SECO SQUARE SHOULDER MILLING

A COMPLETE RANGE OF INDEXABLE MILLING CUTTERS

SECO

PRODUCTIVITY ENHANCING SOLUTIONS & TRUE PARTNERSHIP

In today's global economy, manufacturing productivity is a keystone of maintaining a competitive advantage. Seco approaches each of our customers as a true partner, establishing close relationships that allow us an understanding of their needs. This not only allows our technical specialists to assist with identifying and implementing the best solutions for your applications. It also keeps us in tune with your needs, driving research, development and refinement of future products to meet them.



TANGENTIALLY MOUNTED INSERTS FOR SUPERIOR MATERIAL REMOVAL RATES

SQUARE T4-08

Made for roughing and semi-finishing operations, the Square T4-08 brings smooth cutting action, good surface finish and minimal chatter to slotting and contouring applications. The tangential mounting of the tool's inserts increases the surface area of contact between the inserts and cutter body, resulting in increased rigidity and machining stability. Additionally, this mounting design directs the cutting forces to the thickest part of the inserts, providing highly robust milling performance and increased metal removal rates with small diameters.

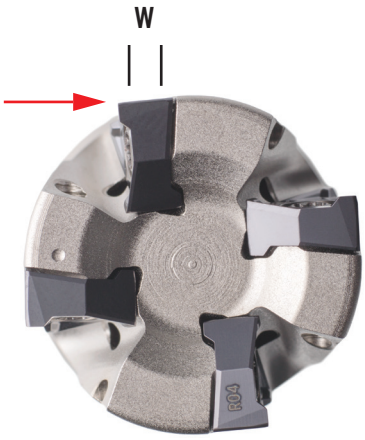
- Features tangentially mounted precision ground inserts with four cutting edges
- Inserts can be set to a true 90° cutting angle to create clean 90° walls
- Profile of each insert closely matches with cutter body pockets

PRODUCT RANGE:

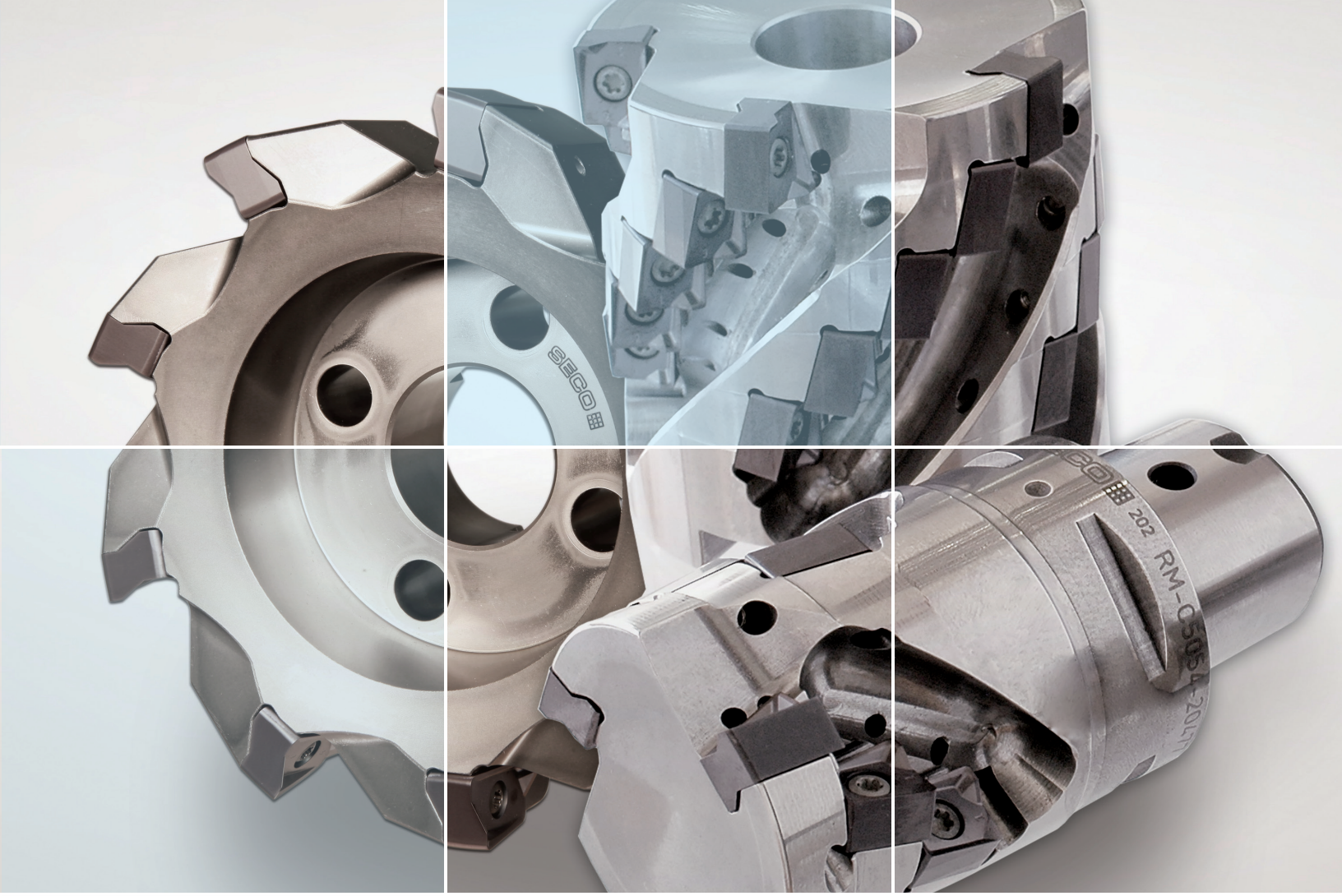
- D_c = 0.625" - 2.5" (16-63 mm)
- a_p max = 0.315" (8 mm)
- Arbor, Combimaster, Cylindrical and Weldon mounting types
- M08 and MD08 insert geometries
- MP1500, MP2500 and MP3000 insert grades for steel
- MK1500 and MK2050 insert grades for cast iron
- T350M and F40M insert grades for stainless steel

TANGENTIAL CUTTER

RADIAL CUTTER



A milling cutter with tangentially mounted inserts will direct the cutting forces along the thickest part of the inserts, providing very robust cutting.



AGGRESSIVE DEPTHS OF CUT FOR MEDIUM-TO-HEAVY APPLICATIONS

R220.LN14

Implementing aspects of the proven design of Square 6, R220.LN14 incorporates inserts with four cutting edges, allowing it to take more aggressive depths of cut. When optimized with the appropriate selection of insert grade and geometry, this powerful cutter achieves extremely aggressive metal removal rates for maximum productivity, providing exceptional value for applications ranging from automotive to aerospace to general machining.

The R220.LN14 is offered in both a standard and helical range, with Arbor and Capto mounting options.

- Four cutting edges per insert to optimize cost effectiveness
- Thick inserts for robust performance in difficult materials
- Free cutting action for optimal performance in challenging applications

STANDARD PRODUCT RANGE:

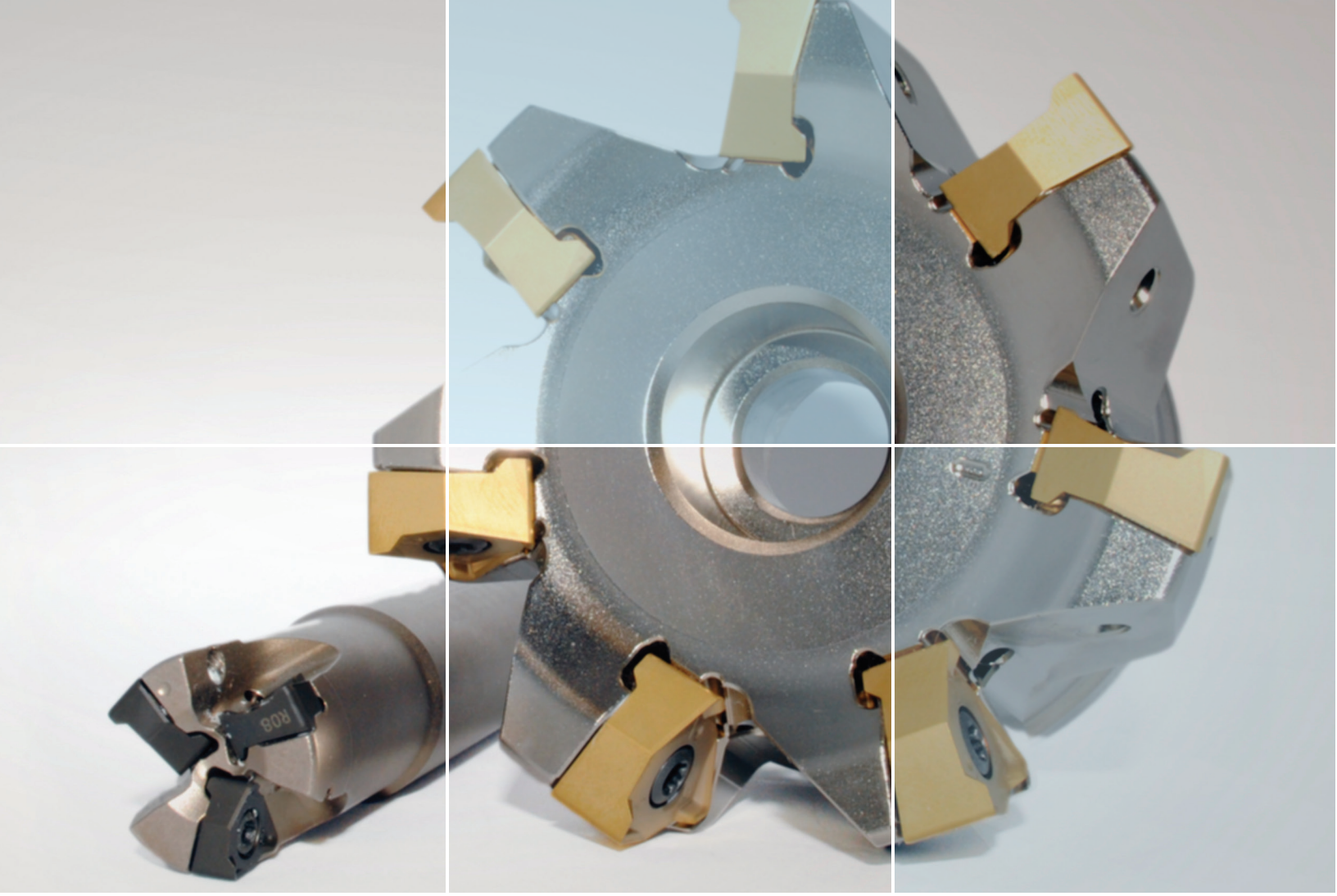
- D_c = 2.0” - 4.0” (51-102 mm)
- a_p max = 0.510” (14 mm)

HELICAL PRODUCT RANGE:

- D_c = 2.0” - 3.0” (51-80 mm)
- a_p = 2.28” - 4.50”
- (57.9 - 114.3 mm)

INSERT OFFERING:

- M07 and M13 insert geometries
- Comprehensive range of insert grades
- Insert thickness = .280” (7 mm)
- Comprehensive insert grade range, including Duratomic



FLEXIBLE AND ECONOMIC SOLUTION FOR GENERAL MACHINING

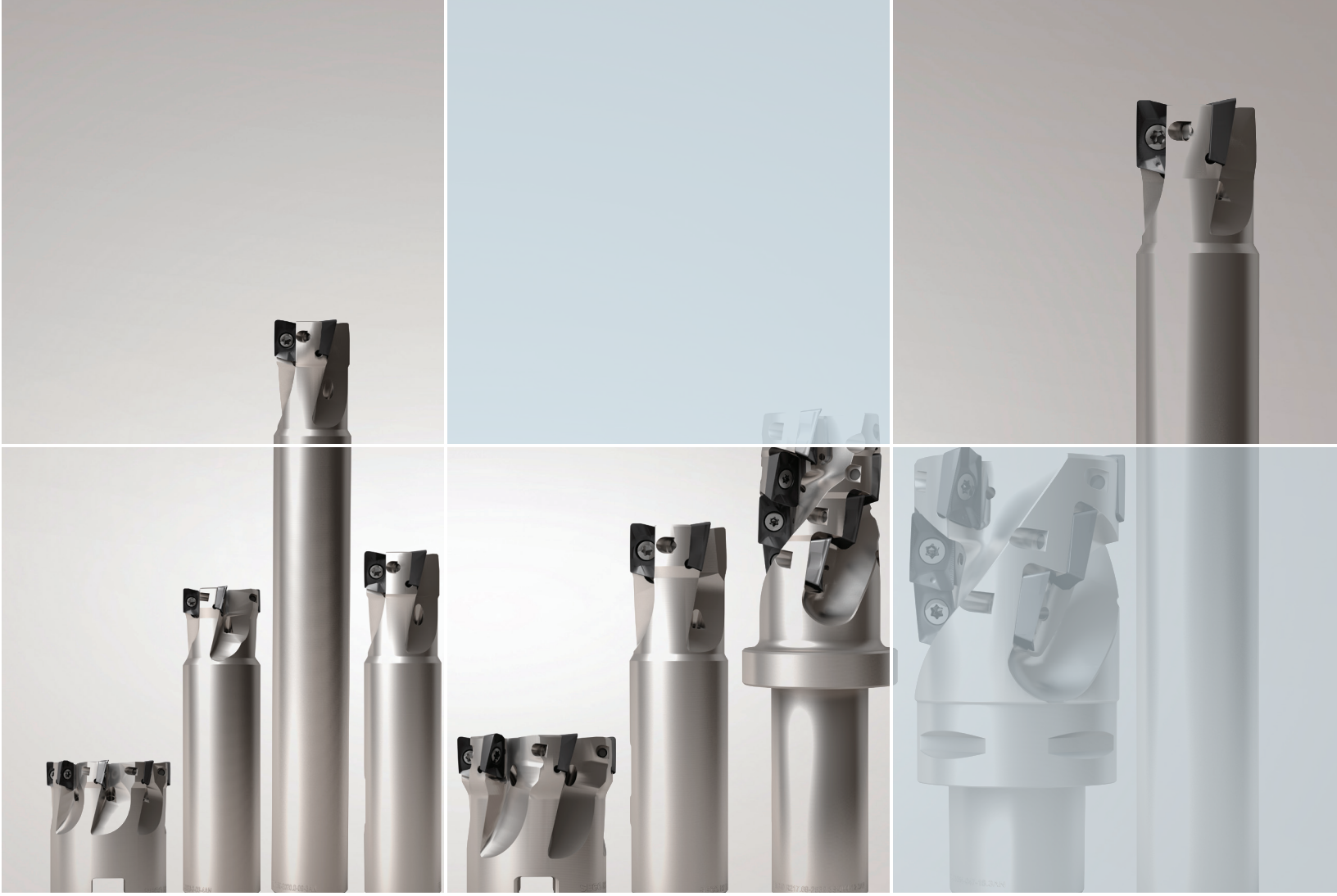
SQUARE 6™

Square 6 offers high performance square shoulder milling, but maintains cost effectiveness by offering six cutting edges per insert. The line's cutter bodies are available in two size ranges to ensure a best possible fit for your specific application. Square 6 cutters provide true 90° walls in a single milling operation and are a reliable solution for general machining in a variety of materials.

- Lowest cost per part through six cutting edges per insert
- High quality surface finishes
- Versatility for strong performance across a wide range of materials and applications

PRODUCT RANGE:

- D_c = 0.75" - 6.0" (20-160 mm)
- a_p max = 0.157"- 0.295" (4-7.5 mm)
- Shank, Shell Mill and Combimaster mounting types
- Multiple insert geometries to cover all material types
- Comprehensive insert grade range, including Duratomic® inserts
- Coarse, normal and close pitch options available
- Large diameter with replaceable cassettes available



HIGH PERFORMANCE IN CHALLENGING APPLICATIONS

TURBO 6, 10, 12, 18

Offering excellent tool life and precision, Seco's Turbo Mill family of cutters aggressively optimizes cutting properties to reduce heat generation and cutting forces. Turbo Mills are widely flexible and can tackle almost every material, and perform in a wide range of applications including; roughing, semi-finishing, finishing. Methods include facing, slotting, profiling contouring, helical interpolation, ramping, and plunging applications. This flexibility insures that Turbo Mills offer the boost you need to increase your productivity.

- Extremely flexible and reliable
- Coated and hardened cutter body for maximum tool life
- Maintains high tolerances and optimum precision
- Performs in a large range of materials

PRODUCT RANGE:

- D_c = 0.375" - 6.0" (16-100 mm)
- a_p max = 0.354" (9 mm)
- Cylindrical, Weldon, Combimaster and Arbor mounting types
- Multiple insert geometries to cover all material types
- Comprehensive insert grade range, including Duratomic® inserts
- Coarse and close pitch options available
- Cassette options available on large diameters

Cutter	Insert	Recommended a_p		Material suitability					Corner radius (in)					
				P	M	K	N	S						
Turbo	XO..06	3		■	■	■	■	■	.008/.016 .032/.063	■	□	■	■	◩
			5											
	XO..10	5		■	■	■	■	■	.016/.032 .047/.063 .079/.094/.122	■	◩	■	■	◩
			9											
	XO..12	6		■	■	■	■	■	.016/.032 .047/.063 .079/.094/.122 .157/.197/.248	◩	■	■	■	◩
			11											
	XO..18	9		■	◩	■	■	◩	.016/.032 .047/.063 .079/.094/.122 .157/.197/.248	□	■	■	■	◩
			17											
ABEX26	ABEX26	13		■	◩	■	-	-	.063	□	■	■	□	□
			20											
Square T4	LO..08	3		■	◩	■	-	□	.016/.032 .047/.063	■	◩	◩	-	□
			7											
Square 6	XN..04	2		■	◩	■	-	□	.016/.032	■	□	◩	-	◩
			3											
	XN..08	4		■	◩	■	-	□	.016/.032 .047/.063	□	■	□	-	◩
			7											
LN14	LN14	10		■	◩	■	-	□	.032/.063	□	■	□	-	◩
			14											

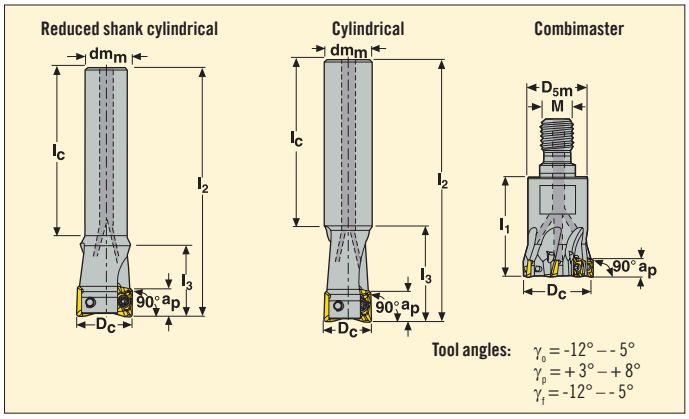
1st choice	■	High speed machine with low Power / Torque		Unstable condition suitability	
Alternative choice	◩	Strong stable machine with rigid connection		Ramping ability	
Possible choice	□	Not recommended	-	Plunging ability	

No. of insert cutting edges	Application	Cutter diameter available with effective number of teeth															
		.375"	.500"	.625"	.750"	1.00"	1.25"	1.50"	2.00"	2.50"	3.00"	4.00"	5.00"	6.00"	8.00"	10.00"	12.00"
2		2	3	3	4	6	8	10									
		2	2	4	5	7	8	10									
2				2	2	3	3	4	5								
				2	2	4	5	6	7	8	10	12					
2					2	2	3	4	5	6	7	8	8	10	12	16	
					2	3	4	5	7	8	10	12	8	10	12	16	
2						2	2	3	4	5	6	7	8	9	12	16	
						2	3	4	5	6	8	9	11	12	12	16	
2									4	5	7	8	9	10			
									4	5	7	8	9	10			
4				2	2	3	4	4	5	6							
				2	3	4	5	4	7	9							
6					2	4	5	6	8	9							
					3	5	6	7	9	10							
6								3	4	6	7	8	11	12	12	16	20
								4	5	7	9	11	14	16	12	16	20
4									4	6	7	8					
									4	6	7	8					

x	Fixed pocket (x indicates number of teeth)		Slotting and contouring
x	With cassette (x indicates number of teeth)		Optimized for contouring

R217.69-06

- For insert selection and cutting data recommendations, see page 13.
- For complete insert program, see page 72.
- For ramping and helical interpolation, see pages 82-85.



Part No.	EDP	Dimensions in inch									lbs	Type of mounting		
		D_c	D_{5m} dm_m	l_1	l_2	l_3	l_c	M	a_p					
Inch														
R217.69 -00.375-0-06-2LAN	**55419**	.375	.312	–	3.937	.709	3.228	–	.197	2	0.07	Cylindrical	60000	XO.X0602..
-00.500-0-06-2LAN	**55308**	.500	.375	–	3.937	.709	3.228	–	.197	2	0.11	Cylindrical	54400	XO.X0602..
-00.625-0-06-3LAN	**55311**	.625	.500	–	4.921	.787	4.134	–	.197	3	0.25	Cylindrical	48000	XO.X0602..
-00.750-0-06-4LAN	**55315**	.750	.625	–	5.905	.787	5.118	–	.197	4	0.47	Cylindrical	44000	XO.X0602..
-00.875-0-06-5LAN	**55316**	.875	.750	–	5.905	.787	5.118	–	.197	5	0.65	Cylindrical	44000	XO.X0602..
-01.00-0-06-6LAN	**55319**	1.00	.750	–	7.874	.787	7.087	–	.197	6	0.90	Cylindrical	37600	XO.X0602..
R217.69 -00.375-0-06-2AN	**55418**	.375	.375	–	2.165	.669	1.496	–	.197	2	0.05	Cylindrical	60000	XO.X0602..
-00.500-0-06-2AN	**55307**	.500	.500	–	3.150	.709	2.441	–	.197	2	0.15	Cylindrical	54400	XO.X0602..
-00.500-0-06-3AN	**55309**	.500	.500	–	2.362	.708	1.654	–	.197	3	0.11	Cylindrical	54000	XO.X0602..
-00.625-0-06-3AN	**55310**	.625	.625	–	3.543	.787	2.756	–	.197	3	0.26	Cylindrical	48000	XO.X0602..
-00.625-0-06-4AN	**55312**	.625	.625	–	3.543	.787	2.756	–	.197	4	0.25	Cylindrical	48000	XO.X0602..
-00.750-0-06-4AN	**55313**	.750	.750	–	3.937	.787	3.150	–	.197	4	0.43	Cylindrical	44000	XO.X0602..
-00.750-0-06-5AN	**55314**	.750	.750	–	3.937	.787	3.150	–	.197	5	0.42	Cylindrical	44000	XO.X0602..
-00.875-0-06-6AN		.875	.875	–	4.331	.985	3.346	–	.197	6	0.63	Cylindrical	44000	XO.X0602..
-01.00-0-06-7AN	**55320**	1.00	.875	–	4.528	.788	3.740	–	.197	7	0.69	Cylindrical	37600	XO.X0602..
-01.25-0-06-8AN	**55322**	1.25	1.00	–	5.118	.984	4.134	–	.197	8	1.07	Cylindrical	33600	XO.X0602..
-01.50-0-06-10AN	**55323**	1.50	1.25	–	5.512	.984	4.528	–	.197	10	1.83	Cylindrical	28000	XO.X0602..
R217.69 -00.375-0-06.2AD**	**95811**	.375	.375	–	2.165	.669	1.496	–	.197	2	0.11	Cylindrical	60000	XO.X0602..
R217.69 -00.750-10RE-06-5AN	**55359**	.750	0.708	1.181	–	–	–	M10	.197	5	0.17	Combimaster	44000	XO.X0602..
-00.875-12RE-06-6AN	**55360**	.875	0.827	1.378	–	–	–	M12	.197	6	0.19	Combimaster	44000	XO.X0602..
-01.00-12RE-06-7AN	**55361**	1.00	0.905	1.378	–	–	–	M12	.197	7	0.22	Combimaster	37600	XO.X0602..
-01.25-16RE-06-8AN	**55362**	1.25	1.102	1.378	–	–	–	M16	.197	8	0.39	Combimaster	33600	XO.X0602..
-01.50-16RE-06-10AN	**55363**	1.50	1.102	1.378	–	–	–	M16	.197	10	0.45	Combimaster	28000	XO.X0602..

