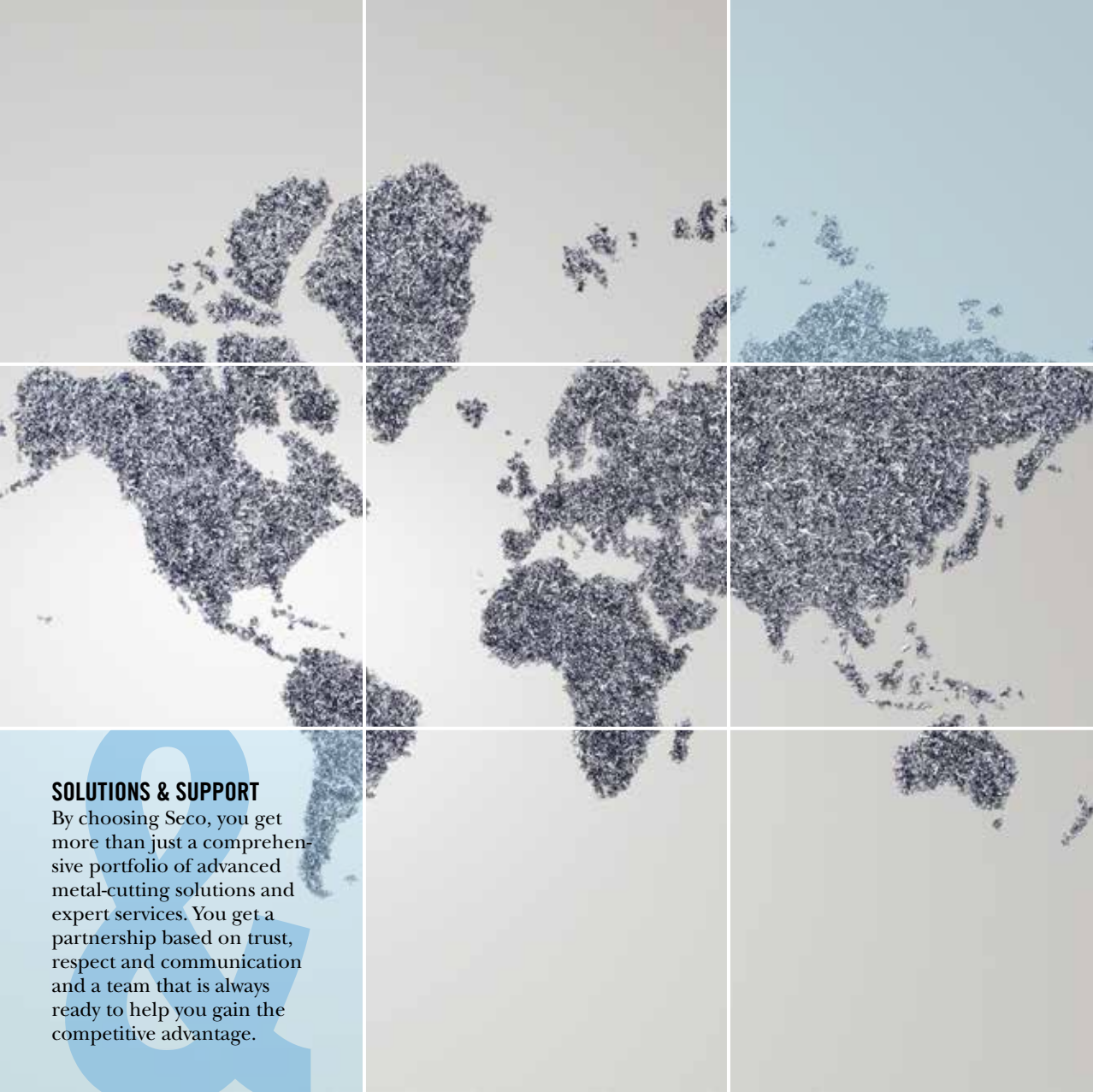




UPDATE 2016-1



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

* SMG = Seco Material Group

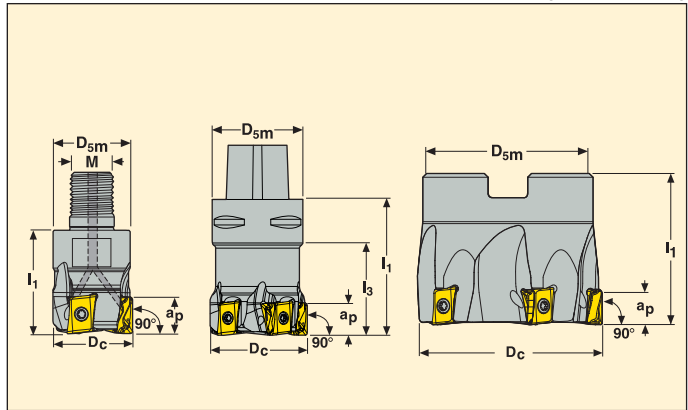
Square shoulder and slot milling cutters

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_{sm}	dm_m	M	I_1	I_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

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

Square shoulder and slot milling cutters



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	—	—	—

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

R217/220.29-06 – Insert selection

SMG		ap	fz			
			100%	30%	10%	5%
P1	RPHT1204MOT-6-M08 T350M	2,5	0,24	0,26	0,42	0,60
P2	RPHT1204MOT-6-M08 T350M	2,5	0,26	0,28	0,42	0,60
P3	RPHT1204MOT-6-M08 T350M	2,5	0,24	0,26	0,40	0,55
P4	RPHT1204MOT-6-M08 T350M	2,5	0,24	0,26	0,40	0,55
P5	RPKT1204MOT-6-M15 MP2500	2,5	0,42	0,46	0,75	1,0
P6	RPKT1204MOT-6-M15 MP2500	2,5	0,42	0,46	0,70	1,0
P7	RPKT1204MOT-6-M15 MP2500	2,5	0,42	0,46	0,70	1,0
P8	RPKT1204MOT-6-M15 MP2500	2,5	0,44	0,48	0,75	1,1
P11	RPHT1204MOT-6-M08 MP2500	2,5	0,22	0,24	0,38	0,55
M1	RPHT1204MOT-6-ME07 T350M	2,5	0,22	0,24	0,36	0,50
M2	RPHT1204MOT-6-ME07 T350M	2,5	0,20	0,22	0,34	0,46
M3	RPHT1204MOT-6-ME07 T350M	1,9	0,18	0,20	0,30	0,42
M4	RPHT1204MOT-6-M08 T350M	1,5	0,20	0,22	0,34	0,48
M5	RPHT1204MOT-6-M08 T350M	1,5	0,20	0,22	0,34	0,48
K1	RPKT1204MOT-6-M15 MK2050	2,5	0,46	0,50	0,80	1,1
K2	RPKT1204MOT-6-M15 MK2050	2,5	0,42	0,46	0,75	1,0
K3	RPKT1204MOT-6-M15 MK2050	2,5	0,42	0,46	0,75	1,0
K4	RPKT1204MOT-6-M15 MK2050	2,5	0,42	0,46	0,75	1,0
K5	RPKT1204MOT-6-M15 MK2050	2,5	0,38	0,42	0,65	0,90
K6	RPKT1204MOT-6-M15 MK2050	2,5	0,42	0,46	0,75	1,0
K7	RPKT1204MOT-6-M15 MK2050	2,5	0,38	0,42	0,65	0,90
N1	RPHT1204MO-6-E05 H25	2,5	0,20	0,22	0,34	0,46
N2	RPHT1204MO-6-E05 H25	2,5	0,20	0,22	0,34	0,46
N3	RPHT1204MO-6-E05 H25	2,5	0,20	0,22	0,34	0,46
N11	RPHT1204MO-6-E05 H25	2,5	0,20	0,22	0,34	0,46
S1	RPHT1204MOT-6-M13 MS2500	1,5	0,34	0,36	0,55	0,80
S2	RPHT1204MOT-6-M13 MS2500	1,5	0,34	0,36	0,55	0,80
S3	RPHT1204MOT-6-M13 MS2500	1,5	0,32	0,34	0,55	0,75
S11	RPHT1204MOT-6-M13 MS2050	1,7	0,36	0,40	0,60	0,85
S12	RPHT1204MOT-6-M13 MS2050	1,7	0,36	0,40	0,60	0,85
S13	RPHT1204MOT-6-M13 MS2050	1,5	0,34	0,36	0,55	0,80
H5	RPHW1204MOT-6-MD12 MH1000	1,9	0,26	0,30	0,46	0,65
H8	RPHW1204MOT-6-MD12 MH1000	1,7	0,22	0,24	0,36	0,50
H11	RPHW1204MOT-6-MD12 MH1000	1,9	0,26	0,30	0,46	0,65
H12	RPHT1204MOT-6-M13 T350M	1,9	0,28	0,32	0,48	0,70
H21	RPHW1204MOT-6-MD12 MH1000	1,7	0,22	0,24	0,36	0,50

SMG = Seco material group

fz = mm/tooth

vc = m/min

ae/Dc = %

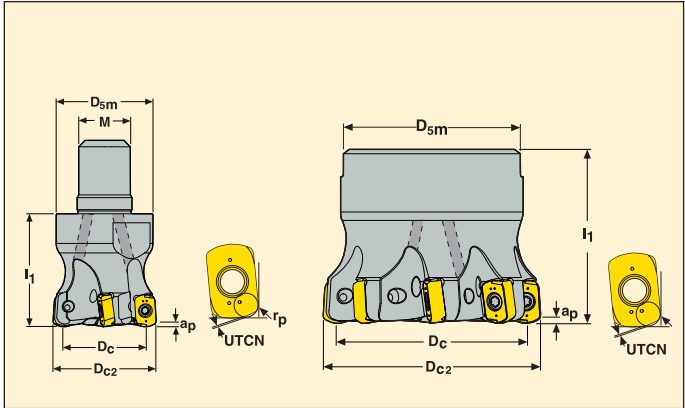
All cutting data are start values

R217/220.29-06 – Cutting data $v_c = (m/min)$

SMG	MP1500				MP2500				MP3000				T350M				F40M			
	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	310	435	520	560	335	465	550	600	315	440	520	570	290	405	480	520	255	355	420	455
P2	300	425	495	540	320	455	530	580	305	420	500	550	275	395	460	510	240	345	400	440
P3	260	370	435	475	280	390	460	510	265	370	435	475	245	340	405	440	210	295	350	385
P4	230	325	385	425	245	345	415	445	235	330	385	425	215	300	360	390	185	260	315	340
P5	225	315	375	410	240	335	395	430	225	315	370	405	210	290	345	375	180	255	300	325
P6	250	355	425	460	270	375	445	485	255	350	415	455	235	330	385	420	205	285	335	365
P7	235	335	400	430	255	355	420	455	240	330	390	430	220	310	365	400	195	270	315	345
P8	220	310	370	400	235	330	390	425	225	310	365	400	205	285	340	370	180	250	295	325
P11	230	325	390	420	245	345	405	445	235	325	380	415	215	300	355	385	185	260	310	335
M1	—	—	—	—	230	325	380	420	230	315	375	410	215	305	355	390	195	275	325	355
M2	—	—	—	—	195	270	315	345	190	260	310	340	180	250	295	325	165	230	270	295
M3	—	—	—	—	155	215	255	280	150	210	245	270	145	200	235	260	130	180	215	235
M4	—	—	—	—	120	165	195	215	115	160	190	205	110	150	180	200	100	140	165	180
M5	—	—	—	—	100	135	160	180	95	130	155	170	95	125	150	165	85	115	135	150
K1	240	335	395	430	250	360	420	460	240	335	400	435	—	—	—	—	190	270	320	350
K2	210	300	360	385	230	320	375	410	215	300	350	385	—	—	—	—	175	240	285	310
K3	180	255	305	330	195	270	315	345	180	250	295	325	—	—	—	—	145	205	240	260
K4	170	240	290	315	185	255	305	330	175	240	280	310	—	—	—	—	140	195	230	250
K5	105	150	175	195	110	155	185	200	105	145	170	185	—	—	—	—	85	120	140	155
K6	150	215	255	275	160	225	265	290	155	210	250	275	—	—	—	—	125	170	200	220
K7	135	190	225	245	145	200	235	260	135	185	220	240	—	—	—	—	110	150	175	195
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	710	1000	1200	1300
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	570	810	960	1050
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	385	540	640	700
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	440	610	730	800
S1	—	—	—	—	—	—	—	—	55	75	90	95	50	70	85	95	48	65	75	85
S2	—	—	—	—	—	—	—	—	44	60	70	80	42	55	70	75	38	50	60	70
S3	—	—	—	—	—	—	—	—	38	50	60	65	37	50	60	65	33	46	55	60
S11	—	—	—	—	—	—	—	—	75	105	125	135	75	100	120	130	65	90	110	120
S12	—	—	—	—	—	—	—	—	44	60	70	80	42	60	70	75	38	55	65	70
S13	—	—	—	—	—	—	—	—	35	48	55	60	34	46	55	60	31	42	50	55
H5	50	70	85	90	48	65	80	85	46	65	75	80	46	65	75	85	40	55	65	70
H8	55	75	90	100	50	70	85	90	49	65	80	85	49	65	80	85	43	60	70	75
H11	65	90	105	115	60	85	100	110	60	80	95	105	60	80	95	105	50	70	85	90
H12	95	135	160	175	90	130	150	165	90	120	145	155	90	120	145	160	75	105	125	140
H21	55	75	90	100	50	70	85	90	49	65	80	85	49	65	80	85	43	60	70	75

