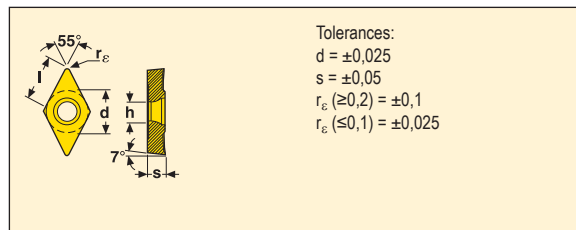
Application	Part No.	Dimensions in mm					KG	
		D _{sm}	D _m min	l ₁	f ₁	D _m		
	GL32- CNR-20032-16AHD	32	38	32	19,8	36	0,2	16..
	CNL-20032-16AHD	32	38	32	19,8	36	0,2	16..
	GL40- CNR-24032-16AHD	40	50	32	24,0	50	0,3	16..
	CNL-24032-16AHD	40	50	32	24,0	50	0,3	16..
	GL50- CNR-29032-16AHD	50	63	32	29,0	63	0,4	16..
	CNL-29032-16AHD	50	63	32	29,0	63	0,4	16..
	GL32- CNR-22032-22AHD	32	40	32	21,3	38	0,2	22..
	CNL-22032-22AHD	32	40	32	21,3	38	0,2	22..
	GL40- CNR-26032-22AHD	40	50	32	26,0	50	0,3	22..
	CNL-26032-22AHD	40	50	32	26,0	50	0,3	22..
	GL50- CNR-31032-22AHD	50	63	32	31,0	63	0,4	22..
	CNL-31032-22AHD	50	63	32	31,0	63	0,4	22..
	GL40- CNR-27037-27AHD	40	50	37	27,0	50	0,3	27..
	GL50- CNR-32037-27AHD	50	63	37	32,0	63	0,4	27..

Spare Parts, Parts included in delivery

For size	Spring	Shim screw	Shim key	Shim/clamp key	Insert shim (S)	Floating wedge clamp	Clamp screw	Clamp key
..-16	S6912	CS3507-T09P	T09P-2	–	GX16-1	CHD16	L85020-T15P	T15P-2
..-22	–	CS4009-T15P	T15P-2D	–	NX22-1	CSP22HD-T15P	–	T15P-2
..-27	S7616	C05012-T15P	T15P-2	T20P-7L	VX27-1	CHD27	L86025-T20P	–

Please check availability in current price and stock-list

DCGT



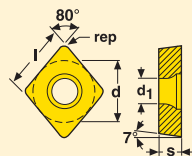
Size	Dimensions in mm			
	d	l	s	h
0702	6,350	7,8	2,38	2,9
0702-AL	6,350	7,8	2,38	2,8
11T3	9,525	11,6	3,97	4,5
11T3...-AL	9,525	11,6	3,97	4,4
1504	12,700	15,5	4,76	5,6



Inserts	Part No.	r _c = rep	Grades																								
			Coated																		Uncoated				Cermet		
			TP0501	TP1501	TP2501	TP3500	TP200	TP40	TH1000	TH1500	TM2000	TM4000	TK1001	TK2001	TS2000	TS2050	TS2500	CP200	CP500	CP600	HX	KX	883	890	TP1020	TP1030	
DCGT-AL	DCGT 0702005F-AL	0,1																				■					
	070201F-AL	0,1																				■					
	070202F-AL	0,2																				■					
	070204F-AL	0,4																				■					
	DCGT 11T302F-AL	0,2													■							■					
	11T304F-AL	0,4													■							■					
	11T308F-AL	0,8																				■					
DCGT-F1	DCGT 0702005-F1	0,1																■									
	070201-F1	0,1																■									
	DCGT 11T301-F1	0,1																■									
	11T304-F1	0,4													■									■			
	11T308-F1	0,8													■												
DCGT-MF2	DCGT 11T304-MF2	0,4																■									
DCGT-M3	DCGT 070202-M3	0,2																			■						
	070204-M3	0,2																			■						
	DCGT 11T302-M3	0,2																			■						
	11T304-M3	0,4																			■						
	11T308-M3	0,8																			■						
	DCGT 150404-M3	0,4																			■						

■ Stock standard
 Subject to change refer to current price- and stock-list

CCGW



Tolerances:
d = ±0,025
s = ±0,13
rep = ±0,1

Size	Dimensions in mm				
	d	l	s	d ₁	rep
0602	6,350	6,5	2,38	2,9	0,2-0,8
09T3	9,525	9,7	3,97	4,5	0,4-0,8
1204	12,700	12,9	4,76	5,6	0,4-0,8

CCGW...-B



CCGW...-LF



Inserts	Part No.	Grades														Toolholders		
		Coated						Uncoated								External	Internal	
		CH0550	CBN010P	CBN060K	CH2540	CBN160C	CH3515	CBN300P	CBN400C	CBN010	CBN150	CBN170	CBN200	CBN300	CBN500			CBN600
CCGW	CCGW 060204E-L1-B			■						■			■				SCLCR/L..06 SCGCR/L..06 SCDCR/L..06 SCFCR/L..06 SCACR/L..06 SCECL..06	SCLCR/L06 ..SCFCR/L06 SCACL..06 SCECL..06 ..SCDCL06
	060208E-L1-B												■					
	CCGW 060204S-01020-L1-B									■								
	060204S-01525-L1-B	■		■														
	060208S-01525-L1-B				■	■												
	060208S-02020-L1-B												■					
	CCGW 060202S-01020-LF													■				
	060204S-01020-LF									■				■				
	060208S-01020-LF													■				
	CCGW 060208S-L1-WZP-B			■													SCLCR/L..06 ...SCLCR/L06	
	CCGW 09T304E-L1-B			■						■			■				SCLCR/L..09 SCGCR/L..09 SCDCR/L..09 SCFCR/L..09 SCACR/L..09 SCECL..09	SCLCR/L09 ..SCFCR/L09 SCACL..09 SCECL..09 ..SCDCL09
	09T308E-L1-B			■						■			■					
	CCGW 09T304S-01020-L1-B									■								
	09T304S-01525-L1-B	■		■														
	09T308S-01020-L1-B									■	■							
	09T308S-01525-L1-B	■		■	■	■												
	09T308S-02020-L1-B													■				
	CCGW 09T304S25-02020-L1B													■				
	09T308S25-02020-L1B													■				
	CCGW 09T304S-01020-LF									■				■				
	09T308S-01020-LF													■				
	CCGW 09T304E-L1-WZ-B									■							SCLCR/L..09 ..SCLCR/L09	
	CCGW 09T304S-01020-L1WZB									■								
	09T304S-01525L1WZB	■		■														
	09T308S-01525L1WZB			■														
	09T304S-L1-WZP-B	■		■														
	09T308S-L1-WZP-B			■														
	CCGW 120404S-01020-L1-B									■							SCLCR/L..12 ***	
	120408S-01020-L1-B									■								
	120408S-02020-L1-B												■					

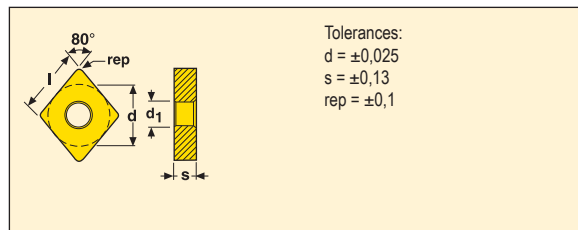
■ Stock standard

Subject to change refer to current price- and stock-list

***For information, contact your local Seco office

Tip sizes, see page(s) 44
Edge preparation, see page(s) 42

CNGA



Size	Dimensions in mm				
	d	l	s	d ₁	rep
1204	12,700	12,90	4,76	5,15	0,4-1,2



Inserts	Part No.	Grades												Toolholders					
		Coated						Uncoated						External	Internal				
		CH0550	CBN010P	CBN060K	CH2540	CBN160C	CH3515	CBN300P	CBN400C	CBN010	CBN150	CBN170	CBN200			CBN300	CBN500	CBN600	
CNGA	CNGA 120408E-L1-B												■			DCLNR/L...12 PCLNR/L...12	..-PCLNR/L12 ..-MCLNR/L12		
	CNGA 120404S-01020-L1-B								■										
	120404S-01525-L1-B	■																	
	120408S-01015-L1-B	■																	
	120408S-01020-L1-B								■										
	120408S-01525-L1-B	■		■	■	■				■									
	120408S-02020-L1-B											■							
	120412S-01015-L1-B	■																	
	120412S-01020-L1-B								■										
	120412S-01525-L1-B	■		■	■	■				■									
	120412S-02020-L1-B						■												
	120408S25-02020-L1B												■						
	CNGA 120408E25-L1-U											■							
	CNGA 120404S-01525-L1-U			■						■									
	120408S-01020-L1-U			■															
	120408S-01525-L1-U			■															
	120412S-01525-L1-U			■															
	CNGA 120408S-01020-L1WZB									■									
	120408S-01525L1WZB	■		■	■	■													
	120412S-01525L1WZB				■	■													
	CNGA 120408S-01020-L1WZU									■									
	120408S-01525L1WZU			■															
	120412S-01525L1WZU			■															
	CNGA 120408S-L1-WZN-B			■															
	120408S-L1-WZP-B	■		■						■									
	CNGA 120408S-L1-WZN-U			■															

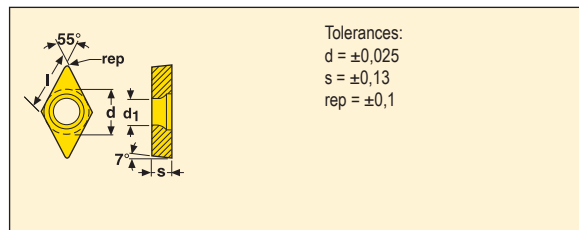
■ Stock standard

Subject to change refer to current price- and stock-list

***For information, contact your local Seco office

Tip sizes, see page(s) 44
 Edge preparation, see page(s) 42

DCGW



Size	Dimensions in mm				
	d	l	s	d ₁	rep
0702	6,350	7,8	2,38	2,9	0,2-0,8
11T3	9,525	11,6	3,97	4,5	0,2-0,8

DCGW...-B



Inserts	Part No.	Grades												Toolholders				
		Coated						Uncoated						External	Internal			
		CH0550	CBN010P	CBN060K	CH2540	CBN160C	CH3515	CBN300P	CBN400C	CBN010	CBN150	CBN170	CBN200			CBN300	CBN500	CBN600
DCGW	DCGW 070204E-L1-B									■			■				SDHCR/L..07 SDJCR/L..07 SDACR/L..07 SDNCN..07	..-SDUCR/L07 ..-SDQCR/L07
	DCGW 070202S-01020-L1-B										■							
	070202S-01525-L1-B				■	■												
	070204S-01020-L1-B								■	■								
	070204S-01525-L1-B				■	■												
	070204S-02020-L1-B												■					
	070208S-01525-L1-B				■	■												
	070208S-02020-L1-B													■				
	DCGW 070204S25-02020-L1B													■				
	DCGW 11T302E-L1-B													■			SDHCR/L..11 SDJCR/L..11 SDNCN..11 SDACR/L..11	..-SDUCR/L11 ..-SDQCR/L11
	11T304E-L1-B									■								
	11T308E-L1-B									■								
	DCGW 11T302S-01020-L1-B									■								
	11T304S-01020-L1-B									■								
	11T304S-01525-L1-B	■		■														
	11T304S-02020-L1-B													■				
	11T308S-01020-L1-B									■								
	11T308S-01525-L1-B	■		■														
	11T308S-02020-L1-B													■				
	DCGW 11T304S25-02020-L1B													■				
	11T308S25-02020-L1B													■				

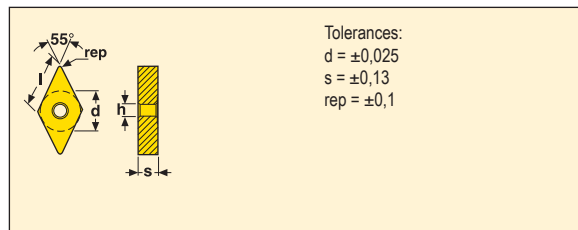
■ Stock standard

Subject to change refer to current price- and stock-list

***For information, contact your local Seco office

Tip sizes, see page(s) 44
 Edge preparation, see page(s) 42

DNGA



Size	Dimensions in mm				
	d	l	s	d ₁	rep
1504	12,700	15,00	4,76	5,15	0,4-1,2
1506	12,700	15,00	6,35	5,15	0,4-1,2



Inserts	Part No.	Grades												Toolholders			
		Coated						Uncoated						External	Internal		
		CH0550	CBN010P	CBN060K	CH2540	CBN160C	CH3515	CBN300P	CBN400C	CBN010	CBN150	CBN170	CBN200			CBN300	CBN500
DNGA	DNGA 150404S-01020-L1-B									■						DDJNR/L...15* DDHNR/L...15 PDJNR/L...15 DDJNR/L...15	A32T-PDUNR/L15* A40U-PDUNR/L15** A50V-PDUNR/L15**
	150408S-01020-L1-B									■							
	150408S-01525-L1-B	■		■	■	■					■						
	150408S-02020-L1-B											■					
	150412S-01525-L1-B				■	■											
	DNGA 150408S25-02020-L1B												■				
	DNGA 150408S-01525-L1-U			■													
	DNGA 150408S-01525L1WZB	■															
	DNGA 150604S-01020-L1-B									■							
	150604S-01525-L1-B	■															
	150608S-01020-L1-B									■							
	150608S-01525-L1-B	■		■	■	■					■						
	150608S-02020-L1-B											■					
	150612S-01020-L1-B									■							
	150612S-01525-L1-B				■	■											
	DNGA 150608E25-L1-U											■					
	DNGA 150604S-01525-L1-U			■													
	150608S-01525-L1-U			■													
	150612S-01525-L1-U			■													
	DNGA 150608S01020L1WZ93B									■							
	DNGA 150608S-L1-WZP-B	■															

■ Stock standard

Subject to change refer to current price- and stock-list

***For information, contact your local Seco office

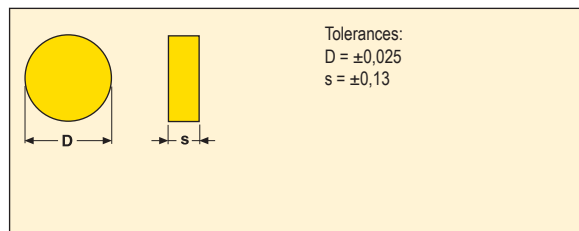
Tip sizes, see page(s) 44

Edge preparation, see page(s) 42

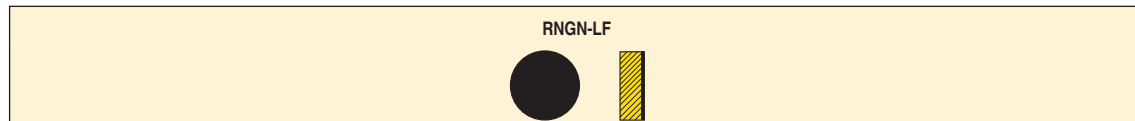
*Shim DDN150616 for insert DN..1504.., to be ordered separately

**Shim PDD150412 for insert DN..1504.., to be ordered separately

RNGN-LF



Size	Dimensions in mm	
	D	s
0603	6,350	3,18
0903	9,520	3,18
1204	12,700	4,76



Inserts	Part No.	Grades														Toolholders		
		Coated						Uncoated								External	Internal	
		CH0550	CBN010P	CBN060K	CH2540	CBN160C	CH3515	CBN300P	CBN400C	CBN010	CBN150	CBN170	CBN200	CBN300	CBN500			CBN600
RNGN-LF	RNGN 060300S-01525-LF					■					■						CRSNR/L..06 CRDNN..06	..-CRSNR/L06
	060300S-02020-LF						■						■					
	RNGN 090300S-01525-LF					■					■						CRSNR/L..09 CRDNN..09	..-CRSNR/L09
	090300S-02020-LF									■			■					
	RNGN 120400S-02020-LF												■				CRSNR/L..12* CRDNN..12*	***

■ Stock standard

Subject to change refer to current price- and stock-list

***For information, contact your local Seco office

Tip sizes, see page(s) 44

Edge preparation, see page(s) 42

*Shim 117.10-621 for insert RN.N1204., to be ordered separately

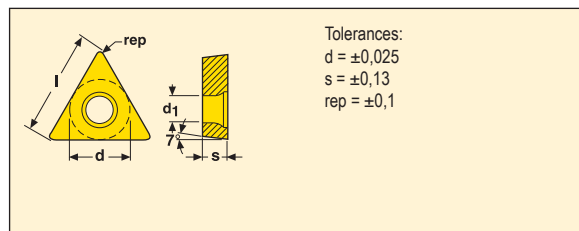
Tolerances:		Dimensions in mm	
Size		D	s
0603		6,35	3,18
0903		9,52	3,18
1203		12,70	3,18



■ **Stock standard**
 Subject to change refer to current price- and stock-list
 ***For information, contact your local Seco office

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TCGW



Size	Dimensions in mm				
	d	l	s	d ₁	rep
0902	5,560	9,00	2,38	2,6	0,4-0,8
1102	6,350	11,00	2,38	2,9	0,4-0,8

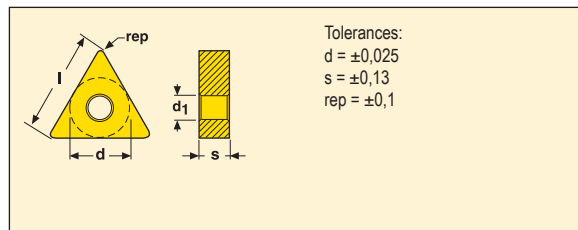


Inserts	Part No.	Grades														Toolholders			
		Coated						Uncoated								External	Internal		
		CH0550	CBN010P	CBN060K	CH2540	CBN160C	CH3515	CBN300P	CBN400C	CBN010	CBN150	CBN170	CBN200	CBN300	CBN500			CBN600	
TCGW	TCGW 090204S-01020-LF									■			■				***	***	
	090208S-01020-LF											■							
	TCGW 110204E-L1-C			■						■							STJCR/L...11 STGCR/L...11 STFCR/L...11	...STFCR/L11	
	110208E-L1-C								■										
	TCGW 110204S-01020-L1-C								■										
	110204S-01525-L1-C			■															
	110204S-02020-L1-C												■						
	110208S-01020-L1-C								■										
	110208S-01525-L1-C	■		■	■	■													
	110208S-02020-L1-C												■						
	TCGW 110204S-01020-LF												■						
	110208S-01020-LF												■						

■ Stock standard
 Subject to change refer to current price- and stock-list
 ***For information, contact your local Seco office

Tip sizes, see page(s) 44
 Edge preparation, see page(s) 42

TNGA



Size	Dimensions in mm				
	d	l	s	d ₁	rep
1604	9,525	16,50	4,76	3,81	0,4-2,0



Inserts	Part No.	Grades														Toolholders		
		Coated						Uncoated								External	Internal	
		CH0550	CBN010P	CBN060K	CH2540	CBN160C	CH3515	CBN300P	CBN400C	CBN010	CBN150	CBN170	CBN200	CBN300	CBN500			CBN600
TNGA	TNGA 160404S-01020-L1-C									■							DTGNR/L...16	...-PTFNR/L16
	160408S-01020-L1-C									■							DTNNR/L...16	...-MTFNR/L16
	160408S-01525-L1-C	■			■	■					■						DTTNR/L...16	
	160408S-02020-L1-C												■				DTFNR/L...16	
	160412S-01525-L1-C					■											PTBNR/L...16	
	160416S-00540-L1-C						■										PTGNR/L...16	
	160420S-00540-L1-C						■										PTJNR/L...16	
	TNGA 160408S-01525-L1-V		■															

■ Stock standard
 Subject to change refer to current price- and stock-list
 ***For information, contact your local Seco office

Tip sizes, see page(s) 44
 Edge preparation, see page(s) 42

Technical drawing showing two parts with dimensions and tolerances:

- Left part (Triangle):**
 - Dimension d (base width) has a tolerance of $\pm 0,025$.
 - Dimension l (height) has a tolerance of $\pm 0,13$.
 - Dimension rep (radius of the circular feature) has a tolerance of $\pm 0,1$.
- Right part (Rectangle):**
 - Dimension s (width) has a tolerance of $\pm 0,1$.

Tolerances:

- $d = \pm 0,025$
- $s = \pm 0,13$
- $rep = \pm 0,1$

Size	Dimensions in mm			
	d	l	s	rep
1103	6,350	11,0	3,18	0,4-1,2
1603	9,525	16,5	3,18	0,4

[illegible]

*Shim UTN160412 for insert TNGN1603..., to be ordered separately

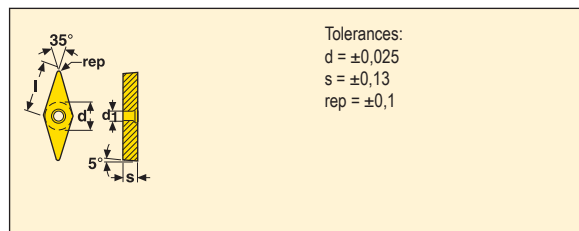
Tolerances:
 $d = \pm 0,025$
 $s = \pm 0,13$
 $rep = \pm 0,1$

Size	Dimensions in mm			
	d	l	s	rep
1103	6,350	11,0	3,18	0,8

[illegible]

Tip sizes, see page(s) 44
Edge preparation, see page(s) 42
*For inserts with nose radius 08, use shim CTN110312, to be ordered separately

VBGW



Size	Dimensions in mm				
	d	l	s	d ₁	rep
1604	9,525	16,00	4,76	4,5	0,2-0,8



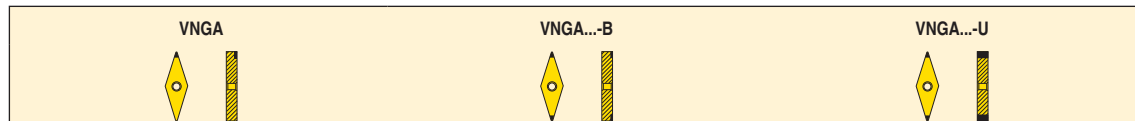
Inserts	Part No.	Grades												Toolholders				
		Coated						Uncoated						External	Internal			
		CH0550	CBN010P	CBN060K	CH2540	CBN160C	CH3515	CBN300P	CBN400C	CBN010	CBN150	CBN170	CBN200			CBN300	CBN500	CBN600
VBGW	VBGW 160408E-L1-B			■													SVLBR/L...16 SVJBR/L...16 SVABR/L...16 SVVBN...16	...SVMBL16 ...SVQBR/L16 ...SVUBR/L16
	VBGW 160402S-01020-L1-B								■									
	160402S-01525-L1-B				■	■												
	160404S-01020-L1-B								■									
	160404S-01525-L1-B	■		■	■	■					■							
	160408S-01020-L1-B								■									
	160408S-01525-L1-B			■	■	■					■							
	VBGW 160404S-02020-L2									■								
	160408S-02020-L2									■								

■ Stock standard
 Subject to change refer to current price- and stock-list
 ***For information, contact your local Seco office

Tip sizes, see page(s) 44
 Edge preparation, see page(s) 42

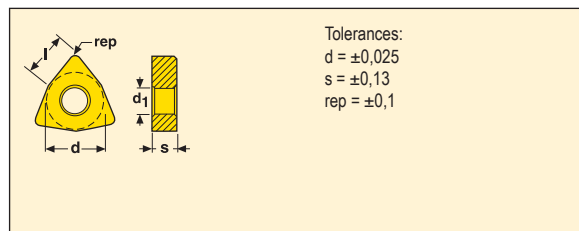
Tolerances:
 $d = \pm 0,025$
 $s = \pm 0,13$
 $rep = \pm 0,1$

Size	Dimensions in mm				
	d	l	s	d ₁	rep
1604	9,525	16,00	4,76	3,81	0,2-0,8

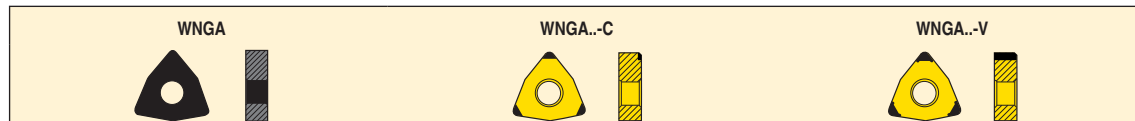
[illegible]

Tip sizes, see page(s) 44
Edge preparation, see page(s) 42

WNGA



Size	Dimensions in mm				
	d	l	s	d ₁	rep
0604	9,525	6,6	4,76	3,81	0,8
0804	12,700	8,7	4,76	5,15	0,8-1,2



Inserts	Part No.	Grades														Toolholders		
		Coated							Uncoated							External	Internal	
		CH0550	CBN010P	CBN060K	CH2540	CBN160C	CH3515	CBN300P	CBN400C	CBN010	CBN150	CBN170	CBN200	CBN300	CBN500			CBN600
WNGA	WNGA 060408S-01525-WZ			■													DWLNRL...06-C	A...DWLNRL/L06-C
	WNGA 060408S-02020-L1-C											■					DWLNRL/L...06-C DWLNRL/L...06 PWLNR/L...06	..DWLNRL/L06 ..PWLNR/L06
	WNGA 060408S25-02020-L1C											■						
	WNGA 080408S-01020-L1-C								■								DWLNRL/L...08-C DWLNRL/L...08 PWLNR/L...08 MWLNRL/L...08	..DWLNRL/L08 ..PWLNR/L08 ..MWLNRL/L08
	080408S-01525-L1-C				■	■												
	WNGA 080408S-01525-L1-V			■														
	080412S-01525-L1-V			■														
	WNGA 080408S-01020-L1WZC								■									
	080408S-01525L1WZC	■			■	■												
	WNGA 080408S-01525L1WZV			■														
	080412S-01525L1WZV			■														

■ Stock standard

Subject to change refer to current price- and stock-list

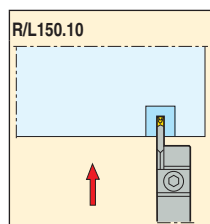
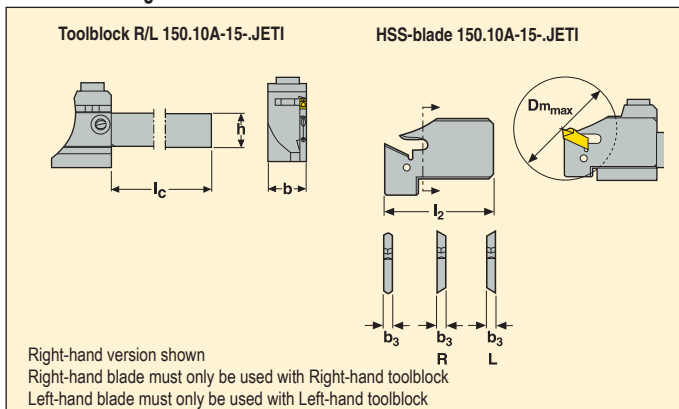
***For information, contact your local Seco office

Tip sizes, see page(s) 44
 Edge preparation, see page(s) 42

Toolblock R/L 150.10-..15JETI and HSS-blade 150.10A-..15JETI for Parting-off



- For insert programme, see MN 2015 Turning page(s) 649-650



Part No.	Dimensions in mm						KG	
	h	b	l _c	l ₂	b ₂	D _m max		
R150.10 -1010-15JETI	10	10	136	–	–	–	0,2	–
-1212-15JETI	12	12	136	–	–	–	0,2	–
-1616-15JETI	16	16	81	–	–	–	0,2	–
-2020-15JETI	20	20	106	–	–	–	0,4	–
-2525-15JETI	25	25	106	–	–	–	0,6	–
L150.10 -1010-15JETI	10	10	136	–	–	–	0,2	–
-1212-15JETI	12	12	136	–	–	–	0,2	–
-1616-15JETI	16	16	81	–	–	–	0,2	–
-2020-15JETI	20	20	106	–	–	–	0,4	–
-2525-15JETI	25	25	106	–	–	–	0,6	–
150.10A-15 -2RJETI	–	–	–	33	1,2	38	0,1	150.10-2..
-2LJETI	–	–	–	33	1,8	38	0,1	150.10-2..
-2.5RJETI	–	–	–	33	1,2	38	0,1	150.10-2.5..
-2.5LJETI	–	–	–	33	2,0	38	0,1	150.10-2.5..
-3RJETI	–	–	–	33	1,2	38	0,1	150.10-3..
-3LJETI	–	–	–	33	2,4	38	0,1	150.10-3..
R150.10A-15 -4JETI	–	–	–	33	1,2	38	0,1	150.10-4..
L150.10A-15 -4JETI	–	–	–	33	3,4	38	0,1	150.10-4..