When using inserts with a corner radius > than .031 in. the cutter body must be modified
**D = Densimet shank

SPARE PARTS, INCLUDED IN DELIVERY

For cutter	Locking screw		Key		Dynamomentic Key***	
		EDP		EDP		EDP
R217.69-06	C01804-T06P	**12622**	T06P-3	**16662**	T00-06P05	**01728**

Locking screw torque value 4.4 in/lbs. (0.5 Nm)
***Dynamomentic Key ordered separately

R217.69-06

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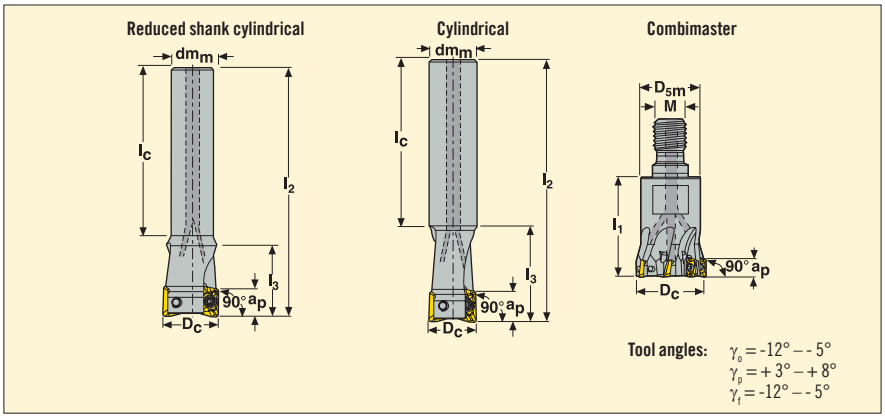


Part No.	EDP	Dimensions in mm										Type of mounting		
		D_c	D_{5m} dm_m	l_1	l_2	l_3	l_c	M	a_p		kg			
Metric														
R217.69 -1010.0-06-2AN	53228	10	10	–	55	16	38	–	5	2	0.1	Cylindrical	60000	XO.X0602..
-1010.0-06-2AD	35456	10	10	–	55	16	38	–	5	2	0.1	Cylindrical	60000	XO.X0602..
-1212.0-06-2AN	53229	12	12	–	80	17	62	–	5	2	0.1	Cylindrical	54400	XO.X0602..
-1212.0-06-3AN	53242	12	12	–	60	17	42	–	5	3	0.1	Cylindrical	54400	XO.X0602..
-1212.0-06-3AD	35457	12	12	–	80	17	62	–	5	3	0.1	Cylindrical	54400	XO.X0602..
-1616.0-06-3AN	53230	16	16	–	90	19	70	–	5	3	0.1	Cylindrical	48000	XO.X0602..
-1616.0-06-4AN	53231	16	16	–	90	19	70	–	5	4	0.1	Cylindrical	48000	XO.X0602..
-1616.0-06-4AD	35458	16	16	–	90	19	70	–	5	4	0.3	Cylindrical	48000	XO.X0602..
-2020.0-06-4AN	53219	20	20	–	105	17	85	–	5	4	0.2	Cylindrical	44000	XO.X0602..
-2020.0-06-5AN	35459	20	20	–	105	17	85	–	5	5	0.2	Cylindrical	44000	XO.X0602..
-2020.0-06-5AD	53236	20	20	–	105	20	85	–	5	5	0.5	Cylindrical	44000	XO.X0602..
-2025.0-06-7AN	53240	25	20	–	115	–	95	–	5	7	0.2	Cylindrical	37600	XO.X0602..
-2532.0-06-8AN	53241	32	25	–	130	–	105	–	5	8	0.5	Cylindrical	33600	XO.X0602..
-3240.0-06-10AN	53243	40	32	–	140	–	115	–	5	10	0.9	Cylindrical	28000	XO.X0602..
R217.69 -0810.0-06-2N	53244	10	8	–	100	–	82	–	5	2	0.1	Cylindrical	60000	XO.X0602..
-1010.0-06-2N	53248	10	10	–	100	18	82	–	5	2	0.1	Cylindrical	60000	XO.X0602..
-1012.0-06-2N	53252	12	10	–	120	–	102	–	5	2	0.1	Cylindrical	54400	XO.X0602..
-1212.0-06-2N	53254	12	12	–	120	18	102	–	5	2	0.1	Cylindrical	54400	XO.X0602..
R217.69 -0810.0-06-2AN	53220	10	8	–	100	–	82	–	5	2	0.1	Cylindrical	60000	XO.X0602..
-1012.0-06-2AN	53226	12	10	–	120	–	102	–	5	2	0.1	Cylindrical	54400	XO.X0602..
-1214.0-06-3AN	53221	14	12	–	140	–	122	–	5	3	0.1	Cylindrical	51200	XO.X0602..
-1416.0-06-3AN	53227	16	14	–	160	–	140	–	5	3	0.2	Cylindrical	48000	XO.X0602..
-1618.0-06-4AN	53224	18	16	–	180	–	160	–	5	4	0.3	Cylindrical	45600	XO.X0602..
-1820.0-06-4AN	53225	20	18	–	200	–	180	–	5	4	0.4	Cylindrical	44000	XO.X0602..
R217.69 -1616.3-06-3AN	53214	16	16	46	70	20	50	–	3	3	0.1	Cyl/Weldon	48000	XO.X0602..
-1616.3-06-4AN	53215	16	16	46	70	20	50	–	5	4	0.1	Cyl/Weldon	48000	XO.X0602..
-2020.3-06-4AN	53216	20	20	55	80	20	60	–	5	4	0.2	Cyl/Weldon	44000	XO.X0602..
-2020.3-06-5AN	53217	20	20	60	85	20	65	–	5	5	0.2	Cyl/Weldon	44000	XO.X0602..
-2025.3-06-7AN	53240	25	20	65	90	–	70	–	5	7	0.2	Cyl/Weldon	37600	XO.X0602..
R217.69 -0816.RE-06-4AN	53213	16	13.5	23	–	–	–	M8	5	4	0.1	Combimaster	48000	XO.X0602..
-1020.RE-06-5AN	53210	20	18	28	–	–	–	M10	5	5	0.1	Combimaster	44000	XO.X0602..
-1225.RE-06-7AN	53211	25	21	30	–	–	–	M12	5	7	0.1	Combimaster	37600	XO.X0602..
-1632.RE-06-8AN	53203	32	28	35	–	–	–	M16	5	8	0.2	Combimaster	33600	XO.X0602..
-1640.RE-06-10AN	53206	40	28	35	–	–	–	M16	5	10	0.3	Combimaster	28000	XO.X0602..

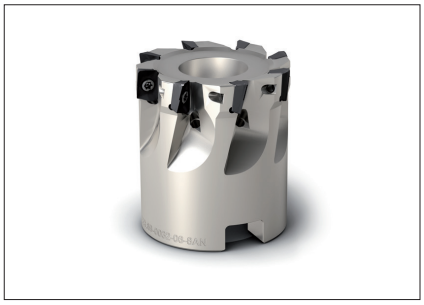
When using inserts with a corner radius > than .031 in. the cutter body must be modified
**D = Densimet shank

SPARE PARTS, INCLUDED IN DELIVERY

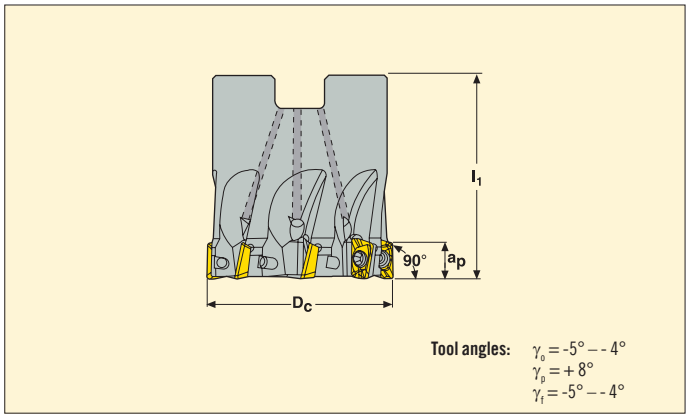
For cutter	Locking screw		Key		Dynamomentic Key***	
		EDP		EDP		EDP
R217.69-06	C01804-T06P	12622	T06P-3	16662	T00-06P05	01728

***Dynamomentic Key ordered separately
Locking screw torque value 4.4 in/lbs. (0.5 Nm)

R220.69-06



- For insert selection and cutting data recommendations, see page 13.
- For complete insert program, see page 72.
- For ramping and helical interpolation, see pages 82-85.



Tool angles: $\gamma_o = -5° - -4°$
$\gamma_p = +8°$
$\gamma_f = -5° - -4°$

Pitch	Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p		lbs/kg		
Normal	Inch								
	R220.69 -01.25-06-8AN	55325	1.250	1.378	.197	8	0.30	33600	XO.X0602..
	-01.50-06-10AN	55326	1.500	1.378	.197	10	0.45	28000	XO.X0602..
Normal	Metric								
	R220.69 -0032-06-8AN	53255	32	35	5	8	0.2	33600	XO.X0602..
	-0040-06-10AN	53257	40	35	5	10	0.2	28000	XO.X0602..

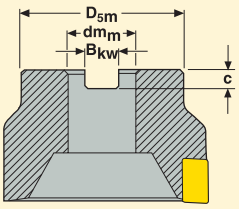
When using inserts with a corner radius > than .031 in. the cutter body must be modified

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
								
Inch		EDP		EDP		EDP		EDP
R220.69-01.25 to -01.50	C01804-T06P	12622	T06P-3	16662	UC6S-1/4 UNF x 1	54900	T00-06P05	01728

Locking screw torque value 4.4 in/lbs. (0.5 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
Inch				
R220.69-01.25 to -01.50	.500	–	.26	.16

* For metric mounting and spare parts, please refer to the metric navigator

Insert selection – 217/220.69-06

Universal insert: XOMX 060204R-M05 F40M

SMG	f_z in/tooth a_e/D_c = 100%	Max a_p slotting inch	First choice		
1	.002–.004	.157	XOMX060204R-M05 F40M		
2	.002–.004	.157	XOMX060204R-M05 F40M		
3	.002–.004	.138	XOMX060204R-M05 F40M		
4	.002–.004	.118	XOMX060204R-M05 F40M		
5	.001–.003	.098	XOMX060204R-M05 F40M		
6	.001–.003	.079	XOMX060204R-M05 MP3000		
7	–	–	–		
8	.002–.004	.118	XOMX060204R-M05 F40M		
9	.001–.003	.118	XOMX060204R-M05 F40M		
10	.001–.003	.098	XOMX060204R-M05 F40M		
11	.001–.003	.079	XOMX060204R-M05 MM4500		
12	.002–.004	.157	XOMX060204R-M05 MP3000		
13	.002–.004	.157	XOMX060204R-M05 MP3000		
14	.002–.004	.138	XOMX060204R-M05 MP3000		
15	.001–.003	.118	XOMX060204R-M05 MP3000		
16	.002–.005	.157	XOEX060204R-E03 H15		
17	.002–.004	.157	XOEX060204R-E03 F40M		
18	.002–.004	.157	XOEX060204R-E03 H15		
19	.001–.002	.079	XOMX060204R-M05 F40M		
20	.001–.002	.079	XOMX060204R-M05 F40M		
21	.001–.002	.079	XOMX060204R-M05 F40M		
22	.001–.003	.118	XOMX060204R-M05 F40M		

Cutting data – Full engagement width (a_e/D_c = 100%)

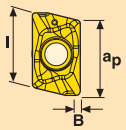
SMG	Grades																
	MP3000			F40M			F15M			H15			MM4500				
	f_z (in/tooth)																
	.001	.003	.005	.001	.003	.005	.001	.003	.005	.001	.003	.005	.001	.003	.005		
	v_c (sf/min)																
1	1970	1575	1380	1575	1265	1100	–	–	–	–	–	–	1265	1015	885		
2	1655	1330	1165	1330	1065	935	–	–	–	–	–	–	1085	870	755		
3	1380	1100	950	1100	885	770	–	–	–	–	–	–	885	705	625		
4	1165	935	820	935	755	655	–	–	–	–	–	–	755	605	525		
5	970	785	690	785	625	540	935	755	655	–	–	–	640	510	445		
6	855	690	–	690	540	–	820	655	–	–	–	–	560	445	–		
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
8	1245	1000	870	1065	855	755	–	–	–	–	–	–	920	740	640		
9	985	785	690	835	675	590	–	–	–	–	–	–	720	590	510		
10	805	640	–	690	560	–	–	–	–	–	–	–	590	475	–		
11	590	475	–	510	410	–	–	–	–	–	–	–	445	360	–		
12	1015	820	720	820	655	575	985	785	–	–	–	–	–	–	–		
13	900	720	625	720	575	510	870	690	–	–	–	–	–	–	–		
14	755	605	525	605	490	425	720	575	–	–	–	–	–	–	–		
15	625	510	–	490	395	–	605	475	–	–	–	–	–	–	–		
16	–	–	–	4050	3250	2840	4870	3905	3410	3855	3085	2690	–	–	–		
17	–	–	–	3280	2625	2295	3935	3150	2755	3115	2495	2180	–	–	–		
18	–	–	–	2495	2000	1740	3000	2395	2100	2380	1905	1655	–	–	–		
19	260	215	–	230	180	–	–	–	–	–	–	–	155	130	–		
20	215	165	–	180	145	–	–	–	–	–	–	–	130	100	–		
21	180	145	–	155	125	–	–	–	–	–	–	–	110	90	–		
22	215	180	–	180	150	–	–	–	–	–	–	–	180	140	–		

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.001	.003	.005	1.00
Side milling	25%	.001	.004	.006	1.30
	10%	.002	.005	.010	1.50
	5%	.002	.008	.013	1.60
Average chip thickness h_m		.001	.002	.003	–

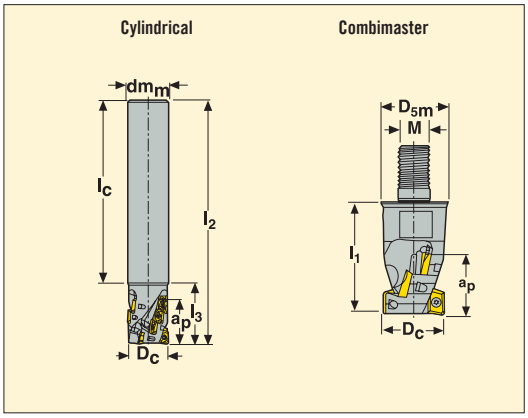
Choose suitable feed. Multiply speed value from basic cutting data by speed factor.

Dimensions in inch



Insert type	Max D.O.C. a_p	Wiper flat width B
060202	.197	.043
060204	.197	.035
060208	.197	.020
060216	.197	.028

- For insert selection and cutting data recommendations, see page 15.
- For complete insert program, see page 72.



Part No.	EDP	Dimensions in inch/mm									No. of flutes	Type of mounting		lbs/kg		
		D_c	D_{5m} dm_m	l_1	l_2	l_3	l_c	M	a_p	z_c*						
Inch																
R217.69 -00.500-0-06S2N	22143	.500	.625	–	4.00	1.36	2.64	–	0.44	2	2	Cylindrical	4	0.29	54400	XO.X0602..
-00.625-0-06S3N	25391	.625	.625	–	4.50	1.15	3.35	–	0.63	3	3	Cylindrical	9	0.35	48000	XO.X0602..
-00.625-0-06M2N	25390	.625	.625	–	4.50	1.15	3.35	–	0.83	2	2	Cylindrical	8	0.35	48000	XO.X0602..
-00.750-0-06M3N	25839	.750	.750	–	5.00	1.38	3.62	–	1.02	3	3	Cylindrical	15	0.55	44000	XO.X0602..
R217.69 -00.500-0-06S2E		.500	.500	–	5.31	2.17	3.15	–	0.44	2	2	Cylindrical	4	0.46	54400	XO.X0602..
-00.625-0-06S3E		.625	.625	–	6.50	1.97	4.35	–	0.63	3	3	Cylindrical	9	0.91	48000	XO.X0602..
R217.69 -00.625-08RE-06S2N	22140	.625	.531	0.980	–	–	–	M08	0.63	2	2	Combimaster	6	0.06	48000	XO.X0602..
-00.625-08RE-06S3N	22141	.625	.531	0.980	–	–	–	M08	0.63	3	3	Combimaster	9	0.06	48000	XO.X0602..
-00.750-10RE-06M3AN	22142	.750	.709	1.380	–	–	–	M10	0.83	3	3	Combimaster	12	0.13	44000	XO.X0602..
Metric																
R217.69 -1612.0-10-06.2N	58459	12	16	–	98	23	66	–	10	2	2	Cylindrical	4	0.2	54400	XO.X0602..
-1616.0-15-06.3N	58462	16	16	–	110	30	80	–	15	3	3	Cylindrical	9	0.2	48000	XO.X0602..
-1616.0-20-06.2N	58463	16	16	–	110	30	80	–	20	2	2	Cylindrical	8	0.2	48000	XO.X0602..
-2020.0-25-06.3N	58465	20	20	–	120	35	85	–	25	3	3	Cylindrical	15	0.3	44000	XO.X0602..
R217.69 -0814.RE-15-06.2N	13591	14	13.2	25	–	–	–	M8	15	2	2	Combimaster	6	0.1	51200	XO.X0602..
-0816.RE-15-06.2N	58453	16	13.5	25	–	–	–	M8	15	2	2	Combimaster	6	0.1	48000	XO.X0602..
-0816.RE-15-06.3N	58454	16	13.5	25	–	–	–	M8	15	3	3	Combimaster	9	0.1	48000	XO.X0602..
-1020.RE-20-06.3AN	58457	20	18.5	35	–	–	–	M10	20	3	3	Combimaster	12	0.1	44000	XO.X0602..

Suffix E in part No. = Solid carbide shank with brazed cutting head.

* Effective number of teeth.

SPARE PARTS, INCLUDED IN DELIVERY

For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.69-06	C01804-T06P	**16711**	T06P-3	**16666**	T00-07P12	**69934**

Locking screw torque value 4.4 in/lbs. (0.5 Nm)

***Dynamomentic Key ordered separately

Insert selection – 217.69-06 – Slotting/Contouring

Universal insert: XOMX 060204R-M05 F40M

SMG	f_z in/tooth $a_e/D_c = 100\%$	Max a_p slotting inch	First choice		
1	.002–.004	0.4 x Dc	XOMX060204R-M05 F40M		
2	.002–.003	0.4 x Dc	XOMX060204R-M05 F40M		
3	.002–.003	0.3 x Dc	XOMX060204R-M05 F40M		
4	.002–.003	0.3 x Dc	XOMX060204R-M05 F40M		
5	.001–.002	0.2 x Dc	XOMX060204R-M05 F40M		
6	.001–.002	0.1 x Dc	XOMX060204R-M05 MP3000		
7	–	–	–		
8	.002–.003	0.3 x Dc	XOMX060204R-M05 F40M		
9	.001–.003	0.3 x Dc	XOMX060204R-M05 F40M		
10	.001–.002	0.2 x Dc	XOMX060204R-M05 F40M		
11	.001–.002	0.1 x Dc	XOMX060204R-M05 F40M		
12	.002–.004	0.4 x Dc	XOMX060204R-M05 MP3000		
13	.002–.003	0.4 x Dc	XOMX060204R-M05 MP3000		
14	.002–.003	0.3 x Dc	XOMX060204R-M05 MP3000		
15	.001–.002	0.2 x Dc	XOMX060204R-M05 MP3000		
16	.002–.004	0.5 x Dc	XOEX060204R-E03 H15		
17	.002–.004	0.5 x Dc	XOEX060204R-E03 F40M		
18	.002–.004	0.5 x Dc	XOEX060204R-E03 H15		
19	.001–.002	0.3 x Dc	XOMX060204R-M05 F40M		
20	.001–.002	0.3 x Dc	XOMX060204R-M05 F40M		
21	.001–.002	0.2 x Dc	XOMX060204R-M05 F40M		
22	.001–.002	0.3 x Dc	XOMX060204R-M05 F40M		

Cutting data – Full engagement width ($a_e/D_c = 100\%$)

SMG	Grades																
	MP3000			F40M			F15M			H15			MM4500				
	f_z (in/tooth)																
	.001	.002	.004	.001	.002	.004	.001	.002	.004	.001	.002	.004	.001	.002	.004		
	v_c (sf/min)																
1	1590	1330	1180	1280	1065	935	–	–	–	–	–	–	1035	855	755		
2	1360	1130	1000	1085	900	805	–	–	–	–	–	–	885	720	640		
3	1115	935	820	900	740	655	–	–	–	–	–	–	720	605	525		
4	950	785	705	770	640	560	–	–	–	–	–	–	625	510	460		
5	805	655	590	640	525	475	770	640	560	–	–	–	510	425	375		
6	705	575	–	560	460	–	675	560	–	–	–	–	460	375	–		
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
8	1015	835	740	870	720	640	–	–	–	–	–	–	755	625	560		
9	805	655	590	690	575	510	–	–	–	–	–	–	590	490	445		
10	655	540	–	560	460	–	–	–	–	–	–	–	490	410	–		
11	475	395	–	410	345	–	–	–	–	–	–	–	360	295	–		
12	835	690	605	675	560	490	805	655	–	–	–	–	–	–	–		
13	740	605	540	590	490	425	705	590	–	–	–	–	–	–	–		
14	625	510	460	490	410	360	590	490	–	–	–	–	–	–	–		
15	510	425	–	410	345	–	490	410	–	–	–	–	–	–	–		
16	–	–	–	3315	2740	2430	3970	3295	2920	3150	2610	2315	–	–	–		
17	–	–	–	2675	2215	1970	3215	2655	2360	2545	2100	1870	–	–	–		
18	–	–	–	2035	1690	1495	2445	2035	1790	1935	1610	1425	–	–	–		
19	215	180	–	180	150	–	–	–	–	–	–	–	130	110	–		
20	165	140	–	150	120	–	–	–	–	–	–	–	105	85	–		
21	150	120	–	130	105	–	–	–	–	–	–	–	90	75	–		
22	180	150	–	155	130	–	–	–	–	–	–	–	145	120	–		

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.001	.002	.004	1.00
Side milling	25%	.001	.003	.005	1.30
	10%	.002	.005	.008	1.50
	5%	.002	.007	.011	1.60
Average chip thickness h_m		.0004	.0016	.0024	–

Choose suitable feed. Multiply speed value from basic cutting data by speed factor.