R217/220.29-06 – Cutting data $v_c = (m/min)$

SMG	MK2050				MS2050				MS2500				H25			
	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%	100%	30%	10%	5%
P1	270	380	455	490	—	—	—	—	365	510	600	650	—	—	—	—
P2	260	370	435	475	—	—	—	—	345	495	580	640	—	—	—	—
P3	230	320	380	415	—	—	—	—	305	425	500	550	—	—	—	—
P4	200	285	335	375	—	—	—	—	270	375	450	485	—	—	—	—
P5	195	275	330	355	—	—	—	—	260	365	430	470	—	—	—	—
P6	220	310	370	400	—	—	—	—	295	410	485	530	—	—	—	—
P7	205	290	350	375	—	—	—	—	280	385	455	500	—	—	—	—
P8	190	270	320	350	—	—	—	—	255	360	425	465	—	—	—	—
P11	200	285	340	365	—	—	—	—	270	375	445	485	—	—	—	—
M1	—	—	—	—	220	295	330	355	250	355	415	455	—	—	—	—
M2	—	—	—	—	185	240	270	285	210	290	345	375	—	—	—	—
M3	—	—	—	—	150	185	200	210	170	230	275	300	—	—	—	—
M4	—	—	—	—	115	135	145	150	130	175	210	230	—	—	—	—
M5	—	—	—	—	95	110	120	125	110	145	175	195	—	—	—	—
K1	285	400	465	510	—	—	—	—	—	—	—	—	—	—	—	—
K2	250	355	425	460	—	—	—	—	—	—	—	—	—	—	—	—
K3	215	300	360	390	—	—	—	—	—	—	—	—	—	—	—	—
K4	205	285	345	370	—	—	—	—	—	—	—	—	—	—	—	—
K5	125	175	210	230	—	—	—	—	—	—	—	—	—	—	—	—
K6	180	255	305	325	—	—	—	—	—	—	—	—	—	—	—	—
K7	160	225	270	295	—	—	—	—	—	—	—	—	—	—	—	—
N1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
S1	—	—	—	—	38	55	65	70	65	85	105	115	—	—	—	—
S2	—	—	—	—	31	44	55	55	50	70	85	90	—	—	—	—
S3	—	—	—	—	28	39	47	50	45	60	75	80	—	—	—	—
S11	—	—	—	—	50	75	85	95	90	125	145	160	—	—	—	—
S12	—	—	—	—	38	55	65	75	50	70	85	90	—	—	—	—
S13	—	—	—	—	33	47	55	60	41	55	65	75	—	—	—	—
H5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
H8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
H11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
H12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
H21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



- 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_{sm}	d_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 = d_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-LO06 – 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

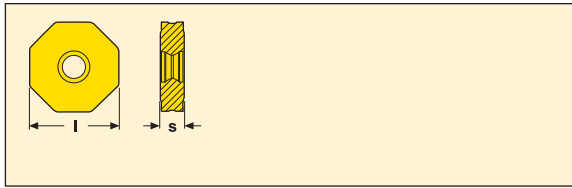
R217/220.21-L006 – Cutting data $v_c =$ (m/min)

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	—	—	—

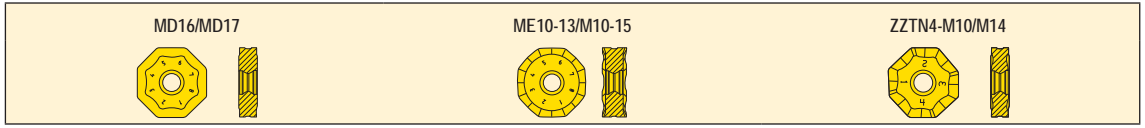
R217/220.21-L006 – Cutting data $v_c =$ (m/min)

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

ON.U05/09















Size	Dimensions in mm	
	l	s
ON..05	12	4
ON..09	22	5,8



Part No.	Cutting rake	Grades																
		Coated												Uncoated			Cermets	
		MP1500	MP2500	MP3000	MH1000	MM4500	MK1500	MK2050	MS2050	MS2500	T350M	F15M	F25M	F40M	HX	H15	H25	MP1020
ONMU 050410ANTN-M10	20°	■	■	■		■	■	■					■					■
050410ANTN-M11	20°	■	■	■		■	■	■					■					■
050410ANTN-ME10	20°	■	■	■		■	■		■				■					
050410ANTN-ME11	20°	■	■	■		■	■		■				■					
ONEU 050410ZZTN4-M10	20°		■	■		■	■	■					■					■
ONMU 090520ANTN-ME12	20°	■	■	■		■	■		■	■	■		■					
090520ANTN-ME13	20°	■	■	■		■	■	■	■	■	■		■					
090520ANTN-M12	20°	■	■	■		■	■	■	■	■	■		■					
090520ANTN-M13	20°	■	■	■		■	■	■	■	■	■		■				■	
090520ANTN-M14	15°	■	■	■		■	■	■	■	■	■		■					
090520ANTN-M15	15°	■	■	■		■	■	■	■	■	■		■					
090520ANTN-MD16	0°	■	■			■				■								
090520ANTN-MD17	0°	■	■			■												
ONEU 090520ZZTN4-M12	20°	■	■				■											
ONEU 090520ZZTN4-M14	15°	■	■	■		■	■	■		■			■					■

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

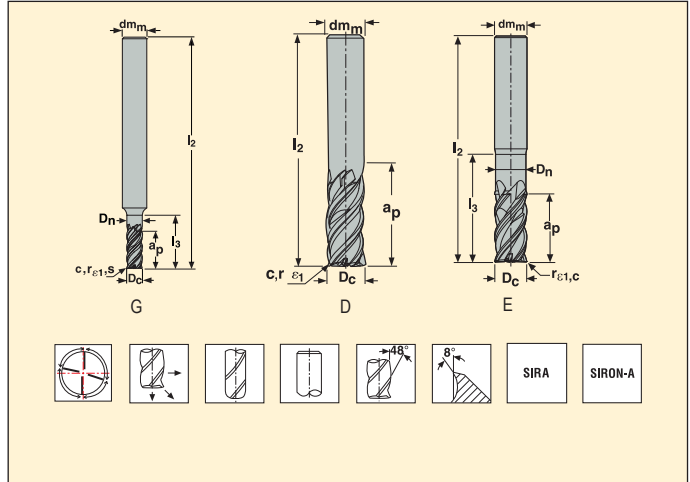
			
			
Name		JS554	JHF980
Page		30-35	36-39
Family		JS ²	HFM
Type of mill			
Shank	Cylindrical	■	■
	Weldon	■	
Number of flutes		4	2,3,4,5
ICC			
Diameter range	Metric	3-25	1-12
	Inch	1/4-1	
Lengths available, based on length index		 2,3	 1,2,3,4
Operation			
			
SMG			
P1-8		•	•
P11		•	•
M1-3		•	•
M4-5		•	•
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

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



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



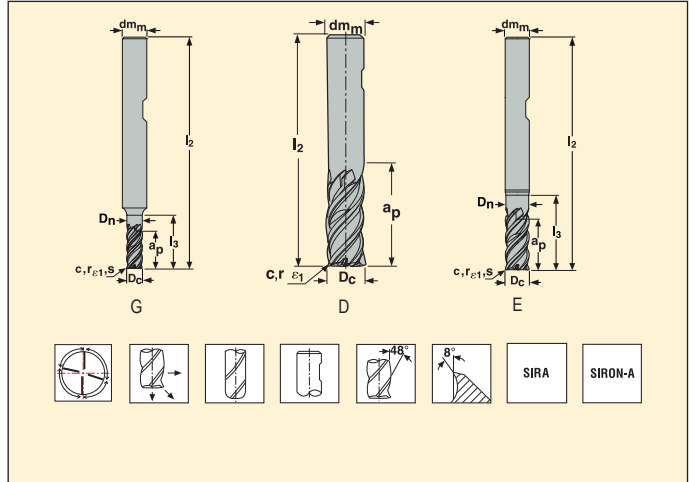
Part No.	Length index	Tool shape	Dimensions in mm							r_{e1}	z_n	Cylindrical
			D_c	dm_m	a_p	l_2	l_3	D_n				
JS554030G2R015.0Z4-SIRA	2	G	3	6	7	57	10	2,85	0,15	4	■	
JS554040G2R020.0Z4-SIRA	2	G	4	6	10	57	13	3,8	0,2	4	■	
JS554050G2R020.0Z4-SIRA	2	G	5	6	12	57	16	4,75	0,2	4	■	
554060R020Z4.0-SIRON-A	2	D	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.

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				
JS554030G2R015.3Z4-SIRA	2	G	3	6	7	57	10	2,85	0,15	4	■	
JS554040G2R020.3Z4-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

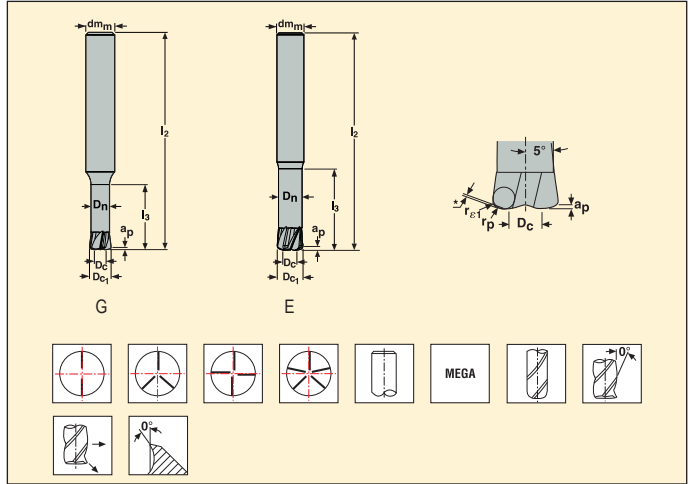
a_e (mm)/ D_c (mm)= factor

All cutting data are target values

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



Tolerances:
 $dm_m = h5$
 $D_c = 0,02/-0,04 \text{ mm}$
 $r_{c1} = +/-0,05 \text{ mm}$
 $\alpha^\circ = \text{collision angle}$



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.