Spare Parts, Parts included in delivery

For	Key	Ring	Screw
R/L150.10-..	4SMS795	ORING-4X1.5	MC6S5X18
150.10A-..	–	–	–
R/L150.10A-..	–	–	–

Accessories

Key
–
150.10A-150
150.10A-150

Please check availability in current price and stock-list

- Toolblock 150.10-...-20JET1**
- HSS-blade**
-
- Technical drawing of a toolblock and HSS-blade assembly. The top part shows a perspective view of the toolblock with dimensions l_2 , h_2 , h , b , and b_2 . The middle part shows a side view of the HSS-blade with dimensions h_1 and b_2 , and a circular detail with diameter D_m . The bottom part shows a top view of the blade with dimensions l_3 and l_2 , and the text "150.10A...JET1".

[illegible]

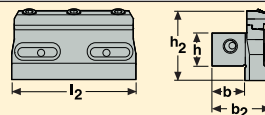
84

Toolblock R/L 150.10-..25JETI and HSS-blade 150.10A-..25JETI for Parting-off

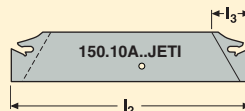
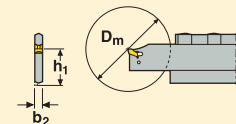


- For insert programme, see MN 2015 Turning page(s) 649-650

Toolblock 150.10-...25JETI



HSS-blade



Right-hand version of blade shown

Part No.	Dimensions in mm								KG	
	h	b	h ₁	h ₂	l ₂	l ₃	b ₂	D _m min		
150.10- 2020-25JETI	20	20	–	39	95	–	40,80	–	0,8	–
2525-25JETI	25	25	–	42	95	–	44,80	–	1,0	–
3232-25JETI	32	32	–	49	95	–	51,80	–	1,4	–
150.10A-25 -2RJETI	–	–	25,0	–	120	24	1,80	35	0,08	150.10-2..
-2.5RJETI	–	–	25,0	–	120	24	2,00	35	0,08	150.10-2.5..
-3RJETI	–	–	25,0	–	150	–	2,40	120	0,08	150.10-3..
-4RJETI	–	–	25,0	–	150	–	3,40	120	0,1	150.10-4..
-5RJETI	–	–	25,0	–	150	–	4,40	120	0,2	150.10-5..
-6RJETI	–	–	25,0	–	150	–	5,65	120	0,2	150.10-6..
150.10A-25 -2LJETI	–	–	25,0	–	120	24	1,80	35	0,08	150.10-2..
-2.5LJETI	–	–	25,0	–	120	24	2,00	35	0,08	150.10-2.5..
-3LJETI	–	–	25,0	–	150	–	2,40	120	0,08	150.10-3..
-4LJETI	–	–	25,0	–	150	–	3,40	120	0,1	150.10-4..
-5LJETI	–	–	25,0	–	150	–	4,40	120	0,2	150.10-5..
-6LJETI	–	–	25,0	–	150	–	5,65	120	0,2	150.10-6..

Spare Parts, Parts included in delivery

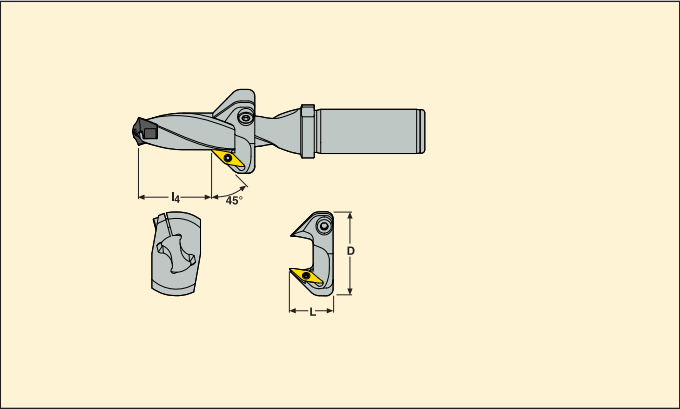
For	Clamp	Key	O-ring	Plug	Screw
150.10-..	150.10-260	5SMS795	ORING-20X2	JET-P1/8-5MM	TCEI0620
150.10A-..	–	–	–	–	–

Accessories

Key
–
150.10A-150

Please check availability in current price and stock-list

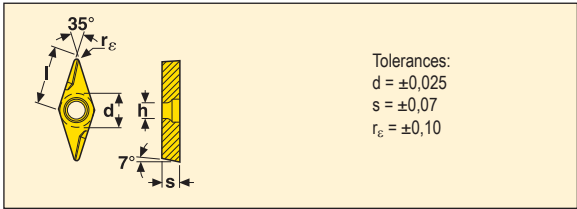
Chamfer module



Part No.	For drill body	Drill depth L_4			Max chamfer depth (mm)	L	D
		SD403 (min-max)	SD405 (min-max)	SD408 (min-max)			
SD400-C45-12.00/12.49	SD40x-12.00/12.49	6-22	6-47	47-84	2,0	20,0	34,0
SD400-C45-12.50/12.99	SD40x-12.50/12.99	7-23	7-48	48-88	2,0	20,0	34,0
SD400-C45-13.00/13.99	SD40x-13.00/13.99	7-27	7-55	55-97	2,0	20,0	34,0
SD400-C45-14.00/14.99	SD40x-14.00/14.99	7-33	7-60	60-105	2,0	20,0	36,0
SD400-C45-15.00/15.99	SD40x-15.00/15.99	8-35	8-67	67-114	2,0	20,0	36,0
SD400-C45-16.00/16.99	SD40x-16.00/16.99	8-38	8-72	72-123	2,0	20,0	38,0
SD400-C45-17.00/17.99	SD40x-17.00/17.99	9-43	9-79	79-132	2,0	20,0	38,0
SD400-C45-18.00/18.99	SD40x-18.00/18.99	9-45	9-83	83-140	2,0	20,0	40,0
SD400-C45-19.00/19.99	SD40x-19.00/19.99	10-49	10-89	89-149	2,0	20,0	40,0

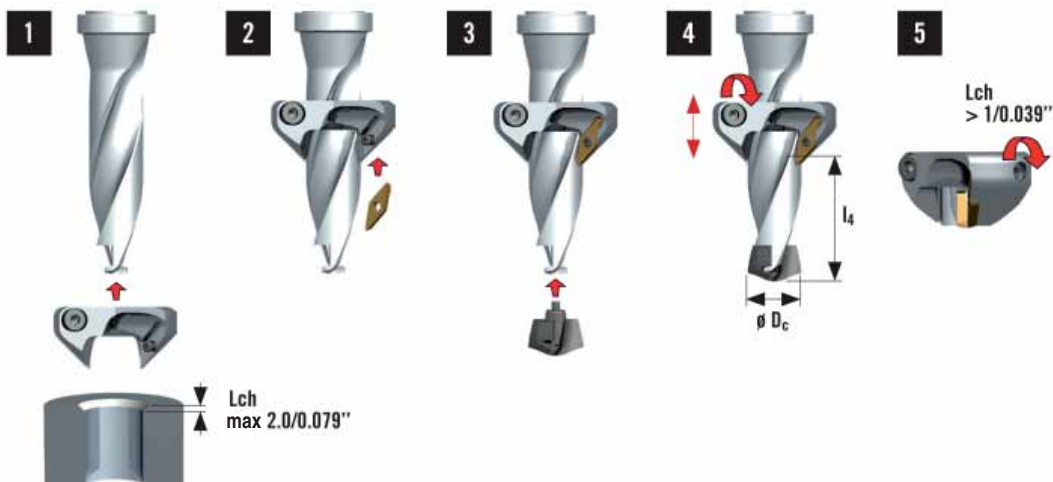
For drill dia. (mm)	Locking screw 2	Locking screw 1	Locking key	Insert screw	Insert key
SD400-12,00-19,99	P6SS4X8	MC6S4X8	3SMS795	C02505-T07P	T07P-2

Insert



Size	Dimensions in mm				
	d	l	s	h	r_e
09	5,556	9,000	2,500	2,900	0,200
Part No.	T400D				
VCGX090202-D1	■				

Mounting instruction/placement of module



1. Fit the chamfer ring on the drill without the crown
2. Mount the chamfer insert on the chamfer ring
3. Mount the crown on the drill
4. Measure the required drill depth and tighten the screw by 3-4 Nm (26-35 in-lbs)
5. Tighten the side locking screw if $L_{ch} > 1/0.039$ by 2-3 Nm (17-26 in-lbs)

D_c		l_4 drilling depth (min-max)					
		SD403		SD405		SD408	
(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)
12	.472	6-22	.236-0.839	6-47	.236-1.824	47-84	1.824-3.280
12,5	.492	7-23	.276-0.879	7-48	.276-1.863	48-88	1.863-3.438
13	.512	7-27	.276-1.036	7-55	.276-2.139	55-97	2.139-3.792
14	.551	7-33	.276-1.154	7-60	.276-2.335	60-105	2.335-4.107
15	.591	8-35	.315-1.312	8-67	.315-2.572	67-114	2.572-4.461
16	.630	8-38	.315-1.469	8-72	.315-2.808	72-123	2.808-4.816
17	.669	9-43	.354-1.627	9-79	.354-3.044	79-132	3.044-5.170
18	.709	9-45	.354-1.745	9-83	.354-3.241	83-140	3.241-5.485
19	.748	10-49	.394-1.902	10-89	.394-3.477	89-149	3.477-5.839
20	.749	11-56	.394-2.178	11-100	.394-3.910	100-166	3.910-6.509
22	.750	12-63	.472-2.454	12-111	.472-4.343	111-183	4.343-7.178
24	.751	13-70	.512-2.729	13-122	.512-4.776	122-200	4.776-7.847
26	.752	14-77	.551-3.044	14-134	.551-5.249	134-218	5.249-8.556

The recommended cutting speeds and feeds for Crownloc® Plus.

Troubleshooting

Vibrations during chamfering	• Reduce cutting speed • If possible, move the module closer to the shank of the drill • If possible, use a shorter drill
------------------------------	---

-

Note! R396.19-2525.3S-4005-2AM Max pitch size 4.5 ISO/6 TPI can be used.

Min thread diameter (major dia), for different pitch and cutter combinations

Please check availability in current price and stock-list.

Note! When milling threads to smaller diameters than indicated for a certain pitch/cutter combination, an incorrect thread form will result.

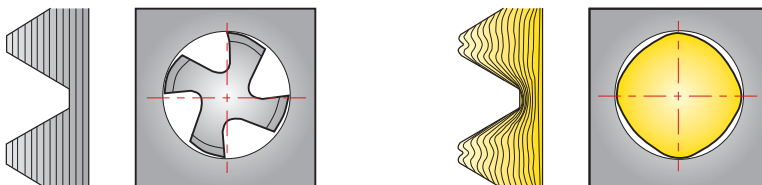
* Torque key T00-07P09, T00-09P20.

Introduction to taps

What are you looking for in a thread?

Cutting a thread vs forming a thread

There are two ways of making a thread, cutting or forming. Cutting is to be used in most materials, while forming is to be used in steel, stainless steel and aluminium.



Through hole, blind hole

Taps have different designs. Depending on application (through or blind hole).

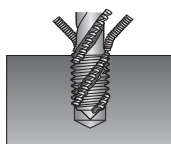


Hole size

Dimension of the hole differs between cutting and forming the thread.

Cutting tap

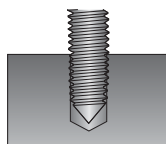
$$D = TD - PTH$$



Forming tap

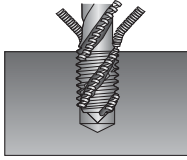
$$D = TD - PTH / 2$$

$$(D = D_{nom} - 0.0068 \times PTH \times 65)$$

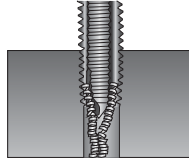


D = Hole diameter
TD = Major thread diameter
PTH = Thread pitch

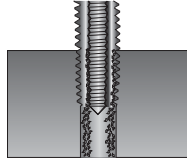
Taps - Choice of tap



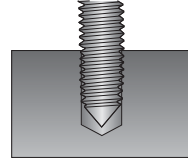
MTH



MTP



MTS



MF

1. Threadmaster™ Tap Helix flute

Available with 15°, 45° and 48° spiral for different materials. For blind holes.

2. Threadmaster™ Tap Helix point

For through holes. To be used under tough conditions.

3. Threadmaster™ Tap Straight flutes

For short chipping materials, i.e. cast iron. To be used for all types of holes and depths.

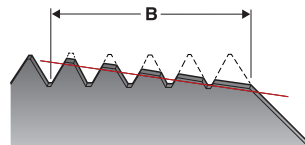
4. Threadmaster™ FormTap

Forms the thread. For steel, stainless steels and aluminium. Workpiece material need some ductility and also with a limit of tensile strength of 1200N/mm². For all types of holes and depths. Strength of thread is increased.

Taps – Entering chamfer

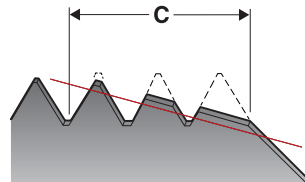
B-type

Length 3.5 – 5 threads
High torque
Best surface finish
Thin chip thickness
Low pressure at the chamfer
Long tool life
Most common for through holes (Helix point)



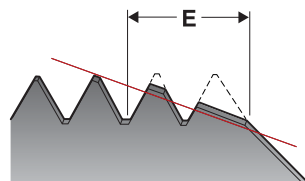
C-type

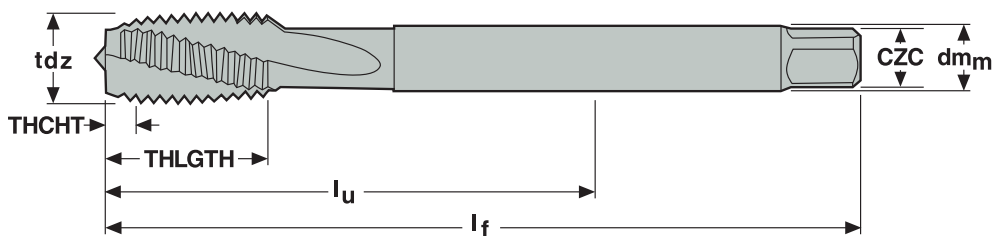
Length 2 - 3 threads
Medium torque
Good surface finish
Normal chip thickness
Normal pressure at the chamfer
Normal tool life
Most common design
Standard for blind holes
Most common for blind holes (Helix flute)



E-type

Length 1.5 – 2 threads
Low torque
Good surface finish
Thick chip thickness
High pressure at the chamfer
Shorter tool life
When limited space in the bottom of a hole





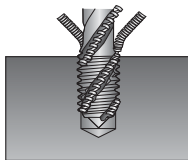
Definitions Seco Threadmaster™ Taps

BSG	= Standard
CZC	= Connection size code
dm_m	= Shank diameter
FHA	= Flute helix angle
l_f	= Functional length
l_u	= Usable length
tctr	= Thread tolerance class
tdz	= Thread diameter size
THCHT	= Thread chamfer type
THLGTH	= Thread length
uldr	= Usable length diameter ratio

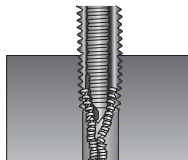
Code key – Taps

MTS	-	M10	X	1.5ISO	6H	-	B	C	-	V	0	01	-	A
1		2		3	4		5	6		7	8	9		10

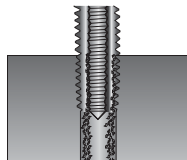
No. 1



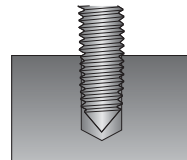
MTH



MTP



MTS



MF

1	Description MTH = Threadmaster™ Tap Helix flute MTP = Threadmaster™ Tap Helix point MTS = Threadmaster™ Tap Straight flute tap MF = Threadmaster™ FormTap
2	Thread type and size
3	Pitch and thread form
4	Tolerance (tctr) 2BX, 5HX, 6G, 6GX, 6H , 6HX, 2B, Normal
5	Operation, B = Blind hole, T = Through hole, X = Blind and Through hole
6	Entering Chamfer(THCHT) B = Entering chamfer 3,5 - 5 threads C = Entering chamfer 2 - 3 threads E = Entering chamfer 1,5 - 2 threads
7	V = versatile, P = Steel, M = Stainless Steel, K = Cast Iron, N = Non ferrous metals
8	Release No.= 0 (2014)
9	Tool type No. = 01, 02, 03, 04 etc
10	A = Through coolant

Troubleshooting

Oversized thread

Wrong tap for application

- Refer to application charts

Incorrect axial feed

- Ensure feed rate is controlled
- If possible, use tool holder for synchronized tapping

Wrong cutting speed

- Refer to recommendations

Wrong tolerance

- Choose tap with lower tolerance



Undersized thread

Tap worn out

- Replace tap

Tap drill hole too small

- Check drilling recommendations

Material closing after tapping

- Increase drill diameter

Wrong tolerance on tap

- Choose tap with higher tolerance



Rapid wear

Wrong type of tap for application

- Refer to tap choice

Incorrect or lack of lubricant

- Use appropriate emulsion or oil

Too high cutting speed

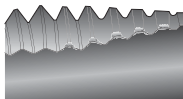
- Refer to recommendations

Work (surface) hardening in drilled hole

- Check drilling recommendations
- Drill worn out

Tap drill hole too small

- Check drilling recommendations



Built-up edge

Incorrect or lack of lubricant

- Use appropriate emulsion or oil

Tap worn out

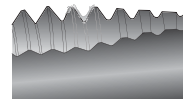
- Replace tap

Wrong cutting speed

- Refer to recommendations

Wrong type of tap for application

- Refer to tap choice



Chipping

Wrong tap for the application

- Check for tool selection

Incorrect or lack of lubricant

- Use appropriate emulsion or oil

Tap hitting bottom of hole

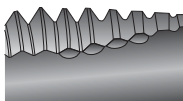
- Increase drill depth or reduce thread depth

Trapped chip

- Check tool selection

Surface hardening in drilled hole

- Check drilling recommendations



Breakage

Too high torque

- Use tap holder with torque settings

Tap worn out

- Replace tap

Incorrect or lack of lubricant

- Use appropriate emulsion or oil

Tap hitting bottom of hole

- Increase drill depth or reduce thread depth

Wrong cutting speed

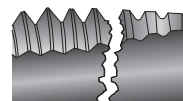
- Refer to recommendations

Birdnest" around tool

- Check tool selection

Tap drill hole too small

- Check drilling recommendations



Tool type	MTH-P001 30-48 HRC	MTH-P001-A 30-48 HRC	MTH-P002 30-48 HRC	MTH-P002-A 30-48 HRC	MTH-P003	MTH-P003-A	MTH-P004	MTH-P004-A	MTH-P011
Thread type	M	M	M	M	M	M	M	M	MF
tctr	6H	6H	6H	6H	6HX	6HX	6HX	6HX	6HX
uldr	1.5	1.5	1.5	1.5	3	3	3	3	3
THCHT	C	C	C	C	C	C	C	C	C
BSG	SECO-DIN	SECO-DIN	DIN376	DIN376	DIN371	DIN371	DIN376	DIN376	DIN374
Thread size	M3 - M10	M4 - M10	M12 - M20	M12 - M20	M1.6 - M10	M4 - M10	M5 - M30	M12 - M30	MF 4X0.50 - MF 30X2.00
FHA	15°	15°	15°	15°	48°	48°	48°	48°	48°
									
Coolant	No	Yes	No	Yes	No	Yes	No	Yes	No
Page	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	105-106

SMG									
	MTH- P001	MTH- P001	MTH- P002	MTH- P002	MTH- P003	MTH- P003	MTH- P004	MTH- P004	MTH- P011
P1	—	—	—	—	55	55	55	55	55
P2	—	—	—	—	55	55	55	55	55
P3	—	—	—	—	45	45	45	45	45
P4	—	—	—	—	40	40	40	40	40
P5	—	—	—	—	38	38	38	38	38
P6	—	—	—	—	43	43	43	43	43
P7	—	—	—	—	40	40	40	40	40
P8	—	—	—	—	38	38	38	38	38
P11	—	—	—	—	39	39	39	39	39
M1	—	—	—	—	—	—	—	—	—
M2	—	—	—	—	—	—	—	—	—
M3	—	—	—	—	—	—	—	—	—
M4	—	—	—	—	—	—	—	—	—
M5	—	—	—	—	—	—	—	—	—
K1	—	—	—	—	—	—	—	—	—
K2	—	—	—	—	—	—	—	—	—
K3	—	—	—	—	—	—	—	—	—
K4	—	—	—	—	—	—	—	—	—
K5	—	—	—	—	—	—	—	—	—
K6	—	—	—	—	—	—	—	—	—
K7	—	—	—	—	—	—	—	—	—
N1	—	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—	—
H3	9	9	9	9	—	—	—	—	—
H5	17	17	17	17	—	—	—	—	—
H7	9	9	9	9	—	—	—	—	—
H8	17	17	17	17	—	—	—	—	—

SMG = Seco Material Group

v_c = m/min

All cutting data are start values

Tool type	MTP-P001 30-48 HRC	MTP-P002 30-48 HRC	MTP-P003	MTP-P003-A	MTP-P004	MTP-P004-A	MTP-P011
Thread type	M	M	M	M	M	M	MF
tctr	6H	6H	5HX/6HX	6HX	6HX	6HX	6HX
uldr	2.5	2.5	3	3	3	3	3
THCHT	B	B	B	B	B	B	B
BSG	SECO-DIN	DIN376	DIN371	DIN371	DIN376	DIN376	DIN374
Thread size	M3 - M10	M12 - M20	M1 - M10	M4 - M10	M4 - M30	M12 - M30	MF 4X0.50 - MF 30X2.00
FHA							
							
Coolant	No	No	No	Yes	No	Yes	No
Page	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015

SMG							
	MTP- P001	MTP- P002	MTP- P003	MTP- P003	MTP- P004	MTP- P004	MTP- P011
P1	—	—	60	60	60	60	60
P2	—	—	60	60	60	60	60
P3	—	—	50	50	50	50	50
P4	—	—	45	45	45	45	45
P5	—	—	43	43	43	43	43
P6	—	—	48	48	48	48	48
P7	—	—	46	46	46	46	46
P8	—	—	43	43	43	43	43
P11	—	—	44	44	44	44	44
M1	—	—	—	—	—	—	—
M2	—	—	—	—	—	—	—
M3	—	—	—	—	—	—	—
M4	—	—	—	—	—	—	—
M5	—	—	—	—	—	—	—
K1	—	—	—	—	—	—	—
K2	—	—	—	—	—	—	—
K3	—	—	—	—	—	—	—
K4	—	—	—	—	—	—	—
K5	—	—	—	—	—	—	—
K6	—	—	—	—	—	—	—
K7	—	—	—	—	—	—	—
N1	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—
H3	9	9	—	—	—	—	—
H5	17	17	—	—	—	—	—
H7	9	9	—	—	—	—	—
H8	17	17	—	—	—	—	—