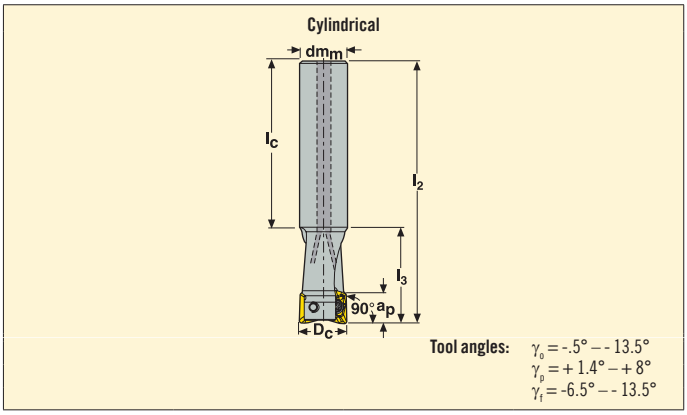
Radii insert alternatives

Radius	End Row	Other Rows
.008	✔	✔
.016	✔*	✔*
.031-.063	✔	–

* Basic Choice

217.69-10

- For insert selection and cutting data recommendations, see pages19-20
- For complete insert program, see pages 72-73.
- For ramping and helical interpolation, see pages 82-85.



Tool angles: γ_o = -.5° – - 13.5°
γ_p = + 1.4° – + 8°
γ_f = -6.5° – - 13.5°

Part No.	EDP	Dimension in inch/mm									Type of mounting	
		D_c	dm_m	l_2	l_3	l_c	a_p		lbs/kg			
Inch												
R217.69 -00.625-0-10-2A	**68442**	0.625	0.625	5.315	1.083	4.232	0.354	2	0.39	29400	Cylindrical	XO.X10T3..
-00.750-0-10-2A	**68445**	0.750	0.750	5.906	1.181	4.724	0.354	2	0.62	26300	Cylindrical	XO.X10T3..
-00.875-0-10-3A	**68455**	0.875	0.750	5.906	1.181	4.724	0.354	3	0.64	25000	Cylindrical	XO.X10T3..
-01.00-0-10-3A	**68449**	1.000	1.000	6.693	1.280	5.413	0.354	3	1.29	23500	Cylindrical	XO.X10T3..
-01.00-0-10-4A	**68450**	1.000	1.000	6.693	1.280	5.413	0.354	4	1.29	23500	Cylindrical	XO.X10T3..
-01.25-0-10-3A	**68459**	1.250	1.250	7.677	1.240	6.437	0.354	3	2.41	20800	Cylindrical	XO.X10T3..
-01.25-0-10-5A	**68460**	1.250	1.250	7.677	1.240	6.437	0.354	5	2.42	20800	Cylindrical	XO.X10T3..
-01.50-0-10-4A	**68464**	1.500	1.250	7.677	1.240	6.437	0.354	4	2.49	18600	Cylindrical	XO.X10T3..
-01.50-0-10-6A	**68465**	1.500	1.250	7.677	1.240	6.437	0.354	6	2.51	18600	Cylindrical	XO.X10T3..
Metric												
R217.69 -1616.0-10-2A	**67891**	16	16	135	–	–	9	2	0.2	29400	Cylindrical	XO.X10T3..
-2020.0-10-2A	**67895**	20	20	150	–	–	9	2	0.4	26300	Cylindrical	XO.X10T3..
-2020.0-10-3A	**67896**	20	20	150	–	–	9	3	0.4	26300	Cylindrical	XO.X10T3..
-2525.0-10-3A	**67902**	25	25	170	–	–	9	3	0.6	23500	Cylindrical	XO.X10T3..
-2525.0-10-4A	**67903**	25	25	170	–	–	9	4	0.7	23500	Cylindrical	XO.X10T3..
-3232.0-10-3A	**67908**	32	32	195	–	–	9	3	1.1	20800	Cylindrical	XO.X10T3..
-3232.0-10-5A	**67909**	32	32	195	–	–	9	5	1.1	20800	Cylindrical	XO.X10T3..
R217.69 -1416.0-10-2A	**68430**	16	14	160	25,8	134	9	2	0.2	29400	Cylindrical	XO.X10T3..
-1618.0-10-2A	**68431**	18	16	160	25,8	134	9	2	0.3	27800	Cylindrical	XO.X10T3..
-1820.0-10-2A	**67894**	20	18	200	29,3	170	9	2	0.4	26300	Cylindrical	XO.X10T3..
-2225.0-10-3A	**68432**	25	22	200	28,4	170	9	3	0.6	23500	Cylindrical	XO.X10T3..

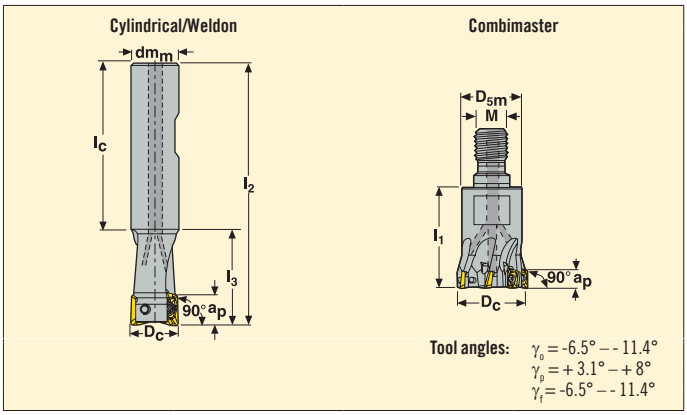
SPARE PARTS, INCLUDED IN DELIVERY

For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.69-10	C02506-T07P	**16711**	T07P-3	**16666**	T00-07P12	**69934**

* Torque value 10.6 in/lbs (1.2 Nm).
***Dynamomentic Key ordered separately

TURBO 10 217.69-10

- For insert selection and cutting data recommendations, see pages19-20
- For complete insert program, see pages 72-73.
- For ramping and helical interpolation, see pages 82-85.



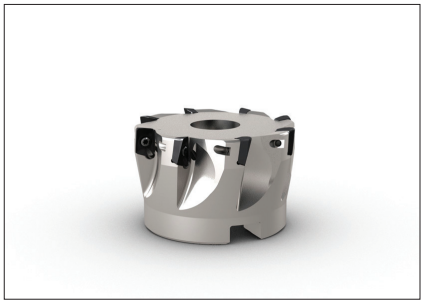
Part No.	EDP	Dimensions in inch/mm													
		D_c	dm_m D_{5m}	l_1	l_2	l_3	l_c	M	a_p		lbs/kg		Type of mounting	
Inch														
R217.69 -00.625-3-10-2A	**68443**	0.625	0.625	–	3.252	1.083	2.169	–	0.354	2	0.23	29400	Cyl/Weldon	XO.X10T3..
-00.750-3-10-2A	**68446**	0.750	0.750	–	3.390	1.189	2.201	–	0.354	2	0.34	26300	Cyl/Weldon	XO.X10T3..
-00.875-3-10-3A	**68456**	0.875	0.750	–	3.390	1.189	2.201	–	0.354	3	0.36	25000	Cyl/Weldon	XO.X10T3..
-01.00-3-10-3A	**68451**	1.000	1.000	–	3.780	1.280	2.500	–	0.354	3	0.68	23500	Cyl/Weldon	XO.X10T3..
-01.00-3-10-4A	**68452**	1.000	1.000	–	3.780	1.280	2.500	–	0.354	4	0.69	23500	Cyl/Weldon	XO.X10T3..
-01.25-3-10-3A	**68461**	1.250	1.250	–	4.000	1.240	2.760	–	0.354	3	1.19	20800	Cyl/Weldon	XO.X10T3..
-01.25-3-10-5A	**68462**	1.250	1.250	–	4.000	1.240	2.760	–	0.354	5	1.19	20800	Cyl/Weldon	XO.X10T3..
-01.50-3-10-4A	**68466**	1.500	1.250	–	4.000	1.240	2.760	–	0.354	4	1.28	18600	Cyl/Weldon	XO.X10T3..
-01.50-3-10-6A	**68467**	1.500	1.250	–	4.000	1.240	2.760	–	0.354	6	1.29	18600	Cyl/Weldon	XO.X10T3..
R217.69 -00.625-08RE-10-2A	**68441**	0.625	0.531	0.906	–	–	–	M08	0.354	2	0.06	29400	Combimaster	
-00.750-10RE-10-2A	**68444**	0.750	0.728	1.378	–	–	–	M10	0.354	2	0.23	26300	Combimaster	XO.X10T3..
-01.00-12RE-10-3A	**68447**	1.000	0.906	1.575	–	–	–	M12	0.354	3	0.27	23500	Combimaster	XO.X10T3..
-01.00-12RE-10-4A	**68448**	1.000	0.906	1.575	–	–	–	M12	0.354	4	0.27	23500	Combimaster	XO.X10T3..
-01.25-16RE-10-3A	**68457**	1.250	1.181	1.575	–	–	–	M16	0.354	3	0.46	20800	Combimaster	XO.X10T3..
-01.25-16RE-10-5A	**68458**	1.250	1.181	1.575	–	–	–	M16	0.354	5	0.47	20800	Combimaster	XO.X10T3..
Metric														
R217.69 -1616.3-10-2A	**67892**	16	16	54	78	23	54	–	9	2	0.1	29400	Cyl/Weldon	XO.X10T3..
-2018.3-10-2A	**68433**	20	18	60	85	26	56	–	9	2	0.2	26300	Cyl/Weldon	XO.X10T3..
-2020.3-10-2A	**67897**	20	20	65	90	28	61	–	9	2	0.2	26300	Cyl/Weldon	XO.X10T3..
-2020.3-10-3A	**67898**	20	20	65	90	28	61	–	9	3	0.2	26300	Cyl/Weldon	XO.X10T3..
-2525.3-10-3A	**67904**	25	25	69	101	33	67	–	9	3	0.3	23500	Cyl/Weldon	XO.X10T3..
-2525.3-10-4A	**67905**	25	25	69	101	33	67	–	9	4	0.3	23500	Cyl/Weldon	XO.X10T3..
-3232.3-10-3A	**67910**	32	32	74	110	34	75	–	9	3	0.6	20800	Cyl/Weldon	XO.X10T3..
-3232.3-10-5A	**67912**	32	32	74	110	34	75	–	9	5	0.6	20800	Cyl/Weldon	XO.X10T3..
R217.69 -0816.RE-10-2A	**67893**	16	14	28	–	–	–	M08	9	2	0.1	29400	Combimaster	XO.X10T3..
-1020.RE-10-2A	**67899**	20	19	28	–	–	–	M10	9	2	0.1	26300	Combimaster	XO.X10T3..
-1020.RE-10-3A	**67900**	20	19	28	–	–	–	M10	9	3	0.1	26300	Combimaster	XO.X10T3..
-1225.RE-10-3A	**67906**	25	23	30	–	–	–	M12	9	3	0.1	23500	Combimaster	XO.X10T3..
-1225.RE-10-4A	**67907**	25	23	30	–	–	–	M12	9	4	0.1	23500	Combimaster	XO.X10T3..
-1632.RE-10-3A	**67917**	32	30	40	–	–	–	M16	9	3	0.2	20800	Combimaster	XO.X10T3..
-1632.RE-10-5A	**67929**	32	30	40	–	–	–	M16	9	5	0.2	20800	Combimaster	XO.X10T3..

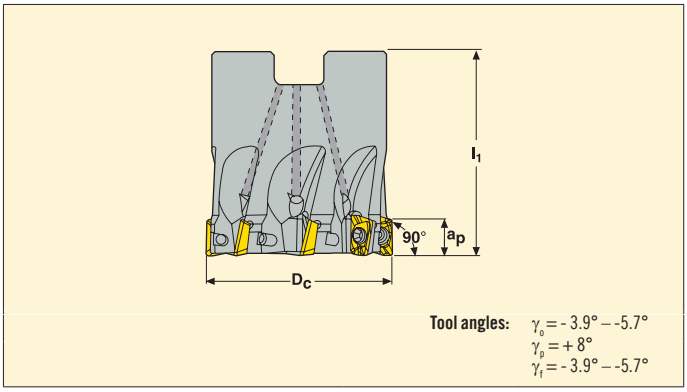
SPARE PARTS, INCLUDED IN DELIVERY

For cutter	Locking screw		Key		Dynamomentic Key***	
		EDP		EDP		EDP
R217.69-10	C02506-T07P	**16711**	T07P-3	**16666**	T00-07P12	**69934**

Locking screw torque value 10.6 in/lbs (1.2 Nm).
***Dynamomentic Key ordered separately

TURBO 220.69-10





Tool angles: $\gamma_o = -3.9° - -5.7°$
$\gamma_p = +8°$
$\gamma_f = -3.9° - -5.7°$

- For insert selection and cutting data recommendations, see pages19-20
- For complete insert program, see pages 72-73.
- For ramping and helical interpolation, see pages 82-85.

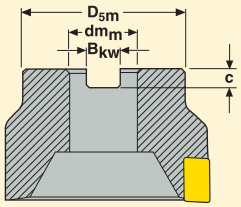
Pitch	Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p		lbs/kg		
Normal	**Inch**								
	R220.69 -01.50-10-4A	**68468**	1.50	1.58	0.354	4	0.386	18600	XO.X10T3..
	-02.00-10-5A	**68470**	2.00	1.58	0.354	5	0.869	16600	XO.X10T3..
	Metric								
	R220.69 -0032-10-4A	**15517**	32	35	9	4	0.2	33600	XO.X10T3..
	-0040-10-4A	**67936**	40	40	9	4	0.2	18600	XO.X10T3..
	-0050-10-5A	**68011**	50	40	9	5	0.4	16600	XO.X10T3..
	-0063-10-5A	**68212**	63	50	9	5	0.6	14800	XO.X10T3..
	-0080-10-8A	**68215**	80	50	9	8	1.1	13200	XO.X10T3..
	-0100-10-12A	**68221**	100	50	9	12	1.7	11800	XO.X10T3..
Close	**Inch**								
	R220.69 -01.50-10-6A	**68469**	1.50	1.58	0.354	6	0.375	18600	XO.X10T3..
	-02.00-10-7A	**68471**	2.00	1.58	0.354	7	0.888	16600	XO.X10T3..
	-02.50-10-8A	**68472**	2.50	1.58	0.354	8	1.265	14800	XO.X10T3..
	-03.00-10-10A	**68473**	3.00	1.97	0.354	10	2.493	13200	XO.X10T3..
	-04.00-10-12A	**68474**	4.00	1.97	0.354	12	4.028	11800	XO.X10T3..
	Metric								
	R220.69 -0032-10-5A	**17446**	32	35	9	5	0.2	33600	XO.X10T3..
	-0040-10-6A	**67937**	40	40	9	6	0.2	18600	XO.X10T3..
	-0050-10-7A	**68027**	50	40	9	7	0.4	16600	XO.X10T3..
	-0063-10-8A	**68213**	63	40	9	8	0.6	14800	XO.X10T3..
	-0080-10-10A	**68220**	80	50	9	10	1.1	13200	XO.X10T3..

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**		**EDP**
R220.69 -01.50 to -02.50	C02506-T07P	**16711**	T07P-3	**16666**	UC6S 3/8 UNFx1	**87667**	T00-07P12	**69934**
-03.00	C02506-T07P	**16711**	T07P-3	**16666**	UC6S 1/2 UNFx1 1/4	**77920**	T00-07P12	**69934**
-04.00	C02506-T07P	**16711**	T07P-3	**16666**	UC6S 3/4 UNFx1 1/4	**03253**	T00-07P12	**69934**

* Torque value 10.6 in/lbs (1.2 Nm).
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.69 -01.50	0.750	1.378	.323	.193
-02.00	0.750	1.850	.323	.193
-02.50	0.750	1.850	.323	.193
-03.00	1.000	2.441	.384	.224
-04.00	1.500	3.031	.632	.382

* For metric mounting and spare parts, please refer to the metric navigator

Insert selection – 217/220.69-10

Universal insert: XOMX 10T308TR-ME07 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Difficult operations	
1	.004 – .006	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
2	.004 – .006	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
3	.004 – .006	XOMX10T308TR-ME07 MP2500	XOMX10T308TR-M09 T350M	
4	.004 – .006	XOMX10T308TR-ME07 MP2500	XOMX10T308TR-M09 T350M	
5	.003 – .006	XOMX10T308TR-M09 MP2500	XOMX10T308TR-M09 T350M	
6	.003 – .006	XOMX10T308TR-M09 MP2500	XOMX10T308TR-M09 T350M	
7	.002 – .004	XOMX10T308TR-M09 MP1500	XOMX10T308TR-M09 MP3000	
8	.004 – .006	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
9	.003 – .006	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
10	.003 – .006	–	–	
11	.002 – .005	–	–	
12	.004 – .006	XOMX10T308TR-M09 MK1500	XOMX10T308TR-M09 MK2050	
13	.003 – .006	XOMX10T308TR-M09 MK1500	XOMX10T308TR-M09 MK2050	
14	.003 – .006	XOMX10T308TR-M09 MK1500	XOMX10T308TR-M09 MK2050	
15	.003 – .006	XOMX10T308TR-M09 MP1500	XOMX10T308TR-M09 MK2050	
16	.004 – .006	XOMX100408TR-ME07 F40M	XOMX100408TR-ME07 F40M	
17	.004 – .006	XOMX100408TR-ME07 F40M	XOMX10T308TR-ME07 F40M	
18	.004 – .006	XOMX100408TR-ME07 F40M	XOMX100408TR-ME07 F40M	
19	.002 – .004	–	–	
20	.002 – .004	–	–	
21	.002 – .004	–	–	
22	.003 – .005	XOEX10T308R-M06 MS2050	–	

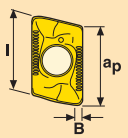
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																				
	MP1020			MP1500			MP2500			MP3000			T350M			MM4500			F40M		
	f_z (in/tooth)																				
	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006
	v_c (sf/min)																				
1	1800	1750	1350	2025	1725	1525	1800	1525	1350	1700	1450	1275	1575	1325	1175	1100	940	820	1350	1150	1025
2	1525	1500	1150	1725	1450	1275	1525	1300	1125	1450	1225	1075	1325	1125	990	930	800	700	1150	980	860
3	1275	1225	940	1425	1200	1050	1250	1075	940	1200	1025	890	1100	930	820	770	660	580	950	810	710
4	1075	1050	800	1200	1025	900	1075	910	800	1025	860	760	930	800	700	660	560	490	810	690	610
5	900	880	670	1000	860	750	890	760	670	850	720	630	780	660	580	550	465	410	680	580	510
6	790	770	–	880	750	660	780	670	590	740	630	550	680	580	510	–	–	–	590	510	445
7	–	–	–	240	205	–	195	165	–	190	160	–	185	160	–	–	–	–	160	140	–
8	305	305	–	1375	1175	1025	1100	930	820	1075	920	810	1025	870	760	800	680	600	930	790	690
9	240	240	–	1100	930	810	860	730	640	850	720	630	800	680	600	630	540	470	730	620	550
10	195	195	–	890	760	670	710	600	530	690	590	520	660	560	490	520	440	385	600	510	445
11	145	145	–	660	560	–	520	445	–	510	440	–	485	415	–	380	325	–	445	375	–
12	–	–	–	1050	900	790	930	800	700	880	750	660	810	690	610	500	430	375	710	600	530
13	–	–	–	930	790	690	820	700	610	780	660	580	720	610	530	445	380	330	620	530	465
14	–	–	–	780	660	580	690	590	520	650	560	490	600	510	450	375	320	280	520	445	390
15	–	–	–	650	550	480	570	490	425	540	460	405	500	425	370	310	265	230	435	370	325
16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3525	3000	2625
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2850	2425	2125
18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2175	1850	1625
19	–	–	–	–	–	–	240	205	–	225	195	–	215	185	–	135	115	–	195	165	–
20	–	–	–	–	–	–	195	165	–	180	155	–	175	145	–	110	95	–	155	135	–
21	–	–	–	–	–	–	165	140	–	155	135	–	150	125	–	95	80	–	135	115	–
22	–	–	–	–	–	–	200	170	–	190	160	–	180	150	–	155	130	–	160	140	–

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement Side milling	100%	.002	.004	.006	1.00
	25%	.003	.006	.011	1.30
	10%	.005	.010	.016	1.50
	5%	.007	.013	.022	1.60
Average chip thickness h_m		.002	.003	.005	–

Type of insert



Insert type l	Max D.O.C a_p	Wiper flat width B
10T304	.354	.051
10T308	.354	.051

Insert selection – 217/220.69-10

Universal insert: XOMX 10T308TR-ME07 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Difficult operations	
1	.004 – .006	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
2	.004 – .006	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
3	.004 – .006	XOMX10T308TR-ME07 MP2500	XOMX10T308TR-M09 T350M	
4	.004 – .006	XOMX10T308TR-ME07 MP2500	XOMX10T308TR-M09 T350M	
5	.003 – .006	XOMX10T308TR-M09 MP2500	XOMX10T308TR-M09 T350M	
6	.003 – .006	XOMX10T308TR-M09 MP2500	XOMX10T308TR-M09 T350M	
7	.002 – .004	XOMX10T308TR-M09 MP1500	XOMX10T308TR-M09 MP3000	
8	.004 – .006	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
9	.003 – .006	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
10	.003 – .006	–	–	
11	.002 – .005	–	–	
12	.004 – .006	XOMX10T308TR-M09 MK1500	XOMX10T308TR-M09 MK2050	
13	.003 – .006	XOMX10T308TR-M09 MK1500	XOMX10T308TR-M09 MK2050	
14	.003 – .006	XOMX10T308TR-M09 MK1500	XOMX10T308TR-M09 MK2050	
15	.003 – .006	XOMX10T308TR-M09 MP1500	XOMX10T308TR-M09 MK2050	
16	.004 – .006	XOMX100408TR-ME07 F40M	XOMX100408TR-ME07 F40M	
17	.004 – .006	XOMX100408TR-ME07 F40M	XOMX10T308TR-ME07 F40M	
18	.004 – .006	XOMX100408TR-ME07 F40M	XOMX100408TR-ME07 F40M	
19	.002 – .004	–	–	
20	.002 – .004	–	–	
21	.002 – .004	–	–	
22	.003 – .005	XOEX10T308R-M06 MS2050	–	