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





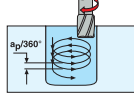

f_z = mm





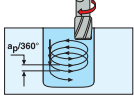

a_p (mm)/ D_c (mm)= factor

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	100	100	100	100	110	3	53	150	100	100	100	3	130	X	X
		40	60	38	105	200	110	3	53	250	50	50	60	3	130	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 (\approx % 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

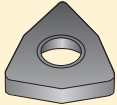
Selection of insert types

Solid insert



According to the geometry, two sides can be used.

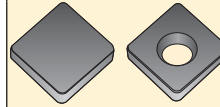
Grades:
CH0550, CBN060K, CH2540,
CBN010P, CBN300P, CBN400C,
CBN010, CBN170, CBN200,
CBN300, CBN500, CBN600



Toolholder styles:
D, P, C and M

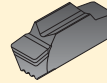
CBN060K and CBN300 are also, in some geometries, available with hole.

Sintered layer insert -LF



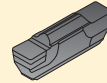
CBN layer sintered on to carbide. One side is usable.

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

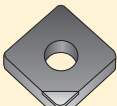


MDT

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

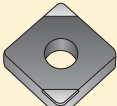


Brazed tip -L1 (single layer and double sided) and -L2

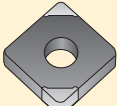


CBN brazed onto standard carbide inserts.

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



Toolholder styles:
D, P, S and M



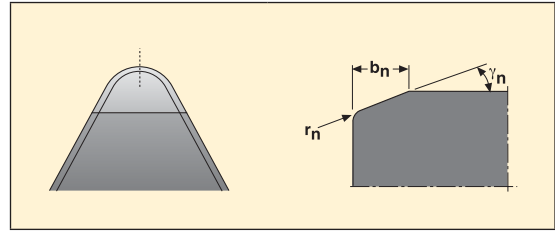
Geometry recommendations

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

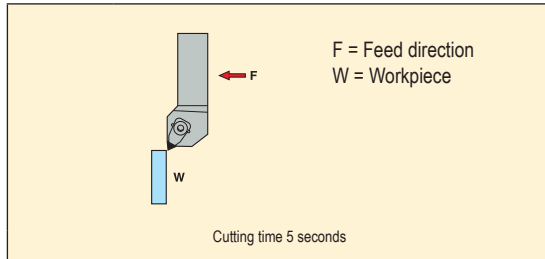
CH0550	
L1	= 0,10 mm x 15°
L1	= 0,15 mm x 25°
CBN160C, CBN060K, CH2540	
LF	= 0,15 mm x 25°
L1	= 0,15 mm x 25°
CH3515	
L1	= 0,05 mm x 40°
L1	= 0,20 mm x 20°
LF	= 0,20 mm x 20°
CBN010	
L1	= 0,10 mm x 20°
L2	= 0,20 mm x 20°
LF	= 0,10 mm x 20°
LF-MDT	= 0,10 mm x 25°
CBN200	
L1	= 0,20 mm x 20° (L1-WZ = 0,10mm 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

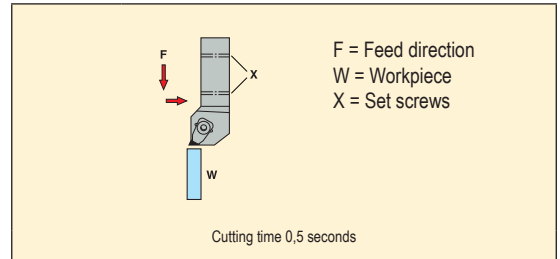
The vast majority of heat treated components in the metalworking industry are machined to their final geometrical form after hardening. Seco have developed a method in hard turning, the Seco patented Plunge Turning.

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



Plunge Turning

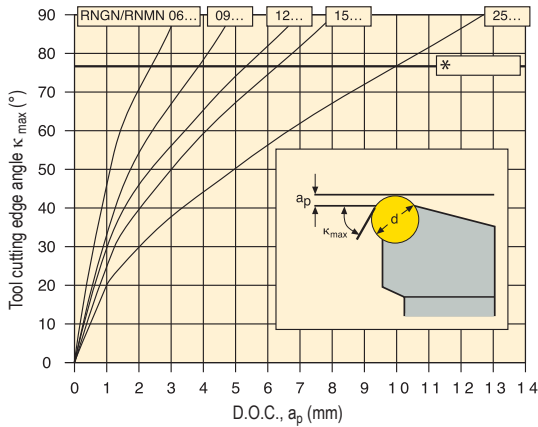


General cutting data recommendation for Plunge Turning is $v_c = 200\text{--}400$ m/min and $f = 0,04$ mm/rev. To avoid the cutting edge profile affecting surface finish, complete the operation with a small axial movement.

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



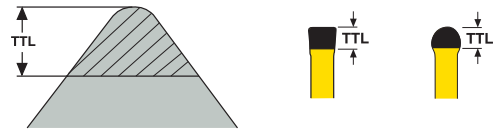
* = κ_{max} limited

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:

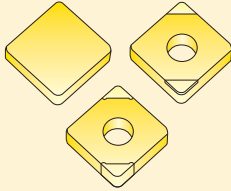
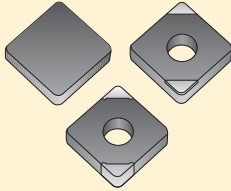
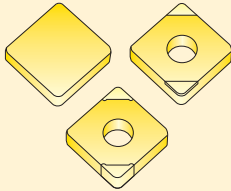
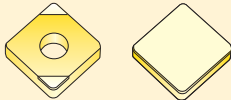
CBN010
CBN150
CBN170
CBN200
CBN300
CBN500
CBN600

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

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

Hard Materials

SMG	Properties	Reference	Recommendations
H3	Case hardened steels	16 MnCr 5 60 HRC	<p>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.</p> <p>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.</p>
H5	Quenched & Tempered steels	42 CrMo 4 50 HRC	<p>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.</p> <p>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.</p>
H7	Quenched & Tempered steels Bearing steels	100 Cr 6 60 HRC	<p>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.</p> <p>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.</p>
H8	Tool steels High Speed Steels	X 40 CrMoV 5 1 50 HRC	<p>First choice for finish machining: CBN010. First choice for rough machining: CBN200. Interrupted machining of high speed steels can not be done.</p>
H11	Martensitic stainless steels	X 20 Cr 13 45 HRC	<p>First choice for finish machining: CBN010. First choice for rough machining: CBN300.</p> <p>In interrupted machining: Moderate interruptions, use CBN010. Aggressive interruptions, use CH2540/CH3515/CBN150.</p>
H21	Manganese steels	X 120 Mn 12 50 HRC	<p>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.</p>
H31	White cast irons	EN-GJN- HV600(XCr11) 55 HRC	<p>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.</p>

Other Difficult Materials

SMG	Properties	Reference	Recommendations
PM1	Low alloy PM materials	F-0008 Fe-0.7C	<p>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.</p> <p>First choice CBN200. For rough machining CBN300 is an alternative. Use chamfered inserts, S25 edge preparation. Do not use coolant for interrupted cut.</p>
PM2	Medium alloy PM materials	FLC-4608 Fe2Cu1.8Ni0.5Mo0.2Mn0.8C	<p>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.</p> <p>First choice CBN200. For rough machining CBN300 is an alternative. Use chamfered inserts, S25 edge preparation. Do not use coolant for interrupted cut.</p>
PM3	High alloy PM materials Exhaust valve seat materials		<p>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.</p>
HF1	Hard facing alloys Welded or plasma deposited iron based alloys		<p>Cr-based alloys – Hardness <60 HRC. Co-based alloys – Hardness >35 HRC. Ni-based alloys – Hardness >35 HRC. Fe-based alloys – Hardness >35 HRC.</p> <p>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.</p>
HF2	Hard facing alloys Welded or plasma deposited cobalt and nickel based alloys		<p>Cr-based alloys – Hardness <60 HRC. Co-based alloys – Hardness >35 HRC. Ni-based alloys – Hardness >35 HRC. Fe-based alloys – Hardness >35 HRC.</p> <p>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.</p>
CC1	Sintered tungsten carbide	G50	<p>Sintered tungsten carbide with a Co content >17%.</p> <p>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.</p>

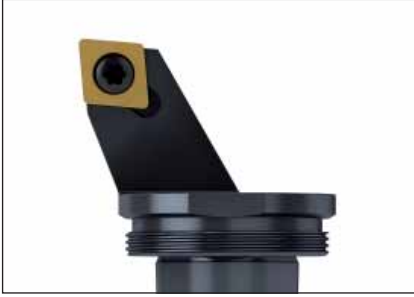
PCBN, Finishing

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	—	—

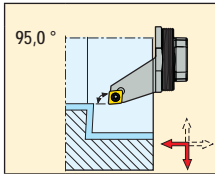
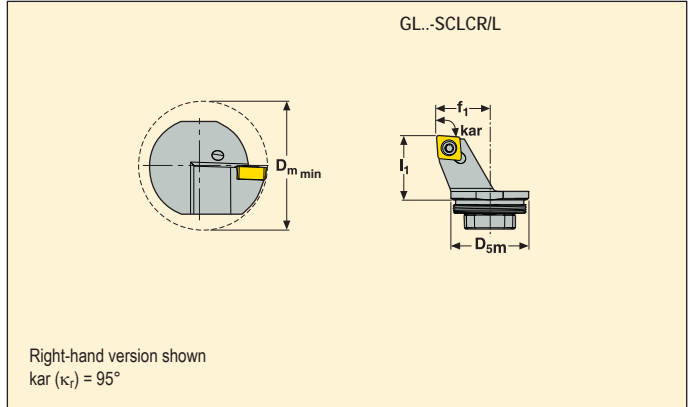
PCBN, Plunging

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	KG	
			D _{5m}	f ₁	l ₁	D _{m 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
..06	T07P-2	C02506-T07P	-	-
..09	T15P-2	C04008-T15P	-	-
..12	T15P-2	C05012-T15P	123.19-621	CA5008

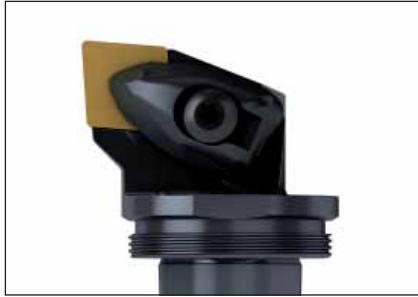
Accessories*

Shim key
-
-
5SMS795

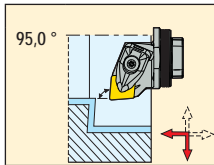
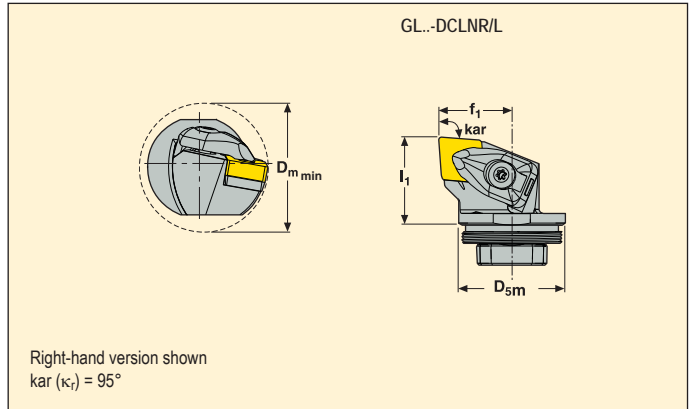
Please check availability in current price and stock-list

*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_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	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