SMG = Seco Material Group

v_c = m/min

All cutting data are start values

Tool type	MTH-M003	MTH-M003-A	MTH-M004	MTH-M004-A	MTP-M003	MTP-M003-A	MTP-M004	MTP-M004-A
Thread type	M	M	M	M	M	M	M	M
tctr	6H	6H	6H	6H	5HX/6H	6H	6H	6H
uldr	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
THCHT	C	C	C	C	B	B	B	B
BSG	DIN371	DIN371	DIN376	DIN376	DIN371	DIN371	DIN376	DIN376
Thread size	M1.6 - M10	M4 - M10	M12 - M20	M12 - M20	M1 - M10	M4 - M10	M12 - M20	M12 - M24
FHA	48°	48°	48°	48°				
								
Coolant	No	Yes	No	Yes	No	Yes	No	Yes
Page	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015

SMG								
	MTH- M003	MTH- M003	MTH- M004	MTH- M004	MTP- M003	MTP- M003	MTP- M004	MTP- M004
P1	—	—	—	—	—	—	—	—
P2	—	—	—	—	—	—	—	—
P3	—	—	—	—	—	—	—	—
P4	—	—	—	—	—	—	—	—
P5	—	—	—	—	—	—	—	—
P6	—	—	—	—	—	—	—	—
P7	—	—	—	—	—	—	—	—
P8	—	—	—	—	—	—	—	—
P11	—	—	—	—	—	—	—	—
M1	12	12	12	12	12	12	12	12
M2	10	10	10	10	10	10	10	10
M3	8	8	8	8	8	8	8	8
M4	6	6	6	6	6	6	6	6
M5	5	5	5	5	5	5	5	5
K1	—	—	—	—	—	—	—	—
K2	—	—	—	—	—	—	—	—
K3	—	—	—	—	—	—	—	—
K4	—	—	—	—	—	—	—	—
K5	—	—	—	—	—	—	—	—
K6	—	—	—	—	—	—	—	—
K7	—	—	—	—	—	—	—	—
N1	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—
H3	—	—	—	—	—	—	—	—
H5	—	—	—	—	—	—	—	—
H7	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—

SMG = Seco Material Group

v_c = m/min

All cutting data are start values

Tool type	MTS-K001 New	MTS-K001-A	MTS-K002 New	MTS-K002-A	MTS-K011	MTS-K021	MTS-K031	MTS-K041
Thread type	M	M	M	M	MF	G	UNC	UNF
tctr	6HX	6HX	6HX	6HX	6HX	NORMAL	2BX	2BX
uldr	2	2.5	2	2.5	2 - 2.5	2	2	2
THCHT	C	C/E	C	C/E	C	C	C	C
BSG	DIN371	DIN371	DIN376	DIN376	DIN374	DIN5156	DIN2184-1	DIN2184-1
Thread size	M3 - M10	M4 - M10	M8 - M42	M12 - M42	MF 10X1.00 - MF 20X1.50	G 1/8-28 - G 1-11	UNC 1/4-20 - UNC 7/8-9	UNF 1/4-28 - UNF 7/8-14
FHA	0°	0°	0°	0°	0°	0°	0°	0°
								
Coolant	No	Yes	No	Yes	No	No	No	No
Page	107	See MN2015	108	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015

SMG								
	MTS- K001	MTS- K001	MTS- K002	MTS- K002	MTS- K011	MTS- K021	MTS- K031	MTS- K041
P1	—	—	—	—	—	—	—	—
P2	—	—	—	—	—	—	—	—
P3	—	—	—	—	—	—	—	—
P4	—	—	—	—	—	—	—	—
P5	—	—	—	—	—	—	—	—
P6	—	—	—	—	—	—	—	—
P7	—	—	—	—	—	—	—	—
P8	—	—	—	—	—	—	—	—
P11	—	—	—	—	—	—	—	—
M1	—	—	—	—	—	—	—	—
M2	—	—	—	—	—	—	—	—
M3	—	—	—	—	—	—	—	—
M4	—	—	—	—	—	—	—	—
M5	—	—	—	—	—	—	—	—
K1	36	36	36	36	36	36	36	36
K2	31	31	31	31	31	31	31	31
K3	26	26	26	26	26	26	26	26
K4	25	25	25	25	25	25	25	25
K5	15	15	15	15	15	15	15	15
K6	22	22	22	22	22	22	22	22
K7	19	19	19	19	19	19	19	19
N1	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—
H3	—	—	—	—	—	—	—	—
H5	—	—	—	—	—	—	—	—
H7	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—

SMG = Seco Material Group

v_c = m/min

All cutting data are start values

Tool type	MTH-N001	MTH-N002	MTP-N001	MTP-N001-A	MTP-N002	MTP-N002-A
Thread type	M	M	M	M	M	M
tctr	6H	6H	6H	6H	6H	6H
uldr	1.5	1.5	3	3	3	3
THCHT	C	C	B	B	B	B
BSG	DIN371	DIN376	DIN371	DIN371	DIN376	DIN376
Thread size	M3 - M10	M12 - M16	M3 - M10	M4 - M10	M12 - M16	M12 - M16
FHA	15°	15°				
						
Coolant	No	No	No	Yes	No	Yes
Page	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015

SMG						
	MTH- N001	MTH- N002	MTP- N001	MTP- N001	MTP- N002	MTP- N002
P1	—	—	—	—	—	—
P2	—	—	—	—	—	—
P3	—	—	—	—	—	—
P4	—	—	—	—	—	—
P5	—	—	—	—	—	—
P6	—	—	—	—	—	—
P7	—	—	—	—	—	—
P8	—	—	—	—	—	—
P11	—	—	—	—	—	—
M1	—	—	—	—	—	—
M2	—	—	—	—	—	—
M3	—	—	—	—	—	—
M4	—	—	—	—	—	—
M5	—	—	—	—	—	—
K1	—	—	—	—	—	—
K2	—	—	—	—	—	—
K3	—	—	—	—	—	—
K4	—	—	—	—	—	—
K5	—	—	—	—	—	—
K6	—	—	—	—	—	—
K7	—	—	—	—	—	—
N1	55	55	55	55	55	55
N2	35	35	35	35	35	35
N3	23	23	23	23	23	23
N11	31	31	31	31	31	31
H3	—	—	—	—	—	—
H5	—	—	—	—	—	—
H7	—	—	—	—	—	—
H8	—	—	—	—	—	—

SMG = Seco Material Group

v_c = m/min

All cutting data are start values

Tool type	MF-V053	MF-V054	MF-V055	MF-V056	MF-V057	MF-V058	MF-V059	MF-V060-A	MF-V063	MF-V063-A
Thread type	M	M	M	UNC	UNF	M	G	M	MF	MF
tctr	6HX	5HX/6HX	6HX	2BX	2BX	6GX	NORMAL-X	6HX	6HX	6HX
uldr	3	3	3	3	3	3	3	3	3	3
THCHT	E	C	C	C	C	C	C	C	C	C
BSG	DIN2174	DIN2174	DIN2174	DIN2184-1	DIN2184-1	DIN2174	DIN2189	DIN2174	DIN2174	DIN2174
Thread size	M3 - M10	M1 - M2.6	M3 - M48	UNC 4-40 - UNC 1-8	UNF 10-32 - UNF 1-12	M3 - M12	G 1/8-28 - G 5/8-14	M5 - M48	MF 5X0.50 - MF 16X1.50	MF 5X0.50 - MF 16X1.50
FHA										
										
Coolant	No	No	No	No	No	No	No	Yes	No	Yes
Page	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015

SMG										
	MF- V053	MF- V054	MF- V055	MF- V056	MF- V057	MF- V058	MF- V059	MF- V060	MF- V063	MF- V063
P1	65	65	65	65	65	65	65	65	65	65
P2	60	60	60	60	60	60	60	60	60	60
P3	55	55	55	55	55	55	55	55	55	55
P4	47	47	47	47	47	47	47	47	47	47
P5	45	45	45	45	45	45	45	45	45	45
P6	50	50	50	50	50	50	50	50	50	50
P7	48	48	48	48	48	48	48	48	48	48
P8	45	45	45	45	45	45	45	45	45	45
P11	46	46	46	46	46	46	46	46	46	46
M1	25	25	25	25	25	25	25	25	25	25
M2	20	20	20	20	20	20	20	20	20	20
M3	15	15	15	15	15	15	15	15	15	15
M4	11	11	11	11	11	11	11	11	11	11
M5	10	10	10	10	10	10	10	10	10	10
K1	—	—	—	—	—	—	—	—	—	—
K2	—	—	—	—	—	—	—	—	—	—
K3	—	—	—	—	—	—	—	—	—	—
K4	—	—	—	—	—	—	—	—	—	—
K5	—	—	—	—	—	—	—	—	—	—
K6	—	—	—	—	—	—	—	—	—	—
K7	—	—	—	—	—	—	—	—	—	—
N1	55	55	55	55	55	55	55	55	55	55
N2	35	35	35	35	35	35	35	35	35	35
N3	23	23	23	23	23	23	23	23	23	23
N11	31	31	31	31	31	31	31	31	31	31
H3	—	—	—	—	—	—	—	—	—	—
H5	—	—	—	—	—	—	—	—	—	—
H7	—	—	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—	—	—

SMG = Seco Material Group

v_c = m/min

All cutting data are start values

Tool type	MTH-V011	MTH-V015 New	MTH-V016 New	MTH-V025	MTH-V026	MTH-V028	MTH-V029	MTH-V030	MTH-V030-A
Thread type	MF	M	M	M	M	M	M	M	M
tctr	6HX	6H	6H	6H	6H	6G	6G	6H	6H
uldr	2	2	2	3	3	3	3	2.5	2.5
THCHT	C	C	C	C	C	C	C	C	C
BSG	DIN374	DIN371	DIN376	DIN371	DIN376	DIN371	DIN376	DIN371	DIN371
Thread size	MF 8X0.75 - MF 24X2.00	M3 - M10	M12 - M36	M3 - M10	M12 - M20	M3 - M10	M12 - M20	M2 - M10	M4 - M10
FHA	15°	15°	15°	45°	45°	45°	45°	45°	45°
									
Coolant	No	No	No	No	No	No	No	No	Yes
Page	See MN2015	109	110	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015

SMG									
	MTH- V011	MTH- V015	MTH- V016	MTH- V025	MTH- V026	MTH- V028	MTH- V029	MTH- V030	MTH- V030
P1	40	40	40	40	40	40	40	40	40
P2	39	39	39	39	39	39	39	39	39
P3	33	33	33	33	33	33	33	33	33
P4	29	29	29	29	29	29	29	29	29
P5	28	28	28	28	28	28	28	28	28
P6	31	31	31	31	31	31	31	31	31
P7	30	30	30	30	30	30	30	30	30
P8	28	28	28	28	28	28	28	28	28
P11	29	29	29	29	29	29	29	29	29
M1	9	9	9	9	9	9	9	9	9
M2	7	7	7	7	7	7	7	7	7
M3	5	5	5	5	5	5	5	5	5
M4	4	4	4	4	4	4	4	4	4
M5	3	3	3	3	3	3	3	3	3
K1	—	—	—	—	—	—	—	—	—
K2	—	—	—	—	—	—	—	—	—
K3	—	—	—	—	—	—	—	—	—
K4	—	—	—	—	—	—	—	—	—
K5	—	—	—	—	—	—	—	—	—
K6	—	—	—	—	—	—	—	—	—
K7	—	—	—	—	—	—	—	—	—
N1	37	37	37	37	37	37	37	37	37
N2	24	24	24	24	24	24	24	24	24
N3	16	16	16	16	16	16	16	16	16
N11	21	21	21	21	21	21	21	21	21
H3	—	—	—	—	—	—	—	—	—
H5	—	—	—	—	—	—	—	—	—
H7	—	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—	—

SMG = Seco Material Group

v_c = m/min

All cutting data are start values

Tool type	MTH-V033	MTH-V033-A	MTH-V038	MTH-V038-A	MTH-V040	MTH-V043	MTH-V045
Thread type	M	M	MF	MF	UNC	UNF	G
tctr	6H	6H	6H	6H	2B	2B	NORMAL
uldr	2.5	2.5	2.5	2.5	2.5	2.5	2.5
THCHT	C	C	C	C	C	C	C
BSG	DIN376	DIN376	DIN374	DIN374	DIN2184-1	DIN2184-1	DIN5156
Thread size	M6 - M64	M12 - M64	MF 4X0.50 - MF 30X2.00	MF 6X0.75 - MF 30X2.00	UNC 4-40 - UNC 5/8-11	UNF 8-36 - UNF 1-12	G 1/8-28 - G11/2-11
FHA	45°	45°	45°	45°	45°	45°	45°
							
Coolant	No	Yes	No	Yes	No	No	No
Page	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015	See MN2015

SMG							
	MTH- V033	MTH- V033	MTH- V038	MTH- V038	MTH- V040	MTH- V043	MTH- V045
P1	40	40	40	40	40	40	40
P2	39	39	39	39	39	39	39
P3	33	33	33	33	33	33	33
P4	29	29	29	29	29	29	29
P5	28	28	28	28	28	28	28
P6	31	31	31	31	31	31	31
P7	30	30	30	30	30	30	30
P8	28	28	28	28	28	28	28
P11	29	29	29	29	29	29	29
M1	9	9	9	9	9	9	9
M2	7	7	7	7	7	7	7
M3	5	5	5	5	5	5	5
M4	4	4	4	4	4	4	4
M5	3	3	3	3	3	3	3
K1	—	—	—	—	—	—	—
K2	—	—	—	—	—	—	—
K3	—	—	—	—	—	—	—
K4	—	—	—	—	—	—	—
K5	—	—	—	—	—	—	—
K6	—	—	—	—	—	—	—
K7	—	—	—	—	—	—	—
N1	37	37	37	37	37	37	37
N2	24	24	24	24	24	24	24
N3	16	16	16	16	16	16	16
N11	21	21	21	21	21	21	21
H3	—	—	—	—	—	—	—
H5	—	—	—	—	—	—	—
H7	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—

SMG = Seco Material Group

v_c = m/min

All cutting data are start values

Tool type	MTP-V001 New	MTP-V002 New	MTP-V005 New	MTP-V006 New	MTP-V007 New	MTP-V007-A	MTP-V008 New	MTP-V008-A
Thread type	M	M	M	M	M	M	M	M
tctr	6H	6H	6G	6G	6H	6H	6H	6H
uldr	3	3	2.5	2.5	2.5	2.5	2.5	2.5
THCHT	B	B	B	B	B	B	B	B
BSG	DIN371	DIN376	DIN371	DIN376	DIN371	DIN371	DIN376	DIN376
Thread size	M3 - M10	M12 - M20	M3 - M10	M12 - M20	M2 - M10	M4 - M10	M3 - M36	M12 - M36
FHA								
								
Coolant	No	No	No	No	No	Yes	No	Yes
Page	111	112	113	114	115	See MN2015	116	See MN2015

SMG								
	MTP- V001	MTP- V002	MTP- V005	MTP- V006	MTP- V007	MTP- V007	MTP- V008	MTP- V008
P1	40	40	40	40	40	40	40	40
P2	39	39	39	39	39	39	39	39
P3	33	33	33	33	33	33	33	33
P4	29	29	29	29	29	29	29	29
P5	28	28	28	28	28	28	28	28
P6	31	31	31	31	31	31	31	31
P7	30	30	30	30	30	30	30	30
P8	28	28	28	28	28	28	28	28
P11	29	29	29	29	29	29	29	29
M1	9	9	9	9	9	9	9	9
M2	7	7	7	7	7	7	7	7
M3	5	5	5	5	5	5	5	5
M4	4	4	4	4	4	4	4	4
M5	3	3	3	3	3	3	3	3
K1	—	—	—	—	—	—	—	—
K2	—	—	—	—	—	—	—	—
K3	—	—	—	—	—	—	—	—
K4	—	—	—	—	—	—	—	—
K5	—	—	—	—	—	—	—	—
K6	—	—	—	—	—	—	—	—
K7	—	—	—	—	—	—	—	—
N1	37	37	37	37	37	37	37	37
N2	24	24	24	24	24	24	24	24
N3	16	16	16	16	16	16	16	16
N11	21	21	21	21	21	21	21	21
H3	—	—	—	—	—	—	—	—
H5	—	—	—	—	—	—	—	—
H7	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—

SMG = Seco Material Group

v_c = m/min

All cutting data are start values

Tool type	MTP-V014 New	MTP-V014-A	MTP-V017 New	MTP-V020 New	MTP-V023 New
Thread type	MF	MF	UNC	UNF	G
tctr	6H	6H	2B	2B	NORMAL
uldr	2.5	2.5	2.5	2.5	2.5
THCHT	B	B	B	B	B
BSG	DIN374	DIN374	DIN2184-1	DIN2184-1	DIN5156
Thread size	MF 4X0.50 - MF 30X2.00	MF 6X0.75 - MF 24X2.00	UNC 4-40 - UNC 5/8-11	UNF 8-36 - UNF 5/8-18	G 1/8-28 - G 5/8-14
FHA					
					
Coolant	No	Yes	No	No	No
Page	117-118	See MN2015	119	120	121

SMG					
	MTP- V014	MTP- V014	MTP- V017	MTP- V020	MTP- V023
P1	40	40	40	40	40
P2	39	39	39	39	39
P3	33	33	33	33	33
P4	29	29	29	29	29
P5	28	28	28	28	28
P6	31	31	31	31	31
P7	30	30	30	30	30
P8	28	28	28	28	28
P11	29	29	29	29	29
M1	9	9	9	9	9
M2	7	7	7	7	7
M3	5	5	5	5	5
M4	4	4	4	4	4
M5	3	3	3	3	3
K1	—	—	—	—	—
K2	—	—	—	—	—
K3	—	—	—	—	—
K4	—	—	—	—	—
K5	—	—	—	—	—
K6	—	—	—	—	—
K7	—	—	—	—	—
N1	37	37	37	37	37
N2	24	24	24	24	24
N3	16	16	16	16	16
N11	21	21	21	21	21
H3	—	—	—	—	—
H5	—	—	—	—	—
H7	—	—	—	—	—
H8	—	—	—	—	—

SMG = Seco Material Group

v_c = m/min

All cutting data are start values

Tool type	MTH-V048	MTH-V050
Thread type	NPT	NPTF
tctr	NORMAL	NORMAL
uldr	1.5	1.5
THCHT	C	C
BSG	DIN/ANSI	DIN/ANSI
Thread size	NPT 1/16-27 NPT 1-11.5	NPTF 1/16-27 NPTF 3/4-14
FHA	15°	15°
		
Coolant	No	No
Page	See MN2015	See MN2015

SMG		
	MTH- V048	MTH- V050
P1	11	11
P2	11	11
P3	10	10
P4	8	8
P5	8	8
P6	9	9
P7	8	8
P8	8	8
P11	8	8
M1	9	9
M2	7	7
M3	5	5
M4	4	4
M5	3	3
K1	14	14
K2	12	12
K3	10	10
K4	10	10
K5	6	6
K6	9	9
K7	8	8
N1	23	23
N2	15	15
N3	10	10
N11	13	13
H3	—	—
H5	—	—
H7	—	—
H8	—	—

SMG = Seco Material Group

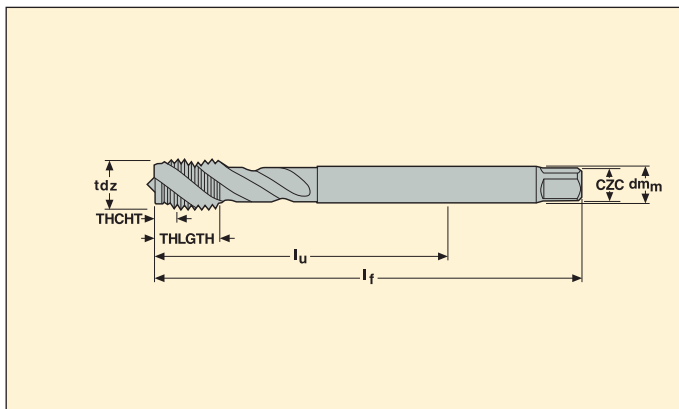
v_c = m/min

All cutting data are start values

MTH-P011



- For cutting data see page 94
- Coating: AlTiN-based
- Substrate: HSS-E-PM



Part No.	Thread tdz	Pitch		Dimensions in mm					No. of flutes	BSG	tctr	THCHT
		mm	TPI	d _m	l _u	THLGTH	l _f	CZC				
MTH- M4X0.50ISO6HX-BC-P011	MF4X0.5	0,50	–	2,80	43	7	63	2.80X2.10	3	DIN374	6HX	C
MTH- M5X0.50ISO6HX-BC-P011	MF5X0.5	0,50	–	3,50	49	8	70	3.50X2.70	3	DIN374	6HX	C
MTH- M6X0.75ISO6HX-BC-P011	MF6X0.75	0,75	–	4,50	59	10	80	4.50X3.40	3	DIN374	6HX	C
MTH- M8X0.75ISO6HX-BC-P011	MF8X0.75	0,75	–	6,00	57	13	80	6.00X4.90	3	DIN374	6HX	C
MTH- M8X1.00ISO6HX-BC-P011	MF8X1	1,00	–	6,00	67	13	90	6.00X4.90	3	DIN374	6HX	C
MTH- M10X0.75ISO6HX-BC-P011	MF10X0.75	0,75	–	7,00	67	13	90	7.00X5.50	3	DIN374	6HX	C
MTH- M10X1.00ISO6HX-BC-P011	MF10X1	1,00	–	7,00	67	13	90	7.00X5.50	3	DIN374	6HX	C
MTH- M10X1.25ISO6HX-BC-P011	MF10X1.25	1,25	–	7,00	77	15	100	7.00X5.50	3	DIN374	6HX	C
MTH- M12X1.00ISO6HX-BC-P011	MF12X1	1,00	–	9,00	73	15	100	9.00X7.00	3	DIN374	6HX	C
MTH- M12X1.25ISO6HX-BC-P011	MF12X1.25	1,25	–	9,00	73	15	100	9.00X7.00	3	DIN374	6HX	C
MTH- M12X1.50ISO6HX-BC-P011	MF12X1.5	1,50	–	9,00	73	15	100	9.00X7.00	3	DIN374	6HX	C
MTH- M14X1.00ISO6HX-BC-P011	MF14X1	1,00	–	11,00	71	15	100	11.00X9.00	3	DIN374	6HX	C
MTH- M14X1.25ISO6HX-BC-P011	MF14X1.25	1,25	–	11,00	71	15	100	11.00X9.00	3	DIN374	6HX	C
MTH- M14X1.50ISO6HX-BC-P011	MF14X1.5	1,50	–	11,00	71	15	100	11.00X9.00	3	DIN374	6HX	C
MTH- M16X1.00ISO6HX-BC-P011	MF16X1	1,00	–	12,00	58	15	100	12.00X9.00	4	DIN374	6HX	C
MTH- M16X1.50ISO6HX-BC-P011	MF16X1.5	1,50	–	12,00	58	15	100	12.00X9.00	4	DIN374	6HX	C
MTH- M18X1.00ISO6HX-BC-P011	MF18X1	1,00	–	14,00	66	17	110	14.00X11.00	4	DIN374	6HX	C
MTH- M18X1.50ISO6HX-BC-P011	MF18X1.5	1,50	–	14,00	66	17	110	14.00X11.00	4	DIN374	6HX	C
MTH- M20X1.00ISO6HX-BC-P011	MF20X1	1,00	–	16,00	80	17	125	16.00X12.00	4	DIN374	6HX	C
MTH- M20X1.50ISO6HX-BC-P011	MF20X1.5	1,50	–	16,00	80	17	125	16.00X12.00	4	DIN374	6HX	C
MTH- M22X1.50ISO6HX-BC-P011	MF22X1.5	1,50	–	18,00	78	17	125	18.00X14.50	4	DIN374	6HX	C
MTH- M24X1.50ISO6HX-BC-P011	MF24X1.5	1,50	–	18,00	93	20	140	18.00X14.50	4	DIN374	6HX	C
MTH- M24X2.00ISO6HX-BC-P011	MF24X2	2,00	–	18,00	93	20	140	18.00X14.50	4	DIN374	6HX	C

Please check availability in current price and stock-list.

A photograph of a standard double-flute drill bit, showing its two main cutting edges and the central flute for chip removal.

-
- Technical drawing of a drill bit showing dimensions:
- t_{dz} : Flute depth
 - THCHT: Flute lead
 - THLGTH: Flute length
 - l_u : Unfluted length
 - l_f : Total length
 - CZC dmm: Shank diameter

Please check availability in current price and stock-list.

-
- Technical drawing of a reamer with the following dimensions labeled:
- THCHT**: Total height of the cutting edge.
 - THLGTH**: Total length of the cutting edge.
 - l_u** : Length of the cutting edge.
 - l_f** : Total length of the reamer.
 - t_{dz}** : Thickness of the cutting edge.
 - CZC dmm**: Cutting edge diameter in millimeters.

Please check availability in current price and stock-list.

-
- Technical drawing of a twist drill bit showing various dimensions and labels:
- tdz**: Tip diameter
 - THCHT**: Tip height
 - THLGTH**: Tip length
 - l_u** : Unfluted length
 - l_f** : Fluted length
 - CZC**: Center chamfer
 - dmm**: Maximum diameter

Please check availability in current price and stock-list.

-
- Technical drawing of a twist drill bit showing dimensions:
- $THCHT$: Thread height
 - $THLGTH$: Thread length
 - l_u : Length of the cutting edge
 - l_f : Total length of the drill bit
 - t_{dz} : Thread pitch
 - CZC : Chamfer angle
 - d_m : Major diameter
 - d_m : Minor diameter



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-
- Technical drawing of a drill bit showing various dimensions:
- tdz : Flute depth
 - $THCHT$: Flute thickness
 - $THLGTH$: Flute length
 - l_u : Unfluted length
 - l_f : Total length
 - CZC : Shank diameter
 - dm : Drill diameter

Please check availability in current price and stock-list.