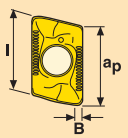
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																
	MS2500			MK1500			MK2050			MS2050			H15				
	f_z (in/tooth)																
	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006		
	v_c(sf/min)																
1	1950	1675	1450	–	–	–	1775	1500	1325	1200	1200	1175	–	–	–		
2	1650	1425	1250	–	–	–	1500	1275	1125	1025	1025	990	–	–	–		
3	1375	1175	1025	–	–	–	1225	1050	920	850	850	820	–	–	–		
4	1175	1000	870	–	–	–	1050	900	790	720	720	700	–	–	–		
5	970	830	730	–	–	–	880	750	660	600	600	580	–	–	–		
6	850	730	640	–	–	–	770	660	–	530	530	510	–	–	–		
7	210	180	–	–	–	–	–	–	–	–	–	–	–	–	–		
8	1200	1025	890	–	–	–	–	–	–	–	–	–	–	–	–		
9	930	800	700	–	–	–	–	–	–	–	–	–	–	–	–		
10	760	650	570	–	–	–	–	–	–	–	–	–	–	–	–		
11	570	485	–	–	–	–	–	–	–	–	–	–	–	–	–		
12	1025	870	760	1325	1125	990	1250	1075	940	–	–	–	670	570	500		
13	900	760	670	1175	990	870	1100	940	820	–	–	–	590	500	440		
14	750	640	560	980	830	730	930	790	690	–	–	–	495	425	370		
15	620	530	–	810	690	610	770	650	–	–	–	–	410	350	310		
16	–	–	–	–	–	–	–	–	–	–	–	–	3350	2850	2500		
17	–	–	–	–	–	–	–	–	–	–	–	–	2700	2300	2025		
18	–	–	–	–	–	–	–	–	–	–	–	–	2050	1750	1525		
19	260	220	–	–	–	–	–	–	–	–	–	–	–	–	–		
20	210	180	–	–	–	–	–	–	–	–	–	–	–	–	–		
21	180	155	–	–	–	–	–	–	–	–	–	–	–	–	–		
22	215	185	–	–	–	–	–	–	–	245	180	–	–	–	–		

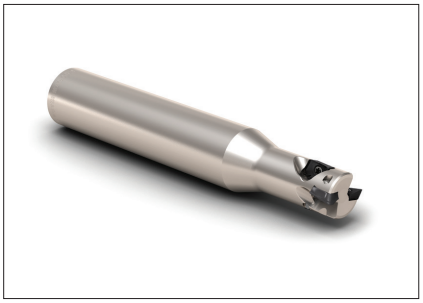
Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.004	.006	1.00
Side milling	25%	.003	.006	.011	1.30
	10%	.005	.010	.016	1.50
	5%	.007	.013	.022	1.60
Average chip thickness h_m		.002	.003	.005	–

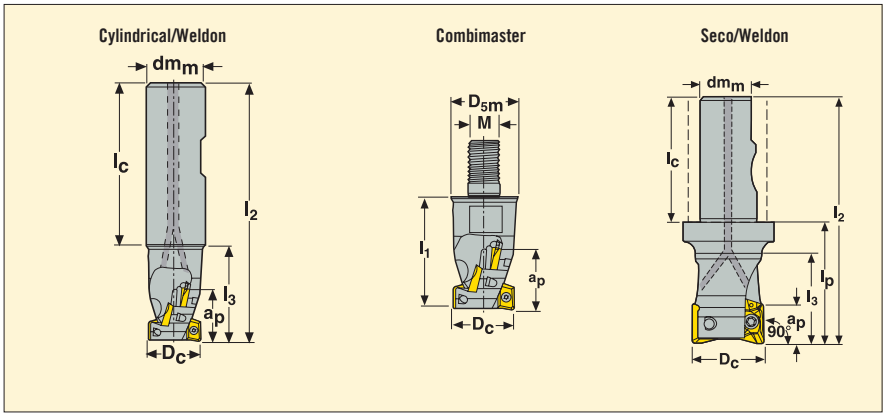
Type of insert



Insert type l	Max D.O.C a_p	Wiper flat width B
10T304	.354	.051
10T308	.354	.051



- For insert selection and cutting data recommendations, see pages 24-25
- For complete insert program, see pages 72-73.



Part No.	EDP	Dimensions in inch/mm								Z_c*	No. of flutes		lbs/kg	Type of mounting		
		D_c	d_{5m}	dm_m	l_1	l_2	l_c	l_3	a_p							
Inch																
R217.69 -00.750-3-01.00-10-1A	**81724**	0.75	–	0.75	–	3.75	2.04	1.71	1.08	1	1	3	0.44	Cyl-Weldon	26300	XO.X10T3..
-01.00-3-01.00-10-2A	**81725**	1.00	–	1.00	–	4.00	2.28	1.87	1.02	2	2	6	0.88	Cyl-Weldon	23500	XO.X10T3..
-01.00-3-01.00-10-3A	**81637**	1.00	–	1.00	–	4.00	2.28	1.72	1.02	3	3	9	0.88	Cyl-Weldon	23500	XO.X10T3..
-01.25-3-01.34-10-4A	**81640**	1.25	–	1.25	–	4.33	2.28	2.05	1.38	4	4	16	1.32	Cyl-Weldon	20800	XO.X10T3..
-01.50-3-01.34-10-4A	**82057**	1.50	–	1.25	–	4.89	2.68	2.61	1.38	4	4	16	1.54	Cyl-Weldon	18600	XO.X10T3..
Metric																
R217.69 -2020.3-025-10.1A	**14973**	20	–	20	–	95	50	45	25	1	1	3	0.3	Cyl/Weldon	26300	XO.X10T3..
-2525.3-025-10.2A	**14987**	25	–	25	–	100	50	44	25	2	2	6	0.4	Cyl/Weldon	23500	XO.X10T3..
-2525.3S-042-10.2A	**15105**	25	–	25	–	120	56	53	42	2	2	10	0.5	Seco/Weldon	23500	XO.X10T3..
-2532.3S-050-10.3A	**15141**	32	–	25	–	130	56	63	50	3	3	18	0.5	Seco/Weldon	20800	XO.X10T3..
-3240.3S-058-10.4A	**15171**	40	–	32	–	144	60	72	58	4	4	28	0.9	Seco/Weldon	18600	XO.X10T3..
R217.69 -1225.RE-025-10.2A	**14846**	25	23	–	40	–	–	–	25	2	2	6	0.1	Combimaster	23500	XO.X10T3..
-1632.RE-025-10.3A	**14891**	32	30	–	45	–	–	–	25	3	3	9	0.2	Combimaster	20800	XO.X10T3..

*Effective number of teeth.

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.69-10	C02506-T07P	**16711**	T07P-3	**16666**	T00-07P12	**69934**

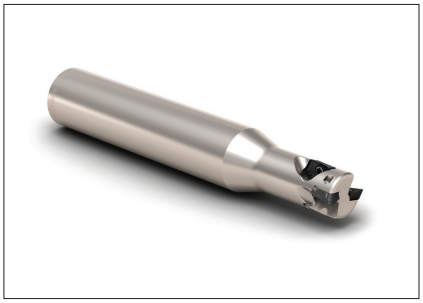
Torque value 10.6 in/lbs. (1.2 Nm)
***Dynamomentic Key ordered separately

* For metric mounting and spare parts, please refer to the metric navigator

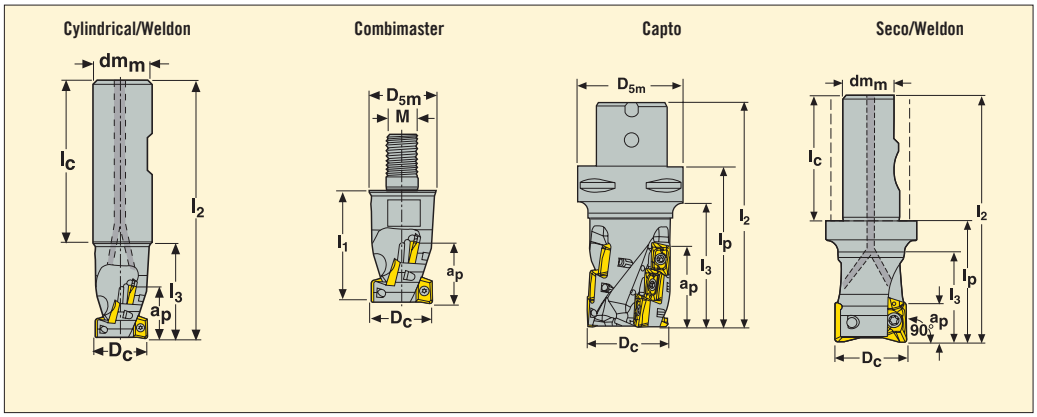
TURBO 10 HELICAL

R217.69-10

FOR CONTOURING ONLY



- For insert selection and cutting data recommendations, see pages 24-25
- For complete insert program, see pages 72-73.



Part No.	EDP	Dimensions in inch/mm										Z_c*	No. of flutes		lbs/kg	Type of mounting		
		D_c	D_{5m}	dm_m	l_1	l_2	l_3	l_c	l_p	M	a_p							
Inch																		
R217.69 -01.00-3-01.65-10-2A	81642	1.00	–	1.00	–	4.50	2.08	2.42	–	–	1.69	2	2	10	0.88	Cyl-Weldon	23500	XO.X10T3..
-01.00-3-01.34-10-3A	81638	1.00	–	1.00	–	4.25	1.97	2.28	–	–	1.38	3	3	12	0.88	Cyl-Weldon	23500	XO.X10T3..
-01.25-3-01.96-10-3A	81643	1.25	–	1.00	–	5.00	2.87	2.32	–	–	2.05	3	3	18	1.10	Cyl-Weldon	20800	XO.X10T3..
-01.25-3-01.65-10-4A	81641	1.25	–	1.25	–	4.50	2.22	2.28	–	–	1.69	4	4	20	1.32	Cyl-Weldon	20800	XO.X10T3..
-01.50-3-02.28-10-5A	81644	1.50	–	1.25	–	5.75	3.46	2.68	–	–	2.36	5	5	35	1.76	Cyl-Weldon	18600	XO.X10T3..
Metric																		
R217.69 -2020.3-017-10.2A	14946	20	–	20	–	85	35	50	–	–	17	2	2	4	0.2	Cyl/Weldon	26300	XO.X10T3..
-2025.3S-025-10.3A	14990	25	–	20	–	100	43	50	–	–	25	3	3	9	0.4	Seco/Weldon	23500	XO.X10T3..
-2025.3S-034-10.3A	15032	25	–	20	–	100	43	50	–	–	34	3	3	12	0.4	Seco/Weldon	23500	XO.X10T3..
-2525.3S-034-10.3A	15042	25	–	25	–	110	43	56	–	–	34	3	3	12	0.4	Seco/Weldon	23500	XO.X10T3..
-2532.3S-034-10.4A	15107	32	–	25	–	110	43	56	–	–	34	4	4	16	0.5	Seco/Weldon	20800	XO.X10T3..
-2532.3S-042-10.4A	15113	32	–	25	–	120	53	56	–	–	42	4	4	20	0.4	Seco/Weldon	20800	XO.X10T3..
R217.69 -1020.RE-017-10.2A	14841	20	18.5	–	28	–	–	–	–	M10	17	2	2	4	0.1	Combimaster	26300	XO.X10T3..
-1225.RE-017-10.3A	14845	25	23	–	35	–	–	–	–	M12	17	3	3	6	0.1	Combimaster	23500	XO.X10T3..
-1632.RE-034-10.4A	14898	32	30	–	50	–	–	–	–	M16	34	4	4	16	0.3	Combimaster	20800	XO.X10T3..
C4-R217.69-044-058-10.5A	15270	44	–	40	–	114	70	–	90	–	61	5	5	35	0.7	Seco-Capto	16600	XO.X10T3..
C5-R217.69-054-066-10.6A	15271	54	–	50	–	128	78	–	98	–	66	6	6	48	1.3	Seco-Capto	16600	XO.X10T3..

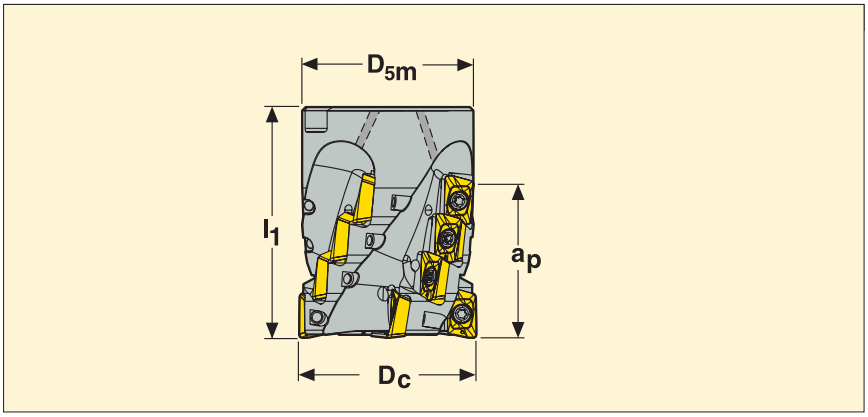
*Effective number of teeth.

SPARE PARTS, INCLUDED IN DELIVERY

For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.69-10	C02506-T07P	**16711**	T07P-3	**16666**	T00-07P12	**69934**

Torque value 10.6 in/lbs. (1.2 Nm)
***Dynamomentic Key ordered separately

- For insert selection and cutting data recommendations, see pages 24-25
- For complete insert program, see pages 72-73.



Part No.	EDP	Dimensions in inch/mm			Zc*	No. of flutes		lbs/kg		
		Dc	l1	ap						
FOR SLOTTING AND CONTOURING										
Inch										
R220.69 -02.00-01.65-10-5A	**81646**	2.00	2.56	1.69	5	5	25	1.32	16600	XO.X10T3..
Metric										
R220.69 -00040-034-10.4A	**81676**	40	55	34	4	4	16	0.3	18600	XO.X10T3..
-00050-042-10.5A	**81678**	50	65	42	5	5	25	0.5	16600	XO.X10T3..
FOR CONTOURING ONLY										
Inch										
R220.69 -02.00-01.65-10-6A	**81647**	2.00	2.56	1.69	6	6	36	1.32	16600	XO.X10T3..
Metric										
R220.69 -00040-034-10.5A	**15181**	40	55	34	5	5	20	0.3	18600	XO.X10T3..
-00050-042-10.6A	**15200**	50	65	42	6	6	30	0.5	16600	XO.X10T3..

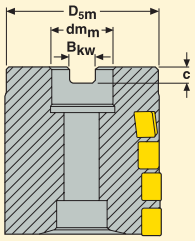
*Effective number of teeth.

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**		**EDP**
R220.69 -02.00	C02506-T07P	**16711**	T07P-3	**16666**	UC6S 1/2UNF X 2	**03249**	T00-07P12	**69934**

Locking screw torque value 10.6 in/lbs. (1.2 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*



For cutter	Dimensions in inch			
	dmm	D5m	Bkw	c
R220.69 -02.00	1.00	1.93	0.38	0.23

* For metric mounting and spare parts, please refer to the metric navigator

Insert selection – 217/220.69-10 Slotting/Contouring

Universal insert: XOMX10T308-ME07 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Alternative operations	
1	.004 – .006	XOMX10T308TR-ME07 MP2500	XOMX10T308TR-ME07 F40M	
2	.004 – .006	XOMX10T308TR-ME07 MP2500	XOMX10T308TR-ME07 F40M	
3	.004 – .006	XOMX10T308TR-ME07 MP2500	XOMX10T308TR-ME07 F40M	
4	.004 – .005	XOMX10T308TR-M09 MP2500	XOMX10T308TR-M09 T350M	
5	.003 – .004	XOMX10T308TR-M09 MP2500	XOMX10T308TR-M09 T350M	
6	.003 – .004	XOMX10T308TR-M09 MP2500	XOMX10T308TR-M09 T350M	
7	–	–	–	
8	.003 – .005	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
9	.002 – .004	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
10	.002 – .004	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 MM4500	
11	.002 – .003	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 MM4500	
12	.004 – .006	XOMX10T308TR-M09 MK2050	XOMX10T308TR-M09 MP1500	
13	.004 – .006	XOMX10T308TR-M09 MK2050	XOMX10T308TR-M09 MP1500	
14	.004 – .005	XOMX10T308TR-M09 MK2050	XOMX10T308TR-M09 MP1500	
15	.003 – .004	XOMX10T308TR-M09 MK2050	XOMX10T308TR-M09 MP1500	
16	.003 – .005	XOEX10T308FR-E05 H15	XOEX10T308FR-E05 F40M	
17	.003 – .005	XOEX10T308FR-E05 H15	XOEX10T308FR-E05 F40M	
18	.002 – .004	XOEX10T308FR-E05 H15	XOEX10T308FR-E05 F40M	
19	.002 – .004	XOMX10T308TR-ME07 T350M	XOMX10T308TR-ME07 F40M	
20	.002 – .004	XOMX10T308TR-ME07 T350M	XOMX10T308TR-ME07 F40M	
21	.002 – .003	XOMX10T308TR-ME07 T350M	XOMX10T308TR-ME07 F40M	
22	.002 – .003	XOEX10T308R-M06 MS2050	XOEX10T308R-M06 MS2050	

Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																				
	MP1500			MP2500			MP3000			T350M			MM4500			F40M			F15M		
	f_z (in/tooth)																				
	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005
	v_c (sf/min)																				
1	1450	1325	1225	1300	1175	1075	1225	1100	1025	1125	1025	940	790	720	660	980	890	820	–	–	–
2	1225	1125	1025	1100	990	920	1025	940	870	950	860	800	670	610	560	830	750	690	–	–	–
3	1025	920	850	900	820	760	850	770	720	790	710	660	550	500	465	680	620	570	–	–	–
4	870	790	730	770	700	650	730	660	610	670	610	560	470	430	395	580	530	490	–	–	–
5	720	660	–	640	580	540	610	550	510	560	510	470	395	355	330	485	440	410	–	–	–
6	630	580	–	560	510	–	530	485	–	490	445	–	345	315	–	425	385	–	–	–	–
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	990	900	840	790	720	660	770	700	650	730	670	620	580	520	485	670	610	–	–	–	–
9	780	710	660	620	560	520	610	550	510	580	520	485	455	410	380	520	475	–	–	–	–
10	640	580	540	510	460	425	500	450	420	470	430	395	370	335	310	430	390	–	–	–	–
11	475	430	–	375	340	–	370	335	–	350	315	–	275	250	230	320	290	–	–	–	–
12	760	690	640	670	610	560	640	580	530	580	530	490	365	330	305	510	460	425	610	550	510
13	670	600	560	590	540	495	560	510	470	510	465	430	320	290	270	445	405	375	540	485	450
14	560	510	470	495	450	415	470	425	395	430	390	365	270	245	225	375	340	315	450	410	–
15	465	420	–	410	375	–	390	355	–	360	325	–	220	200	–	310	285	–	–	–	–
16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2525	2300	2125	3025	2750	2550
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2050	1850	1725	2450	2225	2050
18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1550	1400	1300	1875	1700	1575
19	–	–	–	170	155	–	160	145	–	155	140	–	100	90	–	140	125	–	–	–	–
20	–	–	–	140	125	–	130	120	–	125	115	–	80	70	–	115	100	–	–	–	–
21	–	–	–	120	110	–	115	100	–	105	95	–	70	60	–	95	90	–	–	–	–
22	–	–	–	145	130	–	135	125	–	130	115	–	110	100	–	115	105	–	–	–	–

Cutting data – Contouring

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.004	.005	1.0
Side milling	30%	.003	.005	.008	1.3
	20%	.004	.006	.010	1.35
	15%	.004	.006	.012	1.4
	10%	.005	.008	.014	1.5
	5%	.008	.010	.018	1.6
Average chip thickness h_m		.0016	.0024	.0039	–

Radii insert alternatives

Radius	End row	Other rows
10T304	✔	✔
10T308	✔*	✔*
10T312	✔	–
10T316	✔**	–
10T320	✔**	–
10T324	✔**	–
10T331	✔**	–

*Basic choice **Cutter body must be modified

Insert selection – 217/220.69-10 Slotting/Contouring

Universal insert: XOMX10T308-ME07 MP2500

SMG	fz in/tooth a_e/D_c = 100%	First choice	Alternative operations	
1	.004 – .006	XOMX10T308TR-ME07 MP2500	XOMX10T308TR-ME07 F40M	
2	.004 – .006	XOMX10T308TR-ME07 MP2500	XOMX10T308TR-ME07 F40M	
3	.004 – .006	XOMX10T308TR-ME07 MP2500	XOMX10T308TR-ME07 F40M	
4	.004 – .005	XOMX10T308TR-M09 MP2500	XOMX10T308TR-M09 T350M	
5	.003 – .004	XOMX10T308TR-M09 MP2500	XOMX10T308TR-M09 T350M	
6	.003 – .004	XOMX10T308TR-M09 MP2500	XOMX10T308TR-M09 T350M	
7	–	–	–	
8	.003 – .005	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
9	.002 – .004	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 T350M	
10	.002 – .004	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 MM4500	
11	.002 – .003	XOMX10T308TR-ME07 F40M	XOMX10T308TR-ME07 MM4500	
12	.004 – .006	XOMX10T308TR-M09 MK2050	XOMX10T308TR-M09 MP1500	
13	.004 – .006	XOMX10T308TR-M09 MK2050	XOMX10T308TR-M09 MP1500	
14	.004 – .005	XOMX10T308TR-M09 MK2050	XOMX10T308TR-M09 MP1500	
15	.003 – .004	XOMX10T308TR-M09 MK2050	XOMX10T308TR-M09 MP1500	
16	.003 – .005	XOEX10T308FR-E05 H15	XOEX10T308FR-E05 F40M	
17	.003 – .005	XOEX10T308FR-E05 H15	XOEX10T308FR-E05 F40M	
18	.002 – .004	XOEX10T308FR-E05 H15	XOEX10T308FR-E05 F40M	
19	.002 – .004	XOMX10T308TR-ME07 T350M	XOMX10T308TR-ME07 F40M	
20	.002 – .004	XOMX10T308TR-ME07 T350M	XOMX10T308TR-ME07 F40M	
21	.002 – .003	XOMX10T308TR-ME07 T350M	XOMX10T308TR-ME07 F40M	
22	.002 – .003	XOEX10T308R-M06 MS2050	XOEX10T308R-M06 MS2050	