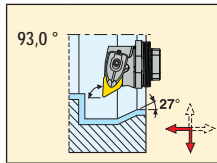
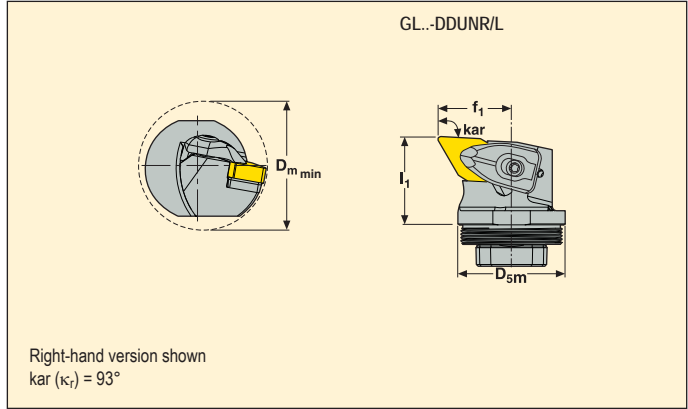
Please check availability in current price and stock-list

*To be ordered separately

Toolholders for 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 _{5m}	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

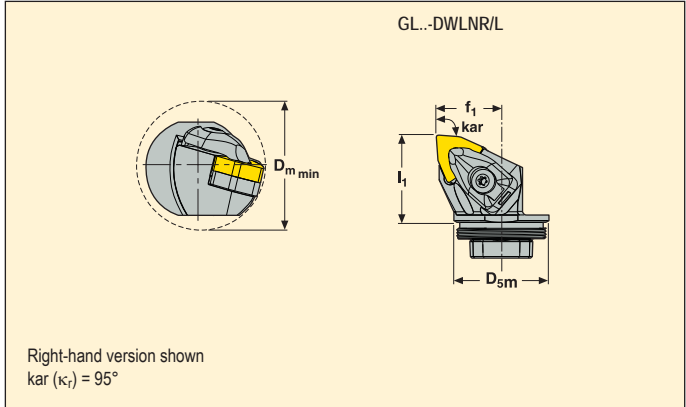
Accessories*

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

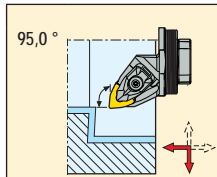
Please check availability in current price and stock-list

*To be ordered separately

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_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	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

Accessories*

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

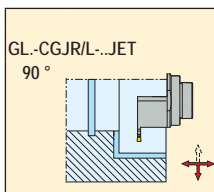
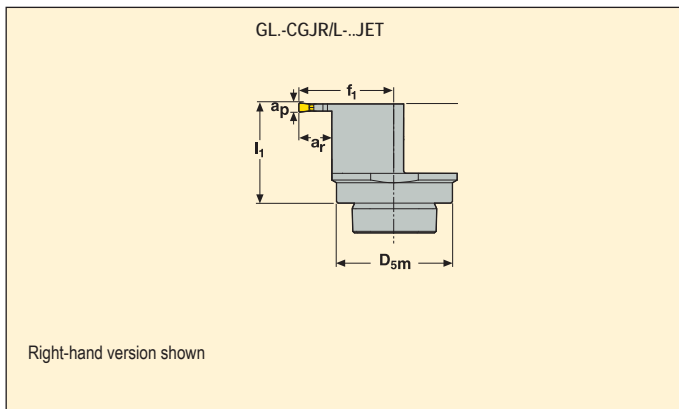
Please check availability in current price and stock-list

*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



Size	Part No.	Dimensions in mm					DCINN*	KG	Insert
		D _{5m}	f ₁	l ₁	a _p	a _F			
GL32	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	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	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

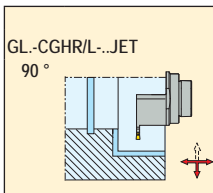
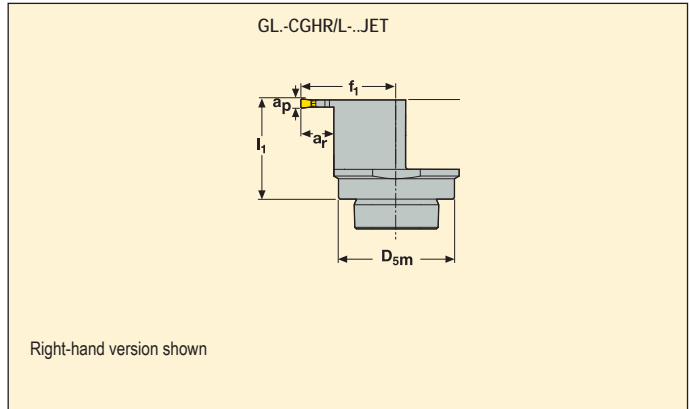
For size	Clamp key	Clamp screw
1902	T15P-7	L85011-T15P

Please check availability in current price and stock-list

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



Size	Part No.	Dimensions in mm					DCINN*	KG	Insert
		D _{5m}	f ₁	l ₁	a _p	a _F			
GL32	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	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	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..	

*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

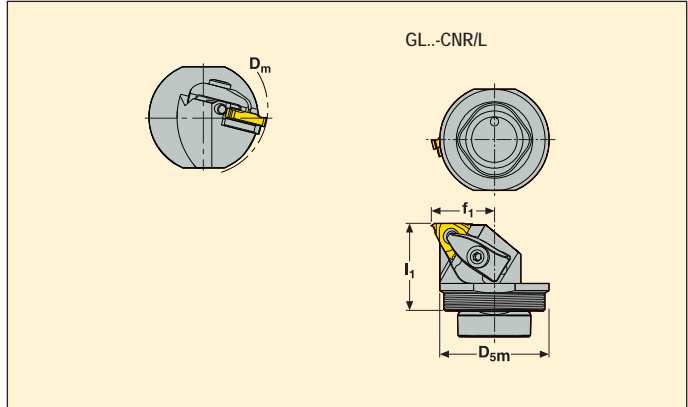
Please check availability in current price and stock-list

Toolholders with GL connection for S-inserts

Snap-Tap®



• For inserts programme, see MN Threading 2015



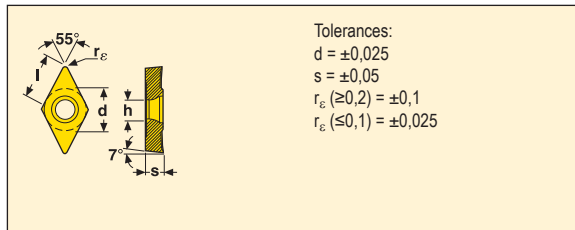
Application	Part No.	Dimensions in mm					KG		
		D _{sm}	D _m min	l ₁	f ₁	D _m			
	GL32- CNR-20032-16AHD	32	38	32	19,8	36	0,2	16..	
	CNL-20032-16AHD	32	38	32	19,8	36	0,2	16..	
	GL40- CNR-24032-16AHD	40	50	32	24,0	50	0,3	16..	
	CNL-24032-16AHD	40	50	32	24,0	50	0,3	16..	
	GL50- CNR-29032-16AHD	50	63	32	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



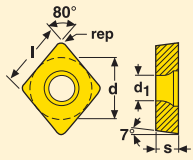
Size	Dimensions in mm			
	d	l	s	h
0702	6,350	7,8	2,38	2,9
0702-AL	6,350	7,8	2,38	2,8
11T3	9,525	11,6	3,97	4,5
11T3...AL	9,525	11,6	3,97	4,4
1504	12,700	15,5	4,76	5,6



Inserts	Part No.	$r_e =$ 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:
 $d = \pm 0,025$
 $s = \pm 0,13$
 $rep = \pm 0,1$

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	060204E-L1-B			■					■								SCLCR/L..06	SCLCR/L06
	060208E-L1-B																SCGCR/L..06	..SCFCR/L06
	060204S-01020-L1-B								■								SCDCR/L..06	SCACL..06
	060204S-01525-L1-B	■		■													SCFCR/L..06	SCECL..06
	060208S-01525-L1-B				■	■											SCACR/L..06	...SCDCL06
	060208S-02020-L1-B													■			SCECL...06	
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	SCLCR/L09
	09T308E-L1-B			■						■							SCGCR/L..09	..SCFCR/L09
	09T304S-01020-L1-B									■							SCDCR/L..09	SCACL..09
	09T304S-01525-L1-B	■		■													SCFCR/L..09	SCECL..09
	09T308S-01020-L1-B								■	■							SCACR/L..09	...SCDCL09
	09T308S-01525-L1-B	■		■	■	■											SCECL...09	
	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													■				

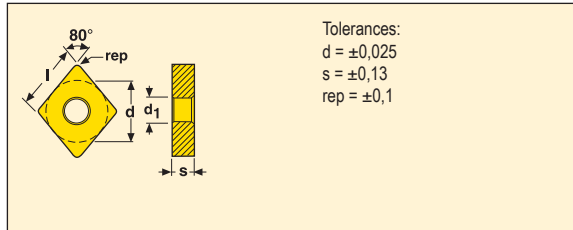
■ Stock standard

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	120408E-L1-B																DCLNR/L..12	...PCLNR/L12
CNGA	120404S-01020-L1-B																PCLNR/L..12	...MCLNR/L12
	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			■														

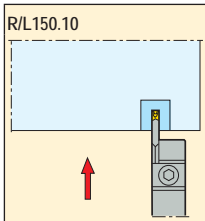
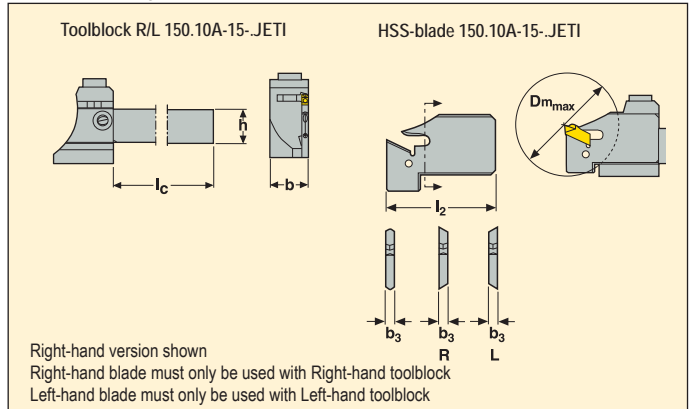
■ Stock standard
 Subject to change refer to current price- and stock-list
 ***For information, contact your local Seco office

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

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	-	
L150.10	-2525-15JETI	25	25	106	-	-	0,6	-	
	-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	-	-	-	33	1,2	38	0,1	150.10-2..
	-2RJETI	-	-	-	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	-	-	-	33	1,2	38	0,1	150.10-4..
	L150.10A-15	-	-	-	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

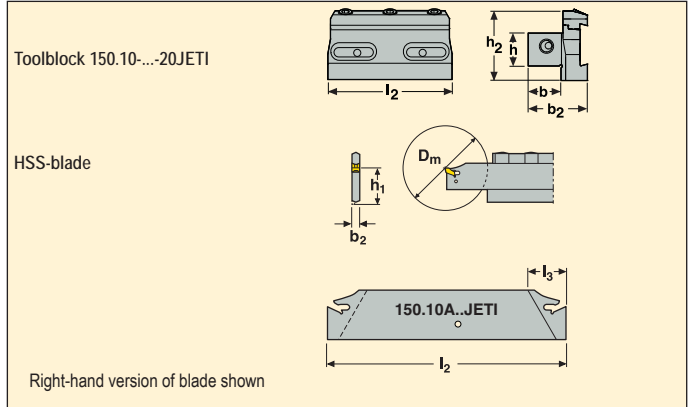
Key
-
150.10A-150
150.10A-150

Please check availability in current price and stock-list

Toolblock R/L 150.10-...20JETI and HSS-blade 150.10A-...20JETI for Parting-off



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



Part No.	Dimensions in mm								KG	
	h	b	h ₁	h ₂	l ₂	l ₃	b ₂	D _m max		
150.10 -2020-20JETI	20	20	–	32	95	–	39,80	–	0,7	–
150.10A-20 -2RJETI	–	–	21,4	–	120	24	1,80	35	0,1	150.10-2..
-2.5RJETI	–	–	21,4	–	120	24	2,00	35	0,1	150.10-2.5..
-3RJETI	–	–	21,4	–	120	–	2,40	96	0,1	150.10-3..
-4RJETI	–	–	21,4	–	120	–	3,40	96	0,1	150.10-4..
-5RJETI	–	–	21,4	–	120	–	4,40	96	0,1	150.10-5..
-6RJETI	–	–	21,4	–	120	–	5,65	96	0,2	150.10-6..
150.10A-20 -2LJETI	–	–	21,4	–	120	24	1,80	35	0,1	150.10-2..
-2.5LJETI	–	–	21,4	–	120	24	2,00	35	0,1	150.10-2.5..
-3LJETI	–	–	21,4	–	120	–	2,40	96	0,1	150.10-3..
-4LJETI	–	–	21,4	–	120	–	3,40	96	0,1	150.10-4..
-5LJETI	–	–	21,4	–	120	–	4,40	96	0,1	150.10-5..
-6LJETI	–	–	21,4	–	120	–	5,65	96	0,2	150.10-6..