A long, thin, cylindrical object, possibly a pen or a stylus, with a gold-colored tip and a silver-colored body. The object is oriented diagonally from the bottom-left towards the top-right. The gold-colored tip is on the left, and the silver-colored body extends to the right. The object has a smooth, metallic finish.

-

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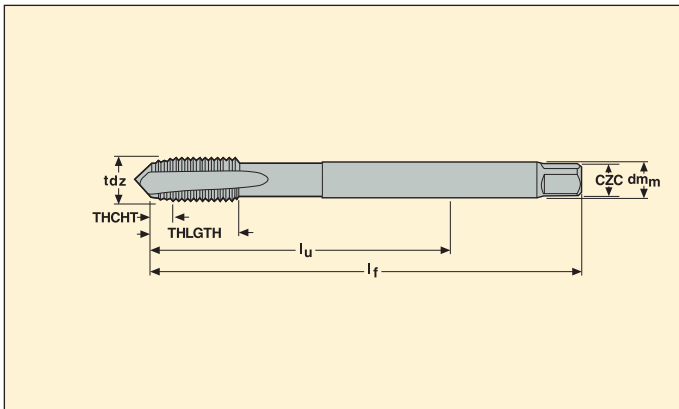
-
- Technical drawing of a double-flute drill bit. The drawing shows the bit's profile with various dimensions labeled:
- tdz**: Tip diameter at the cutting edge.
 - THCHT**: Thickness of the chip at the cutting edge.
 - THLGTH**: Thickness of the chip at the cutting edge.
 - l_u** : Length of the cutting edge.
 - l_f** : Total length of the drill bit.
 - CZC dmm**: Diameter of the cutting edge at the end of the bit.

Please check availability in current price and stock-list.

-
- Technical drawing of a twist drill bit showing dimensions:
- t_{dz} : Flute length
 - THCHT: Chisel edge length
 - THLGTH: Total length
 - l_u : Unfluted length
 - l_f : Fluted length
 - C_{ZC} : Chisel angle
 - d_{mm} : Diameter

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-
- Technical drawing of a twist drill bit showing dimensions and labels:
- tdz**: Tip diameter
 - THCHT**: Tip chamfer height
 - THLGTH**: Tip length
 - l_u** : Unfluted length
 - l_f** : Fluted length
 - CZC**: Chisel edge angle
 - dmm**: Major diameter

Please check availability in current price and stock-list.

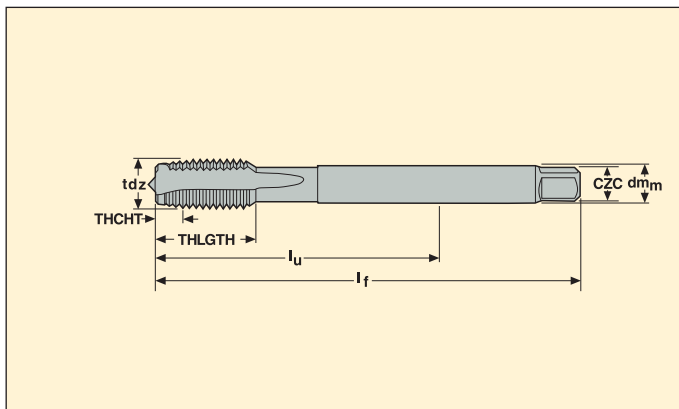
-
- Technical drawing of a reamer showing dimensions: t_{dz} (flute depth), THCHT (throat height), THLGTH (throat length), l_u (throat length), l_f (flute length), C_Z (flute angle), and d_m (major diameter).

Please check availability in current price and stock-list.

MTP-V014



- For cutting data see page 103
- Coating: TiN
- Substrate: HSS-PM ≤ M16, HSS-E > M16



Part No.	Thread tdz	Pitch		Dimensions in mm					No. of flutes	BSG	tctr	THCHT
		mm	TPI	dm _m	l _u	THLGTH	l _f	CZC				
MTP- M4X0.50ISO6H-TB-V014	MF 4x0.5	0,50	–	2,80	43	11,9	63	2.80X2.10	3	DIN374	6H	B
MTP- M5X0.50ISO6H-TB-V014	MF 5x0.5	0,50	–	3,50	49	13,2	70	3.50X2.70	3	DIN374	6H	B
MTP- M6X0.75ISO6H-TB-V014	MF 6x0.75	0,75	–	4,50	59	15,1	80	4.50X3.40	3	DIN374	6H	B
MTP- M8X0.75ISO6H-TB-V014	MF 8x0.75	0,75	–	6,00	57	14,9	80	6.00X4.90	3	DIN374	6H	B
MTP- M8X1.00ISO6H-TB-V014	MF 8x1.0	1,00	–	6,00	67	18	90	6.00X4.90	3	DIN374	6H	B
MTP- M9X1.00ISO6H-TB-V014	MF9X1	1,00	–	7,00	67	17	90	7.00X5.50	3	DIN374	6H	B
MTP- M10X0.75ISO6H-TB-V014	MF 10x0.75	0,75	–	7,00	67	17,6	90	7.00X5.50	3	DIN374	6H	B
MTP- M10X1.00ISO6H-TB-V014	MF 10x1.0	1,00	–	7,00	67	17,6	90	7.00X5.50	3	DIN374	6H	B
MTP- M10X1.25ISO6H-TB-V014	MF 10x1.25	1,25	–	7,00	77	19,8	100	7.00X5.50	3	DIN374	6H	B
MTP- M11X1.00ISO6H-TB-V014	MF11X1	1,00	–	8,00	63	18	90	8.00X6.20	3	DIN374	6H	B
MTP- M11X1.25ISO6H-TB-V014	MF11X1.25	1,25	–	8,00	63	22	90	8.00X6.20	3	DIN374	6H	B
MTP- M12X1.00ISO6H-TB-V014	MF 12x1.0	1,00	–	9,00	73	21	100	9.00X7.00	3	DIN374	6H	B
MTP- M12X1.25ISO6H-TB-V014	MF 12x1.25	1,25	–	9,00	73	21	100	9.00X7.00	3	DIN374	6H	B
MTP- M12X1.50ISO6H-TB-V014	MF 12x1.5	1,50	–	9,00	73	21	100	9.00X7.00	3	DIN374	6H	B
MTP- M14X1.00ISO6H-TB-V014	MF 14x1.0	1,00	–	11,00	71	21	100	11.00X9.00	3	DIN374	6H	B
MTP- M14X1.25ISO6H-TB-V014	MF 14x1.25	1,25	–	11,00	71	21	100	11.00X9.00	3	DIN374	6H	B
MTP- M14X1.50ISO6H-TB-V014	MF 14x1.5	1,50	–	11,00	71	21	100	11.00X9.00	3	DIN374	6H	B
MTP- M16X1.00ISO6H-TB-V014	MF 16x1.0	1,00	–	12,00	58	21	100	12.00X9.00	3	DIN374	6H	B
MTP- M16X1.50ISO6H-TB-V014	MF 16x1.5	1,50	–	12,00	58	21	100	12.00X9.00	3	DIN374	6H	B
MTP- M18X1.00ISO6H-TB-V014	MF 18x1.0	1,00	–	14,00	66	24	110	14.00X11.00	4	DIN374	6H	B
MTP- M18X1.50ISO6H-TB-V014	MF 18x1.5	1,50	–	14,00	66	24	110	14.00X11.00	4	DIN374	6H	B
MTP- M20X1.00ISO6H-TB-V014	MF 20x1.0	1,00	–	16,00	80	24	125	16.00X12.00	4	DIN374	6H	B
MTP- M20X1.50ISO6H-TB-V014	MF 20x1.5	1,50	–	16,00	80	24	125	16.00X12.00	4	DIN374	6H	B

Please check availability in current price and stock-list.

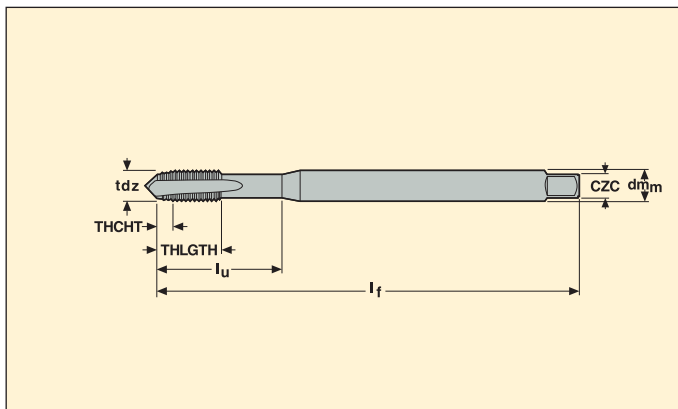
-
- Technical drawing of a reamer showing dimensions:
- tdz : Flute depth
 - $THCHT$: Flute height
 - $THLGTH$: Flute length
 - I_u : Flute length (unfluted section)
 - I_f : Total length
 - CZC : Chamfer
 - dm : Diameter

Please check availability in current price and stock-list.

MTP-V017



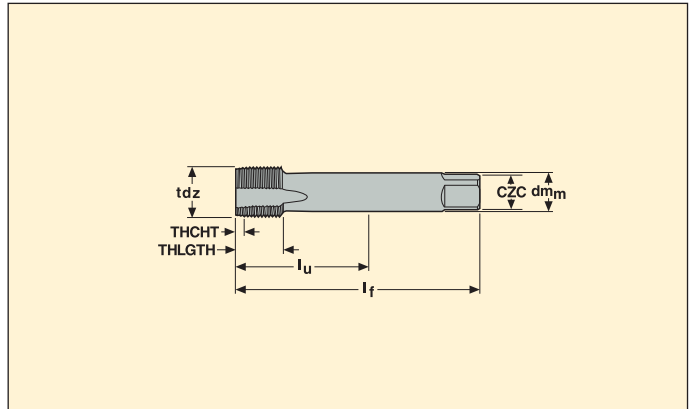
- For cutting data see page 103
- Coating: TiN
- Substrate: HSS-PM

[illegible]

Please check availability in current price and stock-list.

-
- Technical drawing of a turning tool (turning tool) showing dimensions:
- tdz : Depth of the cutting edge.
 - $THCHT$: Thickness of the cutting edge.
 - $THLGTH$: Length of the cutting edge.
 - I_u : Length of the tool holder.
 - I_f : Total length of the tool.
 - CZC : Diameter of the tool holder.
 - dm : Diameter of the workpiece.

Please check availability in current price and stock-list.



Taper-Face (TF)

The new Taper-Face (TF) tooling range allows Seco to completely equip machine-tools with Taper-Face steep tapers BT TF & Ansi TF. For less frequent Din TF, the range remains with only adapters to Seco-Capto™.

Until now, Seco only had Taper-Face to Seco-Capto™ tooling.

The Taper-Face spindle system :

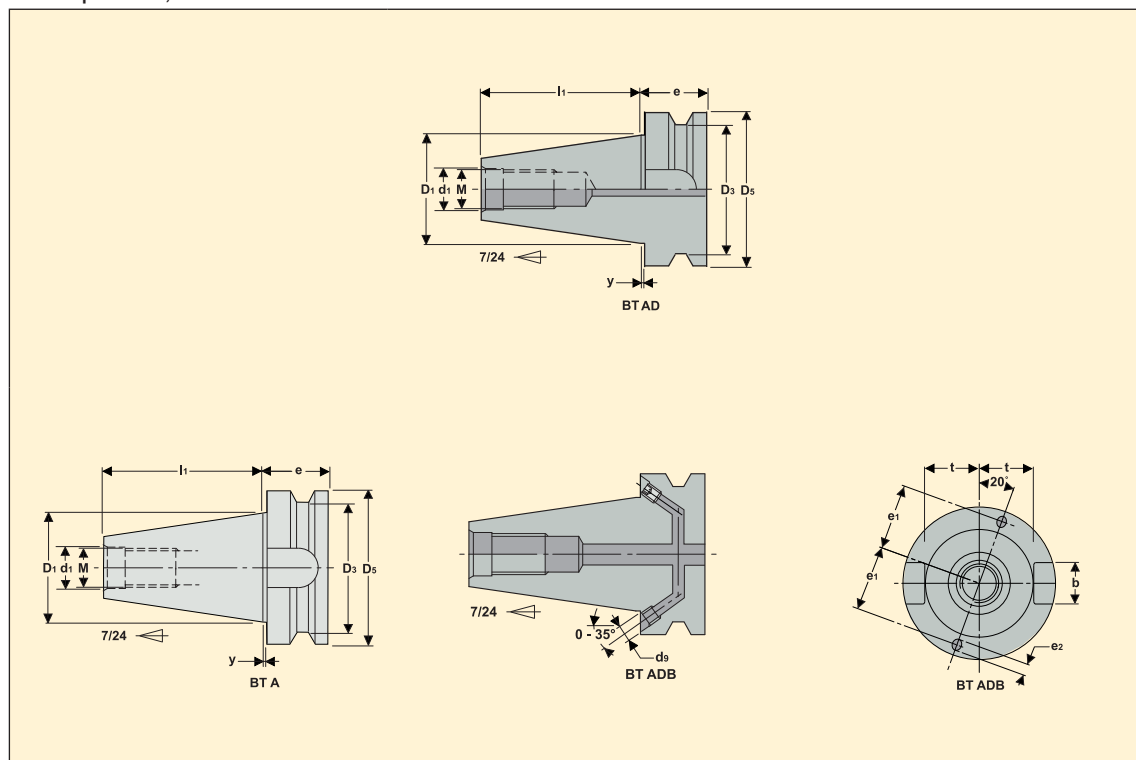
- Taper-Face tooling used on Taper-Face spindles achieve additional contact between spindle's face and holder's flange (vs. face/flange clearance with conventional steep taper fittings).
- How it is obtained:
 - TF Tooling : longer (+half clearance) and high precision flange dimensions and geometry.
 - TF Spindles : longer (+half clearance) and high precise face dimensions and geometry.
 - Higher pulling forces (compared to classic spindles) achieve flange contact with pressure, complementary to the taper fitting.

Advantages:

- Higher rigidity particularly profitable to long tooling and machining in difficult materials.
- Higher run-out precision and axial (length) repeatability.
- Taper-Face tooling can be used on conventional steep taper spindles but loosing the face contact advantages.



BT for Taper-Face *, dimensions



Machine side catalogue designation	Machine side Part No.	Through coolant Form	Dimensions in mm												
			D_1	D_3	D_5^{**}	l_1	M	d_3	e_1	e_{2max}	e	d_1	t	b	y
BT TF30 AD	E4002...	A/AD	31,75	38	46	48,4	M12	—	—	—	22	12,5	16,3	16,1	1,0
BT TF40 ADB	E3214...	A/AD/B	44,45	53	63	65,4	M16	4	27	5	27	17,0	22,5	16,1	1,0
BT TF50 ADB	E3216...	A/AD/B	69,85	85	100	101,8	M24	6	42	7	38	25,0	35,4	25,7	1,5

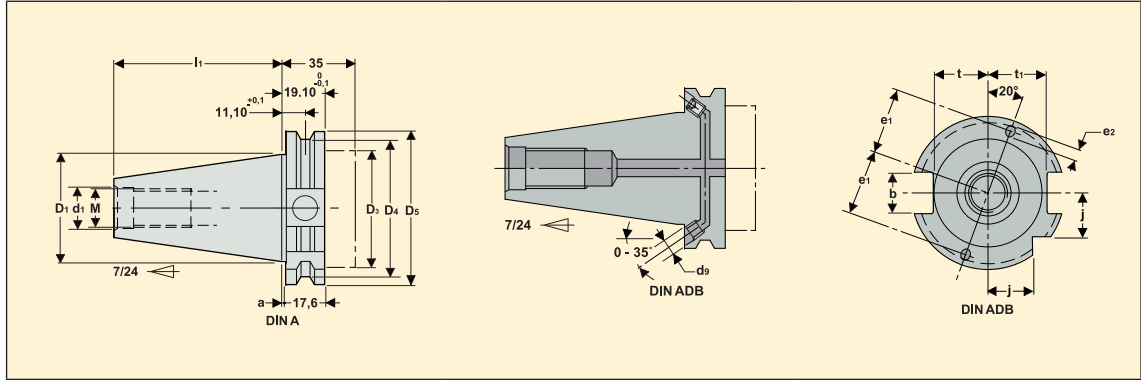
The B through coolant design of ADB holders is made according to DIN 69871 Form B.

ADB type holders have two removable sealing plugs in the flange, in order to realise all through coolant types A, AD, or B. Sealing plugs are available as spare parts.

** EPB BT holders with a front end diameter in excess of diameter D_5 , are produced with the following clearance diameters: BT40 = $\varnothing$ 62 mm max x 8 mm; BT50 = $\varnothing$ 98 mm max x 12 mm. This is compatible with the BT JIS norm which permits free dimensions on workpiece side.

* Taper-Face (TF) holders BT are conform to the JIS B 6339/BT and ISO 7388-2 norm, except that they have a larger flange towards machine side, with tight tolerances: They achieve taper and face contacts on machine spindles with Taper-Face dimensions. They are also usable on standard spindles, however a gap remains between spindle and flange faces.

DIN for Taper-Face*, dimensions



Machine side catalogue designation	Machine side Part No.	Through coolant Form	Dimensions in mm														
			D ₁	D ₃	D ₄	D ₅ **	l ₁ ^{-0,2/0}	M	d ₁ ^{H7}	d ₉	e ₁	e ₂ max	t	t ₁	b	j	a
DIN TF40 ADB	E3269...	A/AD/B	44,45	50 max	56,25	63,55	68,40	M16	17,7	4	27	5	22,8	25,0	16,1	18,5	1,0
DIN TF50 ADB	E3271...	A/AD/B	69,85	80 max	91,25	97,50	101,75	M24	25,0	6	42	7	35,5	37,7	25,7	30,0	1,5

The B through coolant design of ADB holders is made according to DIN 69871 Form B.

ADB type holders have two removable sealing plugs in the flange, in order to realise all through coolant types A, AD, or B. Sealing plugs are available as spare parts.

** EPB DIN holders with a front end diameter in excess of diameter D₅, are produced with the following clearance diameters: DIN40 = Ø 62 mm max x 8 mm; DIN50 = Ø 98 mm max x 12 mm. This is compatible with the DIN norm which permits free dimensions on workpiece side.

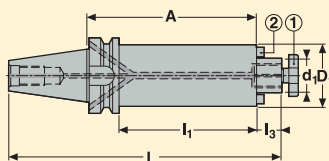
* Taper-Face (TF) holders DIN are conform to the DIN 69871/ NF-E 62 540 and ISO 7388-1 norm, except that they have a larger flange towards machine side, with tight tolerances: They achieve taper and face contacts on machine spindles with Taper-Face dimensions. They are also usable on standard spindles, however a gap remains between spindle and flange faces.

EPB 5555 – Steadyline®, vibration damping shell mill holders

BT Taper-Face -ADB



- With dynamic damping, ready to use
- Direct run-out 5 µm maximum
- With coolant supply channels through the spigot



Spare Parts:
1 = Bolt*
2 = Tenon/screw

Machine side	Workpiece side	Part No.	Dimensions in mm					Max. RPM	Balancing	KG
			A	D ₁	L	I ₁	I ₃			
BT TF40 ADB										
	22	E3214555522210	210	48	294,4	183	19	8000	2	3,80
	27	E3214555527260	260	60	346,4	233	21	6000	2	6,90
BT TF50 ADB										
	32	E3216555532330	330	78	455,8	292	24	4000	2	15,30
	40	E3216555540350	350	89	478,8	312	27	3100	2	20,70

d₁ 40, includes 4 threaded holes on the bearing face according to DN 6357

Accessories

For d ₁	Bolt, through coolant	Spanner
22	5802210L	5812210
27	5802712L	5812712
32	5803216L	5813216
40	5804020L	5814020

Spare Parts*

For d ₁	Bolt	Screw	Tenon
22	5802210	950D0416	16C2101111
27	5802712	950D0516	16C2121214A
32	5803216	950D0516	16C2141421A
40	5804020	950D0616	16C2161621A

Please check availability in current price and stock-list

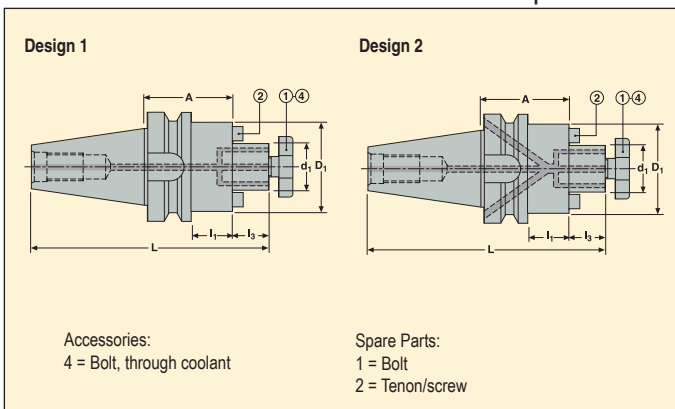
* These centre bolts are similar to the original delivered ones: check if lengths L are suitable for the milling cutters used, therefore see instructions in catalogue's Guide pages or in the Operating instructions sheet delivered with the holders

EPB 5525 – Shell mill holders, with through coolant channels

BT Taper-Face -AD/ADB



- Direct run-out 5 µm maximum
- With coolant supply channels through the spigot



Machine side	Workpiece side	Part No.	Dimensions in mm					Design	Balancing	
Taper	d ₁ mm		A	D ₁	L	I ₁	I ₃			
BT TF30 AD	16	E400255251640	40	38	105,4	18	17	1	2	0,60
	22	E400255252240	40	48	107,4	18	19	1	2	0,70
	27	E400255252740	40	60	109,4	18	21	1	2	0,90
	32	E400255253245	45	78	117,4	23	24	1	2	1,40
BT TF40 ADB	16	E321455251650	50	38	132,4	23	17	2	2	1,20
	22	E321455252245	45	48	129,4	28	19	2	2	1,30
	27	E321455252745	45	60	131,4	18	21	2	2	1,50
	32	E321455253250	50	78	139,4	23	24	2	2	1,90
	40	E321455254050	50	89	142,4	23	27	2	2	2,20
BT TF50 ADB	22	E321655252255	55	48	175,8	17	19	2	2	4,00
	27	E321655252755	55	60	177,8	17	21	2	2	4,10
	32	E321655253255	55	78	180,8	17	24	2	2	4,40
	40	E321655254055	55	89	183,8	17	27	2	2	4,60

d₁ 40, includes 4 threaded holes on the bearing face according to DN 6357

Accessories

For d ₁	Bolt, through coolant	Spanner
16	5801608L	5811608
22	5802210L	5812210
27	5802712L	5812712
32	5803216L	5813216
40	5804020L	5814020

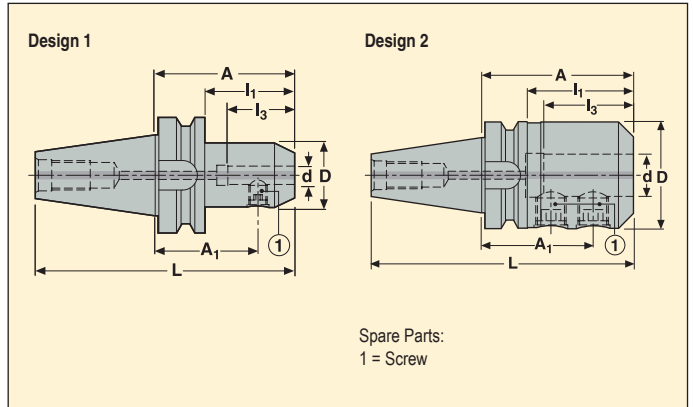
Spare Parts

For d ₁	Bolt	Screw	Tenon
16	5801608	950D0312	16C10810164
22	5802210	950D0416	16C11012206
27	5802712	951D0512	16C11214243
32	5803216	951D0516	16C2141421
40	5804020	951D0616	16C2161621

Please check availability in current price and stock-list



- Direct run-out 3 µm maximum
- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible)



Machine side	Workpiece side	Part No.	Dimensions in mm						Design	Balancing	
			A	D	L	I ₁	I ₃	A ₁			
BT TF30 AD	d mm										
	6	E40025840665	65	25	113,4	43	27	47	1	2	0,60
	8	E40025840865	65	28	113,4	43	30	47	1	2	0,60
	10	E40025841065	65	35	113,4	43	39	45	1	2	0,70
	12	E40025841265	65	42	113,4	43	43	42,5	1	2	0,80
	16	E40025841660	60	48	108,4	38	46	36,5	1	2	0,80
	20	E40025842065	66	52	113,4	43	48	40,5	1	2	0,90
	25	E40025842590	90	63	138,4	68	54	66,5	2	2	1,60
	32	E40025843295	95	72	143,4	73	58	71,5	2	2	2,10

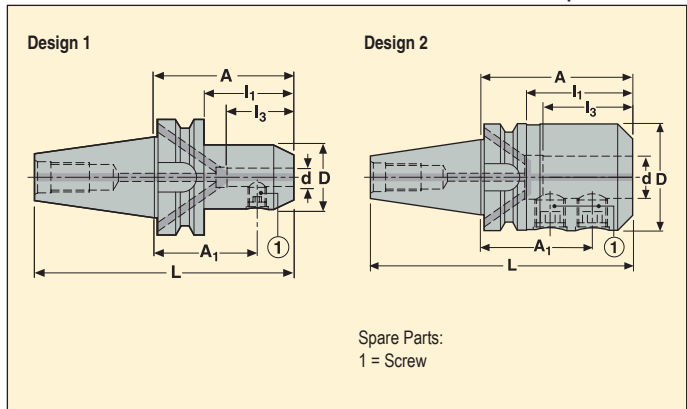
Spare Parts

For d	Locking screw
6	951C0610
8	951C0810
10	951C1012
12	951C1216
16	951C1416
20	951C1616
25	951C1820
32	951C1820