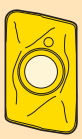
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																
	MS2500			MK1500			MK2050			MS2050			H15				
	f_z (in/tooth)																
	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005		
	v_c (sf/min)																
1	1400	1275	1175	–	–	–	1275	1150	1075	960	960	960	–	–	–		
2	1200	1075	1000	–	–	–	1075	980	900	810	810	810	–	–	–		
3	980	890	830	–	–	–	890	810	750	670	670	670	–	–	–		
4	840	760	710	–	–	–	760	690	640	570	570	570	–	–	–		
5	700	630	590	–	–	–	630	570	530	475	475	475	–	–	–		
6	610	560	–	–	–	–	550	500	–	420	420	–	–	–	–		
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
8	850	780	720	–	–	–	–	–	–	–	–	–	–	–	–		
9	670	610	560	–	–	–	–	–	–	–	–	–	–	–	–		
10	550	500	460	–	–	–	–	–	–	–	–	–	–	–	–		
11	405	370	–	–	–	–	–	–	–	–	–	–	–	–	–		
12	730	660	620	950	860	800	900	820	760	–	–	–	485	440	405		
13	640	580	540	840	760	700	790	720	660	–	–	–	425	385	355		
14	540	490	455	700	640	590	670	600	560	–	–	–	355	325	–		
15	450	405	–	580	530	–	550	500	–	–	–	–	–	–	–		
16	–	–	–	–	–	–	–	–	–	–	–	–	2400	2175	2025		
17	–	–	–	–	–	–	–	–	–	–	–	–	1950	1750	1625		
18	–	–	–	–	–	–	–	–	–	–	–	–	1475	1350	1250		
19	185	170	–	–	–	–	–	–	–	–	–	–	–	–	–		
20	150	135	–	–	–	–	–	–	–	–	–	–	–	–	–		
21	130	120	–	–	–	–	–	–	–	–	–	–	–	–	–		
22	155	140	–	–	–	–	–	–	–	180	145	–	–	–	–		

Cutting data – Contouring

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.004	.005	1.0
Side milling	30%	.003	.005	.008	1.3
	20%	.004	.006	.010	1.35
	15%	.004	.006	.012	1.4
	10%	.005	.008	.014	1.5
	5%	.008	.010	.018	1.6
Average chip thickness h_m		.0016	.0024	.0039	–

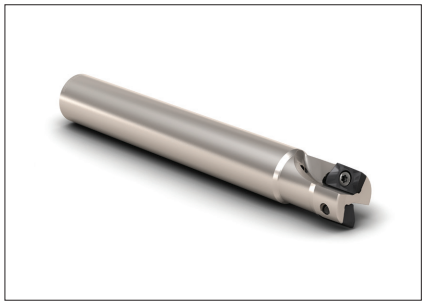
Radii insert alternatives



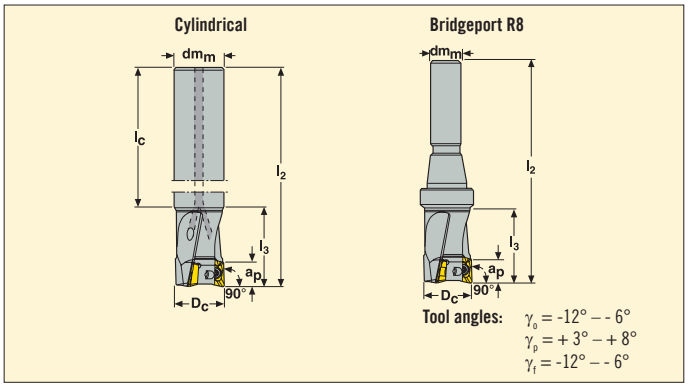
Radius	End row	Other rows
10T304	✔	✔
10T308	✔*	✔*
10T312	✔	–
10T316	✔**	–
10T320	✔**	–
10T324	✔**	–
10T331	✔**	–

*Basic choice **Cutter body must be modified

R217.69-12



- For insert selection and cutting data recommendations, see pages 30-31.
- For complete insert program, see pages 74-75.
- For ramping and helical interpolation, see pages 82-85.



Part No.		EDP	Dimensions in inch/mm								Type of mounting		
			D_c	$D5_m$ dm_m	l_2	l_3	l_c	a_p		lbs/kg			
Inch													
R217.69	**-00.750-0-12-2AN**	**45373**	0.750	0.75	5.91	1.18	4.72	0.433	2	0.88	Cylindrical	23200	XO.X1204..
	-00.875-0-12-2AN	**45375**	0.875	0.75	5.91	1.18	4.72	0.433	2	0.88	Cylindrical	22000	XO.X1204..
	-01.00-0-12-2AN	**45378**	1.000	1.00	6.69	1.37	5.32	0.433	2	1.32	Cylindrical	20800	XO.X1204..
	-01.00-0-12-3AN	**45379**	1.000	1.00	6.69	1.37	5.32	0.433	3	1.4	Cylindrical	20800	XO.X1204..
	-01.25-0-12-3AN	**45380**	1.250	1.25	7.68	1.57	6.10	0.433	3	2.65	Cylindrical	18400	XO.X1204..
	-01.00-R8-12-3N	**52547**	1.000	R8	5.71	1.71	4.00	0.433	3	0.88	Bridgeport R8	20800	XO.X1204..
Metric													
R217.69	**-1820.0-12-2AN**	**51188**	20	18	150	–	120	11	2	0.3	Cylindrical	23200	XO.X1204..
	-2020.0-12-2AN	**51189**	20	20	170	30	135	11	2	0.4	Cylindrical	23200	XO.X1204..
	-2225.0-12-2AN	**51190**	25	22	170	–	135	11	2	0.5	Cylindrical	20800	XO.X1204..
	-2525.0-12-2AN	**51191**	25	25	170	35	135	11	2	0.6	Cylindrical	20800	XO.X1204..
	-2525.0-12-3AN	**51192**	25	25	170	35	155	11	3	0.6	Cylindrical	20800	XO.X1204..
	-3032.0-12-3AN	**51193**	32	30	195	–	155	11	3	1	Cylindrical	18400	XO.X1204..
	-3232.0-12-3AN	**51194**	32	32	195	40	155	11	3	1.2	Cylindrical	18400	XO.X1204..
	-3232.0-12-4AN	**51195**	32	32	195	40	155	11	4	1.2	Cylindrical	18400	XO.X1204..

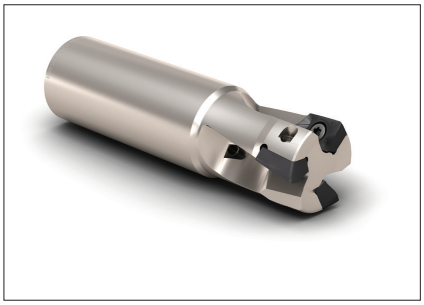
When using inserts with corner radius >.094 inch, the cutter body must be modified.

SPARE PARTS, INCLUDED IN DELIVERY

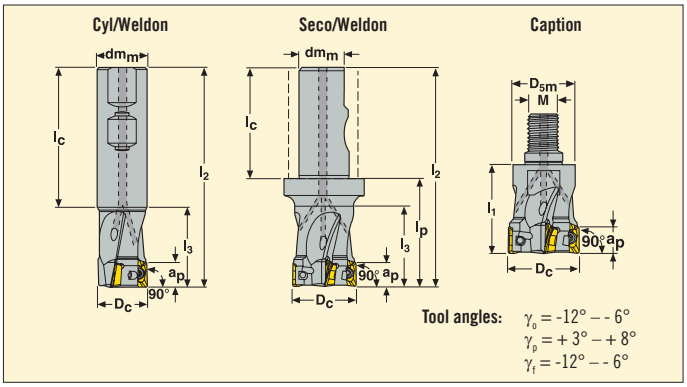
For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.69-12	C03507-T10P	**01578**	T07P-3	**00818**	T00-10P20	**05287**

Locking screw torque value 17.7 in/lbs. (2 Nm)
***Dynamomentic Key ordered separately

R217.69-12



- For insert selection and cutting data recommendations, see pages 30-31.
- For complete insert program, see pages 74-75.
- For ramping and helical interpolation, see pages 82-85.



Part No.	EDP	Dimensions in inch/mm										Type of mounting		
		D_c	$D5_m$ dm_m	l_2	l_p	l_3	l_c	M	a_p		lbs/kg			
Inch														
R217.69 -00.750-3-12-2AN	**52518**	0.750	0.75	–	3.38	1.17	2.2	–	0.433	2	0.44	Cyl/Weldon	23200	XO.X1204..
-00.875-3-12-2AN	**52519**	0.875	0.75	–	3.38	1.17	2.2	–	0.433	2	0.44	Cyl/Weldon	22000	XO.X1204..
-01.00-3-12-3AN	**52521**	1.000	1.00	–	4.00	1.57	2.43	–	0.433	3	0.44	Cyl/Weldon	20800	XO.X1204..
-01.25-3-12-3AN	**52525**	1.250	1.25	–	4.25	1.34	2.91	–	0.433	3	0.88	Cyl/Weldon	18400	XO.X1204..
-01.25-3-12-4AN	**52527**	1.250	1.25	–	4.25	1.34	2.91	–	0.433	4	0.88	Cyl/Weldon	18400	XO.X1204..
R217.69 -01.00-3S-12-3AN	**52535**	1.00	0.75	–	4.00	1.50	1.95	–	0.433	3	0.44	Seco/Weldon	20800	XO.X1204..
-01.25-3S-12-4AN	**52536**	1.25	1.00	–	4.25	1.28	2.42	–	0.433	4	0.88	Seco/Weldon	18400	XO.X1204..
-01.50-3S-12-5AN	**52543**	1.50	1.25	–	4.78	1.81	2.42	–	0.433	5	1.32	Seco/Weldon	16400	XO.X1204..
R217.69 -00.750-10RE-12-2AN	**52584**	0.75	0.709	1.37	–	–	–	M10	0.433	2	0.22	Combimaster	23200	XO.X1204..
-01.00-12RE-12-3AN	**52585**	1.00	0.905	1.57	–	–	–	M12	0.433	3	0.22	Combimaster	20800	XO.X1204..
-01.25-16RE-12-3AN	**52586**	1.25	1.181	1.57	–	–	–	M16	0.433	3	0.44	Combimaster	18400	XO.X1204..
-01.25-16RE-12-4AN	**52587**	1.25	1.181	1.57	–	–	–	M16	0.433	4	0.44	Combimaster	18400	XO.X1204..
-01.50-16RE-12-4AN	**52588**	1.50	1.181	1.57	–	–	–	M16	0.433	4	0.75	Combimaster	16400	XO.X1204..
-01.50-16RE-12-5AN	**52589**	1.50	1.181	1.57	–	–	–	M16	0.433	5	0.75	Combimaster	16400	XO.X1204..
Metric														
R217.69 -2020.3-12-2AN	**51199**	20	20	–	85	30	55	–	11	2	0.2	Cyl/Weldon	23200	XO.X1204..
-2525.3-12-3AN	**51200**	25	25	–	95	32	60	–	11	3	0.4	Cyl/Weldon	20800	XO.X1204..
-3232.3-12-3AN	**51203**	32	32	–	105	37	65	–	11	3	0.6	Cyl/Weldon	18400	XO.X1204..
-3232.3-12-4AN	**51204**	32	32	–	105	37	65	–	11	4	0.6	Cyl/Weldon	18400	XO.X1204..
R217.69 -2025.3S-12-3AN	**51196**	25	20	–	100	36	50	–	11	3	0.3	Seco/Weldon	20800	XO.X1204..
-2532.3S-12-4AN	**51197**	32	25	–	110	40	56	–	11	4	0.5	Seco/Weldon	18400	XO.X1204..
-3240.3S-12-5AN	**51198**	40	32	–	120	46	60	–	11	5	0.8	Seco/Weldon	16400	XO.X1204..
R217.69 -1020.RE-12-2AN	**51207**	20	18	28	–	–	–	M10	11	2	0.1	Combimaster	23200	XO.X1204..
-1225.RE-12-3AN	**51208**	25	23	30	–	–	–	M12	11	3	0.1	Combimaster	20800	XO.X1204..
-1632.RE-12-3AN	**51210**	32	30	40	–	–	–	M16	11	3	0.2	Combimaster	18400	XO.X1204..
-1632.RE-12-4AN	**51211**	32	30	40	–	–	–	M16	11	4	0.2	Combimaster	18400	XO.X1204..
-1640.RE-12-4AN	**51212**	40	30	40	–	–	–	M16	11	4	0.3	Combimaster	16400	XO.X1204..
-1640.RE-12-5AN	**51213**	40	30	40	–	–	–	M16	11	5	0.3	Combimaster	16400	XO.X1204..

When using inserts with corner radius >.094 inch, the cutter body must be modified.

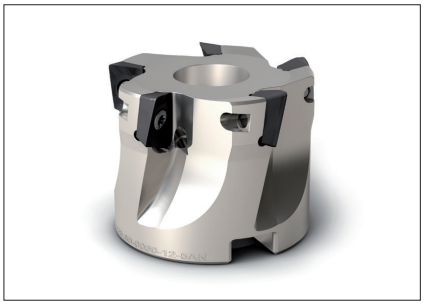
SPARE PARTS, INCLUDED IN DELIVERY

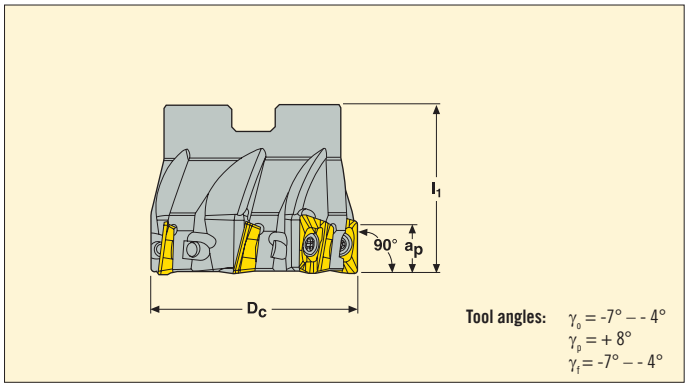
For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.69-12	C03507-T10P	**01578**	T07P-3	**00818**	T00-10P20	**05287**

Locking screw torque value 17.7 in/lbs. (2 Nm)
***Dynamomentic Key ordered separately

R220.69-12

FIRST CHOICE





Tool angles: $\gamma_o = -7° - -4°$
$\gamma_p = +8°$
$\gamma_f = -7° - -4°$

- For insert selection and cutting data recommendations, see pages 30-31.
- For complete insert program, see pages 74-75.
- For ramping and helical interpolation, see pages 82-85.

Pitch	Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p		lbs/kg		
Normal	Inch								
	R220.69 -01.50-12-4AN	52590	1.50	1.57	0.433	4	0.70	16400	XO.X1204..
	-02.00-12-5AN	52596	2.00	1.57	0.433	5	0.88	14800	XO.X1204..
	-02.50-12-6AN	52599	2.50	1.57	0.433	6	1.32	13200	XO.X1204..
	-03.00-12-7AN	52607	3.00	2.00	0.433	7	2.20	11600	XO.X1204..
	-04.00-12-8AN	52621	4.00	2.00	0.433	8	3.70	10400	XO.X1204..
Close	R220.69 -01.50-12-5AN	52592	1.50	1.57	0.433	5	0.70	16400	XO.X1204..
	-02.00-12-7AN	52597	2.00	1.57	0.433	7	0.88	14800	XO.X1204..
	-02.50-12-8AN	52601	2.50	1.57	0.433	8	1.32	13200	XO.X1204..
	-03.00-12-10AN	52604	3.00	2.00	0.433	10	2.20	11600	XO.X1204..
	-04.00-12-12AN	52619	4.00	2.00	0.433	12	3.70	10400	XO.X1204..
Course	R220.69 -02.00-12-3AN	52593	2.0	1.57	0.433	3	0.88	14800	XO.X1204..
	-02.00-12-4AN	52595	2.0	1.57	0.433	4	0.88	14800	XO.X1204..
	-02.50-12-4AN	52598	2.5	1.57	0.433	4	1.30	13200	XO.X1204..
	-03.00-12-4AN	52602	3.0	2.00	0.433	4	2.20	11600	XO.X1204..
	-04.00-12-5AN	52610	4.0	2.00	0.433	5	3.70	10400	XO.X1204..
Normal	Metric								
	R220.69 -0032-12-3AN	17450	32	35	11	3	0.3	33600	XO.X1204..
	-0040-12-4AN	51406	40	40	11	4	0.4	16400	XO.X1204..
	-0050-12-5AN	51422	50	40	11	5	0.4	14800	XO.X1204..
	-0063-12-6AN	51430	63	40	11	6	0.5	13200	XO.X1204..
	-0080-12-7AN	51446	80	50	11	7	1.1	11600	XO.X1204..
	-0100-12-8AN	51448	100	50	11	8	1.7	10400	XO.X1204..
	-0125-12-10AN	51449	125	63	11	10	3.2	9200	XO.X1204..
Close	R220.69 -0032-12-4AN	17453	32	35	11	4	0.3	33600	XO.X1204..
	-0040-12-5AN	51408	40	40	11	5	0.4	16400	XO.X1204..
	-0050-12-7AN	51423	50	40	11	7	0.4	14800	XO.X1204..
	-0063-12-8AN	51436	63	40	11	8	0.6	13200	XO.X1204..
	-0080-12-10AN	51440	80	50	11	10	1.0	11600	XO.X1204..
	-0100-12-12AN	51447	100	50	11	12	1.7	10400	XO.X1204..
	-0125-12-14AN	51450	125	63	11	14	3.2	9200	XO.X1204..

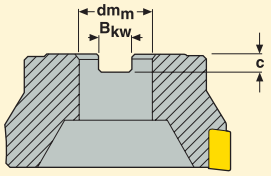
When using inserts with corner radius >.094 inch, the cutter body must be modified.

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
Inch		EDP		EDP		EDP		EDP
R220.69-01.50 to 2.50	C03509-T10P	00183	T10P-3	00818	UC6S 3/8 UNF x 1	87667	T00-10P20	05287
-03.00	C03509-T10P	00183	T10P-3	00818	UC6S 1/2 UNF x 1 1/4	77920	T00-10P20	05287
-04.00	C03509-T10P	00183	T10P-3	00818	UC6S 3/4 UNF x 1 1/4	03253	T00-10P20	05287

Locking screw torque value 17.7 in/lbs. (2 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*

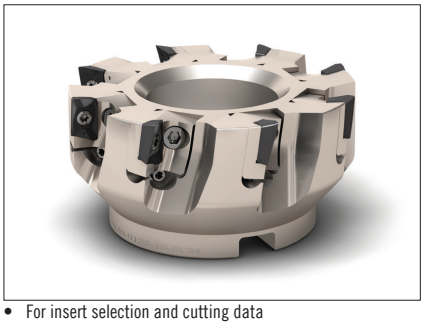


For cutter	Dimensions in inch dm_m	B_{kw}	c
R220.69 -01.50	0.75	.32	.19
-02.00	0.75	.32	.19
-02.50	0.75	.32	.19
-03.00	1.00	.38	.22
-04.00	1.50	.63	.38

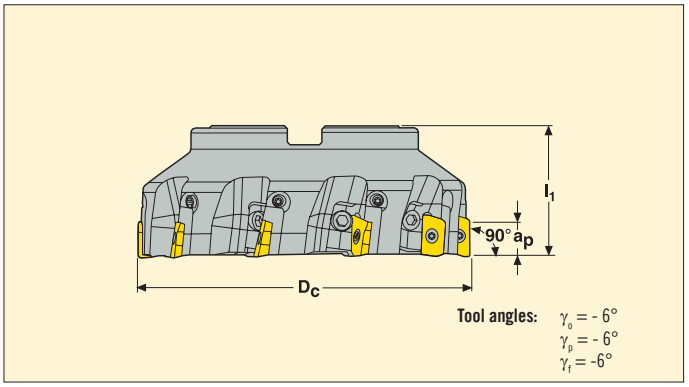
* For metric mounting and spare parts, please refer to the metric navigator

R220.69-12

CASSETTE CUTTER



- For insert selection and cutting data recommendations, see pages 30-31.
- For complete insert program, see pages 74-75.
- For ramping and helical interpolation, see pages 82-85.



Tool angles: $\gamma_o = -6°$, $\gamma_p = -6°$, $\gamma_f = -6°$

Pitch	Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p		lbs/kg		
Normal	Inch								
	R220.69 -05.00-12-8CN	57505	5.00	2.48	.433	8	6.83	9200	XO.X1204..
	-06.00-12-10CN	57506	6.00	2.48	.433	10	11.0	8200	XO.X1204..
	-808.00-12-12CN	57507	8.00	2.48	.433	12	16.53	7300	XO.X1204..
	-810.00-12-16CN	57508	10.00	2.48	.433	16	28.66	6500	XO.X1204..
Normal	Metric								
	R220.69 -0125-12-8CN	57495	125	63	11	8	3.1	9200	XO.X1204..
	-8160-12-10CN	57496	160	63	11	10	5.0	8200	XO.X1204..
	-8200-12-12CN	57497	200	63	11	12	7.5	7300	XO.X1204..
	-8250-12-16CN	57498	250	63	11	16	13.0	6500	XO.X1204..

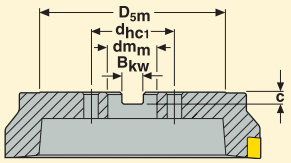
When using inserts with corner radius >.094 inch, the cutter body must be modified.