Spare Parts, Parts included in delivery

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

Accessories

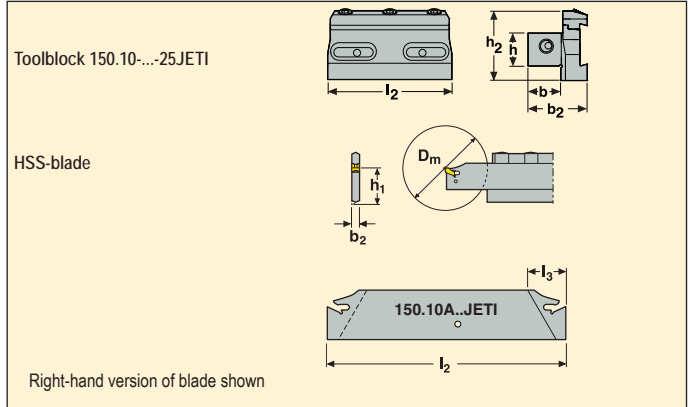
Key
–
150.10A-150

Please check availability in current price and stock-list

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



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

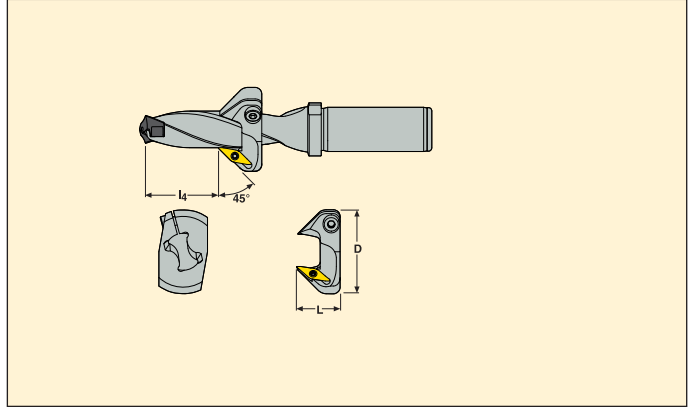
For	Clamp	Key	O-ring	Plug	Screw
150.10-..					
150.10A-..	150.10-260	5SMS795	ORING-20X2	JET-P1/8-5MM	TCEI0620
	–	–	–	–	–

Accessories

Key
–
150.10A-150

Please check availability in current price and stock-list

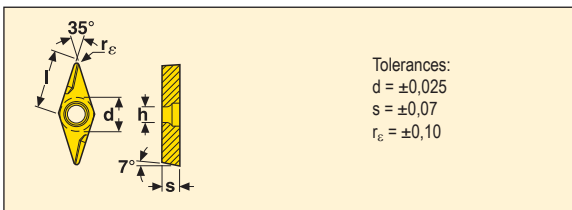
Chamfer module



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

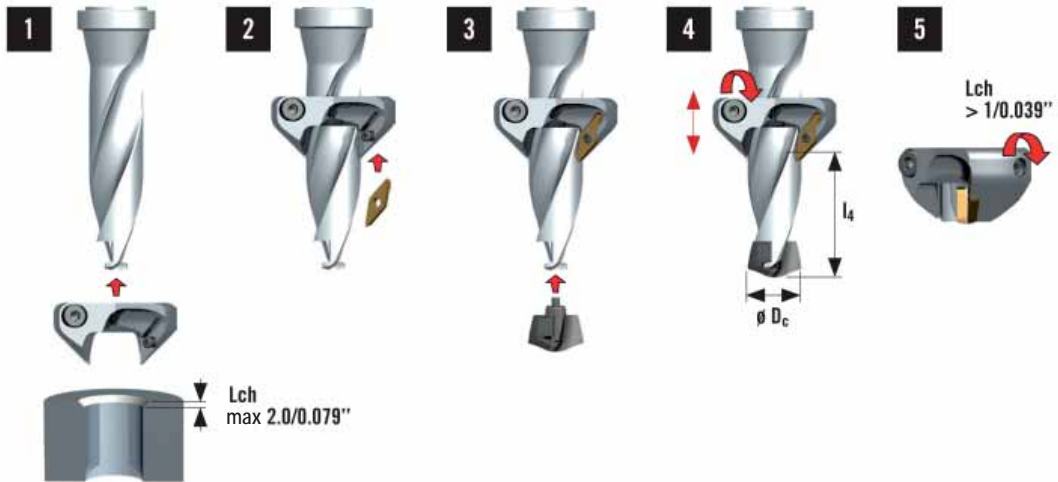
For drill dia. (mm)	Locking screw 2	Locking screw 1	Locking key	Insert screw	Insert key
SD400-12.00-19,99	P6SS4X8	MC6S4X8	3SMS795	C02505-T07P	T07P-2

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.

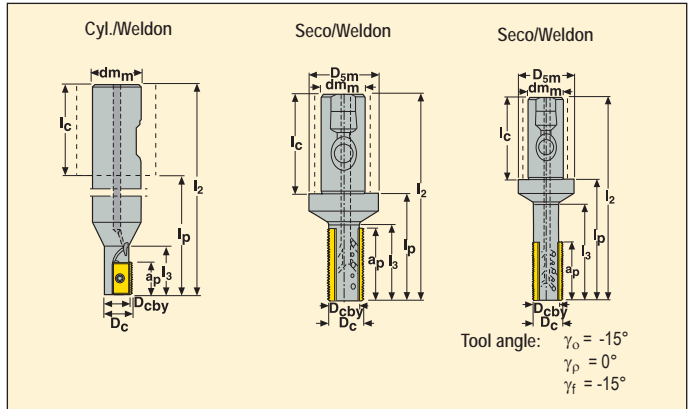
Troubleshooting

Vibrations during chamfering	<ul style="list-style-type: none"> • Reduce cutting speed • If possible, move the module closer to the shank of the drill • If possible, use a shorter drill
------------------------------	---

R396.18/R396.19



- For cutting data recommendations see MN 2015 Holemaking.
- For insert programme see MN 2015 Holemaking.



Part No.	Dimensions in mm												Type of mounting	
	D _c	D _{cby}	d _m	D _{5m}	l ₂	l _p	l ₃	l _c	a _p					
R396.18 -2012.3-13A	12	10	20	–	105	38	20	67	13	1	0,2	30000	Cyl.-Weldon	13.MS
R396.19 -2517.3S-4003-2AM	17	13	25	40	116	60	26	56	25	2	0,5	22400	Seco-Weldon	396.19-4003
-2522.3S-4003-3AM	22	17,6	25	40	116	60	43	56	40	3	0,4	20000	Seco-Weldon	396.19-4003
-3232.3S-4003-6AM	32	27,4	32	50	120	60	43	60	40	6	0,7	16800	Seco-Weldon	396.19-4003
R396.19 -2525.3S-4005-2AM	25	19	25	40	116	60	43	56	40	2	0,4	13600	Seco-Weldon	396.19-4005
-2530.3S-4005-3AM	30	23	25	40	116	60	43	56	40	3	0,5	12000	Seco-Weldon	396.19-4005
-3236.3S-4005-6AM	36	28,2	32	50	120	60	42	60	40	6	0,7	11200	Seco-Weldon	396.19-4005
R396.19 -2522.3S-4003-3-065AM	22	17,6	25	40	140	84	65	56	40	3	0,5	20000	Seco-Weldon	396.19-4003
-2530.3S-4005-3-080AM	30	22,2	25	40	154	98	80	56	40	3	0,6	12000	Seco-Weldon	396.19-4005
R396.19 -3232.3S-4003-3-079AM	32	27,4	32	50	156	96	79	60	40	3	0,9	20000	Seco-Weldon	396.19-4003
-3232.3S-4005-3-079AM	32	27,4	32	50	156	96	79	60	40	3	0,9	11200	Seco-Weldon	396.19-4005

Note! R396.19-2525.3S-4005-2AM Max pitch size 4,5 ISO/6 TPI can be used.

Spare Parts, Parts included in delivery

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

For cutter	Insert screw	Insert key*	Torque value Nm*	For cutter	Pitch, mm											
					1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	
					TPI											
R396.18	C02506-T07P	T07P-2	0,9	R396.18-2012.3-13A	14	15	16	–	–	–	–	–	–	–	–	–
R396.19	P6SS4x4-T09P	T09P-2	2	R396.19-2517.3S-4003-2AM	19	20	21	22	24	–	–	–	–	–	–	–
				R396.19-2522.3S-4003-3AM	24	25	26	27	27	–	–	–	–	–	–	–
				R396.19-2522.3S-4003-3-065AM	24	25	26	27	27	–	–	–	–	–	–	–
				R396.19-3232.3S-4003-6AM	34	35	36	39	40	–	–	–	–	–	–	–
				R396.19-3232.3S-4003-3-079AM	34	35	36	39	40	–	–	–	–	–	–	–
				R396.19-2525.3S-4005-2AM	–	–	–	–	30	33	35	37	–	–	–	–
				R396.19-2530.3S-4005-3AM	–	–	–	–	38	40	42	44	45	47	48	–
				R396.19-2530.3S-4005-3-080AM	–	–	–	–	38	40	42	44	45	47	48	–
				R396.19-3232.3S-4005-3-079AM	–	–	–	–	39	41	43	45	46	48	49	–
				R396.19-3236.3S-4005-6AM	–	–	–	–	43	45	47	47	48	50	53	–

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.

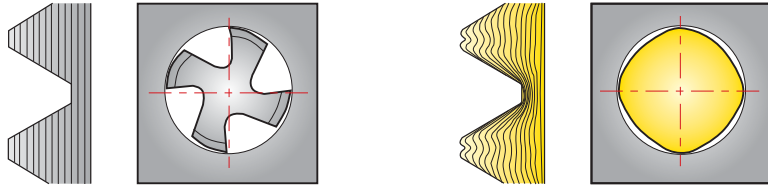
* Torque key T00-07P09, T00-09P20.

Introduction to taps

What are you looking for in a thread?

Cutting a thread vs forming a thread

There are two way 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

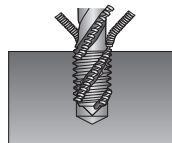
Taps have different designs. Depending on application (through or blind hole).