Please check availability in current price and stock-list



- Direct run-out 3 µm maximum
- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible)



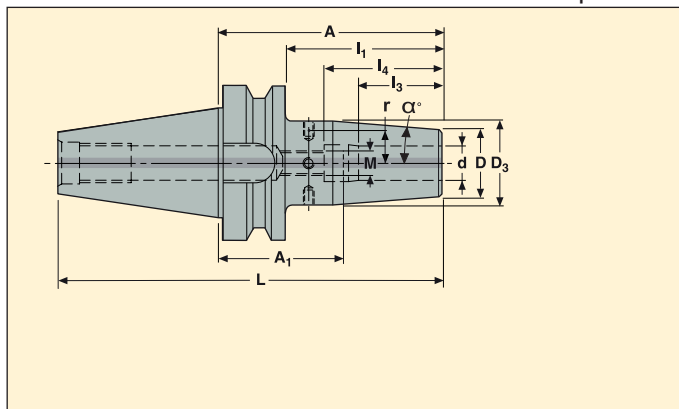
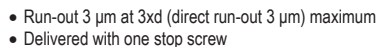
Machine side	Workpiece side	Part No.	Dimensions in mm						Design	Balancing	
			A	D	L	I ₁	I ₃	A ₁			
BT TF40 ADB											
	16	E32145841665	65	48	130,4	38	46	41,5	1	2	1,40
	20	E32145842065	65	52	130,4	38	48	40,5	1	2	1,50
	25	E32145842590	90	63	155,4	63	54	66,5	2	2	2,20
	32	E321458432100	100	72	165,4	73	58	76,5	2	2	2,70
BT TF50 ADB	40	E321458440110	110	80	175,4	75	68	80,5	2	2	3,20
	25	E321658425100	100	63	201,8	62	54	76,5	2	2	4,90
	32	E321658432105	105	72	206,8	67	58	81,5	2	2	5,30
	40	E321658440115	115	80	216,8	77	67	88,5	2	2	5,80
	50	E321658450130	130	100	231,8	92	78	95,5	2	2	7,60

Spare Parts

For d	Balls	Locking screw	Plug
16 BT TF40	901B04	951C1416	950A0406
20 BT TF40	901B04	951C1616	950A0406
25 BT TF40	–	951C1820	950A0406
32-40 BT TF40	–	951C2020	950A0406
25 BT TF50	–	951C1820	950A0606
32-40 TF50	–	951C2020	950A0606
50 TF50	–	951C2425	950A0606

Please check availability in current price and stock-list

BT Taper-Face -AD

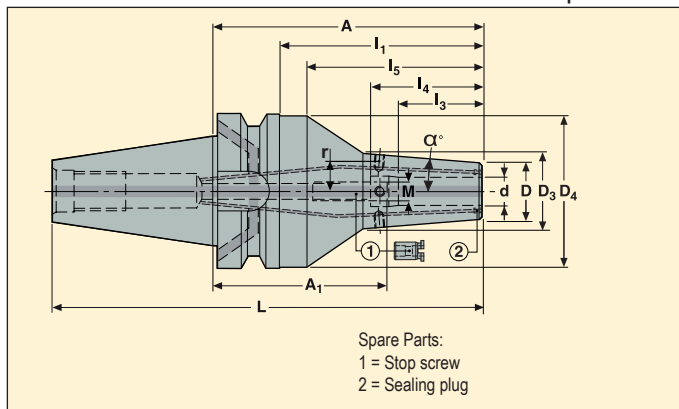


For Shrinkfit extensions, see Additional equipment in MN 2015 Tooling Systems catalogue

Spare Parts

Please check availability in current price and stock-list
For stop screw setting adapters, see Shrinkfit devices in MN 2015 Tooling Systems catalogue

BT Taper-Face -ADB



- Spare Parts:
1 = Stop screw
2 = Sealing plug

[illegible]

Accessories

Spare Parts

For d	Balancing screws	For d	Sealing plugs	Stop screw
				
12	90ZQ01	12	90AI03	19BDR10165
16	90ZQ01	16	90AI03	19BDR12165
20-32	90ZQ01	20-32	90AI04	19BDR16165

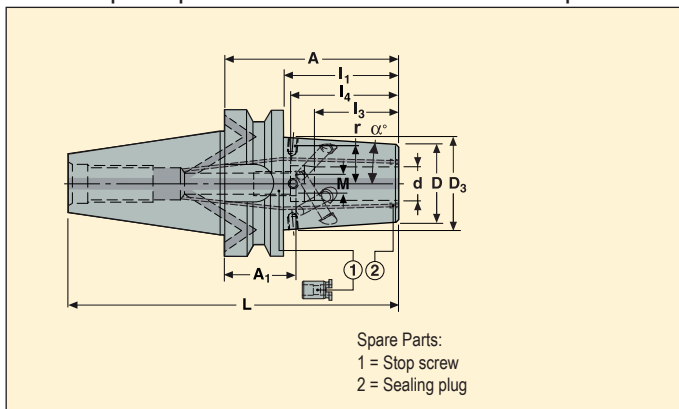
For stop screw setting adapters, see Shrinkfit devices in MN 2015 Tooling Systems catalogue

EPB 5600P Safe-Lock™ – Shrinkfit holders, reinforced and with tool pull-out protection

BT Taper-Face -ADB



- With Safe-Lock™ tool pull-out protection system
- Reinforced design of EPB 5600
- Run-out 3 µm maximum at 3xd
- With coolant supply channels towards the tool (plugged)



Machine side	Workpiece side	Part No.	Dimensions in mm								M	α°	r	Balancing	KG
			A*	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max					
BT TF40 ADB	12	E321456001270P	70	27	33,8	135,4	43	34	47,5	24-32,5	M10x1	4,5	13,5	1	1,20
	16	E321456001675P	75	33	40,6	140,4	48	39	50,5	26-34	M12x1	4,5	17,0	1	1,30
	20	E321456002075P	75	44	51,6	140,4	48	41	52,5	24-32	M16x1	4,5	21,5	1	1,60
	25	E321456002585P	85	48	59,1	150,4	58	47	58,5	28-36	M16x1	4,5	25,0	1	1,70
BT TF50 ADB	12	E3216560012100P	100	27	36,8	201,8	62	34	47,5	54-62,5	M10x1	4,5	13,5	1	4,10
	16	E3216560016100P	100	33	42,8	201,8	62	39	50,5	51-59	M12x1	4,5	17,0	1	4,20
	20	E3216560020100P	100	44	53,8	201,8	62	41	52,5	49-57	M16x1	4,5	21,5	1	4,50
	25	E3216560025100P	100	48	57,8	201,8	62	47	58,5	43-51	M16x1	4,5	25,0	1	4,50
	32	E3216560032105P	105	48	58,5	206,8	67	51	62,5	44-54	M16x1	4,5	25,0	1	4,50

* A = 70 or 75: Extra-short holders requiring a dedicated Easyshrink® cooling contact bush type "5600 extra short", see Shrinkfit devices in MN 2015 Tooling Systems catalogue

Accessories

For d	Balancing screws
12	90ZQ01
16	90ZQ01
20-32	90ZQ01

Spare Parts

For d	Sealing plugs	Stop screw
12	90AI03	—
16	90AI03	—
20-32	90AI04	19BDR16165

Please check availability in current price and stock-list

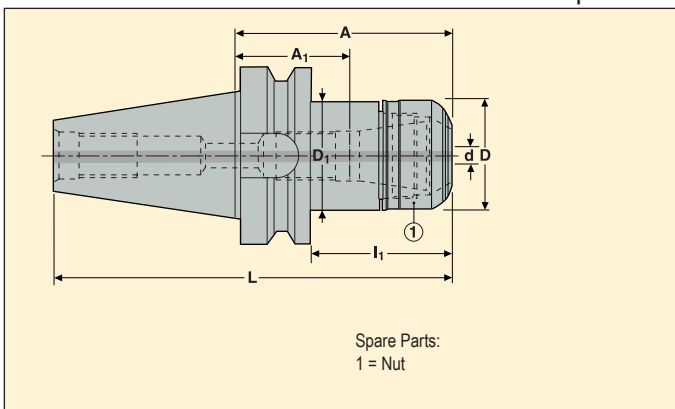
(-) For d 12 and 16 mm, stop screw not removable/replaceable by the user, please request a repair process

EPB 5672 – High precision collet chucks

BT Taper-Face -AD



- Run-out 3 µm maximum at 3xd
- High transmittable torque
- High RPM suitable



Machine side Taper	Workpiece side Capacity d mm	Part No.	Chuck & Collet Size	Dimensions in mm						Balancing	
				A	D	D ₁	L	I ₁	A ₁ min-max*		
BT TF30 AD	1-7	E400256721150	HP 11	50	16	16	98,4	28	6-32	1	0,50
	1-10	E400256721660	HP 16	60	30	30	108,4	38	15-30	1	0,60
	2-16	E400256722570	HP 25	70	40	40	118,4	48	16-32	1	0,70

For ER HP collets type 5672, see Additional equipment in MN 2015 Tooling Systems catalogue

* A₁ setting length onto stop screw when possible, or total available setting length for chucks without thread for stop end screw

Accessories**

For size	Socket	Spanner	Torque key
HP 11	03EF567211	03B567211	03DYD010100
HP 16	03EF567216	03B567216	03DYD010100
HP 25	03EF567225	03B567225	03DYD020200

Spare Parts

For size	Nut
HP 11	08B567211
HP 16	08B567216
HP 25	08B567225

Please check availability in current price and stock-list

** When using a stop screw, its tapered contact onto the tool shank can increase the tool run-out defect

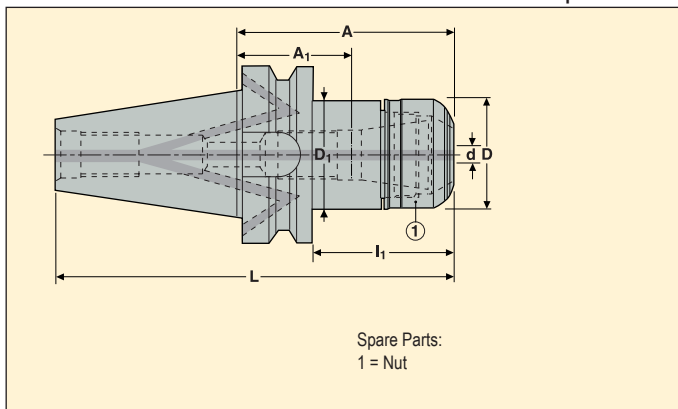
For tightening torques, see Operating instructions delivered with the holder or in MN 2015 Tooling Systems catalogue

EPB 5672 – High precision collet chucks

BT Taper-Face -ADB



- Run-out 3 µm maximum at 3xd
- High transmittable torque
- High RPM suitable



Machine side	Workpiece side	Part No.	Chuck & Collet Size	Dimensions in mm						Balancing	KG
				A	D	D ₁	L	I ₁	A ₁ min-max*		
BT TF40 ADB	1-10	E321456721670	HP 16	70	30	30	135,4	43	25-40	1	1,10
	1-10	E3214567216160	HP 16	160	30	30	225,4	133	115-130	1	1,60
	2-16	E321456722570	HP 25	70	40	40	135,4	43	16-32	1	1,20
	2-16	E3214567225160	HP 25	160	40	40	225,4	133	106-122	1	2,00
BT TF50 ADB	1-10	E3216567216100	HP 16	100	30	30	165,4	62	55-70	1	4,00
	1-10	E3216567216160	HP 16	160	30	30	225,4	122	115-130	1	4,20
	2-20	E3216567232100	HP 32	100	50	50	201,8	62	36-52	1	4,10
	2-20	E3216567232160	HP 32	160	50	50	225,4	122	96-112	1	5,10

For ER HP collets type 5672, see Additional equipment in MN 2015 Tooling Systems catalogue

* A₁ setting length onto stop screw when possible, or total available setting length for chucks without thread for stop end screw

Accessories**

For size	Socket	Spanner	Stop screw	Torque key
HP 16	03EF567216	03B567216	19B58711	03DYD010100
HP 25	03EF567225	03B567225	19B58718	03DYD020200
HP 32	03EF567232	03B567232	19B58722	03DYD020200

Spare Parts

For size	Nut
HP 16	08B567216
HP 25	08B567225
HP 32	08B567232

Please check availability in current price and stock-list

** When using a stop screw, its tapered contact onto the tool shank can increase the tool run-out defect

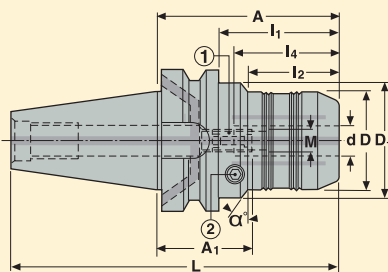
For tightening torques, see Operating instructions delivered with the holder or in MN 2015 Tooling Systems catalogue

EPB 5835 – Hydraulic chucks, strong

BT Taper-Face-ADB



- Run-out 4 µm maximum at 3xd



Accessories:
2 = Key

Spare Parts:
1 = Stop screw

Machine side	Workpiece side	Part No.	Dimensions in mm							M mm	α°	Balancing	
			A	D	L	I ₁	I ₂	I ₄	A ₁ min-max				
BT TF40 ADB	20	E321458352085	85	62,5	150,4	58	–	52	33-43	M10	–	1	2,20
	32	E321658353290	90	80	191,8	52	–	63	27-37	M10	–	1	5,30
BT TF50 ADB													

For reduction sleeves and control gauges, see Additional equipment in MN 2015 Tooling Systems catalogue

Accessories

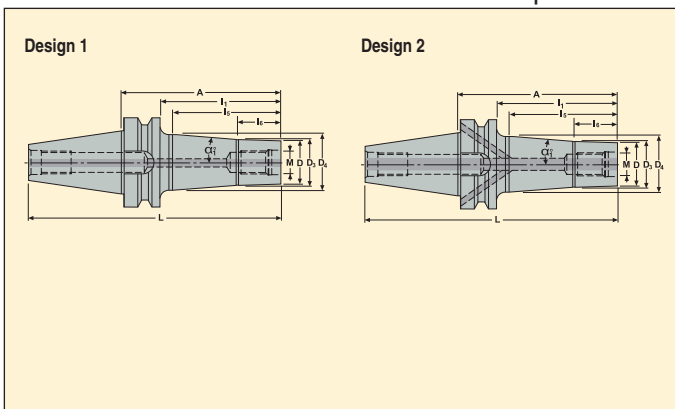
For d	Locking key
20	03HXL06
32	03HXL06

Spare Parts

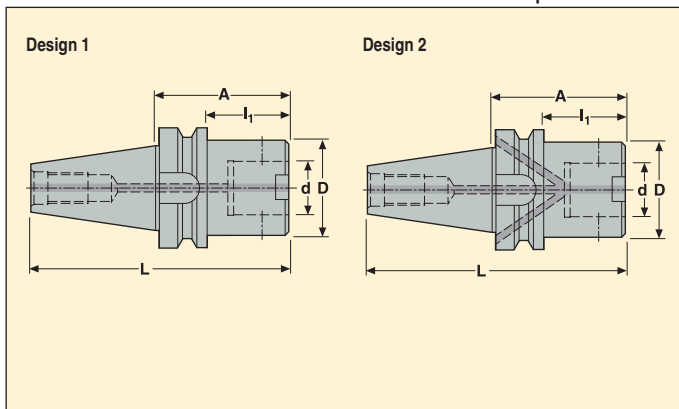
For d	Stop screw
20	19LS1016A
32	19LS1016A

Please check availability in current price and stock-list

BT Taper-Face -AD/ADB

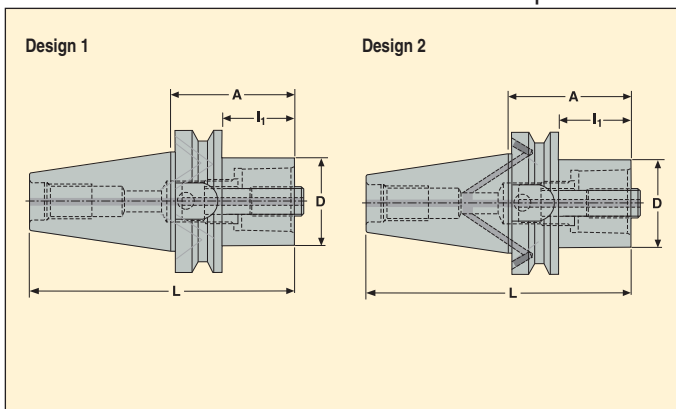
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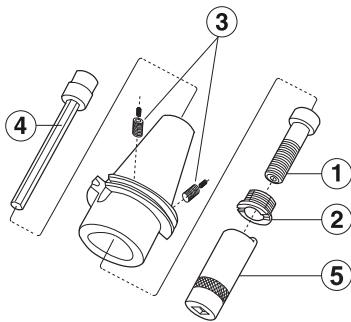
Machine side	Graflex bore		Part No.	Dimensions in mm				Design	Balancing	
	Size	d mm		A	L	I ₁	D			
BT TF30 AD	G3	18	EM40024011850	50	98,4	28	32	1	1	0,50
	G4	22	EM40024012250	50	98,4	28	40	1	1	0,60
BT TF40 ADB	G4	22	EM321440122100	100	165,4	73	40	2	1	1,60
	G5	28	EM321440128120	120	185,4	93	50	2	1	2,10
	G6	36	EM321440136120	120	185,4	93	63	2	1	2,80
BT TF50 ADB	G5	28	EM321640128140	140	241,8	102	50	2	1	4,90
	G6	36	EM321640136140	140	241,8	102	63	2	1	5,60
	G7	46	EM321640146200	200	301,8	162	90	2	2	10,70

Please check availability in current price and stock-list



Machine side Taper	Workpiece side Seco-Capto™ size	Part No.	Dimensions in mm				Design	Balancing	KG
			A	D	L	I ₁			
BT TF30 AD	C3	E400251913240	40	32	88,4	22	1	–	0,45
	C4	E400251914060	60	40	108,4	22	1	–	0,65
BT TF40 ADB	C4	E311451914040	40	40	105,4	13	2	–	1,10
	C5	E311451915050	50	50	115,4	23	2	–	1,20
	C6	E311451916375	75	63	140,4	48	2	–	1,70
BT TF50 ADB	C4	E311651914040	40	50	141,8	2	2	–	3,60
	C5	E311651915040	40	50	141,8	2	2	–	3,50
	C6	E311651916350	50	63	151,8	12	2	–	3,60
	C6	E3116519163100	100	63	201,8	62	2	–	4,63
	C8	E311651918070	70	80	171,8	32	2	–	4,20
	C8	E3116519180120	120	80	121,8	82	2	–	5,91

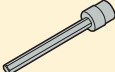
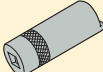
Please check availability in current price and stock-list



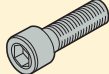
Accessories:
4 = Extension key
5 = Spanner

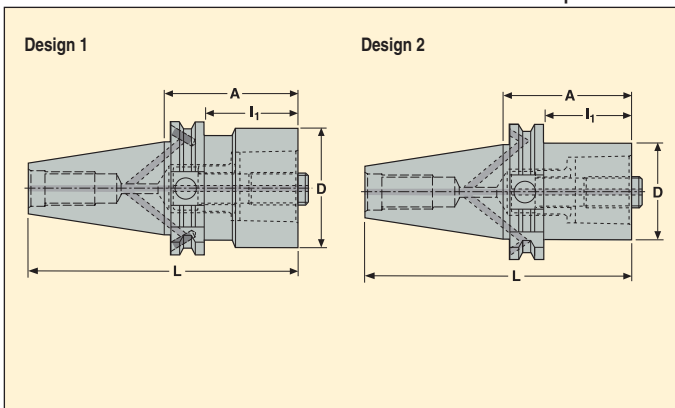
Spare Parts:
1 = Centre screw
2 = Retaining nut
3 = Sealing plugs

Accessories

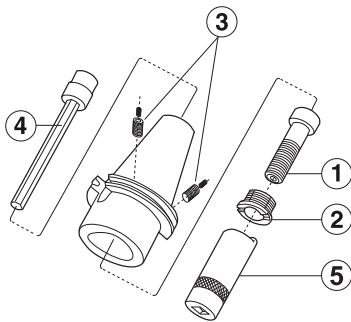
For	Extension key	Spanner
		
C3	5680015-05	5680065-13
C4	5680015-05	5680065-10
C5	5680015-01	5680065-11
BT TF40 C6	5680015-01	5680065-12
BT TF50 C6	5680015-02	5680065-12
C8	5680015-02	5680065-12

Spare Parts

For	Centre screw	Retaining nut	Sealing plugs
			
C3	5512063-10	5512091-04	–
BT TF30 C4	5512063-07	5512091-03	–
BT TF40 C4	5512063-07	5512091-03	564301701
BT TF40 C5	5512063-08	5512091-01	564301701
BT TF40 C6	5512063-13	5512091-02	564301701
BT TF50 C4	5512063-07	5512091-03	564301702
BT TF50 C5	5512063-08	5512091-01	564301702
BT TF50 C6	5512063-09	5512091-02	564301702
C8	5512063-09	5512091-02	564301702

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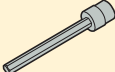
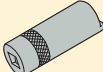
* As on that holde(s) the machine side interface is weaker than the tool side, some caution with this area of usage is required



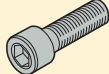
Accessories:
4 = Extension key
5 = Spanner

Spare Parts:
1 = Centre screw
2 = Retaining nut
3 = Sealing plugs

Accessories

For	Extension key	Spanner
		
C4	5680015-05	5680065-10
C5	5680015-01	5680065-11
C8	5680015-02	5680065-12
TF40 C6	5680015-01	5680065-12
TF50 C6	5680015-02	5680065-12

Spare Parts

For	Centre screw	Retaining nut	Sealing plugs
			
E316951915050	5512063-08	5512091-01	564301701
E316951916385	5512063-13	5512091-02	564301701
E317151914030	5512063-07	5512091-03	564301702
E317151915030	5512063-08	5512091-01	564301702
E317151915070	5512063-08	5512091-01	564301702
E3171519163100	5512063-09	5512091-02	564301702
E317151916350	5512063-09	5512091-02	564301702
E3171519180120	5512063-09	5512091-02	564301702
E317151918070	5512063-09	5512091-02	564301702

Extension of the Steadyline® GL tooling range, with additional machine sides :

- Steadyline GL bars with Seco-Capto C8 machine side
- Steadyline GL bars with HSK-T/A63 and HSK-T/A100 machine side

Description of HSK-T/A

Tooling with HSK-T/A machine sides are suitable for static & rotating operations on machines with:

- HSK-T spindles (eg. spindles and turrets on turning and multi-task machines).
- HSK-A spindles (eg. machining centres).

HSK-T/A is conform to the HSK-T ISO standard, and compatible for the HSK-A spindles : eg. diameter D of Steadyline GL holders are inside the HSK-flange clearance diameter d_g max allowed by HSK-A ISO standard.

Description of Seco-Capto C8

See Guide pages 213-217 in MN 2015 Tooling Systems catalogue.

Steadyline damping system, general information

See Guide page 27 in MN 2015 Tooling Systems catalogue.

GL connection

See Guide pages 386-387 in MN 2015-2 Update catalogue.

Turning & Threading heads GL are shown in the Turning catalogue; Boring heads GL are shown in MN 2015-2 Update catalogue.

Other features

Balancing: Holders are pre-balanced (see Product pages 'Balancing' columns).



New HSK-T/A machine side



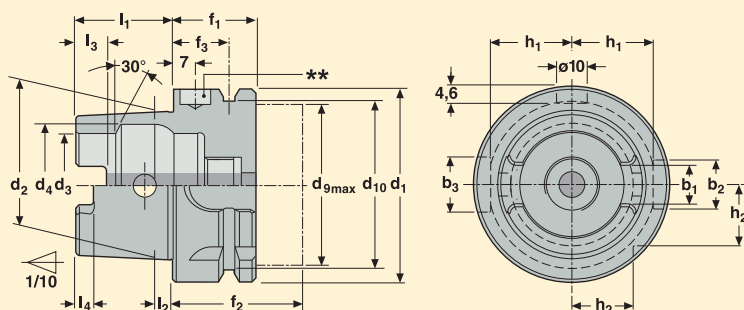
Seco-Capto machine side



Cylindrical machine side

HSK-A, norm dimensions

ISO 12164-1 Form A



Machine side catalogue designation	Machine side Part No.	Dimensions in mm																	
		d_1	d_2	d_9 max	d_3	d_{10}	d_4	f_1	f_2	f_3	l_1	l_2	l_3	l_4	b_1	b_2	b_3	h_1	h_2
HSK-A32	E9301...	32	24	26	17	26,5	20,5	20	35	16	16	3,2	5,0	3,0	7,05	7	9	13,0	9,5
HSK-A40	E9302...	40	30	34	21	34,8	25,5	20	35	16	20	4,0	6,0	3,5	8,05	9	11	17,0	12,0
HSK-A50	E9303...	50	38	42	26	43,0	32,0	26	42	18	25	5,0	7,5	4,5	10,54	12	14	21,0	15,5
HSK-A63	E9304...	63	48	53	34	55,0	40,0	26	42	18	32	6,3	10,0	6,0	12,54	16	18	26,5	20,0
HSK-A80	E9305...	80	60	67	42	70,0	50,0	26	42	18	40	8,0	12,0	8,0	16,04	18	20	34,0	25,0
HSK-A100	E9306...	100	75	88	53	92,0	63,0	29	45	20	50	10,0	15,0	10,0	20,02	20	22	44,0	31,5

EPB's holders HSK-A have a radial hole through the taper for manual clamping, compatible with HSK-C.