SPARE PARTS, INCLUDED IN DELIVERY*

	Locking screw		Key		Cassette		Cassette screw		Setting gauge		Dynamomentic Key***	
Inch		EDP		EDP		EDP		EDP		EDP		EDP
R220.69-12C	C03509-T10P	00183	H05-4	12700	X012PRN	57494	FS96018	12063	AU1114T-T15P	21663	T00-10P20	05287

Locking screw torque value 17.7 in/lbs. (2 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*



For cutter	Dimensions in inch dm_m	B_{kw}	c	d_{hc1}
R220.69-05.00	1.50	0.63	.38	–
-06.00	1.50	0.63	.38	–
-808.00	2.50	1.01	.56	4.00
-810.00	2.50	1.01	.56	4.00

* For metric mounting and spare parts, please refer to the metric navigator

Insert selection – 217/220.69-12

Universal insert: XOMX 120408TR-ME08 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Difficult operations	
1	.004 – .008	XOMX120408TR-ME08 F40M	XOMX120408TR-ME08 T350M	
2	.004 – .008	XOMX120408TR-ME08 F40M	XOMX120408TR-ME08 T350M	
3	.004 – .008	XOMX120408TR-ME08 MP2500	XOMX120408TR-M12 T350M	
4	.004 – .008	XOMX120408TR-ME08 MP2500	XOMX120408TR-M12 T350M	
5	.004 – .007	XOMX120408TR-M12 MP2500	XOMX120408TR-M12 T350M	
6	.004 – .006	XOMX120408TR-M12 MP2500	XOMX120408TR-D14 MP2500	
7	.003 – .006	XOMX120408TR-D14 MP1500	XOMX120408TR-D14 MP3000	
8	.003 – .007	XOMX120408TR-ME08 F40M	XOEX120408R-M07 T350M	
9	.003 – .006	XOMX120408TR-ME08 F40M	XOEX120408R-M07 T350M	
10	.004 – .007	XOEX120408R-M07 T350M	XOEX120408R-M07 MM4500	
11	.004 – .006	XOEX120408R-M07 T350M	XOEX120408R-M07 MM4500	
12	.004 – .010	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
13	.004 – .008	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
14	.004 – .007	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
15	.004 – .006	XOMX120408TR-M12 MP1500	XOMX120408TR-D14 MP1500	
16	.004 – .008	XOEX120408FR-E06 H15	XOEX120408FR-E06 F40M	
17	.003 – .007	XOEX120408FR-E06 F40M	XOEX120408FR-ME08 F40M	
18	.004 – .008	XOEX120408FR-E06 H15	XOEX120408FR-E06 F40M	
19	.002 – .004	XOEX120408R-M07 T350M	XOEX120408R-M07 F40M	
20	.002 – .004	XOEX120408R-M07 T350M	XOEX120408R-M07 F40M	
21	.002 – .003	XOEX120408R-M07 F40M	XOEX120408R-M07 MP3000	
22	.002 – .005	XOEX120408R-M07 MS2050	XOEX120408R-M07 MS2050	

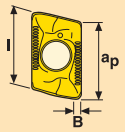
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																				
	MP1020			MP1500			MP2500			MP3000			T350M			MM4500			F40M		
	f_z (in/tooth)																				
	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008
	v_c (sf/min)																				
1	1825	1650	1075	1975	1650	1425	1750	1475	1250	1650	1400	1200	1525	1275	1100	1075	900	770	1325	1125	960
2	1550	1400	900	1675	1400	1200	1475	1250	1075	1400	1175	1000	1300	1075	930	910	760	660	1125	940	810
3	1275	1150	750	1375	1150	1000	1225	1025	880	1150	970	840	1075	900	770	750	630	540	920	780	670
4	1100	980	640	1175	990	850	1050	880	750	990	830	710	910	760	660	640	540	465	790	660	570
5	910	820	530	980	830	710	870	730	630	820	690	590	760	640	550	530	450	385	660	550	475
6	800	720	–	860	720	620	760	640	550	720	610	520	660	560	480	–	–	–	580	485	415
7	–	–	–	235	200	–	190	160	–	185	155	–	180	155	–	–	–	–	160	135	–
8	–	–	–	1350	1125	970	1075	900	770	1050	880	760	990	840	720	780	660	560	900	760	650
9	–	–	–	1050	890	770	840	710	610	820	690	600	780	660	570	610	520	445	710	600	510
10	–	–	–	870	730	630	690	580	495	670	570	490	640	540	460	500	420	365	580	490	420
11	–	–	–	640	540	–	510	430	–	500	420	–	475	400	–	370	315	–	430	365	–
12	–	–	–	1025	860	740	910	770	660	860	730	620	790	670	570	490	415	355	690	580	500
13	–	–	–	900	760	650	800	670	580	760	640	550	700	590	500	430	365	310	610	510	440
14	–	–	–	760	640	550	670	570	485	640	540	460	590	495	425	365	305	265	510	430	370
15	–	–	–	630	530	455	560	470	400	530	445	380	485	410	350	300	255	215	420	355	305
16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3425	2875	2475
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2775	2325	2000
18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2100	1775	1525
19	–	–	–	–	–	–	235	195	–	220	185	–	210	175	–	135	115	–	190	160	–
20	–	–	–	–	–	–	190	160	–	175	150	–	170	140	–	110	90	–	155	130	–
21	–	–	–	–	–	–	160	135	–	155	130	–	145	120	–	95	80	–	130	110	–
22	–	–	–	–	–	–	195	165	–	185	155	–	175	145	–	150	125	–	160	135	–

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.005	.008	1.00
Side milling	25%	.003	.006	.011	1.30
	10%	.005	.010	.016	1.50
	5%	.007	.013	.022	1.60
Average chip thickness h_m		.002	.003	.005	–

Type of insert



Insert type l	Max D.O.C a_p	Wiper flat width B
120402	.433	.079
120404	.433	.079
120408	.433	.063
120412	.433	.047
120416	.433	.047
120408ZZ	.433	.260

Insert selection – 217/220.69-12

Universal insert: XOMX 120408TR-ME08 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Difficult operations	
1	.004 – .008	XOMX120408TR-ME08 F40M	XOMX120408TR-ME08 T350M	
2	.004 – .008	XOMX120408TR-ME08 F40M	XOMX120408TR-ME08 T350M	
3	.004 – .008	XOMX120408TR-ME08 MP2500	XOMX120408TR-M12 T350M	
4	.004 – .008	XOMX120408TR-ME08 MP2500	XOMX120408TR-M12 T350M	
5	.004 – .007	XOMX120408TR-M12 MP2500	XOMX120408TR-M12 T350M	
6	.004 – .006	XOMX120408TR-M12 MP2500	XOMX120408TR-D14 MP2500	
7	.003 – .006	XOMX120408TR-D14 MP1500	XOMX120408TR-D14 MP3000	
8	.003 – .007	XOMX120408TR-ME08 F40M	XOEX120408R-M07 T350M	
9	.003 – .006	XOMX120408TR-ME08 F40M	XOEX120408R-M07 T350M	
10	.004 – .007	XOEX120408R-M07 T350M	XOEX120408R-M07 MM4500	
11	.004 – .006	XOEX120408R-M07 T350M	XOEX120408R-M07 MM4500	
12	.004 – .010	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
13	.004 – .008	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
14	.004 – .007	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
15	.004 – .006	XOMX120408TR-M12 MP1500	XOMX120408TR-D14 MP1500	
16	.004 – .008	XOEX120408FR-E06 H15	XOEX120408FR-E06 F40M	
17	.003 – .007	XOEX120408FR-E06 F40M	XOEX120408FR-ME08 F40M	
18	.004 – .008	XOEX120408FR-E06 H15	XOEX120408FR-E06 F40M	
19	.002 – .004	XOEX120408R-M07 T350M	XOEX120408R-M07 F40M	
20	.002 – .004	XOEX120408R-M07 T350M	XOEX120408R-M07 F40M	
21	.002 – .003	XOEX120408R-M07 F40M	XOEX120408R-M07 MP3000	
22	.002 – .005	XOEX120408R-M07 MS2050	XOEX120408R-M07 MS2050	

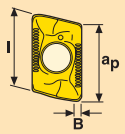
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																
	MS2500			MK1500			MK2050			MS2050			H15				
	f_z (in/tooth)																
	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008		
	v_c (sf/min)																
1	1900	1600	1375	–	–	–	1725	1450	1250	1225	1225	1100	–	–	–		
2	1625	1350	1175	–	–	–	1450	1225	1050	1050	1050	920	–	–	–		
3	1325	1125	960	–	–	–	1200	1025	870	860	860	760	–	–	–		
4	1125	960	820	–	–	–	1025	860	740	730	730	650	–	–	–		
5	950	800	690	–	–	–	860	720	620	610	610	540	–	–	–		
6	830	700	600	–	–	–	750	630	–	540	540	475	–	–	–		
7	205	175	–	–	–	–	–	–	–	–	–	–	–	–	–		
8	1150	970	840	–	–	–	–	–	–	–	–	–	–	–	–		
9	910	770	660	–	–	–	–	–	–	–	–	–	–	–	–		
10	740	630	540	–	–	–	–	–	–	–	–	–	–	–	–		
11	550	465	–	–	–	–	–	–	–	–	–	–	–	–	–		
12	990	840	720	1300	1075	930	1225	1025	880	–	–	–	650	550	475		
13	870	730	630	1125	950	820	1075	900	770	–	–	–	570	485	415		
14	730	620	530	950	800	690	900	760	650	–	–	–	485	405	350		
15	610	510	440	790	660	570	750	630	–	–	–	–	400	335	290		
16	–	–	–	–	–	–	–	–	–	–	–	–	3250	2725	2350		
17	–	–	–	–	–	–	–	–	–	–	–	–	2625	2200	1900		
18	–	–	–	–	–	–	–	–	–	–	–	–	2000	1675	1450		
19	255	215	–	–	–	–	–	–	–	–	–	–	–	–	–		
20	205	170	–	–	–	–	–	–	–	–	–	–	–	–	–		
21	175	150	–	–	–	–	–	–	–	–	–	–	–	–	–		
22	210	180	–	–	–	–	–	–	–	230	160	–	–	–	–		

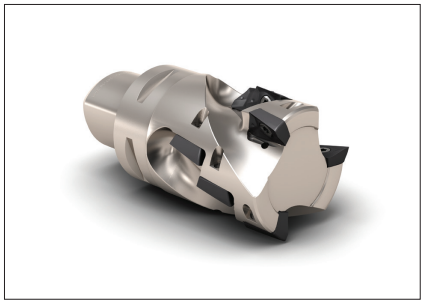
Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.005	.008	1.00
Side milling	25%	.003	.006	.011	1.30
	10%	.005	.010	.016	1.50
	5%	.007	.013	.022	1.60
Average chip thickness h_m		.002	.003	.005	–

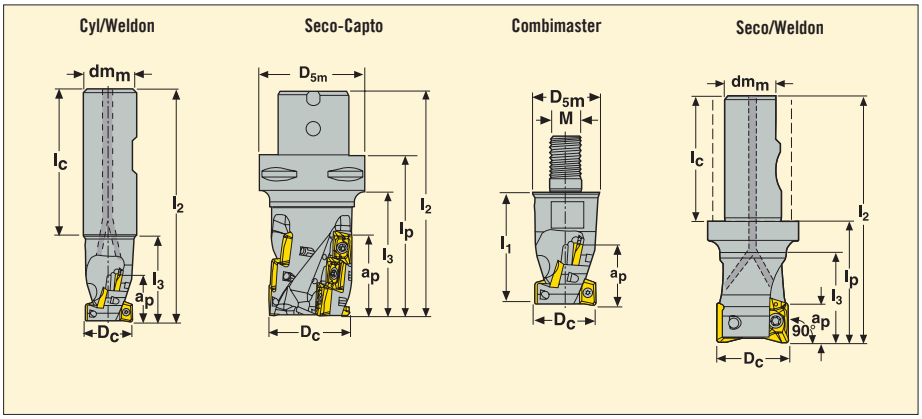
Type of insert



Insert type l	Max D.O.C a_p	Wiper flat width B
120402	.433	.079
120404	.433	.079
120408	.433	.063
120412	.433	.047
120416	.433	.047
120408ZZ	.433	.260



- For insert selection and cutting data recommendations, see pages 36-37.
- For complete insert program, see pages 74-75.



Part No.	EDP	Dimensions in inch/mm									z_c*	No. of flutes	Type of mounting		lbs/kg		
		D_c	D_{5m} dm_m	l_1	l_2	l_p	l_3	l_c	M	a_p							
Inch																	
R217.69 -01.00-3-12S2AN	**58587**	1.00	1.00	–	3.75	–	1.46	2.28	–	0.87	2	2	Cyl/Weldon	4	0.66	20800	XO.X1204..
-01.25-3-12S2AN	**58583**	1.25	1.25	–	4.50	–	2.25	2.25	–	1.30	2	2	Cyl/Weldon	6	1.17	18400	XO.X1204..
-01.50-3-12S3AN	**58593**	1.50	1.50	–	5.25	–	2.75	2.50	–	1.73	3	3	Cyl/Weldon	12	2.40	16400	XO.X1204..
Metric																	
R217.69 -2025.3S-022-12.2AN	**58503**	25	20	–	99.5	–	38	50	–	22	2	2	Seco-Weldon	4	0.3	20800	XO.X1204..
-2525.3S-033-12.2AN	**58504**	25	25	–	115.5	–	43	56	–	33	2	2	Seco-Weldon	6	0.4	20800	XO.X1204..
-2532.3S-033-12.2AN	**58506**	32	25	–	115.5	–	47	56	–	33	2	2	Seco-Weldon	6	0.5	18400	XO.X1204..
-2532.3S-033-12.3AN	**58507**	32	25	–	115.5	–	48	56	–	33	3	3	Seco-Weldon	9	0.5	18400	XO.X1204..
-3240.3S-033-12.3AN	**58508**	40	32	–	119.5	–	49	60	–	33	3	3	Seco-Weldon	9	0.8	16400	XO.X1204..
-3240.3S-055-12.3AN	**58510**	40	32	–	139.5	–	69	60	–	55	3	3	Seco-Weldon	15	0.9	16400	XO.X1204..
R217.69 -1225.RE-022-12.2AN	**58494**	25	23	35	–	–	–	–	M12	22	2	2	Combimaster	4	0.1	20800	XO.X1204..
-1632.RE-022-12.3AN	**58497**	32	30	40	–	–	–	–	M16	22	3	3	Combimaster	6	0.1	18400	XO.X1204..
C5-R217.69-032-044-12.3AN	**59244**	32	50	–	109	79	56	–	–	44	3	3	Seco-Capto	12	0.7	18400	XO.X1204..
C6-R217.69-040-055-12.3AN	**59252**	40	63	–	130	92	67	–	–	55	3	3	Seco-Capto	15	1.1	16400	XO.X1204..
C4-R217.69-044-033-12.3AN	**59241**	44	40	–	92	68	48	–	–	33	3	3	Seco-Capto	9	0.6	15500	XO.X1204..
C6-R217.69-050-055-12.4AN	**59253**	50	63	–	130	92	67	–	–	55	4	4	Seco-Capto	20	1.4	14800	XO.X1204..
C5-R217.69-054-044-12.4AN	**59247**	54	50	–	109	79	59	–	–	44	4	4	Seco-Capto	16	1.2	13900	XO.X1204..

For contouring cutters, Inserts with max. corner radius .047 can be used.
For slotting and contouring cutters, Inserts with max. corner radius .236 can be used but cutter bodies must be modified for radii > .094"

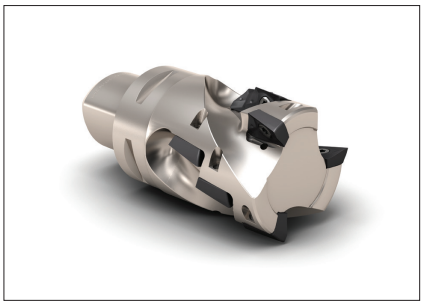
*Effective number of teeth.

SPARE PARTS, INCLUDED IN DELIVERY*

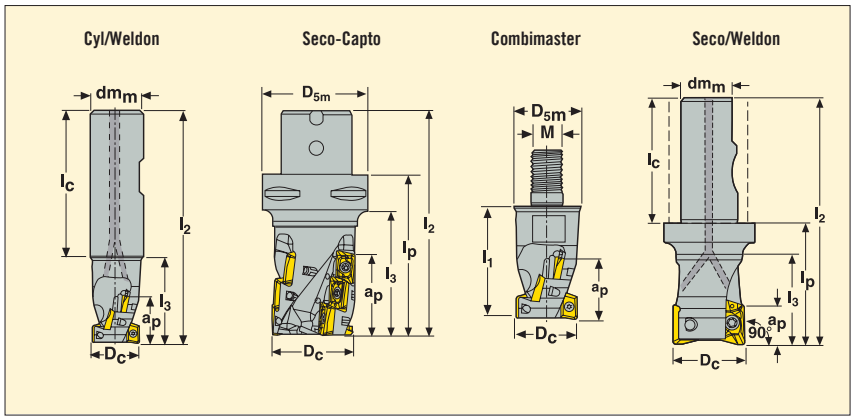
For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
C6-R217.69-02.00	C03507-T10P	**00183**	T10P-3	**00818**	T00-10P20	**05287**
R217.69-02.50	C03507-T10P	**00183**	T10P-3	**00818**	T00-10P20	**05287**

Locking screw torque value 17.7 in/lbs. (2 Nm)
***Dynamomentic Key ordered separately

* For metric mounting and spare parts, please refer to the metric navigator



- For insert selection and cutting data recommendations, see pages 36-37.
- For complete insert program, see pages 74-75.



Part No.	EDP	Dimensions in inch/mm									z_c*	No. of flutes	Type of mounting		lbs/kg		
		D_c	D_{5m} dm_m	l_1	l_2	l_p	l_3	l_c	M	a_p							
Inch																	
R217.69 -01.25-3-12M3AN	**58582**	1.25	1.25	–	5.00	–	2.75	2.25	–	1.73	3	3	Cyl/Weldon	12	1.28	18400	XO.X1204..
-01.50-3-12M4AN	**58592**	1.50	1.50	–	5.75	–	3.25	2.50	–	2.16	4	4	Cyl/Weldon	20	2.77	16400	XO.X1204..
-01.50-3-12L3AN	**58590**	1.50	1.50	–	6.00	–	3.50	2.50	–	2.60	3	3	Cyl/Weldon	18	1.88	16400	
-02.00-3-12M4AN	**58594**	2.00	1.50	–	6.00	–	3.50	2.50	–	2.60	4	4	Cyl/Weldon	24	2.38	14800	XO.X1204..
Metric																	
R217.69-01.00-12RE-12S2AN	**58581**	1.00	1.38	–	–	–	–	–	M12	0.87	2	2	Combimaster	4	0.22	14800	XO.X1204..
C5-R217.69-01.25-12M3AN	**62434**	1.25	1.97	–	4.29	3.11	2.32	–	–	1.72	3	3	Seco-Weldon	12	1.32	18400	XO.X1204..
C6-R217.69-01.50-12M3AN	**62435**	1.50	2.48	–	5.12	3.62	2.75	–	–	2.17	3	3	Seco-Weldon	15	2.36	16400	
C6-R217.69-02.00-12M4AN	**62436**	2.00	2.48	–	5.12	3.62	2.75	–	–	2.15	4	4	Seco-Weldon	20	3.02	14800	XO.X1204..
R217.69 -2532.3S-044-12.3AN	**58515**	32	25	–	125.5	70	58	56	–	44	3	3	Seco-Weldon	12	0.5	18400	XO.X1204..
-3240.3S-044-12.4AN	**58509**	40	32	–	129.5	70	57	60	–	44	4	4	Seco-Weldon	16	0.8	16400	XO.X1204..
-3250.3S-055-12.4AN	**58511**	50	32	–	139.5	80	67	60	–	55	4	4	Seco-Weldon	20	1.1	14800	XO.X1204..
C5-R217.69-032-055-12.3AN	**79413**	32	50	–	120	90	67	–	–	55	3	3	Seco-Capto	15	0.7	18400	XO.X1204..
C6-R217.69-040-066-12.3AN	**79414**	40	63	–	141	103	79,9	–	–	65,5	3	3	Seco-Capto	18	1.2	16400	XO.X1204..

For contouring cutters, Inserts with max. corner radius .047 can be used.
For slotting and contouring cutters, Inserts with max. corner radius .236 can be used but cutter bodies must be modified for radii > .094"

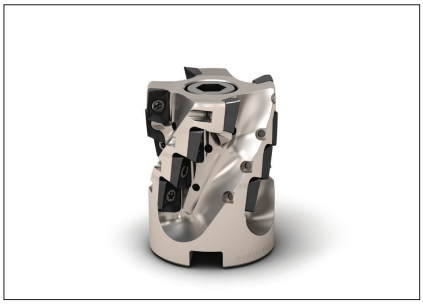
*Effective number of teeth.

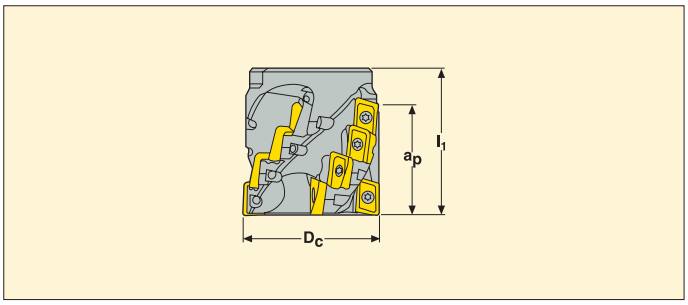
SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.69-12	C03507-T10P	**00183**	T10P-3	**00818**	T00-10P20	**05287**
C-R217.69.12	C03507-T10P	**00183**	T10P-3	**00818**	T00-10P20	**05287**

Locking screw torque value 17.7 in/lbs. (2 Nm)
***Dynamomentic Key ordered separately

* For metric mounting and spare parts, please refer to the metric navigator





- For insert selection and cutting data recommendations, see pages 36-37.
- For complete insert program, see pages 74-75.

Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p	z_c*	No. of flutes		lbs/kg		
FOR SLOTTING AND CONTOURING										
Inch										
R220.69 -02.00-12S4AN	**58600**	2.00	2.75	1.73	4	4	16	1.79	14800	XO.X1204..
-02.50-12S5AN	**58602**	2.50	2.75	1.73	5	5	20	4.01	13200	XO.X1204..
Metric										
R220.69 -00050-033-12.4AN	**58523**	50	55	33	4	4	12	0.4	14800	XO.X1204..
-00063-033-12.5AN	**58528**	63	63	33	5	5	15	1.0	13200	XO.X1204..
-00080-064-12.6AN	**79415**	80	85	64	6	6	36	2.0	7000	XO.X1204..
FOR CONTOURING ONLY										
Inch										
R220.69 -02.00-12M5AN	**58596**	2.00	3.25	2.16	5	5	25	2.09	14800	XO.X1204..
-02.50-12M5AN	**58601**	2.50	3.25	2.16	5	5	25	3.26	13200	XO.X1204..
Metric										
R220.69 -00050-044-12.4AN	**58524**	50	65	44	4	4	16	0.5	14800	XO.X1204..
-00050-044-12.5AN	**58527**	50	65	44	5	5	20	0.5	14800	XO.X1204..
-00063-055-12.5AN	**58529**	63	75	55	5	5	25	1.0	13200	XO.X1204..

For contouring cutters, Inserts with max. corner radius .047 can be used.
For slotting and contouring cutters, Inserts with max. corner radius .236 can be used but cutter bodies must be modified for radii > .094"

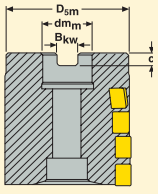
*Effective number of teeth.