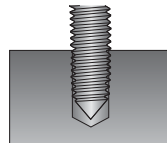
Hole size

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

Cutting tap
 $D = TD - PTH$

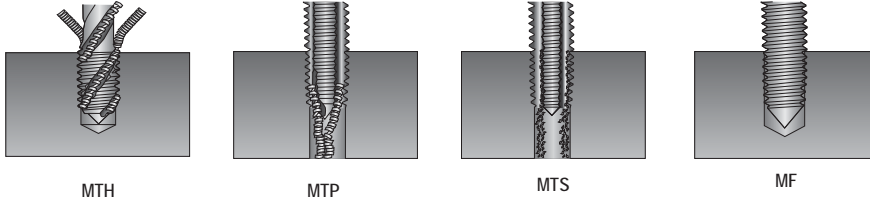


Forming tap
 $D = TD - PTH/2$
 $(D = D_{nom} - 0.0068 \times PTH \times 65)$



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

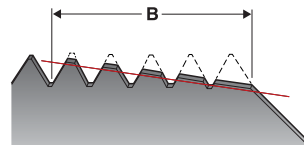
Taps - Choice of tap



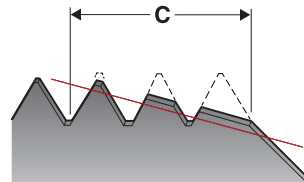
1. Threadmaster™ Tap Helix flute Available with 15°, 45° and 48° spiral for different materials. For blind holes.
2. Threadmaster™ Tap Helix point For through holes. To be used under tough conditions.
3. Threadmaster™ Tap Straight flutes For short chipping materials, i.e. cast iron. To be used for all 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

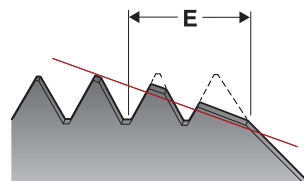
B-type Length 3.5 – 5 threads
 High torque
 Best surface finish
 Thin chip thickness
 Low pressure at the chamfer
 Long tool life
 Most common for through holes (Helix point)

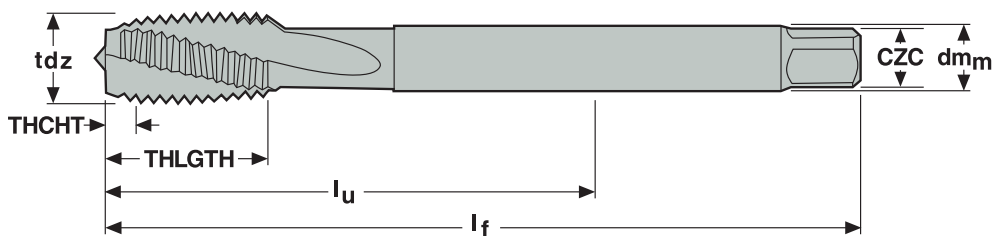


C-type Length 2 - 3 threads
 Medium torque
 Good surface finish
 Normal chip thickness
 Normal pressure at the chamfer
 Normal tool life
 Most common design
 Standard for blind holes
 Most common for blind holes (Helix flute)



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



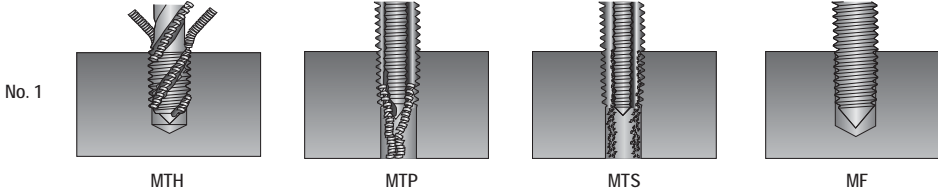


Definitions Seco Threadmaster™ Taps

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



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

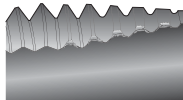
- Refer to recommendations

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

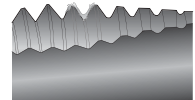
- Replace tap

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

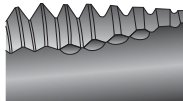
- Increase drill depth or reduce thread depth

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

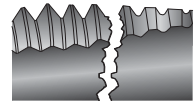
- Refer to recommendations

"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
 $v_c = \text{m/min}$
 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

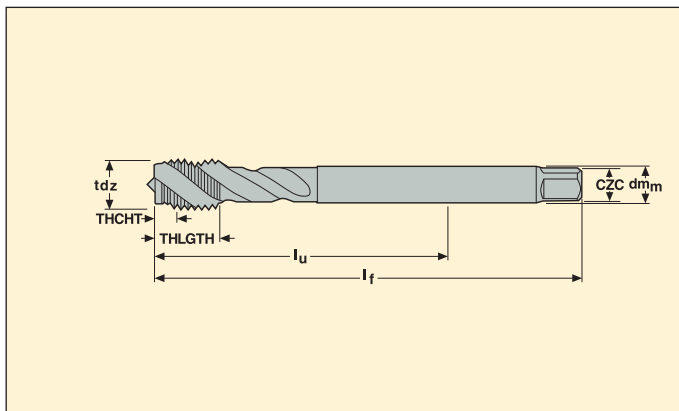
SMG		
	MTH- V048	MTH- V050
P1	11	11
P2	11	11
P3	10	10
P4	8	8
P5	8	8
P6	9	9
P7	8	8
P8	8	8
P11	8	8
M1	9	9
M2	7	7
M3	5	5
M4	4	4
M5	3	3
K1	14	14
K2	12	12
K3	10	10
K4	10	10
K5	6	6
K6	9	9
K7	8	8
N1	23	23
N2	15	15
N3	10	10
N11	13	13
H3	—	—
H5	—	—
H7	—	—
H8	—	—

SMG = Seco Material Group
 v_c = m/min
 All cutting data are start values

MTH-P011



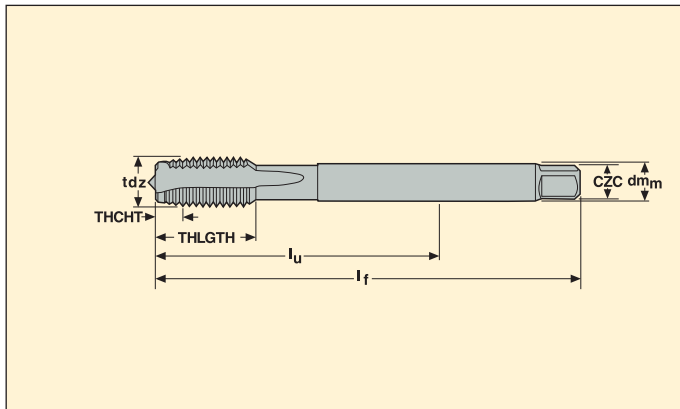
- For cutting data see page 94
- Coating: AlTiN-based
- Substrate: HSS-E-PM



Part No.	Thread tdz	Pitch		Dimensions in mm					No. of flutes	BSG	tctr	THCHT
		mm	TPI	dm _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.

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.

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 :

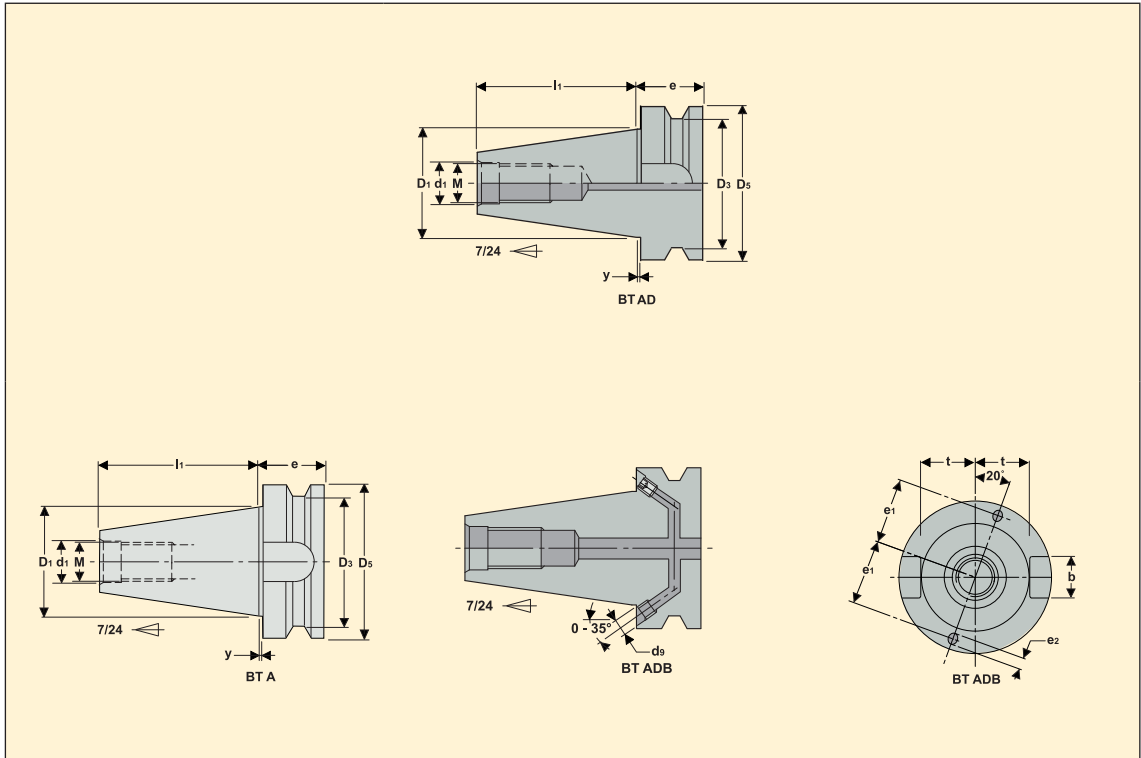
- Taper-Face tooling used on Taper-Face spindles achieve additional contact between spindle's face and holder's flange (vs. face/flange clearance with conventional steep taper fittings).
- How it is obtained:
 - TF Tooling : longer (+half clearance) and high precision flange dimensions and geometry.
 - 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 ₉	e ₁	e ₂ max	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

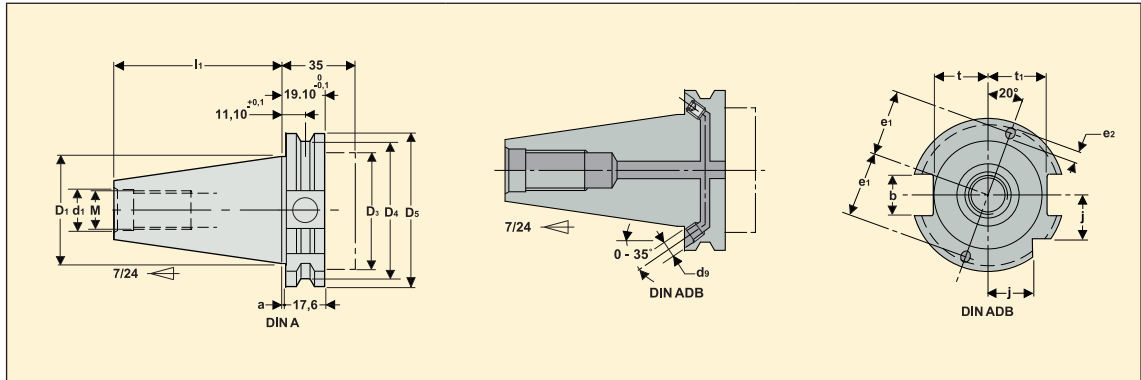
The B through coolant design of ADB holders is made according to DIN 69871 Form B.

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 D₅, are produced with the following clearance diameters: BT40 = Ø 62 mm max x 8 mm; BT50 = Ø 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 ^{-0,20}	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 = ∅ 62 mm max x 8 mm; DIN50 = ∅ 98 mm max x 12 mm. This is compatible with the DIN norm which permits free dimensions on workpiece side.