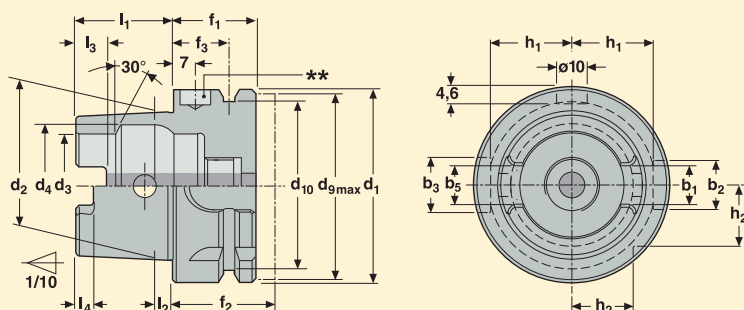
Note: The dimensions are applied to all the holders shown in the Product pages.

For HSK sealing plugs, coolant tubes and tube spanners, see Additional equipment in MN 2015 Tooling Systems catalogue.

** Data carrier blind hole available as standard on all HSK-A50/63/80/100.

HSK-T, norm dimensions

HSK-T/ ISO 12164-3



Machine side catalogue designation	Machine side Part No.	Dimensions in mm																		
		d ₁	d ₂	d ₉ max	d ₃	d ₁₀	d ₄	f ₁	f ₂	f ₃	l ₁	l ₂	l ₃	l ₄	b ₁	b ₂	b ₃	b ₅	h ₁	h ₂
HSK-T63	E9364...	63	48	62	34	55	40	26	30	18	32	6,3	10	6	12.54	16	18	12.425	26,5	20,0
HSK-T100	E9366...	100	75	99	53	92	63	29	34	20	50	10,0	15	10	20.02	20	22	19.910	44,0	31,5

Note: The dimensions are applied to all the holders shown in the Product pages.

For HSK sealing plugs, coolant tubes and tube spanners, see Additional equipment in MN 2015 Tooling Systems catalogue.

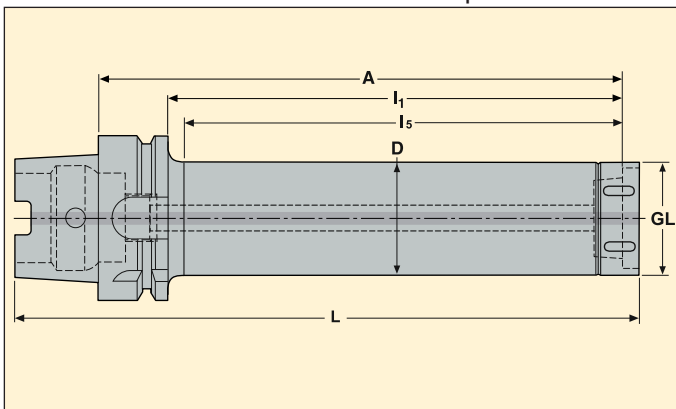
** Data carrier blind hole available as standard.

EPB GL – Steadyline® GL holders

HSK-T/ISO 12164-3 and compatible HSK-A/ISO 12164-1



- With dynamic damping, ready to use
- With through coolant
- For GL heads programme, see page(s) 50-68



Machine side	Workpiece side	Part No.	Dimensions in mm					Max. RPM *	Balancing	
			A	D	L	I ₁	I ₅			
HSK-T/A 63	GL size									
	GL32	E9374-D32-160-GL32	160	32	197,3	134	128	10000	2	1,60
	GL32	E9374-D32-224-GL32	224	32	261,3	198	192	8000	2	2,00
	GL40	E9374-D40-208-GL40	208	40	246,3	182	176	8000	2	2,70
	GL40	E9374-D40-288-GL40	288	40	326,3	262	256	6000	2	3,50
	GL50	E9374-D50-268-GL50	268	50	307,3	242	240	6000	2	4,80
HSK-T/A 100	GL50	E9374-D50-368-GL50	368	50	407,3	342	340	4000	2	6,40
	GL32	E9376-D32-160-GL32	160	32	215,3	131	125	10000	2	3,00
	GL32	E9376-D32-224-GL32	224	32	279,3	195	189	8000	2	3,40
	GL32	E9376-D32-288-GL32	288	32	343,3	259	253	6000	2	3,80
	GL40	E9376-D40-208-GL40	208	40	264,3	179	173	8000	2	4,10
	GL40	E9376-D40-288-GL40	288	40	344,3	259	253	6000	2	4,90
	GL40	E9376-D40-368-GL40	368	40	424,3	339	333	5000	2	5,80
	GL50	E9376-D50-268-GL50	268	50	325,3	239	234	6000	2	6,20
	GL50	E9376-D50-368-GL50	368	50	425,3	339	334	4000	2	7,80
	GL50	E9376-D50-468-GL50	468	50	525,3	439	434	2500	2	9,70

* Max. RPM only when used in rotating boring

Accessories

For nut of GL bore size	Replaceable end	Torque key
GL32	SL00-32	SL00-32.250
GL40	SL00-40	SL00-40.350
GL50	SL00-50	SL00-50.550

Spare Parts

For nut of GL bore size	Locking key
GL32	SL32
GL40	SL40
GL50	SL50

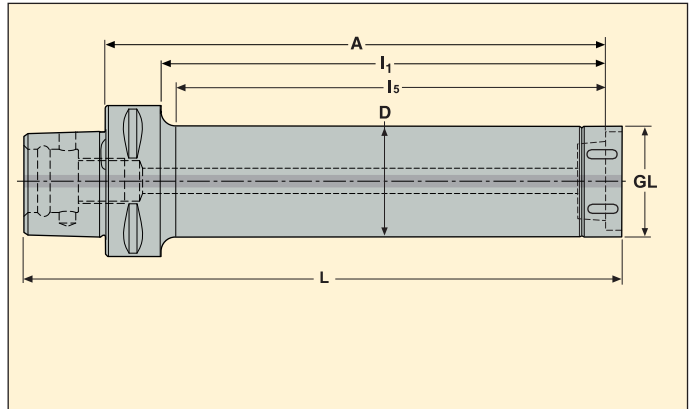
Please check availability in current price and stock-list

EPB GL – Steadyline® GL holders

Seco-Capto™/ISO 26623-1



- With dynamic damping, ready to use
- With through coolant
- For GL heads programme, see page(s) 50-68



Machine side Seco-Capto™ shank size	Workpiece side GL size	Part No.	Dimensions in mm					Max. RPM *	Balancing	KG
			A	D	L	I ₁	I ₅			
C4	GL32	C4-D32-160-GL32	160	32	189,3	140	137	4000	2	1,20
	GL32	C4-D32-224-GL32	224	32	253,3	204	201	4000	2	1,70
	GL32	C4-D32-288-GL32	288	32	317,5	268	265	4000	2	2,10
C5	GL32	C5-D32-160-GL32	160	32	195,5	140	136	4000	2	1,40
	GL32	C5-D32-224-GL32	224	32	259,5	204	200	4000	2	1,80
	GL32	C5-D32-288-GL32	288	32	323,5	268	264	4000	2	2,20
	GL40	C5-D40-208-GL40	208	40	244,5	188	184	3500	2	2,50
	GL40	C5-D40-288-GL40	288	40	324,3	268	264	3500	2	3,30
	GL40	C5-D40-368-GL40	368	40	404,5	348	344	3500	2	4,30
C6	GL32	C6-D32-160-GL32	160	32	203,5	135	129	4000	2	1,80
	GL32	C6-D32-224-GL32	224	32	267,3	199	193	4000	2	2,20
	GL32	C6-D32-288-GL32	288	32	331,5	263	257	4000	2	2,60
	GL40	C6-D40-208-GL40	208	40	252,5	183	177	3500	2	2,90
	GL40	C6-D40-288-GL40	288	40	332,3	263	257	3500	2	3,70
	GL40	C6-D40-368-GL40	368	40	412,5	343	337	3500	2	4,60
	GL50	C6-D50-268-GL50	268	50	313,5	243	238	2500	2	5,00
	GL50	C6-D50-368-GL50	368	50	413,5	343	338	2500	2	6,60
	GL50	C6-D50-468-GL50	468	50	513,5	443	438	2500	2	8,50

* Max. RPM only when used in rotating boring

Accessories

For nut of GL bore size	Replaceable end	Torque key
GL32	SL00-32	SL00-32.250
GL40	SL00-40	SL00-40.350
GL50	SL00-50	SL00-50.550

Spare Parts

For nut of GL bore size	Locking key
GL32	SL32
GL40	SL40
GL50	SL50

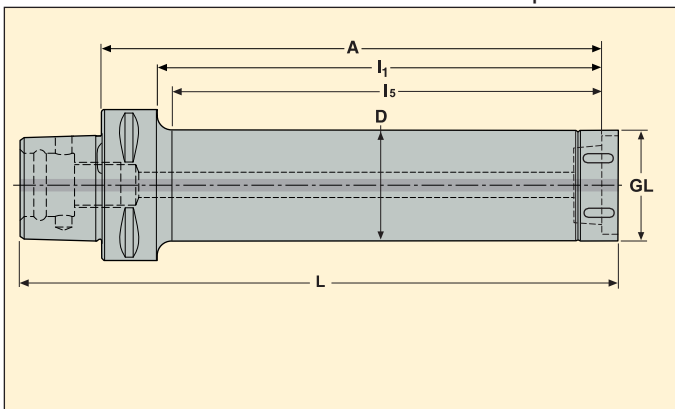
Please check availability in current price and stock-list

EPB GL – Steadyline® GL holders

Seco-Capto™/ ISO 26623-1



- With dynamic damping, ready to use
- With through coolant
- For GL heads programme, see page(s) 50-68



Machine side Seco-Capto™ shank size	Workpiece side GL size	Part No.	Dimensions in mm					Max. RPM *	Balancing	KG
			A	D	L	I ₁	I ₅			
C8	GL32	C8-D32-224-GL32	224	32	277,5	191	181	8000	2	3,20
	GL32	C8-D32-288-GL32	288	32	342,5	255	245	6000	2	3,60
	GL40	C8-D40-288-GL40	288	40	342,5	255	245	6000	2	4,70
	GL40	C8-D40-368-GL40	368	40	422,5	335	325	4000	2	5,60
	GL50	C8-D50-268-GL50	268	50	323,5	235	225	6000	2	5,90
	GL50	C8-D50-368-GL50	368	50	423,5	335	325	4000	2	7,50
	GL50	C8-D50-468-GL50	468	50	523,5	435	425	2500	2	9,40

* Max. RPM only when used in rotating boring

Accessories

For nut of GL bore size	Replaceable end	Torque key
GL32	SL00-32	SL00-32.250
GL40	SL00-40	SL00-40.350
GL50	SL00-50	SL00-50.550

Spare Parts

For nut of GL bore size	Locking key
GL32	SL32
GL40	SL40
GL50	SL50

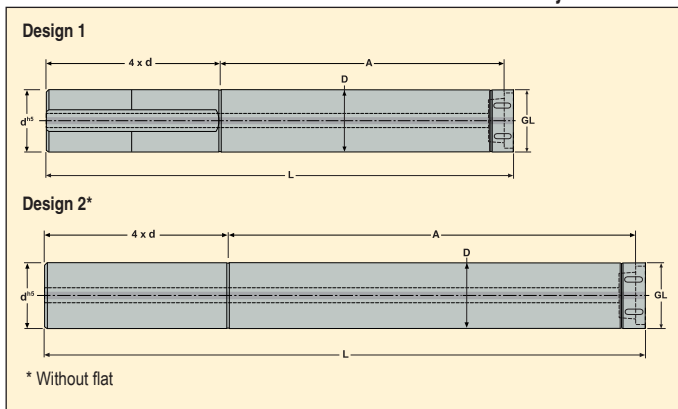
Please check availability in current price and stock-list

EPB GL – Steadyline® damping GL holders

Cylindrical shank



- With dynamic damping, ready to use
- With through coolant
- For GL heads programme, see page(s) 50-68



Machine side	Workpiece side	Part No.	Dimensions in mm			Design	
			A	D	L		
32	GL32	D32-160-GL32	160	32	293,5	1	1,80
	GL32	D32-224-GL32	224	32	357,5	1	2,30
	GL32	D32-288-GL32	288	32	421,5	2	2,70
40	GL40	D40-208-GL40	208	40	374,5	1	3,80
	GL40	D40-288-GL40	288	40	454,5	1	4,60
	GL40	D40-368-GL40	368	40	534,5	2	5,50
50	GL50	D50-268-GL50	268	50	475,5	1	7,50
	GL50	D50-368-GL50	368	50	575,5	1	9,10
	GL50	D50-468-GL50	468	50	675,5	2	11,00
50							
50							
50							
50							

Accessories

Spare Parts

For nut of GL bore size	Replaceable end	Torque key	For nut of GL bore size	Locking key
GL32	SL00-32	SL00-32.250	GL32	SL32
GL40	SL00-40	SL00-40.350	GL40	SL40
GL50	SL00-50	SL00-50.550	GL50	SL50

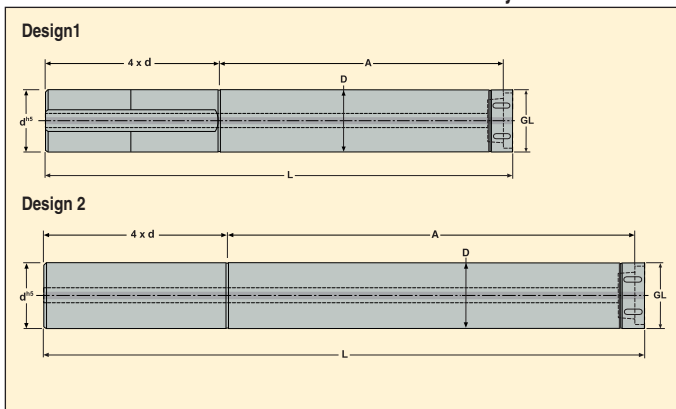
Please check availability in current price and stock-list

EPB GL – Steadylite® damping GL holders

Cylindrical shank - inch



- With dynamic damping, ready to use
- With through coolant
- For GL heads programme, see page(s) 50-68



Machine side Shank d ^{h5} mm	Workpiece side GL size	Part No.	Dimensions in mm			Design	
			A	D	L		
31.75							
	GL32	DA20-6.50-GL32	165	32	298	1	1,8
	GL32	DA20-9.00-GL32	229	32	361	1	2,3
	GL32	DA20-11.50-GL32	292	32	425	2	2,7
38.10							
	GL40	DA24-8.00-GL40	203	40	362	1	3,5
	GL40	DA24-11.00-GL40	279	40	438	1	4,3
	GL40	DA24-14.00-GL40	356	40	515	2	5,2
50.80							
	GL50	DA32-10.50-GL50	267	50	477	1	7,6
	GL50	DA32-14.50-GL50	368	50	579	1	9,2
	GL50	DA32-18.50-GL50	470	50	681	2	11,1

Accessories

For nut of GL bore size	Replaceable end	Torque key
GL32	SL00-32	SL00-32.250
GL40	SL00-40	SL00-40.350
GL50	SL00-50	SL00-50.550

Spare Parts

For nut of GL bore size	Locking key
GL32	SL32
GL40	SL40
GL50	SL50

Please check availability in current price and stock-list

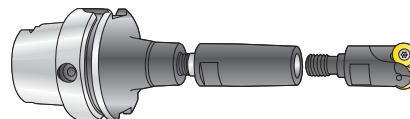
Launch of the Steadyline® Combimaster® size M20 Tooling items. In the following pages we only show types with Steadyline® M20 additions. For remaining types without additions, see the current Tooling Systems catalogue.

The modular milling solution for medium size cutters

Combimaster® tooling and tools achieve optimum access and shortest overhang.

Stability, precision and balance are improved vs. classic assemblies, e.g. Weldon or collet chucks. Extensions and reducers to realise optimum tool length.

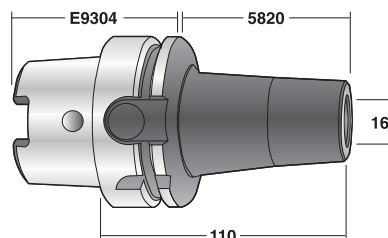
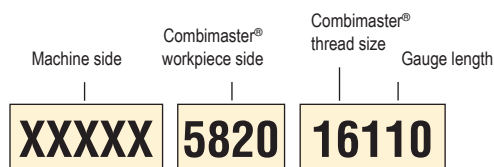
Modular: The Graflex® to Combimaster as well as Seco-Capto™ to Combimaster® arbors allow to mix systems. Combimaster® to Shrinkfit holders are also available to hold small tools.



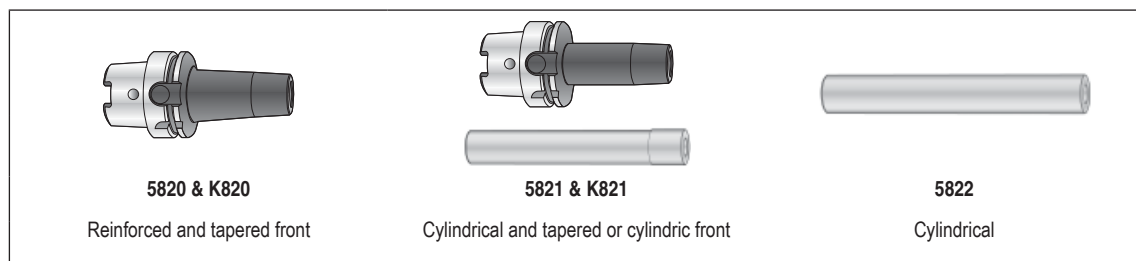
Balancing quality

Most Combimaster® holders are fine balanced, except Steadyline® Combimaster® holders, being pre-balanced. See Product pages.

Combimaster® holders, code key

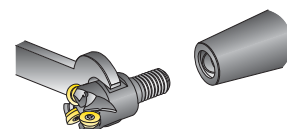
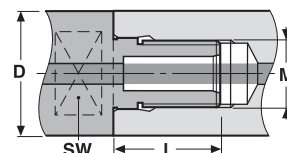


Combimaster® holders, workpiece side types



Combimaster® connections norm and recommended tightening torques

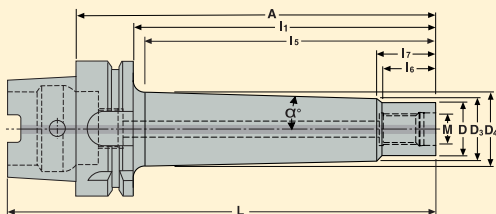
Combimaster size M	Tightening torque	Tightening key size SW (mm)	l (mm)	D (mm)
M6	10 Nm	9	13,50	11,0
M8	25 Nm	11	17,75	13,5
M10	40 Nm	15	18,75	18,5
M12	60 Nm	19	21,75	23,0
M16	80 Nm	26	22,75	30,0
M20	120 Nm	32	27,00	36,5



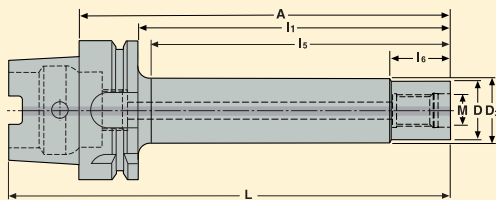
Combimaster® cutter heads

Note: Combimaster® cutter heads are shown in Machining Navigator Milling.

Design 1 (K820)



Design 2 (K821)



- With dynamic damping, ready to use
- With through coolant

Machine side Taper	Workpiece side Combimaster M	Part No.	Dimensions in mm									α°	Design	Max rpm	Balancing	
			A	L	I ₁	I ₅	I ₆	I ₇	D	D ₃	D ₄					
HSK-A63	M10	E9304K82010185	185	217	159	154	20	22,8	18,5	24,0	36,6	2,8	1	12000	2	1,51
	M12	E9304K82012185	185	217	159	154	20	23,4	23,0	29,5	42,0	2,8	1	12000	2	1,90
	M16	E9304K82016185	185	217	159	154	20	23,7	30,0	37,0	59,5	2,8	1	10000	2	2,59
	M16	E9304K82016235	235	267	209	191	20	23,7	30,0	37,0	53,0	2,8	1	8000	2	3,50
	M16	E9304K82116160	160	192	134	129	22	—	30,0	30,5	—	—	2	10000	2	1,40
	M20	E9304K82020185	185	217	159	140	25	29,0	36,5	45,0	55,7	2,8	1	10000	2	3,30
	M20	E9304K82020235	235	267	209	186	25	29,0	36,5	45,0	60,1	2,8	1	8000	2	4,30
HSK-A100	M12	E9306K82012235	235	285	206	201	20	23,4	23,0	29,5	46,6	2,8	1	8000	2	4,00
	M16	E9306K82016235	235	285	206	201	20	23,7	30,0	37,0	54,0	2,8	1	8000	2	4,78
	M16	E9306K82016285	285	335	256	251	20	23,7	30,0	37,0	58,8	2,8	1	6000	2	5,86
	M16	E9306K82116185	185	235	156	151	22	—	30,0	30,5	—	—	2	8000	2	2,91
	M20	E9306K82020235	235	285	206	201	25	29,0	36,5	45,0	61,6	2,8	1	8000	2	5,70
	M20	E9306K82020285	285	335	256	251	25	29,0	36,5	45,0	66,4	2,8	1	6000	2	7,20

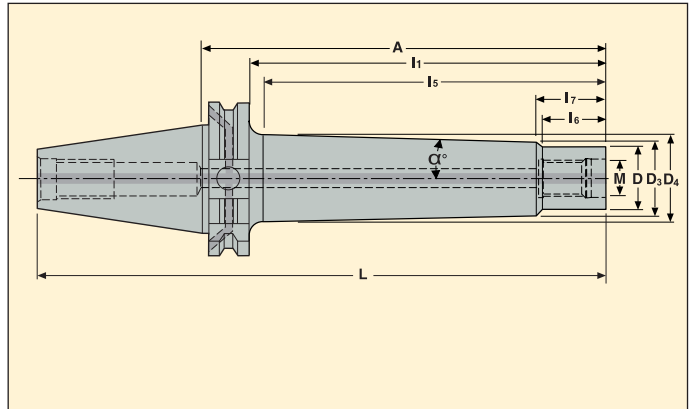
Please check availability in current price and stock-list

For HSK sealing plugs, coolant tubes and tube spanners, see Additional equipment in MN 2015 Tooling Systems catalogue

DIN Taper-Face -ADB/Compatible DIN 69871-ADB



- With dynamic damping, ready to use
- With through coolant

[illegible]

Please check availability in current price and stock-list

Note: Other Steadyline® Combimaster sizes exist in non Taper-Face DIN types, see MN 2015 Tooling Systems catalogue page 155

BT Taper-Face -ADB/Compatible BT JIS 6339-ADB

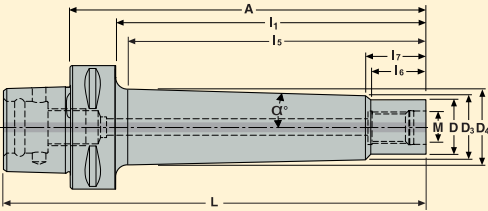


-
- Technical drawing of a bolt showing dimensions: A , I_1 , I_5 , I_7 , I_6 , α° , M , D , D_3 , D_4 , L .