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw	EDP	Key	EDP	Arbor screw	EDP	Dynamomentic Key***	EDP
Inch								
R220.69-12-02.00-2.50S	C03509-T10P	**00183**	T10P-3	**00818**	UC6S 1/2 UNF X 2	**03249**	T00-10P20	**05287**
R220.69-12-02.50-2.50M	C03509-T10P	**00183**	T10P-3	**00818**	UC6S-1/2 UNF x 3	**61845**	T00-10P20	**05287**

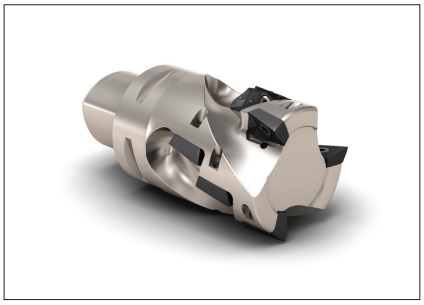
Locking screw torque value 17.7 in/lbs. (2 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*

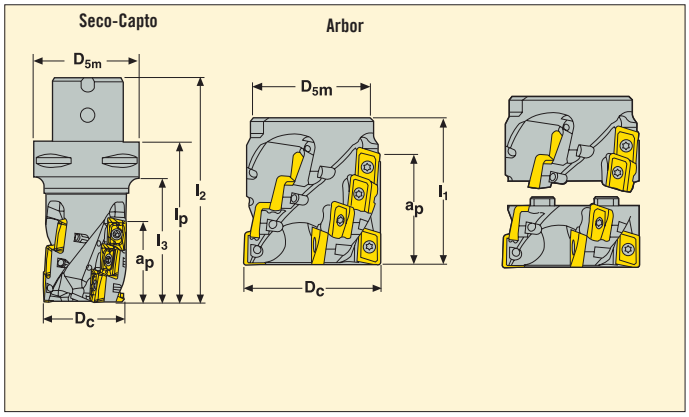


For cutter	Dimensions in inch dm_m	B_{kw}	c
R220.69 -02.00	1.00	.38	.23
-02.50	1.00	.38	.23

* For metric mounting and spare parts, please refer to the metric navigator



- For insert selection and cutting data recommendations, see pages 36-37.
- For complete insert program, see pages 74-75.



Part No.	EDP	Dimensions in inch/mm							z_c*	No. of flutes	Type of mounting		lbs/kg		
		D_c	D_{5m} dm_m	l_1	l_2	l_p	l_3	a_p							
Inch															
C6-R217.69-02.00-12L4SAN	**62460**	2.00	2.48	–	5.49	3.99	3.01	2.58	4	4	Seco-Capto	24	3.00	14800	XO.X1204..
R220.69-02.50-12L4SAN	**62462**	2.50	2.38	3.94	–	–	–	3.03	4	4	Arbor	28	2.91	13200	XO.X1204..
Metric															
C6-R217.69-050-066-12.4SAN	**59260**	50	63	–	139	101	76	66	4	4	Seco-Capto	24	1.4	14800	XO.X1204..
C6-R217.69-050-106-12.5SAN	**79420**	50	63	–	178	140	118	106	5	5	Seco-Capto	50	1.7	12000	XO.X1204..
C6-R217.69-063-107-12.5SAN	**79423**	63	63	–	178	140	118	107	5	5	Seco-Capto	50	2.4	12000	XO.X1204..
C8-R217.69-080-107-12.6SAN	**79426**	80	80	–	198	150	120	108	6	6	Seco-Capto	60	4.8	12000	XO.X1204..
R220.69-0063-077-12.4SAN	**59237**	63	60	100	–	–	–	77	4	4	Arbor	28	1.5	13200	XO.X1204..

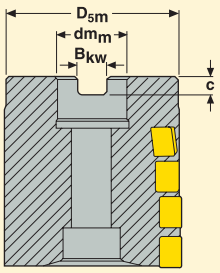
**Inserts with max. corner radius of .039" can be used.

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Retaining Screw		Replaceable end part no.		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**		**EDP**		**EDP**
C6-R217.69-02.00	C03509-T10P	**00183**	T10P-3	**00818**	MC6S10 X 40	**74917**	R220.69-02.00-RE-12.4AN	**62445**	T00-10P20	**05287**
R220.69-02.50	C03509-T10P	**00183**	T10P-3	**00818**	UP6S-1/2UNF X 3-1/4	**37921**	R220.69-02.50-RE-12.4AN	**62469**	T00-10P20	**05287**

Locking screw torque value 17.7 in/lbs. (2 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*



For cutter	Dimensions in inch		
	dm_m	B_{kw}	c
R220.69-02.50	1.00	.38	.23

* For metric mounting and spare parts, please refer to the metric navigator

Insert selection – 217/220.69-12 Slotting/Contouring

Universal insert: XOMX120408TR-M12 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Alternative operations	
1	.004 – .007	XOMX120408TR-ME08 F40M	XOMX120408TR-ME08 T350M	
2	.004 – .007	XOMX120408TR-ME08 F40M	XOMX120408TR-ME08 T350M	
3	.004 – .006	XOMX120408TR-ME08 MP2500	XOMX120408TR-ME08 T350M	
4	.004 – .006	XOMX120408TR-M12 MP2500	XOMX120408TR-MD13 T350M	
5	.003 – .006	XOMX120408TR-M12 MP2500	XOMX120408TR-D14 MP2500	
6	.003 – .005	XOMX120408TR-MD13 MP1500	XOMX120408TR-D14 MP3000	
7	–	–	–	
8	.003 – .006	XOMX120408TR-ME08 MP2500	XOEX120408R-M07 T350M	
9	.003 – .005	XOMX120408TR-ME08 MP2500	XOEX120408R-M07 T350M	
10	.003 – .005	XOMX120408TR-ME08 T350M	XOEX120408R-M07 MM4500	
11	.003 – .005	XOMX120408TR-M12 F40M	XOEX120408R-M07 MM4500	
12	.004 – .008	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
13	.004 – .006	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
14	.004 – .006	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
15	.003 – .005	XOMX120408TR-MD13 MP1500	XOMX120408TR-D14 MP1500	
16	.004 – .007	XOEX120408FR-E06 H15	XOMX120408TR-ME08 F40M	
17	.004 – .006	XOEX120408FR-E06 F40M	XOMX120408TR-ME08 F40M	
18	.004 – .007	XOEX120408FR-E06 H15	XOMX120408TR-ME08 F40M	
19	.002 – .004	XOEX120408R-M07 T350M	XOEX120408R-M07 F40M	
20	.002 – .004	XOEX120408R-M07 T350M	XOEX120408R-M07 F40M	
21	.002 – .003	XOEX120408R-M07 F40M	XOEX120408R-M07 MP3000	
22	.004 – .005	XOEX120408R-M07 MS2050	XOEX120408R-M06 F40M	

Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																				
	MP1500			MP2500			MP3000			T350M			MM4500			F40M			F15M		
	f_z (in/tooth)																				
	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005
	v_c (sf/min)																				
1	1425	1300	1200	1250	1150	1050	1200	1075	1000	1100	990	920	770	700	650	950	860	800	–	–	–
2	1200	1100	1000	1075	970	890	1000	920	850	930	840	780	650	590	550	810	730	680	–	–	–
3	990	900	830	880	800	740	830	760	700	770	700	640	540	490	455	670	600	560	–	–	–
4	850	770	710	750	680	630	710	650	600	650	590	550	460	420	385	570	520	480	–	–	–
5	710	640	–	630	570	530	590	540	500	550	495	460	385	350	325	475	430	400	–	–	–
6	620	560	–	550	500	–	520	470	–	480	435	–	335	305	–	415	375	–	–	–	–
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	970	880	820	770	700	650	760	690	630	720	650	600	560	510	470	650	590	–	–	–	–
9	760	690	640	600	550	510	590	540	500	560	510	475	440	400	370	510	465	–	–	–	–
10	620	570	520	495	450	415	485	440	410	460	420	385	360	330	305	420	380	–	–	–	–
11	460	420	–	365	330	–	360	325	–	340	310	–	270	245	225	310	280	–	–	–	–
12	740	670	620	660	590	550	620	560	520	570	520	480	355	320	295	495	450	415	600	540	500
13	650	590	550	580	520	485	550	495	460	500	455	420	310	280	260	435	395	365	520	475	440
14	550	495	460	485	440	405	460	415	385	420	385	355	260	235	220	365	335	310	440	400	–
15	455	410	–	400	365	–	380	345	–	350	315	–	215	195	–	305	275	–	–	–	–
16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2475	2225	2075	2950	2675	2475
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2000	1800	1675	2400	2175	2000
18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1525	1375	1275	1825	1650	1525
19	–	–	–	170	150	–	160	145	–	150	135	–	95	85	–	135	125	–	–	–	–
20	–	–	–	135	125	–	130	115	–	120	110	–	80	70	–	110	100	–	–	–	–
21	–	–	–	115	105	–	110	100	–	105	95	–	65	60	–	95	85	–	–	–	–
22	–	–	–	140	125	–	130	120	–	125	115	–	105	95	–	115	105	–	–	–	–

Cutting data – Contouring

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.004	.005	1.0
Side milling	30%	.003	.005	.008	1.3
	20%	.004	.006	.010	1.35
	15%	.004	.006	.012	1.4
	10%	.005	.008	.014	1.5
	5%	.008	.010	.018	1.6
Average chip thickness h_m		.0016	.0024	.0039	–

Radii insert alternatives

Radius	End row	Other rows
.008-.016	✔	✔
.031	✔*	✔*
.047-.122	✔	–
.157-.248	✔**	–

*Basic choice **Cutter body must be modified

Insert selection – 217/220.69-12 Slotting/Contouring

Universal insert: XOMX120408TR-M12 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Alternative operations	
1	.004 – .007	XOMX120408TR-ME08 F40M	XOMX120408TR-ME08 T350M	
2	.004 – .007	XOMX120408TR-ME08 F40M	XOMX120408TR-ME08 T350M	
3	.004 – .006	XOMX120408TR-ME08 MP2500	XOMX120408TR-ME08 T350M	
4	.004 – .006	XOMX120408TR-M12 MP2500	XOMX120408TR-MD13 T350M	
5	.003 – .006	XOMX120408TR-M12 MP2500	XOMX120408TR-D14 MP2500	
6	.003 – .005	XOMX120408TR-MD13 MP1500	XOMX120408TR-D14 MP3000	
7	–	–	–	
8	.003 – .006	XOMX120408TR-ME08 MP2500	XOEX120408R-M07 T350M	
9	.003 – .005	XOMX120408TR-ME08 MP2500	XOEX120408R-M07 T350M	
10	.003 – .005	XOMX120408TR-ME08 T350M	XOEX120408R-M07 MM4500	
11	.003 – .005	XOMX120408TR-M12 F40M	XOEX120408R-M07 MM4500	
12	.004 – .008	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
13	.004 – .006	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
14	.004 – .006	XOMX120408TR-M12 MK1500	XOMX120408TR-M12 MK2050	
15	.003 – .005	XOMX120408TR-MD13 MP1500	XOMX120408TR-D14 MP1500	
16	.004 – .007	XOEX120408FR-E06 H15	XOMX120408TR-ME08 F40M	
17	.004 – .006	XOEX120408FR-E06 F40M	XOMX120408TR-ME08 F40M	
18	.004 – .007	XOEX120408FR-E06 H15	XOMX120408TR-ME08 F40M	
19	.002 – .004	XOEX120408R-M07 T350M	XOEX120408R-M07 F40M	
20	.002 – .004	XOEX120408R-M07 T350M	XOEX120408R-M07 F40M	
21	.002 – .003	XOEX120408R-M07 F40M	XOEX120408R-M07 MP3000	
22	.004 – .005	XOEX120408R-M07 MS2050	XOEX120408R-M06 F40M	

Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																
	MS2500			MK1500			MK2050			MS2050			H15				
	f_z (in/tooth)																
	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005	.002	.004	.005		
	v_c (sf/min)																
1	1375	1250	1150	–	–	–	1250	1125	1050	940	940	930	–	–	–		
2	1150	1050	980	–	–	–	1050	950	880	790	790	790	–	–	–		
3	960	870	810	–	–	–	870	790	730	650	650	650	–	–	–		
4	820	740	690	–	–	–	740	670	620	560	560	560	–	–	–		
5	680	620	570	–	–	–	620	560	520	465	465	465	–	–	–		
6	600	540	–	–	–	–	540	490	–	410	410	–	–	–	–		
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
8	830	760	700	–	–	–	–	–	–	–	–	–	–	–	–		
9	660	590	550	–	–	–	–	–	–	–	–	–	–	–	–		
10	540	485	450	–	–	–	–	–	–	–	–	–	–	–	–		
11	395	360	–	–	–	–	–	–	–	–	–	–	–	–	–		
12	710	650	600	930	840	780	880	800	740	–	–	–	470	430	395		
13	630	570	530	820	740	680	770	700	650	–	–	–	415	375	350		
14	530	480	445	690	620	580	650	590	550	–	–	–	350	315	–		
15	435	395	–	570	520	–	540	490	–	–	–	–	–	–	–		
16	–	–	–	–	–	–	–	–	–	–	–	–	2350	2125	1975		
17	–	–	–	–	–	–	–	–	–	–	–	–	1900	1725	1600		
18	–	–	–	–	–	–	–	–	–	–	–	–	1450	1300	1200		
19	185	165	–	–	–	–	–	–	–	–	–	–	–	–	–		
20	145	135	–	–	–	–	–	–	–	–	–	–	–	–	–		
21	125	115	–	–	–	–	–	–	–	–	–	–	–	–	–		
22	150	140	–	–	–	–	–	–	–	175	140	–	–	–	–		

Cutting data – Contouring

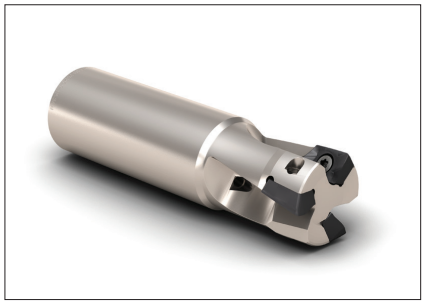
Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.004	.005	1.0
Side milling	30%	.003	.005	.008	1.3
	20%	.004	.006	.010	1.35
	15%	.004	.006	.012	1.4
	10%	.005	.008	.014	1.5
	5%	.008	.010	.018	1.6
Average chip thickness h_m		.0016	.0024	.0039	–

Radii insert alternatives

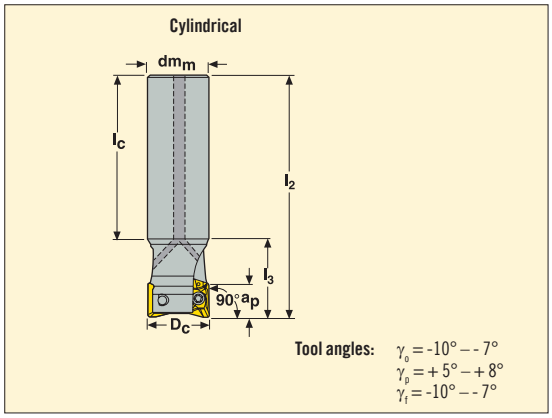
Radius	End row	Other rows
.008-.016	✔	✔
.031	✔*	✔*
.047-.122	✔	–
.157-.248	✔**	–

*Basic choice **Cutter body must be modified

R217.69-18



- For insert selection and cutting data recommendations, see pages 42-43.
- For complete insert program, see pages 76-77.
- For ramping and helical interpolation, see pages 82-85.



Part No.		EDP	Dimensions in inch/mm							lbs/kg	Type of mounting		
			D_c	D_{5m} dm_m	l_2	l_3	l_c	a_p					
Inch													
R217.69	**-01.00-0-18-2LAN**	**55595**	1.00	1.00	7.00	1.50	5.50	.669	2	1.40	Cylindrical	13800	XO.X1806..
	-01.25-0-18-2LAN	**55327**	1.25	1.00	7.68	1.57	6.10	.669	2	1.80	Cylindrical	11100	XO.X1806..
	-01.25-0-18-3LAN	**55328**	1.25	1.00	7.68	1.57	6.10	.669	3	1.80	Cylindrical	11100	XO.X1806..
	-01.50-0-18-3LAN	**55329**	1.50	1.25	8.27	1.77	6.50	.669	3	2.00	Cylindrical	9900	XO.X1806..
	-01.50-0-18-4LAN	**55330**	1.50	1.25	8.27	1.77	6.50	.669	4	2.00	Cylindrical	9900	XO.X1806..
	-02.00-0-18-5LAN	**55331**	2.00	1.50	8.66	1.77	6.89	.669	5	2.30	Cylindrical	8900	XO.X1806..
Metric													
R217.69	**-3032.0-18-2AN**	**53991**	32.00	30.00	210.00	-	170.00	17	2	0.45	Cylindrical	11100	XO.X1806..
	-3232.0-18-2AN	**53970**	32.00	32.00	210.00	38.00	170.00	17	2	0.50	Cylindrical	11100	XO.X1806..
	-3232.0-18-3AN	**53975**	32.00	32.00	210.00	38.00	170.00	17	3	0.50	Cylindrical	11100	XO.X1806..
	-3240.0-18-3AN	**53980**	40.00	32.00	210.00	-	165.00	17	3	0.54	Cylindrical	9900	XO.X1806..
	-3240.0-18-4AN	**53986**	40.00	32.00	210.00	-	165.00	17	4	0.54	Cylindrical	9900	XO.X1806..

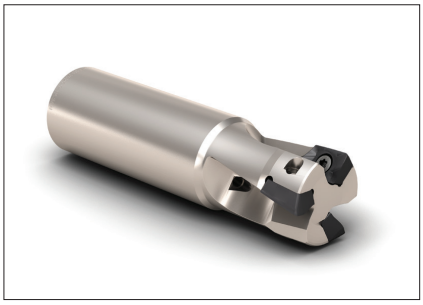
When using inserts with corner radius >.157 inch, the cutter body must be modified.

SPARE PARTS, INCLUDED IN DELIVERY

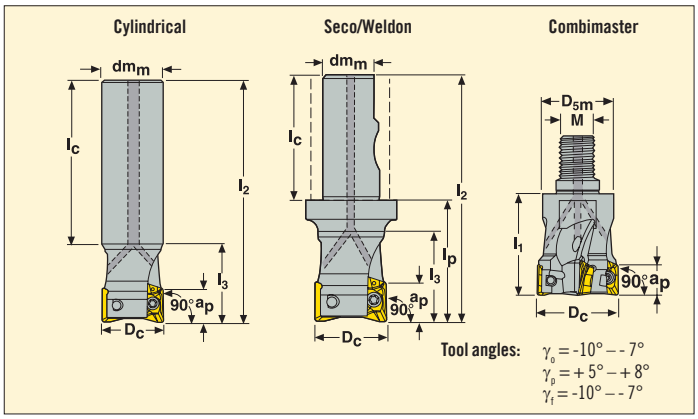
For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.69-18	C04510-T20P	**01577**	T20P-3	**00818**	T00-20P50	**05103**

Locking screw torque value 44 in/lbs. (5 Nm)
***Dynamomentic Key ordered separately

R217.69-18



- For insert selection and cutting data recommendations, see pages 42-43.
- For complete insert program, see pages 76-77.
- For ramping and helical interpolation, see pages 82-85.



Part No.		EDP	Dimensions in inch/mm									lbs/kg	Type of mounting		
			D_c	D_{5m} dm_m	l_1	l_2	l_3	l_c	l_p M	a_p					
Inch															
R217.69	**-01.00-3-18-2AN**	**55596**	1.00	1.00	–	3.94	1.57	2.36	–	.669	2	0.80	Cyl/Weldon	13800	XO.X1806..
	-01.25-3-18-2AN	**55332**	1.25	1.25	–	4.33	1.57	2.76	–	.669	2	1.00	Cyl/Weldon	11100	XO.X1806..
	-01.25-3-18-3AN	**55333**	1.25	1.25	–	4.33	1.57	2.76	–	.669	3	1.00	Cyl/Weldon	11100	XO.X1806..
	-01.50-3-18-3AN	**55334**	1.50	1.25	–	4.72	1.57	3.15	–	.669	3	1.70	Cyl/Weldon	9900	XO.X1806..
	-01.50-3-18-4AN	**55335**	1.50	1.25	–	4.72	1.57	3.15	–	.669	4	1.70	Cyl/Weldon	9900	XO.X1806..
	-01.00-3S-18-2AN	**55597**	1.00	1.00	–	4.53	1.50	2.44	2.09	.669	2	1.00	Seco/Weldon	13800	XO.X1806..
	-01.25-3S-18-2AN	**55337**	1.25	1.00	–	4.55	1.57	2.42	2.13	.669	2	1.10	Seco/Weldon	11100	XO.X1806..
	-01.50-3S-18-3AN	**55338**	1.50	1.25	–	4.78	1.81	2.42	2.36	.669	3	1.80	Seco/Weldon	9900	XO.X1806..
	-01.00-3S-18-2LAN	**55599**	1.00	1.00	–	6.03	3.00	2.44	3.59	.669	2	1.22	Seco/Weldon	13800	XO.X1806..
	-01.00-12RE-18-2AN	**55600**	1.00	0.905	1.57	–	–	–	M12	0.669	2	0.30	Combimaster	13800	XO.X1806..
	-01.25-16RE-18-2AN	**55601**	1.25	1.181	1.77	–	–	–	M16	0.669	2	0.75	Combimaster	11100	XO.X1806..
	-01.25-16RE-18-3AN	**55602**	1.25	1.181	1.77	–	–	–	M16	0.669	3	0.75	Combimaster	11100	XO.X1806..
	-01.50-16RE-18-3AN	**55603**	1.50	1.181	1.77	–	–	–	M16	0.669	3	0.78	Combimaster	9900	XO.X1806..
	-01.50-16RE-18-4AN	**55607**	1.50	1.181	1.77	–	–	–	M16	0.669	4	0.78	Combimaster	9900	XO.X1806..
Metric															
R217.69	**-3232.3-18-2AN**	**53940**	32.00	32.00	74	110.00	38.00	70.00	50	17	2	0.60	Cyl/Weldon	11100	XO.X1806..
	-3232.3-18-3AN	**53969**	32.00	32.00	74	110.00	38.00	70.00	50	17	3	0.60	Cyl/Weldon	11100	XO.X1806..
	-2532.3S-18-2AN	**53882**	32.00	25.00	–	109.50	40.00	55.50	54.00	17	2	0.50	Seco/Weldon	11100	XO.X1806..
	-3240.3S-18-3AN	**53930**	40.00	32.00	–	119.50	46.00	59.50	60.00	17	3	0.80	Seco/Weldon	9900	XO.X1806..
	-1632.RE-18-2AN	**54004**	32.00	30	45	–	–	–	M12	17	2	0.20	Combimaster	11100	XO.X1806..
	-1632.RE-18-3AN	**54002**	32.00	30	45	–	–	–	M16	17	3	0.20	Combimaster	11100	XO.X1806..
	-1640.RE-18-3AN	**54005**	40.00	30	45	–	–	–	M16	17	3	0.30	Combimaster	9900	XO.X1806..
	-1640.RE-18-4AN	**54003**	40.00	30	45	–	–	–	M16	17	4	0.30	Combimaster	9900	XO.X1806..

When using inserts with corner radius >.157 inch, the cutter body must be modified.