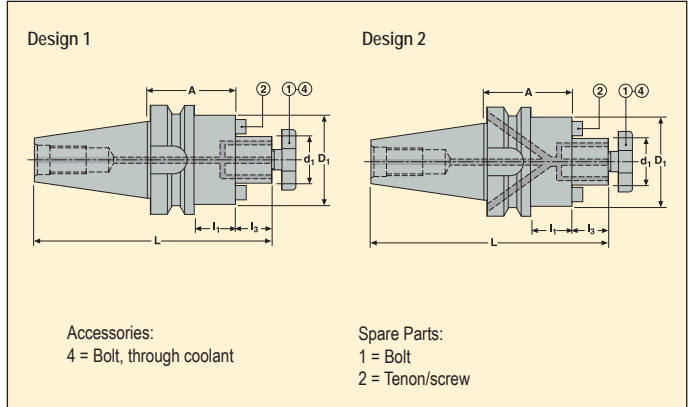
* Taper-Face (TF) holders DIN are conform to the DIN 69871/ NF-E 62 540 and ISO 7388-1 norm, except that they have a larger flange towards machine side, with tight tolerances: They achieve taper and face contacts on machine spindles with Taper-Face dimensions. They are also usable on standard spindles,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

EPB 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	
			A	D ₁	L	I ₁	I ₃			
BT TF30 AD	d ₁ mm									
	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
BT TF40 ADB	32	E400255253245	45	78	117,4	23	24	1	2	1,40
	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
BT TF50 ADB	40	E321455254050	50	89	142,4	23	27	2	2	2,20
	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

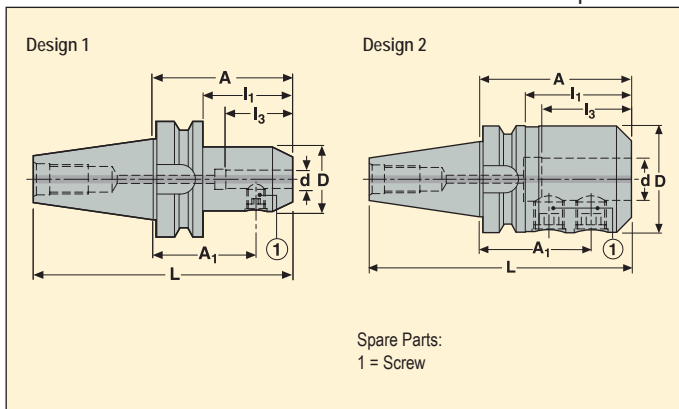
Spare Parts

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			
Taper	d mm										
BT TF30 AD	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

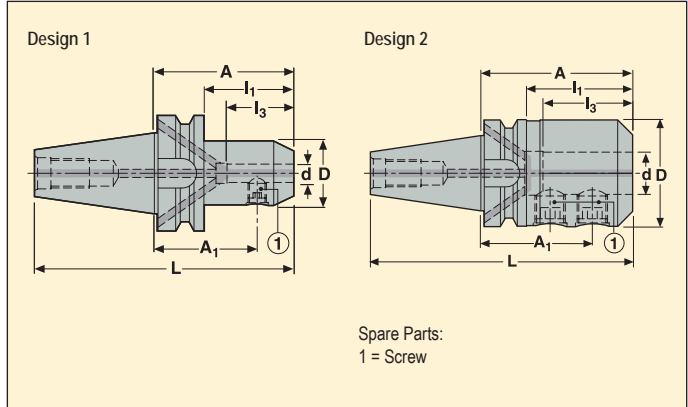
Please check availability in current price and stock-list

EPB 584 – Side lock holders, Weldon – DIN 1835 Form B/ DIN 6535 Form HB

BT Taper-Face -ADB



- 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			
Taper	d mm										
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
	40	E321458440110	110	80	175,4	75	68	80,5	2	2	3,20
BT TF50 ADB	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

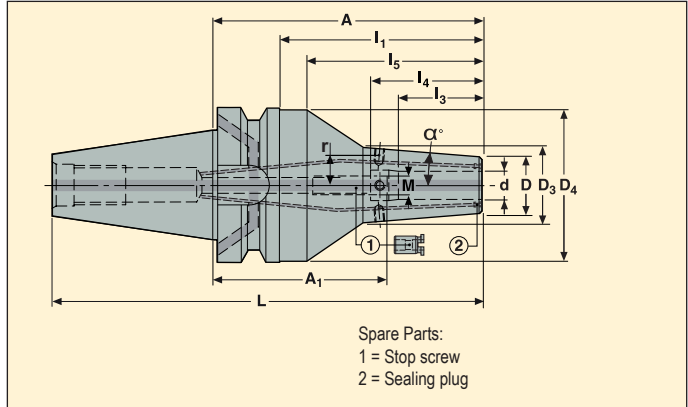
Please check availability in current price and stock-list

EPB 5600 – Shrinkfit holders, reinforced

BT Taper-Face -ADB



- Reinforced design with wider front and tapered body
- Run-out 3 µm maximum at 3rd
- 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	D ₄	L	I ₁	I ₃	I ₅	A ₁ min-max						
BT TF40 ADB	12	E321456001270	70	27	33,8	–	135,4	43	34	–	24-34	M10x1	4,5	13,5	1	1,20	
	16	E321456001675	75	33	40,6	–	140,4	48	39	–	26-36	M12x1	4,5	17,0	1	1,30	
	20	E321456002075	75	44	51,6	–	140,4	48	41	–	24-34	M16x1	4,5	21,5	1	1,60	
	25	E321456002585	85	48	59,1	–	150,4	58	47	–	28-38	M16x1	4,5	25,0	1	1,70	
BT TF50 ADB	12	E3216560012100	100	27	36,8	–	201,8	62	34	–	54-64	M10x1	4,5	13,5	1	4,10	
	16	E3216560016100	100	33	42,8	–	201,8	62	39	–	51-61	M12x1	4,5	17,0	1	4,20	
	20	E3216560020100	100	44	53,8	–	201,8	62	41	–	49-59	M16x1	4,5	21,5	1	4,50	
	25	E3216560025100	100	48	57,8	–	201,8	62	47	–	43-53	M16x1	4,5	25,0	1	4,50	
	32	E3216560032105	105	48	58,5	–	206,8	67	51	–	44-54	M16x1	4,5	25,0	1	4,50	

* E321456001270, E321456001675, E321456002075, E321456002585, E3216560025100 and E3216560032105 : Extra-short holder requiring a dedicated Easy-shrink® cooling contact bush type "5600 extra short", see Shrinkfit devices in MN 2015 Tooling Systems catalogue

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

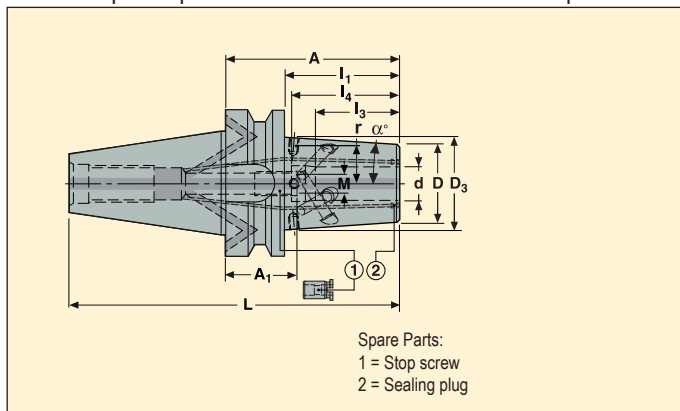
Please check availability in current price and stock-list
For stop screw setting adapters, see Shrinkfit devices in MN 2015 Tooling Systems catalogue

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
			Taper	d	A*	D	D ₃	L	I ₁	I ₃					
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

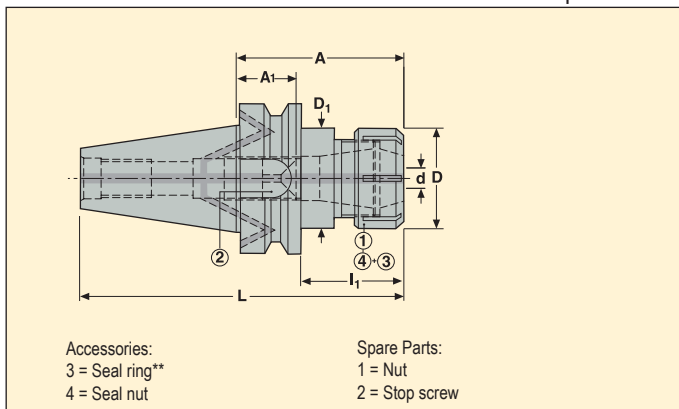
(-) For d 12 and 16 mm, stop screw not removable/replaceable by the user, please request a repair process

EPB 5675 – ER collet chucks – ISO 15488

BT Taper-Face -ADB



- Run-out 10 µm maximum at 3xd



Machine side	Workpiece side	Part No.	Chuck & Collet Size	Dimensions in mm						Balancing	
				A	D	D ₁	L	I ₁	A ₁ min-max		
BT TF40 ADB	Capacity d mm										
	1-16	E3214567525120	ER 25	120	42	42	185,4	95	52-82	1	1,70
	2-20	E321456753270	ER 32	70	50	50	135,4	45	7-27	1	1,30
	2-20	E3214567532120	ER 32	120	50	50	185,4	95	33-77	1	1,90
BT TF50 ADB	2-20	E321656753290	ER 32	90	50	50	191,8	55	27-47	2	3,90
	2-20	E3216567532150	ER 32	150	50	50	251,8	115	29-107	2	4,70
	3-26	E3216567540100	ER 40	100	63	63	201,8	65	16-50	2	4,30

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

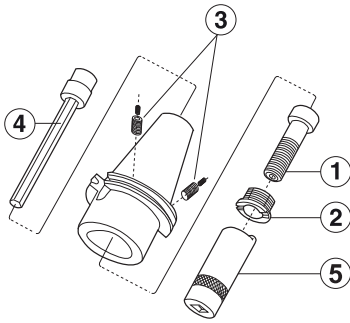
Accessories*

Spare Parts

For size	Sealing nut	Sealing ring	Spanner	For size	Nut	Stop screw
ER 25	08B587525IC	01B58752505	03B587525	ER 25	08B587525X	19B58718
ER 32	08B587532IC	01B58753205	03B587532	ER 32	08B587532X	19B58722
ER 40	08B587540IC	01B58754005	03B587540	ER 40	08B587540X	19B58730

Please check availability in current price and stock-list

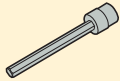
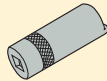
* For ER sealing rings, see Additional equipment in MN 2015 Tooling Systems catalogue



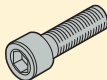


Accessories:
4 = Extension key
5 = Spanner

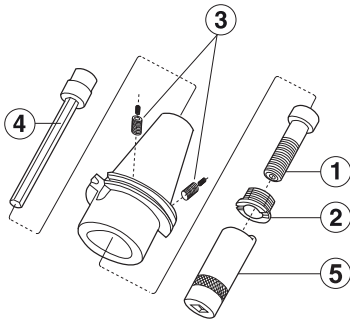
Spare Parts:
1 = Centre screw
2 = Retaining nut
3 = Sealing plugs

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

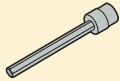
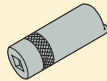
For	Centre screw	Retaining nut	Sealing plugs
			
C3	5512063-10	5512091-04	–
BT TF30 C4	5512063-07	5512091-03	–
BT TF40 C4	5512063-07	5512091-03	564301701
BT TF40 C5	5512063-08	5512091-01	564301701
BT TF40 C6	5512063-13	5512091-02	564301701
BT TF50 C4	5512063-07	5512091-03	564301702
BT TF50 C5	5512063-08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



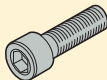


Accessories:
4 = Extension key
5 = Spanner

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_9 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



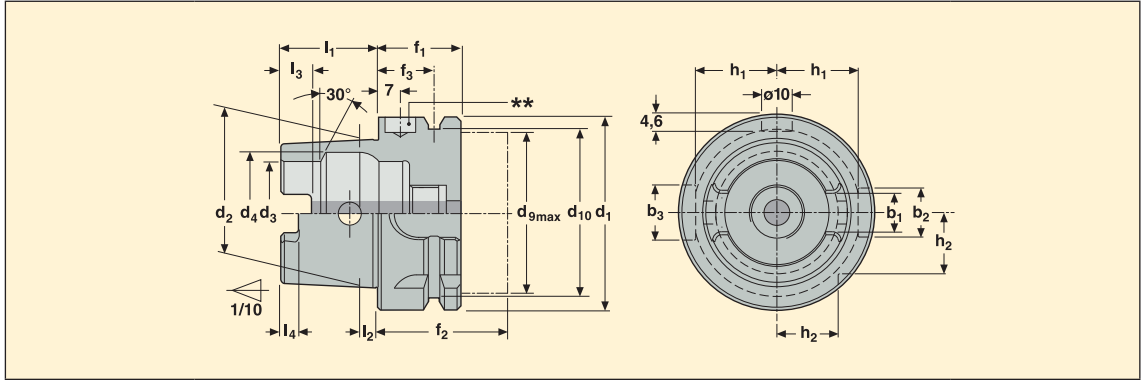
Seco-Capto machine side



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.