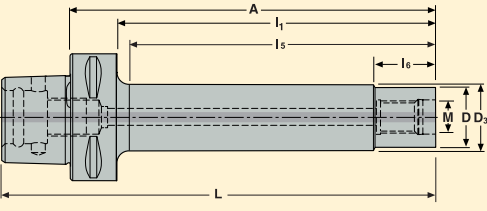
[illegible]

Note: Other Steadyline® Combimaster sizes exist in non Taper-Face BT types, see MN 2015 Tooling Systems catalogue page 157

Design 1 (K820)



Design 2 (K821)



- With dynamic damping, ready to use
- With through coolant

Machine side	Workpiece side		Dimensions in mm														
			A	L	I ₁	I ₅	I ₆	I ₇	D	D ₃	D ₄	α°					
Seco-Capto™ shank	Combimaster M	Part No.											Design	Max rpm	Balancing		
C6																	
	M12	C6-391.K820-12185	185	223	160	155,2	20,0	24	23,0	30,0	42,1	2,8	1	10000	2	2,10	
	M16	C6-391.K820-16185	185	223	160	155,2	20,0	24	30,0	37,0	49,6	2,8	1	10000	2	2,80	
	M16	C6-391.K820-16235	235	273	210	205,2	20,0	24	30,0	37,0	54,4	2,8	1	8000	2	3,60	
	M16	C6-391.K821-16160	160	198	135	130,0	22,0	–	30,0	30,5	–	–	2	10000	2	0,70	
	M20	C6-391.K820-20185	185	223	160	158,1	24,7	29	36,5	45,0	57,4	2,8	1	10000	2	3,60	
	M20	C6-391.K820-20235	235	273	210	209,6	24,7	29	36,5	45,0	62,4	2,8	1	8000	2	4,60	

Please check availability in current price and stock-list

Steels, ferritic and martensitic stainless steels

SMG	Description	Properties	Reference
P1	Free-cutting steels	$360 < R_m < 880$	11 SMn30 $R_m = 385 \text{ N/mm}^2$
P2	Low alloy ferritic steels, $C < 0.25\% \text{wt}$ Low alloy weldable general structural steels	$320 < R_m < 600$	S235JRG2 $R_m = 420 \text{ N/mm}^2$
P3	Ferritic & ferritic/pearlitic steels, $C < 0.25\% \text{wt}$ Weldable general structural steels Case hardening steels	$430 < R_m < 610$	16 MnCr 5 $R_m = 550 \text{ N/mm}^2$
P4	Low alloy general structural steels, $0.25\% < C < 0.67\% \text{wt}$ Low alloy Quench & Temper steels	$520 < R_m < 1200$	C 45E $R_m = 660 \text{ N/mm}^2$
P5	Structural steels, $0.25\% < C < 0.67\% \text{wt}$ Quench & Temper steels	$550 < R_m < 1200$	42 CrMo 4 $R_m = 700 \text{ N/mm}^2$
P6	Low alloy through hardening steels, $C > 0.67\% \text{wt}$ Low alloy spring and bearing steels	$520 < R_m < 1200$	C 100S $R_m = 600 \text{ N/mm}^2$
P7	Through hardening steels, $C > 0.67\% \text{wt}$ Spring and bearing steels	$600 < R_m < 1200$	100 Cr 6 $R_m = 650 \text{ N/mm}^2$
P8	Tool steels High Speed Steels (HSS)	$600 < R_m < 1200$	X 40 CrMoV 5 1 $R_m = 700 \text{ N/mm}^2$
P11	Ferritic & martensitic stainless steels	$415 < R_m < 1200$	X 20 Cr 13 $R_m = 675 \text{ N/mm}^2$

Free-cutting, austenitic and duplex stainless steels

SMG	Description	Properties	Reference
M1	Free-cutting austenitic stainless steels		X 10 CrNi 18 9
M2	Low alloy austenitic stainless steels		X 5 CrNi 18 9
M3	Medium alloy austenitic stainless steels		X 2 CrNiMo 18 14 3
M4	High alloy austenitic and duplex stainless steels		X 2 CrNiMoN 22 5 3
M5	Difficult high alloy austenitic and duplex stainless steels		X 2 CrNiMoN 25 7 4

Cast irons

SMG	Description	Properties	Reference
K1	Grey cast irons (GCI)		EN-GJL-250
K2	Compacted graphite irons (CGI)		EN-GJV-400
K3	Malleable cast irons (MCI)		EN-GJMB-550-4
K4	Nodular cast irons (SGI)		EN-GJS-500-7
K5	Austempered ductile irons (ADI)		EN-GJS-1000-5
K6	Austenitic lamellar cast irons		EN-GJLA-XNiCuCr15-6-2
K7	Austenitic nodular cast irons		EN-GJSA-XNiMn23-4

Non-ferrous metals

SMG	Description	Properties	Reference
N1	Aluminium alloys, Si < 9%		AW-7075
N2	Aluminium alloys, 9% < Si < 16%		AC-44200 Si = 12%
N3	Aluminium alloys, Si > 16%		AlSi17Cu5
N11	Copper alloys		CW614N

Superalloys and titanium

SMG	Description	Properties	Reference
S1	Iron based superalloys		Discalloy
S2	Cobalt based superalloys		Stellite 21
S3	Nickel based superalloys		Inconel 718
S11	Titanium, low alloyed, (α)		Ti
S12	Titanium, medium alloyed, (α + β)		TiAl6V4
S13	Titanium, high alloyed, (near β and β)		Ti10V2Fe3Al

Hard materials

SMG	Description	Properties	Reference
H3	Case hardened steels	58 < HRC < 62	16 MnCr 5 60 HRC
H5	Quenched & Tempered steels	38 < HRC < 56	42 CrMo 4 50 HRC
H7	Quenched & Tempered steels Bearing steels	56 < HRC < 64	100 Cr 6 60 HRC
H8	Tool steels High Speed Steels	38 < HRC < 64	X 40 CrMoV 5 1 50 HRC
H11	Martensitic stainless steels	38 < HRC < 50	X 20 Cr 13 45 HRC
H12	Precipitation hardened stainless steels	33 < HRC < 50	X 5 CrNiCuNb 16 4 35 HRC
H21	Manganese steels	23 < HRC < 64	X 120 Mn 12 50 HRC
H31	White cast irons	50 < HRC < 64	EN-GJN-HV600(XCr11) 55 HRC

Other difficult materials

SMG	Description	Properties	Reference
PM1	Low alloy PM materials		F-0008 Fe-0.7C
PM2	Medium alloy PM materials		FLC-4608 Fe2Cu1.8Ni0.5Mo0.2Mn0.8C
PM3	High alloy PM materials Exhaust valve seat materials		
HF1	Hard facing alloys Welded or plasma deposited iron based alloys		
HF2	Hard facing alloys Welded or plasma deposited cobalt and nickel based alloys		
CC1	Sintered tungsten carbide		G50

Plastics and Composites

SMG	Description	Properties	Reference
TS1	Thermosetting polymers		Urea formaldehyde (UF)
TS2	Thermosetting Carbon fibre composites		T300 T700 T800 HTA-S IMA - Epoxy (M21)...
TS3	Thermosetting Glass fibre composites		Epoxy - HX..(42..)/E glass (7781...)...
TS4	Thermosetting Aramide fibre composites		Kevlar 49
TP1	Thermoplastic polymers		Polycarbonate (PC)
TP2	Thermoplastic Carbon fibre composites		PPS/PEEK - T300..
TP3	Thermoplastic Glass fibre composites		PPS/PEEK - E glass or A glass...
TP4	Thermoplastic Aramide fibre composites		

Graphite

SMG	Description	Properties	Reference
GR1	Graphite		R 8500

SMG

SMG	EN	EN-Nr	W.-Nr	DIN	AFNOR	BS	UNI	JIS	SS	UNS
P1	11 SMn30	1.0715	1.0715	9 SMn 28	S 250	230 M 07	CF 9 SMn 28	SUM 22	1912	G12130
	11 SMnPb30	1.0718	1.0718	9 SMnPb 28	S 250 Pb		CF 9 SMnPb 28	SUM 22 L	1914	G12134
	10 S 20	1.0721	1.0721	10 S 20	10 F 1	210 M 15	CF 10 S 20			
			1.0722	10 SPb 20	10 PbF 2		CF 10 SPb 20			
	15 SMn13	1.0725	1.0723	15 S 20		210 A 15		SUM 32	1922	
	35 S20	1.0726	1.0726	35 S 20	35 MF 4	212 M 36			1957	G11400
	46 S20	1.0727	1.0727	46 S 20	45 MF 4	212 M 44			1973	G11460
	11 SMn37	1.0736	1.0736	9 SMn 36	S 300	240 M 07	CF 9 SMn 36			G12150
P2	11 SMnPb 37	1.0737	1.0737	9 SMnPb 36	S 300 Pb		CF 9 SMnPb 36		1926	G12144
	S235JR	1.0037	1.0037	St 37-2	E 24-2		Fe 360 B	STKM 12 C	1311	
	S235JRG2	1.0038	1.0116	St 37-3	E 24-3, E 24-4	4360-40 C	Fe 360 D FF		1312, 1313	
	S275J2G3	1.0144	1.0144	St 44-3 N	E 28-3, E 28-4	4360-43 C	Fe 430 D FF	SM 41 C	1412, 1414	
	C 10	1.0301	1.0301	C 10	AF 34 C 10, XC 10	045 M 10	C 10	S 10 C		G10100
			1.0401	C 15	AF3 7 C 12, XC 18	080 M 15	C 15, C 16		1350	G10170
	C22+N	1.0402	1.0402	C 22	C 20	050 A 20	C 20, C 21		1450	G10200
	S355JR	1.0570	1.0570	St 52-3	E 36-3, E 36-4	4360-50 C	Fe 510 B	SM 50 YA	2172, 2132	
P3	C 15R	1.1141	1.1141	Ck 15	XC 15, XC 18	080 M 15	C 15, C 16	S 15 C, S 15 CK	1370	G10170
			1.1158	Ck 25	XC 25	060 A 25	C 25	S 25 C		G10250
			1.2162	21 MnCr 5	20 NC 5			SCR 420 H		
	16 Mo 3	1.5415	1.5415	15 Mo 3	15 D 3	1501-240	16 Mo 3		2912	
			1.5423	16 Mo 5		1503-245-420	16 Mo 5	SB 450 M		G45200
	14 NiCr 14	1.5752	1.5752	14 NiCr 14	12 NC 15	655 M 13		SNC 815 (H)		G33106
			1.5919	15 CrNi 6	16 NC 6	S 107	16 CrNi 4			
	18 NiCrMo 7 6	1.6587	1.6587	18 CrNiMo 7 6	18 NCD 6	820 A 16	18 NiCrMo 7			
P4	16 MnCr 5	1.7131	1.7131	16 MnCr 5	16 MC 5	527 M 17	16 MnCr 5	SCR 415	2511	G51170
	16 MnCrS 5	1.7139	1.7139	16 MnCrS 5						
	20 MnCr 5	1.7147	1.7147	20 MnCr 5	20 MC 5		20 MnCr 5	SMnC 420 (H)		G51200
	20 MnCrS 5	1.7149	1.7149	20 MnCrS 5	20 MnCrS 5			SMnC 21 H		
	13 CrMo 4 5	1.7335	1.7335	13 CrMo 4 4	15 CD 3,5	1501-620 Gr. 27	14 CrMo 4 5		2216	
			1.7337	16 CrMo 4 4	15 CD 4,5	1501-620 Gr. 27	14 CrMo 4 5		2216	
	10 CrMo 9 10	1.7380	1.7380	10 CrMo 9 10	10 CD 9,10	1501-622 Gr. 31	12 CrMo 9 10		2218	J21890
	C35+N		1.0501	C 35	AF 55 C 35	060 A 35	C 35		1550	G10350
P5	E 335	1.0503	1.0503	C 45	AF 65 C 45	80 M 46	C 45	S 45 C	1650	G10430
	C40+N		1.0511	C 40	AF 60 C 40	080 M 40	C 40	S 40 C		
	E 360	1.0070	1.0535	St 70-2	A 70-2		Fe 690		1655	
	C60+N	1.0601	1.0601	C 60	CC 55	080 A 62	C 60			G10600
			1.1157	40 Mn 4	35 M 5	150 M 36				G10390
	G 28 Mn6	1.1165	1.1165	30 Mn 5		120 M 36		SMn 1 H, SCMn 2		G13300
	G 28 Mn6+QT	1.1165	1.1167	36 Mn 5	40 M 5	150 M 36		SMn 438 (H), SCMn 3	2120	G13350
	C 35E	1.1181	1.1181	Ck 35	XC 38 H1	080 M 36	C 35	S 35 C	1572	G10340
P6	C 45E	1.1191	1.1191	Ck 45	XC 42	080 M 46	C 45	S 45 C	1672	G10420
	C 60E	1.1221	1.1221	Ck 60	XC 60	080 A 62	C 60	S 58 C	1665, 1678	G10640
			1.1740	C 60 W	Y3 55			SK 7		
	55 SiCr7	1.7100	1.0904	55 Si 7	55 S 7	250 A 53	55 Si 8		2085, 2090	
	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	2244	G41400
	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	2244	G41400
			1.2330	35 CrMo 4	34 CD 4	708 A 37	35 CrMo 4		2234	T51620
			1.2542	45 WCrV 7		BS 1	45 WCrV 8 KU		2710	T41901
P5		1.2714	1.2714	56 NiCrMoV 7		BH 224-5	56 NiCrMoV7-KU	SKT 4		T61206
			1.5121	46 MnSi 4						
			1.5710	36 NiCr 6	35 NC 6	640 A 35		SNC 236		
			1.5736	36 NiCr 10	35 NC 11		35 NiCr 9	SNC 631 (H)		
	36CrNiMo4+TA		1.6511	36 CrNiMo 4	40 NCD 3	816 M 40	38 NiCrMo 4 (KB)			G98400
	34 CrNiMo 6	1.6582	1.6582	34 CrNiMo 6	35 NCD 6	817 M 40	35 NiCrMo 6 (KW)	SNCM 447	2541	
	34 Cr 4	1.7033	1.7033	34 Cr 4	32 C 4	530 A 32	34 Cr 4 (KB)	Scr 430 (H)		G51320
	41 Cr 4	1.7035	1.7035	41 Cr 4	42 C 4	530 M 40	41 Cr 4	Scr 440 (H)		G51400
P6	25 CrMo 4	1.7218	1.7218	25 CrMo 4	25 CD 4 S	708 M 25	25 CrMo 4 (KB)	SCM 425	2225	G41300
			1.7361	32 CrMo 12	30 CD 12	722 M 24	32 CrMo 12		2240	
	50 CrV 4	1.8159	1.8159	50 CrV 4	50 CV 4	735 A 50	51 CrV 4	SUP 10	2230	H61500
	41 CrAlMo 7 10	1.8509	1.8509	41 CrAlMo 7	40 CAD 6.12	905 M 39	41 CrAlMo 7	SACM 645	2940	K24065
	C 67S	1.1231	1.1231	Ck 67	XC 68	060 A 67	C 70		1770	G10700
	C 100S	1.1274	1.1274	Ck 101		060 A 96		SUP 4	1870	G10950
	C 105U	1.1545	1.1545	C 105 W1	Y1 105		C 100 KU		1880	
			1.1645	C 105 W2	Y1 105		C 100 KU	SK 3		
P6			1.1663	C 125 W	Y2 120		C 120 KU	SK 2		

SMG

U.N.E. / I.H.A.	AISI / ASTM	GOST	Misc. Brands	Condition	Structure
	1213			Annealed	
	12 L 13			Annealed	
	1108			Annealed	
	11 L 08			Annealed	
				Annealed	
	1140	40		Annealed	
	1146			Annealed	
	1215			Annealed	
	12 L 14			Annealed	
		16D		Annealed	
	A 573 Gr. 58	18kp		Annealed	
	A 573 Gr. 70	St14kP		Annealed	
	1010	10		Annealed	
F.1110	1015	15		Annealed	
	1023	20		Annealed	
		17G1S		Annealed	
F.1511	1015	15		Annealed	
F.1120	1025	25		Annealed	
				Annealed	
	A 204 Gr. A			Annealed	
	4520			Annealed	
	3310, 9314	20X2H4A		Annealed	
	4320			Annealed	
				Annealed	
F.1516	5115	12KHN2		Annealed	
		18HG		Annealed	
	5120	20KH		Annealed	
	5120 H	20KH		Annealed	
	A 182-F11, F12	12KHM		Annealed	
	A 387 Gr. 12 Cl. 2			Annealed	
F.155	A 182-F22	12KH8		Annealed	
F.1130	1035	35		Annealed	
F.5110	1045	45		Annealed	
	1040	40		Annealed	
F.1150	1055	55		Annealed	
	1060	60		Annealed	
	1039	40G		Annealed	
	1330	30G2		Annealed	
F.411	1335	35G2		Annealed	
F.1135	1035	35		Annealed	
F.1140	1045	45		Annealed	
F.1150	1064	60		Annealed	
	1060	60		Annealed	
F.144	9255	55S2		Annealed	
F.1252	4142, 4140	38HM		Annealed	
F.1252	4142, 4140	38HM		Quenched & Tempered	
F.1250	4135	35KHM		Annealed	
F.5241	S1	5KHV2S		Annealed	
	L6	5KHNV		Annealed	
	5045			Annealed	
	3135			Quenched & Tempered	
	3435			Annealed	
	9840			Quenched & Tempered	
F.1280	4340	38H2N2MA		Annealed	
	5132	35KH		Quenched & Tempered	
	5140	40H		Quenched & Tempered	
F.1251	4130	20KHM		Quenched & Tempered	
				Quenched & Tempered	
F.143	6150	50KHFA		Quenched & Tempered	
F.1740	A 355 Cl. A			Annealed	
F.5103	1070	70		Annealed	
F.5117	1095			Annealed	
F.5118	W1	U10A		Annealed	
		U10		Annealed	
	W1	U13		Annealed	

SMG

SMG	EN	EN-Nr	W-Nr	DIN	AFNOR	BS	UNI	JIS	SS	UNS
P7	107 CrV 3	1.2210	1.2210	115 CrV 3	100 C 3		107 CrV 3 KU			T61202
			1.2510	100 MnCrW 4	90 MWCv 5	BO 1	95 MnWCr 5 KU	SKS 3	2140	T31501
	90 MnCrV 8	1.2842	1.2842	90 MnCrV 8	90 MV 8	BO 2	90 MnVCr 8 KU			T31502
P8	100 Cr 6	1.3505	1.3505	100 Cr 6	100 C 6	534 A 99	100 Cr 6	SUJ 2	2258	G51986
	X 210 Cr 12	1.2080	1.2080	X 210 Cr 12	Z 200 C 12	BD 3	X 210 Cr 13 KU	SKD 1		T30403
			1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	BH 11	X 37 CrMoV 5 1 KU	SKD 6		T20811
	X 40 CrMoV 5 1	1.2344	1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	BH 13	X 40 CrMo 5 1 1 KU	SKD 61	2242	T20813
	X 100 CrMoV 5	1.2363	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	BA 2	X 100 CrMoV 5 1 KU	SKD 12	2260	T30102
			1.2365	X 32 CrMoV 3 3	32 DCV 28	BH 10	30 CrMoV 12 27 KU	SKD 7		T20810
			1.2436	X 210 CrW 12			X 215 CrW 12 1 KU	SKD 2	2312	
			1.2601	X 165 CrMoV 12			X 165 CrMoW 12 KU		2310	
			1.2713	55 NiCrMoV 6	55 NCDV 7			SKT 4		T61206
	HS 6-5-2-5	1.3243	1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05-04-02		HS 6-5-2-5	SKH 55	2723	
	HS 2-10-1-8	1.3247	1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	BM 42	HS 2-9-1-8	SKH 51		T11342
	HS 18-1-2-5	1.3255	1.3255	S 18-1-2-5	Z 80 WKCv 18-05-04-01	BT 4	HS 18-1-1-5	SKH 3		T12004
	HS 6-5-2	1.3343	1.3343	S 6-5-2	Z 85 WDCV 06-05-04-02	BM 2	HS 6-5-2	SKH 9, SKH 51	2722	T11302
	HS 2-9-2	1.3348	1.3348	S 2-9-2	Z 100 DCWV 09-04-02-02		HS 2-9-2	SKH 58	2782	T11307
	HS 18-0-1	1.3355	1.3355	S 18-0-1	Z 80 WCV 18-04-01	BT 1	HS 18-0-1	SKH 2		T12001
	X 6 Cr 13	1.4000	1.4000	X 6 Cr 13	Z 6 C 12	403 S 17	X 6 Cr 13	SUS 403	2301	S41008
P11	X 12 Cr 13	1.4006	1.4006	X 10 Cr 13	Z 10 C 13	410 S 21	X 12 Cr 13	SUS 410	2302	S41000
	X 6 Cr 17	1.4016	1.4016	X 6 Cr 17	Z 8 C 17	430 S 15	X 8 Cr 17	SUS 430	2320	S43000
	X 20 Cr 13	1.4021	1.4021	X 20 Cr 13	Z 20 C 13	420 S 37	X 20 Cr 13	SUS 420 J 1	2303	S42000
	X 39 Cr 13	1.4031	1.4031	X 40 Cr 13	Z 40 C 14	420 S 45	X 40 Cr 14	SUS 420	2304	S40280
	X 70 CrMo 15	1.4109	1.4109	X 65 CrMo 14	Z 70 D 14			SUS 440 A		S44002
	X 90 CrMoV 18	1.4112	1.4112	X 90 CrMoV 18	Z 2 CND 18 05	409 S 19	X CrTi 12	SUS 440 B	2327	S44003
	X 105 CrMo 17	1.4125	1.4125	X 105 CrMo 17	Z 100 CD 17		X 105 CrMo 17	SUS 440 C		S44004
	X 3 CrNiMo 13 3	1.4313	1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	425 C 11	X 6 CrNi 13 04	SCS 5	2385	J91540
	X 18 CrN 28	1.4749	1.4749	X 18 CrN 28	Z 18 C 25					2322
										S40030
M1	X 10 CrNiS 18 9	1.4305	1.4305	X 10 CrNiS 18 9	Z 10 CNF 18 09	303 S 31	X 10 CrNi 18 09	SUS 303	2346	S30300
M2	X 12 CrNi 18 8	1.4300	1.4300	X 12 CrNi 18 8	Z 12 CN 18	302 S 25		SUS 302	2331	S30200
	X 5 CrNi 18 9	1.4301	1.4301	X 6 CrNi 18 10	Z 6 CN 18 09	304 S 31	X 5 CrNi 18 11	SUS 304	2333	S30400
	X 2 CrNi 19 11	1.4306	1.4306	X 2 CrNi 19 11	Z 2 CN 18 10	304 S 12	X 3 Cr Ni 18 11	SUS 304 L	2352	S30403
	X 9 CrNi 18 8	1.4310	1.4310	X 12 CrNi 17 7	Z 12 CN 17 07	301 S 21	X 12 CrNi 17 07	SUS 301	(2331)	S30100
	X 5 CrNiMo 17 12 2	1.4401	1.4401	X 5 CrNiMo 17 12 2	Z 3 CND 17.11.1	316 S 31	X 5 CrNiMo 17 12	SUS 316	2347	S31600
	X 6 CrNiNb 18 10	1.4550	1.4550	X 6 CrNiNb 18 10	Z 6 CND 18 10	347 S 31	X 6 CrNiNb 18 11	SUS 347	2338	S34700
M3	X 2 CrNiN 18 10	1.4311	1.4311	X 2 CrNiN 19 11	Z 2 CN 18 .10 Az	304 S 62	X 2 CrNiN 18 11	SUS 304 LN	2371	S30453
	X 12 CrNi 25 21	1.4335	1.4335	X 12 CrNi 25 21	Z 12 CN 25 20	310 S 24	X 6 CrNi 26 20	SUH 310, SUS 310 S	2361	S31008
	X 2 CrNiMoN 17 13 3	1.4429	1.4429	X 2 CrNiMoN 17 13 3	Z 2 CND 17.13 Az	316 S 62	X 2 CrNiMoN 17 13 3	SUS 316 LN	2375	S31653
	X 2 CrNiMo 18 14 3	1.4435	1.4435	X 2 CrNiMo 18 14 3	Z 2 CND 17.13	316 S 12	X 2 CrNiMo 17 13 2	SCS 16, SUS 316 L	2353	S31603
	X 3 CrNiMo 18 12 3	1.4466	1.4466	X 5 CrNi 18 15		317 S 16	X 5 CrNi 18 15	SUS 317	2366	S31700
	X 9 CrNiSiN 21 11 2	1.4835	1.4893	X 9 CrNiSiN 21 11 2		310 S 31			2368	S30815
M4	X 2 CrNiMoSi 19 5	1.4424	1.4417	X 2 CrNiMoSi 19 5	Z 2 CND 18.05.03				2376	S31500
	X 3 CrNiMo 27 5 2	1.4460	1.4460	X 4 CrNiMo 27 5 2	Z 3 CND 25.7 Az		X 3 CrNiMo 27 5 2	SUS 329 J 1	2324	S32900
	X 2 CrNiMoN 22 5 3	1.4462	1.4462	X 2 CrNiMoN 22 5	Z 2 CND 22.05 Az	332 S 15	X 2 CrNiMoN 22 5		2377	S31803
	X 2 NiCrMoCu 25 20 5	1.4539	1.4539	X 2 NiCrMoCu 25 20 5	Z 2 NCDU 25 20	904 S 13			2562	N08904
M5	X 2 CrNiMoN 25 7 4	1.4410	1.4410	X 2 CrNiMoN 25 7 4	Z 3 CND 25.07 Az		X 2 CrNiMoN 25 7 4		2328	S32750
	X 1 CrNiMoN 20 18 7	1.4547	1.4529	X 1 CrNiMoN 20 18 7	Z 1 CNDU 20.18.05 Az		X 1 CrNiMoN 20 18 7		2778	S31254
	X 6 NiCrTiMoV 25 15	1.4534	1.4534	X 3 CrNiMoAl 13 8 2						S13800
		1.4540	1.4540	X 4 CrNiCuNb 16 4	Z 4 CNUNb 16.4 M					S15500
	X 3 CrNiMoAl 13 8 2	1.4568	1.4568	X 7 CrNiAl 17 7	Z 9 CAN 17.7	301 S 81	X 7 CrNiAl 17 7	SUS 631	2388	S17700
	X 1 CrNiMoN 25 22 8	1.4652	1.4652	X 2 CrNiMoN 25 22 7						S32654
	X 10 NiCrAlTi 32 20	1.4876	1.4876	X 10 NiCrAlTi 32 20	Z 10 NC 32.21			NCF 800		N08800
	X 5 CrNiCuNb 16 4	1.4980	1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15	HR 51		SUH 660	2570	S66286

SMG

U.N.E. / I.H.A.	AISI / ASTM	GOST	Misc. Brands	Condition	Structure
F.520L	L2	11KHF		Annealed	
F.5220	O1	9KHVG		Annealed	
	O2	9G2F		Annealed	
F.5230	52100	SHKH15		Annealed	
F.5212	D3	KH12		Annealed	
	H11	4KH5MFS		Annealed	
F.5318	H13	4KH5MF1S		Annealed	
F.5227	A2	9KH5VF		Annealed	
	H10	3KH3M3F		Annealed	
F.5213		KH12		Annealed	
		KH12MF		Annealed	
F.520.S	L6	5KHNM		Annealed	
F.5613	M35	R6M5K5		Annealed	
	M42	R2AM9K5		Annealed	
	T4	R18K5F2		Annealed	
F.5603	M2	R6M5		Annealed	
	M7			Annealed	
	T1	R18		Annealed	
	403	08KH13		Annealed	Ferrite
F.3401	410, CA-15	12KH13, 08KH13		Annealed	Martensite
F.3113	430	12KH17		Annealed	Ferrite
F.5261	420	20KH13		Annealed	Martensite
F.3404	420	40KH13		Annealed	Martensite
	440 A			Annealed	Martensite
	440 B	95KH18		Annealed	Martensite
	440 C	95KH18		Annealed	Martensite
			F6NM	Annealed	Martensite
	446	15KH28		Annealed	Ferrite
F.3508	303	12KH19N9		Annealed	Austenite
	302	12KH18N9		Annealed	Austenite
F.3504	304, 304 H	08KH18N10		Annealed	Austenite
F.3504	304 L	03KH18N11		Annealed	Austenite
F.3517	301	07KH16N6		Annealed	Austenite
F.3534	316	08KH17H13M2T		Annealed	Austenite
F.3524	347	08KH18N12B		Annealed	Austenite
F.3541	304 LN	03KH18N11		Annealed	Austenite
	310 S	12KH25N20		Annealed	Austenite
	316 LN	03KH16N15M3		Annealed	Austenite
F.3533	316 L	03KH17N14M3		Annealed	Austenite
	317	08KH17H15M3T		Annealed	Austenite
			253 MA	Annealed	Austenite
			3RE60	Annealed	Duplex
	329			Annealed	Duplex
	329 LN		SAF 2205	Annealed	Duplex
	904L			Annealed	Super austenite
	F 53		SAF 2507	Annealed	Super duplex
			254 SMO	Annealed	Super austenite
	XM-13		PH13-8Mo	Solution treated	Austenite
	XM-12		15-5-PH	Solution treated	Martensite
	AMS 5528	09KH17N7YU1	17-7-PH	Solution treated	Austenite/ferrite
			654 SMO	Annealed	Super austenite
			Alloy 800	Annealed	Austenite
	660		A286	Solution treated	Austenite

SMG

SMG	EN	EN-Nr	W-Nr	DIN	AFNOR	BS	UNI	JIS	SS	UNS
K1	EN-GJL-150	0.6150	0.6150	GG-15	Ft 15 D	Grade 150	G15	FC 150	01 15-00	F11601
	EN-GJL-200	0.6200	0.6200	GG-20	Ft 20 D	Grade 220	G20	FC 200	01 20-00	F12101
	EN-GJL-215			GG-220 HB					02 19	
	EN-GJL-250	0.6250	0.6250	GG-25	Ft 25 D	Grade 260	G25	FC 250	01 25-00	F12401
	EN-GJL-300	0.6300	0.6300	GG-30	Ft 30 D	Grade 300	G30	FC 300	01 30-00	F13101
	EN-GJL-350	0.6350	0.6350	GG-35	Ft 35 D	Grade 350	G35	FC 350	01 35-00	F13502
K2	EN-GJV-300			GJV-300						
	EN-GJV-350			GJV-350						
	EN-GJV-400			GJV-400						
	EN-GJV-450			GJV-450						
	EN-GJV-500			GJV-500						
K3	EN-GJMB-550-4	0.8155		GTS-55-04	P 540/5	P 540/5	P 55-04	PCMP55-04	08 54-00	F24130
K4	EN-GJS-350-22	0.7033	0.7033	GGG-35.3	FGS 370-17	Grade 350/22		FCD 350-22L	07 17-15	
	EN-GJS-400-15	0.7040	0.7040	GGG-40	FGS 400-12	Grade 420/12	GS 400-12	FCD 400-18L	07 17-02	F32800
	EN-GJS-400-18	0.7043	0.7043	GGG-40.3	FGS 370-17	Grade 370/17	GSO 42/17		07 17-12	F32800
	EN-GJS-500-7	0.7050	0.7050	GGG-50	FGS 500-7	Grade 500/7	GS 500-7	FCD 500-7	07 27-02	F33800
	EN-GJS-600-3	0.7060	0.7060	GGG-60	FGS 600-3	Grade 600/3	GS 600-3	FCD 600-3	07 32-03	F34100
	EN-GJS-700-2	0.7070	0.7070	GGG-70	FGS 700-2	Grade 700/2	GS 700-2	FCD 700-2	07 37-01	F34800
K5	-									ADI grade 5
	EN-GJS-1000-5			GJS-1000-5						ADI grade 2
	EN-GJS-1200-2			GJS-1200-2						ADI grade 3
	EN-GJS-1400-1			GJS-1400-1						ADI grade 4
	EN-GJS-800-8			GJS-800-8						ADI grade 1
K6	EN-GJLA-XNiCr 20-2	0.6660	0.6660	GGL-NiCr 20 2	FGL Ni20 Cr2	Grade F2			05 23-00	F41002
	EN-GJLA-XNiCr 30-3	0.6676	0.6676	GGL-NiCr 30 3	FGL Ni30 Cr3	Grade F3				F41004
	EN-GJLA-XNiCuCr15-6-2	0.6655	0.6655	GGL-NiCuCr 15 6 2	FGL Ni15 Cu6 Cr2	Grade F1				F41000
K7	EN-GJSA-XNi35	0.7683	0.7683	GGG-Ni 35	FGS Ni35					F43006
	EN-GJSA-XNiCr20-2	0.7660	0.7660	GGG-NiCr 20 2	FGS Ni20 Cr2	Grade S2				F43000
	EN-GJSA-XNiCr30-3	0.7676	0.7676	GGG-NiCr 30 3	FGS Ni30 Cr3	Grade S3				F43003
	EN-GJSA-XNiMn13-7	0.7652	0.7652	GGG-NiMn 13 7	FGS Ni13 Mn7	Grade S6			07 72-00	-
	EN-GJSA-XNiMn23-4	0.7673	0.7673	GGG-NiMn 23 4	FGS Ni23 Mn4	Grade S2M				F43010
N1	AW-1050A	Al99.5	3.0255	Al99.5	A-5/1050A	1B		(A1050)	4007	AA1050A
	AW-3103	AlMn1	3.0515	AlMn1		N3			4054	AA3103
	AW-3003	AlMn1Cu	3.0517	AlMn1Cu	A-M1/3003			A3003		AA3003
	AW-2014	AlCuSiMn	3.1255	AlCuSiMn	A-U4SG/2014	H15			4338	AA2014
	AW-2011	AlCuBiPb	3.1655	AlCuBiPb	A-USPB/2011	FC1		A2011	4355	AA2011
	AC-46200	AlSi8Cu3(Si)	3.2161	G-AlSi8Cu3					4251	A13800
	AC-42000		3.2341	G-AlSi5Mg	A-S7G	LM25	3599	AC 4C	4244	
	AW-6060	AlMgSi0.5	3.3206	AlMgSi0.5	A-GS/6060	(H9)			4103	AA6060
	AW-6063	AlMgSi0.7	3.3210	AlMgSi0.7	A-GSUC/6061	(H10)		(A6063)	4104,4107	AA6005
	AW-5005	AlMg1	3.3315	AlMg1	A-G0.6	N41			4106	AA5005
	AW-7020	AlZn4.5Mg1	3.4335	AlZn4.5Mg1	A-Z5G/7020	H17			4425	AA7020
	AW-7075		3.4365	AlZnMgCu1.5	A-Z5GU/7075	2L95/2L96		A7075		AA7075
	MN65120	MgSe3Zn2Zr1	3.5103	G-MgSe3Zn2Zr1	ZRE1	MAG6-TE				M12330
	MG-P-63	MgAl6Zn	3.5612	G-MgAl6Zn	G-A6-Z1	MAG-E-121				M11600
	MG-P-61	MgAl8Zn	3.5812	G-MgAl8Zn	(G-A7-Z1)					
	AW-6082	AlMgSi1	3.2315	AlMgSi1	A-SGM0.7/6082	H30			4212	AA6082
	AC-43400	AlSi10Mg(Fe)	3.2381	G-AlSi10Mg	A-S10G	LM9			4253	A13600
	AC-44200	AlSi12	3.2382	GD-AlSi12						
N3		AlSi17Cu5						ADC14		
N11	CC331G		2.0940.01	CuAl10Fe	CuAl10Fe	AB1			5710	C95200
	CC333G		2.0975.01	CuAl10Ni	CuAl10Ni5Fe5	AB2			5716	C95500
		CuNi10Fe1Mn	2.0872	CuNi10Fe1Mn	CuNi10Fe1Mn	CN102			5667	C70600
				CuNi10Zn45						
	CW408J		2.0790	CuNi18Zn19Pb	CuNi18Zn19Pb1					C76300
	CW352H		2.1176	CuPb10Sn	CuSn10Pb10	LB2			5640	C93700
	CC480K		2.1050.01	CuSn10	CuSn10	CT1			5443	C90700
			2.1087	CuSn10Zn					5458	C90500
	CW452K	CuSn6	2.1020	CuSn6	CuSn6	PB103		C5191	5428	C51900
	CW502L	CuZn15	2.0240	CuZn15	CuZn15	CZ102		C2300	5112	C23000
	CW706R	CuZn28Sn1	2.0470	CuZn28Sn1	CuZn29Sn1				5220	C44300
	CW508L	CuZn37	2.0321	CuZn37	CuZn37	CZ108			5150	C27200
	CW717R	CuZn38Sn1	2.0530	CuZn38Sn1						C46400
	CW614N	CuZn39Pb3	2.0401	CuZn39Pb3	CuZn39Pb3	CZ121			5170	C38500
	CW612N	CuZn40Pb2	2.0402	CuZn40Pb2	CuZn39Pb2	CZ120			5168	C37800
	CW622N	CuZn44Pb2	2.0410	CuZn44Pb2		CZ104			5272	C68700

U.N.E./ I.H.A.	AISI / ASTM	GOST	Misc. Brands	Condition	Structure
	A48 25 B	Sc 15			Grey cast iron (GCI)
	A48 30 B	Sc 20			Grey cast iron (GCI)
	G 3500				Grey cast iron (GCI)
	A48 35 B	Sc 25			Grey cast iron (GCI)
	A48 45 B	Sc 30			Grey cast iron (GCI)
	A48 50 B	Sc 35			Grey cast iron (GCI)
	Grade 350				Compacted graphite irons (CGI)
	Grade 400				Compacted graphite irons (CGI)
	Grade 400-15				Compacted graphite irons (CGI)
	Grade 450				Compacted graphite irons (CGI)
	Grade 500				Compacted graphite irons (CGI)
	A220 60004			Tempered	Malleable cast irons (MCI)
					Nodular cast irons (SGI)
FGE 38-17	60-40-18	Vc 42-12			Nodular cast irons (SGI)
	60-40-18	Vc 42-12			Nodular cast irons (SGI)
FGE 50-7	A536 80-55-6	Vc 50-2			Nodular cast irons (SGI)
FGE 60-2	A476 80-60-03	Vc 60-2			Nodular cast irons (SGI)
FGE 70-2	A536 100-70-03	Vc 70-2			Nodular cast irons (SGI)
	1600/1300/-				Austempered cast irons (ADI)
	1050/700/7				Austempered cast irons (ADI)
	1200/850/4				Austempered cast irons (ADI)
	1400/1100/1				Austempered cast irons (ADI)
	850/550/10				Austempered cast irons (ADI)
	A436 Type 2		Ni-Resist 2		Austenitic lamellar cast irons
	A436 Type 3		Ni-Resist 3		Austenitic lamellar cast irons
	A436 Type 1		Ni-Resist 1		Austenitic lamellar cast irons
	A439 Type D-5		Ni-Resist D-5		Austenitic nodular cast irons
	A436 Type D-2		Ni-Resist D-2		Austenitic nodular cast irons
	A436 Type D-3		Ni-Resist D-3		Austenitic nodular cast irons
	-		Nodumag		Austenitic nodular cast irons
	A439 Type D-2M		Ni-Resist D-2M		Austenitic nodular cast irons
	A380				
	B26				
	AMS 4442				
	AZ61A				
	AZ80A				
	B85				
	A413.2				
	B390.0				
	CA952	BrA9ZH3L			
	CA955	BrA10ZH4N4L			
	CA937				
		BrOF6.5-0.15			
		L90			
		LOMsh70-1-0.05			
		LO60-1			
		I AMsh77-2-0.05			

SMG

SMG	EN	EN-Nr	W-Nr	DIN	AFNOR	BS	UNI	JIS	SS	UNS
S1										
S2										
S3	NiMo30		2.4810							N10002
	NiMo16Cr15W		2.4819							N10276
	NiCr19Fe19Nb5Mo3		2.4668							N07718
			2.4669							N07750
	NiCr20TiAl		2.4631							N07080
S11	NiCr19Co18Mo4Ti3Al3									N07500
	NiCr20Co13Mo4Ti3Al		2.4654							N07001
S12			3.7024							
S13										
H3	16 MnCr 5	1.7131	1.7131	16 MnCr 5	16 MC 5	527 M 17	16 MnCr 5	SCR 415	2511	G51170
H5	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M40	42 CrMo 4	SCM 440 (H)	2244	G41400
	C 67S	1.1231	1.1231	Ck 67	XC 68	060 A 67	C 70		1770	G10700
	C 75S	1.1248	1.1248	Ck 75	XC 75	060 A 78	C 75		1774, 1778	G10780
	C 100S	1.1274	1.1274	Ck 101		060 A 96		SUP 4	1870	G10950
	C 105U	1.1545	1.1545	C 105 W1	Y1 105		C 100 KU		1880	
			1.2550	60 WCrV 7	55 WC 20		55 WCrV 8 KU			
	55 Cr 3	1.7176	1.7176	55 Cr 3	55 C 3	527 A 60	55 Cr 3	SUP 9 (A)	2253	G51550
H7	107 CrV 3	1.2210	1.2210	115 CrV 3	100 C 3		107 CrV 3 KU			T61202
			1.2510	100 MnCrW 4	90 MWCV 5	BO 1	95 MnWCr 5 KU	SKS 3	2140	T31501
	90 MnCrV 8	1.2842	1.2842	90 MnCrV 8	90 MV 8	BO 2	90 MnVCr 8 KU			T31502
H8	100 Cr 6	1.3505	1.3505	100 Cr 6	100 C 6	534 A 99	100 Cr 6	SUJ 2	2258	G51986
	X 40 CrMoV 5 1	1.2344	1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	BH 13	X 40 CrMo 5 1 1 KU	SKD 61	2242	T20813
	X 100 CrMoV 5	1.2363	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	BA 2	X 100 CrMoV 5 1 KU	SKD 12	2260	T30102
	X 155 CrVMo 12 1		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	BD 2	X 155 CrVMo 12 1 KU	SKD 11		T30402
			1.2436	X 210 CrW 12			X 215 CrW 12 1 KU	SKD 2	2312	
			1.2601	X 165 CrMoV 12			X 165 CrMoW 12 KU		2310	
			1.2713	55 NiCrMoV 6	55 NCDV 7			SKT 4		T61206
	HS 6-5-2-5	1.3243	1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05-04-02		HS 6-5-2-5	SKH 55	2723	
	HS 2-10-1-8	1.3247	1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	BM 42	HS 2-9-1-8	SKH 51		T11342
	HS 6-5-2	1.3343	1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	BM 2	HS 6-5-2	SKH 9, SKH 51	2722	T11302
	HS 18-0-1	1.3355	1.3355	S 18-0-1	Z 80 WCV 18-04-01	BT 1	HS 18-0-1	SKH 2		T12001
H11	X 20 Cr 13	1.4021	1.4021	X 20 Cr 13	Z 20 C 13	420 S 37	X 20 Cr 13	SUS 420 J 1	2303	S42000
	X 70 CrMo 15	1.4109	1.4109	X 65 CrMo 14	Z 70 D 14			SUS 440 A		S44002
	X 90 CrMoV 18	1.4112	1.4112	X 90 CrMoV 18	Z 2 CND 18 05	409 S 19	X CrTi 12	SUS 440 B	2327	S44003
	X 105 CrMo 17	1.4125	1.4125	X 105 CrMo 17	Z 100 CD 17		X 105 CrMo 17	SUS 440 C		S44004
	X 3 CrNiMoAl 13 8 2	1.4534	1.4534	X 3 CrNiMoAl 13 8 2						S13800
H12	X 5 CrNiCuNb 16 4	1.4548	1.4542	X 5 CrNiCuNb 17 4	Z 6 CNU 17.4			SCS 24, SUS 630		S17400
	X 7 CrNiAl 17 7	1.4568	1.4568	X 7 CrNiAl 17 7	Z 9 CAN 17.7	301 S 81	X 7 CrNiAl 17 7	SUS 631	2388	S17700
	X 6 NiCrTiMoV 25 15	1.4980	1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15	HR 51		SUH 660	2570	S66286
H21	X 120 Mn 12	1.3401	1.3401	X 120 Mn 12	Z 120 M 12	BW 10		SC MnH 1	2183	
H31	EN-GJN-HV520	0.9620	G-X330 NiCr 4 2	FB Ni4 Cr2 BC	Grade 2 A	Grade 2 A			05 12-00	F45001
	EN-GJN-HV550	0.9625	G-X260 NiCr 4 2	FB Ni4 Cr2 HC	Grade 2 B	Grade 2 B			05 13-00	F45000
	EN-GJN-HV600(XCr11)	0.9630	G-X300 CrNiSi 9 5 2	FB Cr9 Ni5	Grade 2 C, D, E	Grade 2 C, D, E			04 57-00	F45003

SMG

U.N.E./I.H.A.	AISI / ASTM	GOST	Misc. Brands	Condition	Structure
			Discalloy	Precipitation hardened	
			Haynes 25		
			Stellite 21		
			Stellite 31		
			Hastelloy C		
		KHN65MV	Hastelloy C-276		
			IN 100		
			Inconel 718		
			Inconel X-750	Solution treated	
			Nimonic 80A		
			René 41		
			Udimet 500		
			Waspalloy		
			Ti	Commercially pure	Ti (α)
	AMS 4919		Ti 6-2-4-2	Annealed	Ti (α)
	AMS 4943		Ti 3Al-2.5V (grd 9)	Annealed	Ti ($\alpha+\beta$)
	AMS 4920, Grd 5	VT6	Ti 6Al-4V	Annealed	Ti ($\alpha+\beta$)
	AMS 4986		Ti 10V-2Fe-3Al	Annealed	Ti (β)
F.1516	5115	12KHN2		Case hardened	
F.1252	4142, 4140	38HM		Quenched & Tempered	
F.5103	1070	70		Quenched & Tempered	
F.5107	1078, 1080	75		Quenched & Tempered	
F.5117	1095			Quenched & Tempered	
F.5118	W 1	U10A		Quenched & Tempered	
	S1	5KHV2SF		Quenched & Tempered	
	5155			Quenched & Tempered	
F.520L	L2	11KHF		Quenched & Tempered	
F.5220	O1	9KHVG		Quenched & Tempered	
	O2	9G2F		Quenched & Tempered	
F.5230	52100	SHKH15		Quenched & Tempered	
F.5318	H13	4KH5MF1S		Quenched & Tempered	
F.5227	A2	9KH5VF		Quenched & Tempered	
F.5211	D2	KH12MF		Quenched & Tempered	
F.5213		KH12		Quenched & Tempered	
		KH12MF		Quenched & Tempered	
F.520.S	L6	5KHNM		Quenched & Tempered	
F.5613	M35	R6M5K5		Quenched & Tempered	
	M42	R2AM9K5		Quenched & Tempered	
F.5603	M2	R6M5		Quenched & Tempered	
	T1	R18		Quenched & Tempered	
F.5261	420	20KH13		Quenched & Tempered	Martensite
	440 A			Quenched & Tempered	Martensite
	440 B	95KH18		Quenched & Tempered	Martensite
	440 C	95KH18		Quenched & Tempered	Martensite
	XM-13		PH13-8Mo	Precipitation hardened	Martensite
	630		17-4-PH	Precipitation hardened	Martensite
	AMS 5528	09KH17N7YU1	17-7-PH	Precipitation hardened	Austenite/ferrite
	660		A286	Precipitation hardened	Austenite
	A128 Grade A				
	A532 IB (NiCr-LC)		Ni-Hard 2		White cast iron
	A532 IA (NiCr-HC)		Ni-Hard 1		White cast iron
	A532 ID (Ni-HiCr)		Ni-Hard 4		White cast iron

Cemented carbide inserts and insert carriers

Cemented carbide inserts and cemented carbide insert carriers from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.

These products meet all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.

Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.

Regrinding:

Wet or dry grinding can produce potentially hazardous dusts or mists that can irritate skin, eyes, nose, throat and result in lung damage or disease. To avoid injury use proper safety precautions and protective equipment.

Disposal:

Seco Tools will buy back used inserts and solid carbide tools for recycling. Inserts and solid carbide tools should be separated from other metal waste (steel, aluminium, copper etc).

All packing material is fully recyclable.

CBN and PCD inserts

Inserts from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.

This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.

Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.

Regrinding:

Wet or dry grinding can produce potentially hazardous dusts or mists that can irritate skin, eyes, nose, throat and result in lung damage or disease. To avoid injury use proper safety precautions and protective equipment.

Disposal:

Seco Tools will buy back used CBN- or PCD-tipped inserts for recycling. Inserts should be separated from other metal waste (steel, aluminium, copper etc). Solid CBN-inserts may be discarded as landfill waste.

All packing material is fully recyclable.

Black oxide insert carriers

Insert carriers from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.

This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.

Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.

Disposal:

Used insert carriers may be sent for recycling together with ordinary steel waste (swarf and discarded steel scrap) for recycling.

All packing material is fully recyclable.

Cermet inserts

Inserts from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.

This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.

Cermet grade C15M inserts do contain nickel and will leach nickel when in contact with the skin. Amount of leaching is higher than specified in norm SS-EN 1811 Reference test method for release of nickel from products intended to come into direct and prolonged contact with the skin. These norms are intended for products that are in direct and prolonged contact with the skin and are therefore not directly applicable for cermet inserts. Persons with known allergic reactions to nickel are advised to wear protective gloves when handling cermet inserts.

Regrinding:

Wet or dry grinding can produce potentially hazardous dusts or mists that can irritate skin, eyes, nose, throat and result in lung damage or disease. To avoid injury use proper safety precautions and protective equipment.

Disposal:

Used inserts may be recycled. Inserts should be separated from other metal waste (steel, aluminium, copper, etc) including cemented carbide inserts.

All packing material is fully recyclable.

Nickel coated insert carriers

Insert carriers from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.

This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.

Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.

Insert carriers do contain nickel and will leach nickel when in contact with the skin. Amount of leaching is not higher than norm SS-EN 1811 Reference test method for release of nickel from products intended to come into direct and prolonged contact with the skin.

These norms are intended for products that are in direct and prolonged contact with the skin and are therefore not directly applicable for insert carriers. Persons with known allergic reactions to nickel are advised to wear protective gloves when handling nickel coated insert carriers.

Disposal:

Used tools maybe sent for recycling together with ordinary steel waste (swarf and discarded steel scrap) for recycling.

All packing material is fully recyclable.

Intentionally added alloying elements

Grade	Cemented carbide										Coating						
	W	Ti	Ta	Nb	Co	Cr	Ni	Mo	C	N	Ti	Al	C	N	O	Si	Nb
CP20	■				■				■		■			■			
CP200	■				■	■			■		■	■		■			
CP300	■	■	■	■	■				■		■	■		■			
CP500	■				■	■			■		■	■		■			
CP600	■				■	■			■		■	■		■			
C15M	■	■	■	■	■		■	■	■	■							
CF	■		■		■		■	■	■								
CM	■		■		■		■	■	■								
DP2000	■		■	■	■				■		■	■	■	■	■		
DP3000	■	■	■	■	■				■	■	■	■	■	■	■		
F15M	■				■	■			■		■	■		■			
F25M	■	■	■	■					■		■	■		■			
F30M	■				■	■			■		■	■		■			
F40M	■				■	■			■		■	■		■			
HX	■		■		■				■								
H02	■		■		■	■			■								
H15	■				■	■			■								
H25	■				■	■			■								
KX	■				■	■			■								
MH1000	■				■	■			■		■	■		■			
MK1500	■		■		■				■		■	■	■	■	■		
MK2050	■		■		■	■			■		■	■	■	■		■	
MM4500	■				■	■			■		■	■	■	■	■		
MP1020	■	■	■	■	■				■								
MP1500	■		■	■	■				■		■	■	■	■	■		
MP2500	■		■	■	■				■		■	■	■	■	■		
MP3000	■				■	■			■		■	■		■			
MS2500	■		■	■	■				■		■	■	■	■	■		
MS2050	■				■	■			■		■	■		■			■
RX1500	■		■		■		■	■	■		■	■		■			
RX2000	■		■		■	■			■		■	■		■			
T350M	■		■	■	■				■		■	■	■	■	■		
T25M	■		■	■	■				■		■	■	■	■			
TGH1050	■				■	■			■		■	■		■		■	
TGK1500	■		■		■				■		■	■	■	■	■		
TGP25	■	■	■	■	■				■		■	■	■	■	■		
TGP35	■		■	■	■				■		■	■	■	■	■		
TGP45	■		■	■	■				■		■	■	■	■	■		
TH1000	■				■	■			■		■	■		■		■	
TH1500	■				■	■			■		■	■		■			
TK1001	■				■	■			■		■	■	■	■	■		
TK2001	■		■		■	■			■		■	■	■	■	■		
TM2000	■	■	■	■	■				■	■	■	■	■	■	■		
TM4000	■	■	■	■	■				■	■	■	■	■	■	■		
TP0500	■	■	■	■	■				■		■	■	■	■	■		
TP0501	■	■	■	■	■	■			■		■	■	■	■	■		
TP1020	■	■	■	■	■				■	■	■						
TP1030	■	■	■	■	■				■		■	■		■		■	
TP1500	■	■	■	■	■				■	■	■	■	■	■	■		
TP1501	■	■	■	■	■				■	■	■	■	■	■	■		
TP200	■	■	■	■	■				■		■	■	■	■	■		
TP2500	■	■	■	■	■				■	■	■	■	■	■	■		
TP2501	■	■	■	■	■	■			■	■	■	■	■	■	■		
TP40	■		■	■	■				■		■		■	■			
TS2000	■				■	■			■		■	■		■			
TS2050	■				■	■			■		■	■		■		■	
TS2500	■		■		■				■		■	■		■			
T250D	■				■	■			■		■	■		■			
T400D	■				■	■			■		■	■		■			
T100R	■		■		■	■			■		■	■		■			
T60M	■	■	■	■	■				■		■	■		■			
883	■		■		■				■								
890	■				■	■			■								

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