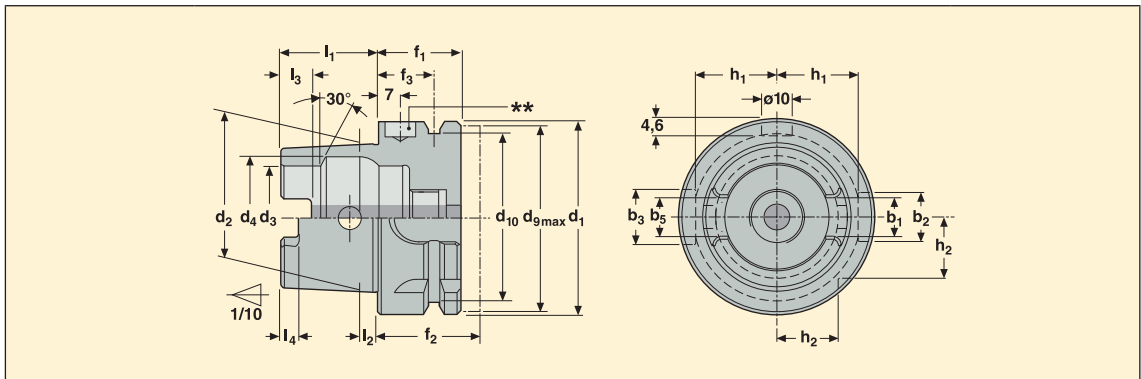
Note: The dimensions are applied to all the holders shown in the Product pages.

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.

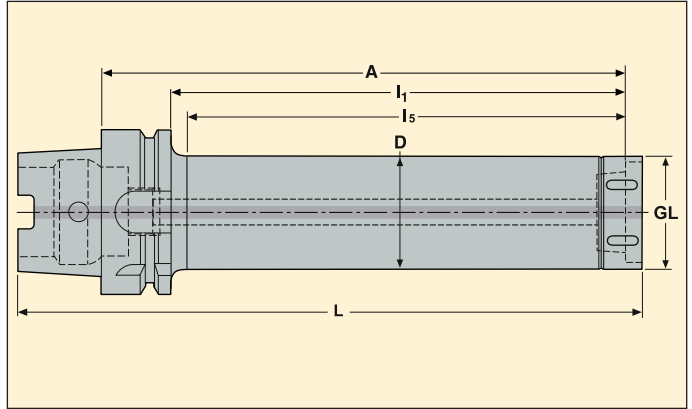
** Data carrier blind hole available as standard.

EPB GL – Steadyliner® 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	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
	GL50	E9374-D50-368-GL50	368	50	407,3	342	340	4000	2	6,40
HSK-T/A 100	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

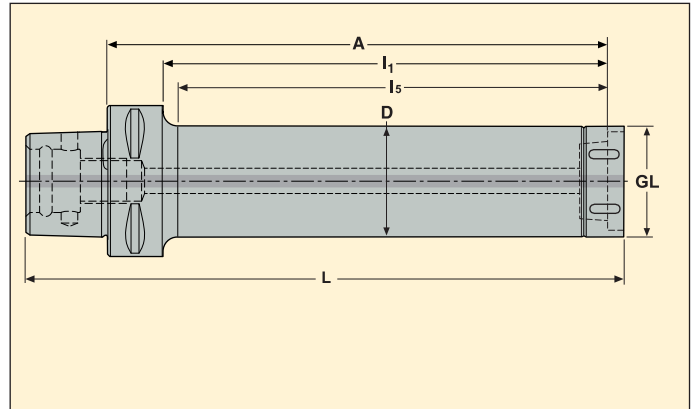
Please check availability in current price and stock-list

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	Workpiece side	Part No.	Dimensions in mm					Max. RPM *	Balancing	
			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

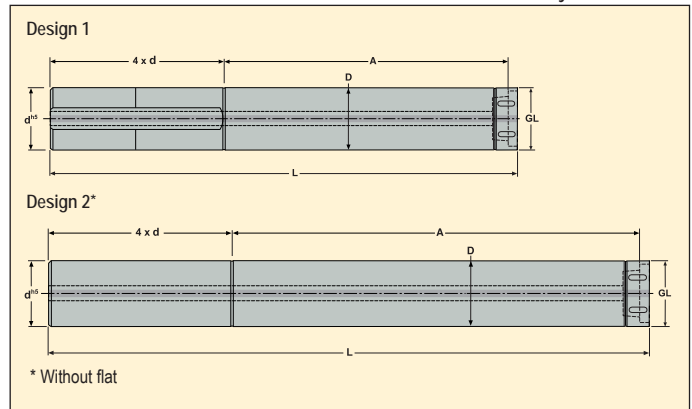
Please check availability in current price and stock-list

EPB GL – Steadyline® 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

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

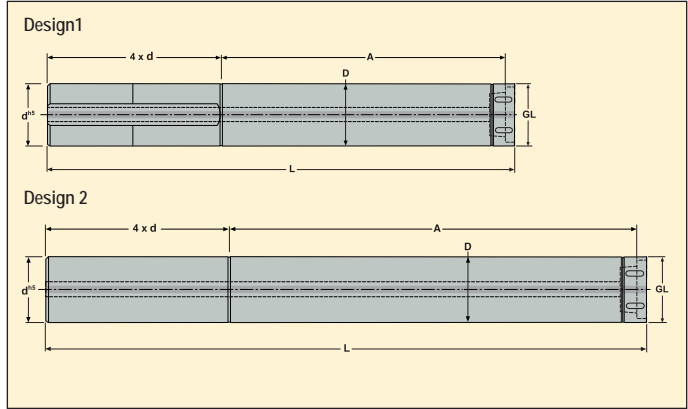
Please check availability in current price and stock-list

EPB GL – Steadyline® 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	 KG
			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
38.10	GL32	DA20-11.50-GL32	292	32	425	2	2,7
	GL40	DA24-8.00-GL40	203	40	362	1	3,5
50.80	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

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

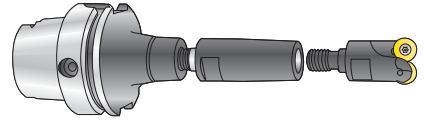
Please check availability in current price and stock-list

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.

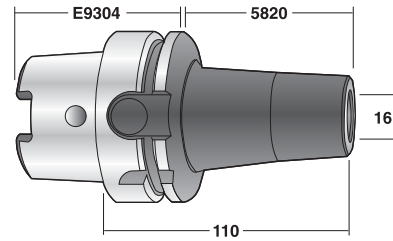
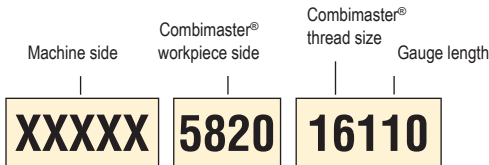
Modular: The Graflex® to Combimaster as well as Seco-Capto™ to Combimaster® arbors allow to mix systems. Combimaster® to Shrinkfit holders are also available to hold small tools.



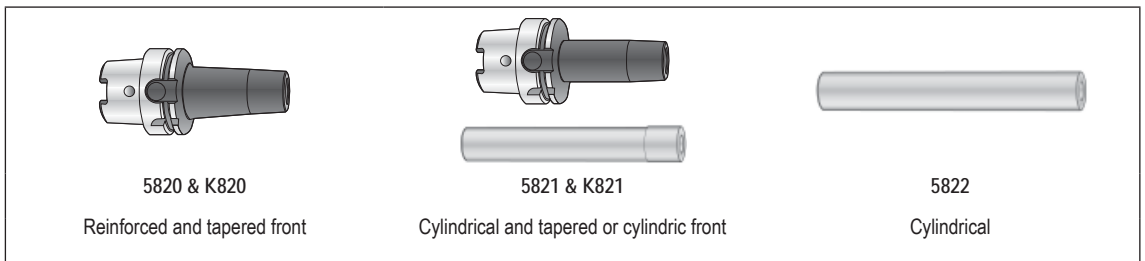
Balancing quality

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

Combimaster® holders, code key

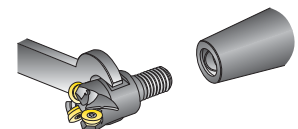
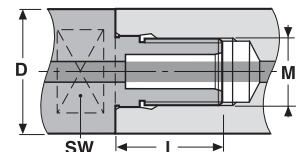


Combimaster® holders, workpiece side types



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.

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 CrNiS 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, ($\alpha+\beta$)		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	
	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		
P2	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		
	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		
P3			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				
	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		
P4	C35+N		1.0501	C 35	AF 55 C 35	060 A 35	C 35		1550	G10350	
	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	
	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		
P5			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	
		1.2714	1.2714	56 NiCrMoV 7			BH 224-5	56 NiCrMoV7-KU		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)		
P6	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	
	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	
P6	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			
			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	
	100 Cr 6	1.3505	1.3505	100 Cr 6	100 C 6	534 A 99	100 Cr 6	SUJ 2	2258	G51986	
P8	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 CrMoV 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 06-05-04-02		HS 6-5-2-5	SKH 55	2723		
	HS 2-10-1-8	1.3247	1.3247	S 2-10-1-8	Z 110 DKCVW 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 WKCVCV 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 DCVWV 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		
P11	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	
	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	S44600
	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 CENNb 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	F1 15 D	Grade 150	G15	FC 150	01 15-00	F11601
	EN-GJL-200	0.6200	0.6200	GG-20	F1 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	F1 25 D	Grade 260	G25	FC 250	01 25-00	F12401
	EN-GJL-300	0.6300	0.6300	GG-30	F1 30 D	Grade 300	G30	FC 300	01 30-00	F13101
EN-GJL-350	0.6350	0.6350	GG-35	F1 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-U5PbB/2011	FC1		A2011	4355	AA2011
	AC-46200	AlSi8Cu3(Si)	3.2161	G-AlSi8Cu3					4251	AA13800
	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					M12330
	MG-P-63	MgAl6Zn	3.5612	G-MgAl6Zn	G-A6-21	MAG-E-121				M11600
MG-P-61	MgAl8Zn	3.5812	G-MgAl8Zn	(G-A7-Z1)						
N2	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					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	

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			3.7024								
S12											
	TiAl6V4		3.7164							R54620 R56320 R56400	
S13				TiV10Fe2Al3							
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				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 MnCrV 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	
	100 Cr 6	1.3505	1.3505	100 Cr 6	100 C 6	534 A 99	100 Cr 6	SUJ 2	2258	G51986	
H8	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	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
			Disalloy	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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