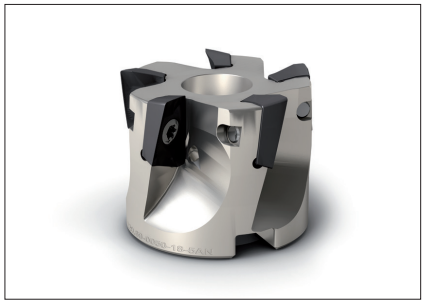
SPARE PARTS, INCLUDED IN DELIVERY

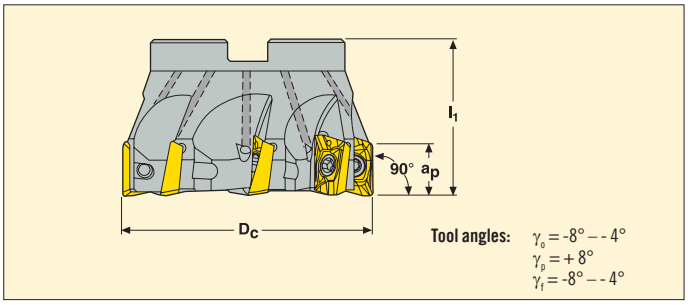
For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.69-18	C04510-T20P	**01577**	T20P-3	**00818**	T00-20P50	**05103**

Locking screw torque value 44 in/lbs. (5 Nm)
***Dynamomentic Key ordered separately

R220.69-18

NORMAL PITCH WITH COOLANT UP TO 5.00" DIA.





- For insert selection and cutting data recommendations, see pages 42-43.
- For complete insert program, see pages 76-77.
- For ramping and helical interpolation, see pages 82-85.

Pitch	Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p		lbs/kg		
Normal	Inch								
	R220.69 -02.00-18-4AN	55341	2.00	1.57	.669	4	0.70	8900	XO.X1806..
	-02.50-18-5AN	55344	2.50	1.57	.669	5	1.10	7900	XO.X1806..
	-03.00-18-6AN	55347	3.00	1.97	.669	6	2.20	7000	XO.X1806..
	-04.00-18-7AN	55352	4.00	1.97	.669	7	3.74	6300	XO.X1806..
	-05.00-18-8AN	55355	5.00	2.48	.669	8	6.83	5600	XO.X1806..
	-06.00-18-9N	55358	6.00	2.48	.669	9	11.46	5000	XO.X1806..
Close	R220.69 -02.00-18-4AN	55342	2.00	1.57	0.669	5	0.70	8900	XO.X1806..
	-02.50-18-5AN	55345	2.50	1.57	0.669	6	1.10	7900	XO.X1806..
	-03.00-18-6AN	55348	3.00	1.97	0.669	8	2.20	7000	XO.X1806..
	-04.00-18-7AN	55353	4.00	1.97	0.669	9	3.74	6300	XO.X1806..
	-05.00-18-8AN	55354	5.00	2.48	0.669	11	6.83	5600	XO.X1806..
	-06.00-18-9N	55357	6.00	2.48	0.669	12	11.46	5000	XO.X1806..
Course	R220.69 -02.00-18-3AN	55340	2.00	1.57	0.669	3	0.70	8900	XO.X1806..
	-02.50-18-4AN	55343	2.50	1.57	0.669	4	1.10	7900	XO.X1806..
	-03.00-18-4AN	55346	3.00	1.97	0.669	4	2.20	7000	XO.X1806..
	-04.00-18-5AN	55350	4.00	1.97	0.669	5	3.74	6300	XO.X1806..
Normal	Metric								
	R220.69 -0050-18-4AN	63040	50.00	40	17	4	0.30	8900	XO.X1806..
	-0063-18-5AN	54021	63.00	40	17	5	0.50	7900	XO.X1806..
	-0080-18-6AN	54023	80.00	50	17	6	1.00	7000	XO.X1806..
	-0100-18-7AN	54017	100.00	50	17	7	1.70	6300	XO.X1806..
	-0125-18-8AN	54019	125.00	63	17	8	3.10	5600	XO.X1806..
	-8160-18-12N	54006	160.00	63	17	12	5.20	5000	XO.X1806..
Close	R220.69 -0050-18-5AN	54020	50.00	40	17	5	0.30	8900	XO.X1806..
	-0063-18-6AN	54022	63.00	40	17	6	0.50	7900	XO.X1806..
	-0080-18-8AN	54024	80.00	50	17	8	1.00	7000	XO.X1806..
	-0100-18-9AN	54018	100.00	50	17	9	1.70	6300	XO.X1806..
	-0125-18-11AN	54013	125.00	63	17	11	3.10	5600	XO.X1806..
Course	R220.69 -0063-18-4AN	54007	63.00	40	17	4	0.50	7900	XO.X1806..
	-0080-18-5AN	54009	80.00	50	17	5	1.00	7000	XO.X1806..
	-0100-18-6AN	54014	100.00	50	17	6	1.70	6300	XO.X1806..
	-0125-18-7AN	54016	125.00	63	17	7	3.10	5600	XO.X1806..
	-8160-18-7N	54012	160.00	63	17	7	4.6	5000	XO.X1806..
	-8160-18-9N	54010	160.00	63	17	9	4.7	5000	XO.X1806..

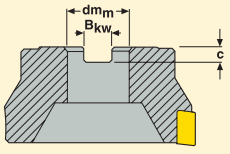
When using inserts with corner radius >.157 inch, the cutter body must be modified.

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
		EDP		EDP		EDP		EDP
R220.69 -02.00 to -02.50	C04510-T20P	01577	T20P-4	01574	220.17-695	14579	T00-20P50	05103
-03.00	C04510-T20P	01577	T20P-4	01574	UC6S 1/2 UNFx1 1/4	77920	T00-20P50	05103
-04.00	C04510-T20P	01577	T20P-4	01574	UF6S 3/4 UNFx2	56067	T00-20P50	05103
-05.00	C04510-T20P	01577	T20P-4	01574	UC6S 3/4 UNFx1 1/4	03249	T00-20P50	05103
-06.00	C04510-T20P	01577	T20P-4	01574	-	-	T00-20P50	05103

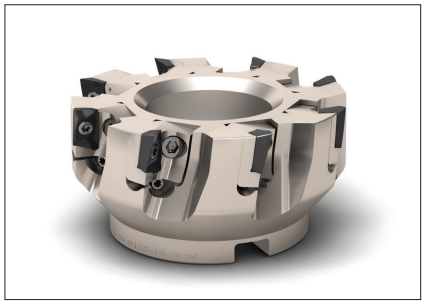
Locking screw torque value 44 in/lbs. (5 Nm)
***Dynamomentic Key ordered separately

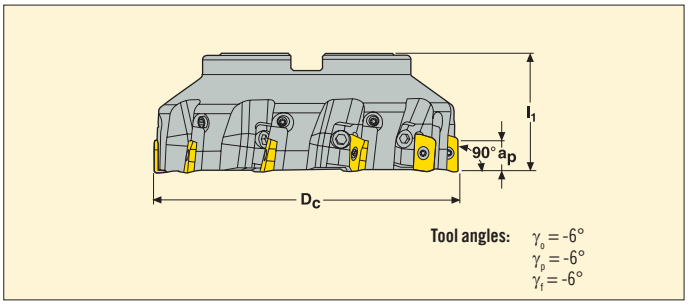
MOUNTING DIMENSIONS*



For cutter	Dimensions in inch dm_m	B_{kw}	c
R220.69 -02.00 to -02.50	0.75	.32	.19
-03.00	1.00	.38	.22
-04.00 to -05.00	1.50	.63	.38
-06.00	2.00	.76	.44

* For metric mounting and spare parts, please refer to the metric navigator





- For insert selection and cutting data recommendations, see pages 42-43.
- For complete insert program, see pages 76-77.
- For ramping and helical interpolation, see pages 82-85.

Pitch	Part No.	EDP	Dimensions in inch D_c	l_1	a_p*		lbs/kg		
Normal	Inch								
	R220.69 -05.00-18-8CN	57509	5.00	2.48	.669	8	6.83	5600	XO.X1806..
	-06.00-18-10CN	57510	6.00	2.48	.669	10	11.00	5000	XO.X1806..
	-808.00-18-12CN	57511	8.00	2.48	.669	12	16.53	4400	XO.X1806..
	-810.00-18-16CN	57512	10.00	2.48	.669	16	28.66	3900	XO.X1806..
Normal	Metric								
	R220.69 -0125-18-8CN	57499	125.00	63	17	8	3.10	5600	XO.X1806..
	-8160-18-10CN	57500	160.00	63	17	10	5.00	5000	XO.X1806..
	-8200-18-12CN	57501	200.00	63	17	12	7.50	4400	XO.X1806..
	-8250-18-16CN	57504	250.00	63	17	16	13.00	3900	XO.X1806..

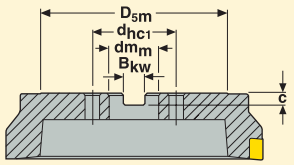
When using inserts with corner radius >.157 inch, the cutter body must be modified.

SPARE PARTS, INCLUDED IN DELIVERY*

	Locking screw		Cassette		Cassette screw		Key		Setting gauge		Dynamomentic Key***	
Inch		EDP		EDP		EDP		EDP		EDP		EDP
R220.69-18C	C04510-T20P	01577	X018PRN	57493	FS96018	12063	HO5-4	12700	AU1114T-T15P	21663	T00-20P50	05103

Locking screw torque value 44 in/lbs. (5 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*



For cutter	Dimensions in inch d	B_{kw}	c	d_{hc1}
R220.69 -05.00	1.50	0.63	.38	–
-06.00	2.00	0.76	.44	–
-808.00	2.50	1.01	.56	4.00
-810.00	2.50	1.01	.56	4.00

* For metric mounting and spare parts, please refer to the metric navigator

Insert selection – 217/220.69-18

Universal insert: XOMX 180608TR-M14 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Difficult operations	
1	.006 – .012	XOMX180608TR-ME13 F40M	XOMX180608TR-M14 MP2500	
2	.006 – .012	XOMX180608TR-ME13 F40M	XOMX180608TR-M14 MP2500	
3	.006 – .010	XOMX180608TR-M14 MP2500	XOMX180608TR-MD15 T350M	
4	.006 – .010	XOMX180608TR-M14 MP2500	XOMX180608TR-MD15 T350M	
5	.005 – .008	XOMX180608TR-M14 MP2500	XOMX180608TR-MD15 T350M	
6	.005 – .007	XOMX180608TR-MD15 MP1500	XOMX180608TR-D16 MP2500	
7	.005 – .006	XOMX180608TR-MD15 MP1500	XOMX180608TR-D16 MP1500	
8	.004 – .008	XOMX180608TR-M14 F40M	XOMX180608TR-M14 T350M	
9	.004 – .007	XOMX180608TR-M14 F40M	XOMX180608TR-M14 T350M	
10	.005 – .007	XOMX180608R-M10 T350M	XOMX180608R-M10 MM4500	
11	.005 – .006	XOMX180608R-M10 T350M	XOMX180608R-M10 MM4500	
12	.005 – .012	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
13	.005 – .010	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
14	.005 – .008	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
15	.005 – .007	XOMX180608TR-M14 MP1500	XOMX180608TR-MD15 MP1500	
16	.006 – .014	XOEX180608FR-E10 H25	XOEX180608FR-E10 F40M	
17	.004 – .010	XOEX180608FR-E10 F40M	XOEX180608FR-E10 F40M	
18	.006 – .014	XOEX180608FR-E10 H25	XOEX180608FR-E10 F40M	
19	.004 – .006	XOMX180608R-M10 T350M	XOMX180608R-M10 F40M	
20	.004 – .006	XOMX180608R-M10 T350M	XOMX180608R-M10 F40M	
21	.003 – .005	XOMX180608R-M10 F40M	XOMX180608R-M10 MP3000	
22	.004 – .007	XOMX180608R-M10 MS2050	XOMX180608R-M10 MS2050	

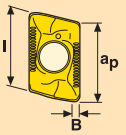
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																				
	MP1500			MP2500			MP3000			T350M			MM4500			F40M			F15M		
	f_z (in/tooth)																				
	.004	.008	.014	.004	.008	.014	.004	.008	.014	.004	.008	.014	.004	.008	.014	.004	.008	.014	.004	.008	.014
	v_c (sf/min)																				
1	1700	1375	1150	1500	1225	1000	1425	1150	950	1300	1075	880	920	750	620	1125	930	760	–	–	–
2	1425	1175	960	1275	1025	850	1200	980	810	1100	900	740	780	640	520	960	790	650	–	–	–
3	1175	970	800	1050	860	710	990	810	670	910	750	610	640	530	435	790	650	530	–	–	–
4	1000	820	680	900	730	600	850	690	570	780	640	520	550	450	370	680	550	455	–	–	–
5	840	690	–	750	610	–	710	580	–	650	530	–	460	375	–	570	460	–	–	–	–
6	740	600	–	650	530	–	620	510	–	570	465	–	400	330	–	495	405	–	–	–	–
7	200	165	–	165	135	–	160	130	–	155	125	–	–	–	–	135	110	–	–	–	–
8	1150	940	–	920	750	–	900	740	–	850	700	–	670	550	450	780	630	–	–	–	–
9	910	740	–	720	590	–	710	580	–	670	550	–	530	430	355	610	500	–	–	–	–
10	740	610	–	590	480	–	580	475	–	550	450	–	430	350	290	500	410	–	–	–	–
11	550	450	–	435	355	–	430	350	–	405	330	–	320	260	215	370	300	–	–	–	–
12	880	720	590	780	640	530	740	600	500	680	560	460	420	345	285	590	485	400	710	580	480
13	770	630	520	690	560	460	650	530	435	600	490	400	370	305	250	520	425	350	620	510	420
14	650	530	–	580	470	–	550	445	–	500	410	–	310	255	–	435	355	–	520	430	355
15	540	440	–	480	390	–	455	370	–	415	340	–	260	210	–	360	295	–	–	–	–
16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2950	2400	1975	–	–	–
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2375	1925	1600	–	–	–
18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1800	1475	1225	–	–	–
19	–	–	–	200	–	–	190	–	–	180	–	–	115	–	–	165	–	–	–	–	–
20	–	–	–	160	–	–	150	–	–	145	–	–	95	–	–	130	–	–	–	–	–
21	–	–	–	140	–	–	130	–	–	125	–	–	80	–	–	115	–	–	–	–	–
22	–	–	–	165	–	–	155	–	–	150	–	–	130	105	–	135	–	–	–	–	–

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.004	.008	.014	1.00
Side milling	25%	.005	.011	.018	1.30
	10%	.008	.016	.028	1.50
	5%	.011	.022	.040	1.60
Average chip thickness h_m		.002	.005	.009	–

Type of insert



Insert type l	Max D.O.C a_p	Wiper flat width B
180604	.669	.094
180608	.669	.094
180612	.669	.094
180616	.669	.090
180620	.669	.087
180624	.669	.087
180631	.669	.087

Insert selection – 217/220.69-18

Universal insert: XOMX 180608TR-M14 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Difficult operations	
1	.006 – .012	XOMX180608TR-ME13 F40M	XOMX180608TR-M14 MP2500	
2	.006 – .012	XOMX180608TR-ME13 F40M	XOMX180608TR-M14 MP2500	
3	.006 – .010	XOMX180608TR-M14 MP2500	XOMX180608TR-MD15 T350M	
4	.006 – .010	XOMX180608TR-M14 MP2500	XOMX180608TR-MD15 T350M	
5	.005 – .008	XOMX180608TR-M14 MP2500	XOMX180608TR-MD15 T350M	
6	.005 – .007	XOMX180608TR-MD15 MP1500	XOMX180608TR-D16 MP2500	
7	.005 – .006	XOMX180608TR-MD15 MP1500	XOMX180608TR-D16 MP1500	
8	.004 – .008	XOMX180608TR-M14 F40M	XOMX180608TR-M14 T350M	
9	.004 – .007	XOMX180608TR-M14 F40M	XOMX180608TR-M14 T350M	
10	.005 – .007	XOMX180608R-M10 T350M	XOMX180608R-M10 MM4500	
11	.005 – .006	XOMX180608R-M10 T350M	XOMX180608R-M10 MM4500	
12	.005 – .012	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
13	.005 – .010	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
14	.005 – .008	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
15	.005 – .007	XOMX180608TR-M14 MP1500	XOMX180608TR-MD15 MP1500	
16	.006 – .014	XOEX180608FR-E10 H25	XOEX180608FR-E10 F40M	
17	.004 – .010	XOEX180608FR-E10 F40M	XOEX180608FR-E10 F40M	
18	.006 – .014	XOEX180608FR-E10 H25	XOEX180608FR-E10 F40M	
19	.004 – .006	XOMX180608R-M10 T350M	XOMX180608R-M10 F40M	
20	.004 – .006	XOMX180608R-M10 T350M	XOMX180608R-M10 F40M	
21	.003 – .005	XOMX180608R-M10 F40M	XOMX180608R-M10 MP3000	
22	.004 – .007	XOMX180608R-M10 MS2050	XOMX180608R-M10 MS2050	

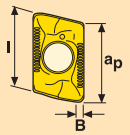
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades														
	MK1500			MK2050			MS2050			H25					
	f_z (in/tooth)														
	.004	.008	.014	.004	.008	.014	.004	.008	.014	.004	.008	.014			
	v_c (sf/min)														
1	–	–	–	1475	1200	990	1200	1050	680	–	–	–			
2	–	–	–	1250	1025	840	1025	890	580	–	–	–			
3	–	–	–	1025	840	690	840	740	475	–	–	–			
4	–	–	–	880	720	590	720	630	405	–	–	–			
5	–	–	–	730	600	495	600	520	340	–	–	–			
6	–	–	–	640	530	–	520	460	300	–	–	–			
7	–	–	–	–	–	–	–	–	–	–	–	–			
8	–	–	–	–	–	–	–	–	–	–	–	–			
9	–	–	–	–	–	–	–	–	–	–	–	–			
10	–	–	–	–	–	–	–	–	–	–	–	–			
11	–	–	–	–	–	–	–	–	–	–	–	–			
12	1100	900	740	1050	850	700	–	–	–	560	460	380			
13	970	790	650	920	750	620	–	–	–	495	405	330			
14	820	670	–	770	630	–	–	–	–	415	340	–			
15	680	550	–	640	520	–	–	–	–	345	280	–			
16	–	–	–	–	–	–	–	–	–	2800	2275	1875			
17	–	–	–	–	–	–	–	–	–	2250	1850	1525			
18	–	–	–	–	–	–	–	–	–	1725	1400	1150			
19	–	–	–	–	–	–	–	–	–	–	–	–			
20	–	–	–	–	–	–	–	–	–	–	–	–			
21	–	–	–	–	–	–	–	–	–	–	–	–			
22	–	–	–	–	–	–	175	100	–	–	–	–			

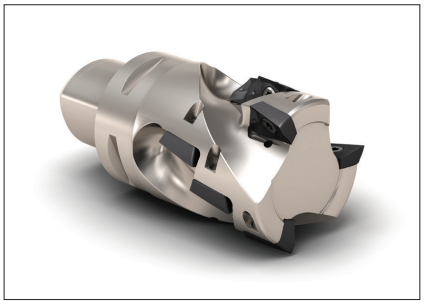
Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.004	.008	.014	1.00
Side milling	25%	.005	.011	.018	1.30
	10%	.008	.016	.028	1.50
	5%	.011	.022	.040	1.60
Average chip thickness h_m		.002	.005	.009	–

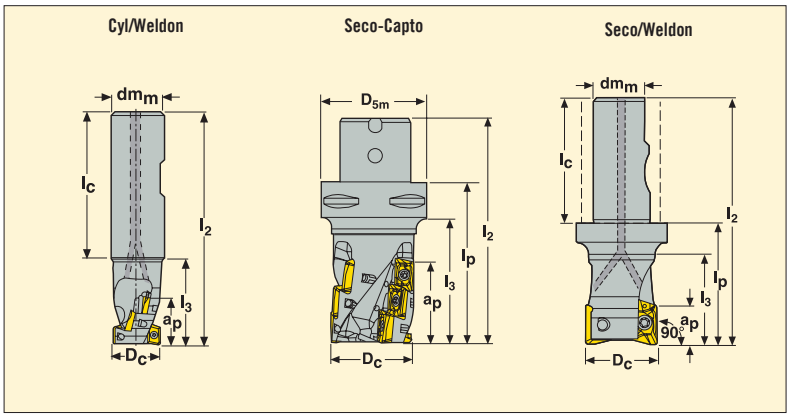
Type of insert



Insert type l	Max D.O.C a_p	Wiper flat width B
180604	.669	.094
180608	.669	.094
180612	.669	.094
180616	.669	.090
180620	.669	.087
180624	.669	.087
180631	.669	.087



- For insert selection and cutting data recommendations, see pages 47-48.
- For complete insert program, see pages 76-77.



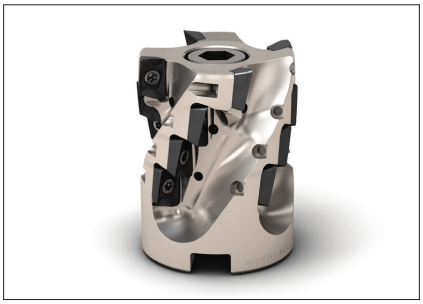
Part No.	EDP	Dimensions in inch/mm						z_c*	No. of flutes	Type of mounting		lbs/kg		
		D_c	D_{5m} dm_m	l_2	l_p	l_3	a_p							
Inch														
R217.69 -01.50-3-18S2AN	**58603**	1.50	1.50	5.44	–	2.69	1.85	2	2	Cyl/Weldon	6	1.76	9900	XO.X1806..
-02.00-3-18S3AN	**58606**	2.00	1.50	5.49	–	2.74	1.85	3	3	Cyl/Weldon	9	2.20	8900	XO.X1806..
-02.00-3-18M2AN	**58604**	2.00	2.00	6.65	–	3.35	2.44	2	2	Cyl/Weldon	6	2.35	7900	XO.X1806..
C5-R217.69 -01.50-18S2AN	**62437**	1.50	1.97	4.41	3.23	2.44	1.86	2	2	Seco-Capto	6	1.52	9900	XO.X1806..
C6-R217.69 -02.00-18S3AN	**62438**	2.00	1.97	4.41	3.23	2.44	1.86	3	3	Seco-Capto	9	2.20	8900	XO.X1806..
-02.00-18M3AN	**62439**	2.00	2.48	5.39	3.90	3.03	2.44	3	3	Seco-Capto	12	3.06	8900	XO.X1806..
-02.50-18M4AN	**62440**	2.50	2.48	5.39	3.90	3.03	2.41	4	4	Seco-Capto	16	3.96	8400	XO.X1806..
Metric														
R217.69 -3240.3S-047-18.2AN	**58531**	40	32	130	70	57	60	2	2	Seco/Weldon	6	0.8	9900	XO.X1806..
-3250.3S-047-18.3AN	**58533**	50	32	134.5	75	65	60	3	3	Seco/Weldon	9	1.1	8900	XO.X1806..
C5-R217.69 -040-047-18.2AN	**59246**	40	50	112	82	58	47	2	2	Seco-Capto	6	0.8	9900	XO.X1806..
C5-R217.69 -054-047-18.3AN	**59251**	54	50	112	82	62	47	3	3	Seco-Capto	9	1.1	8600	XO.X1806..
C6-R217.69 -066-047-18.4AN	**59256**	66	63	122	84	62	47	4	4	Seco-Capto	12	1	7700	XO.X1806..

*Effective number of teeth.

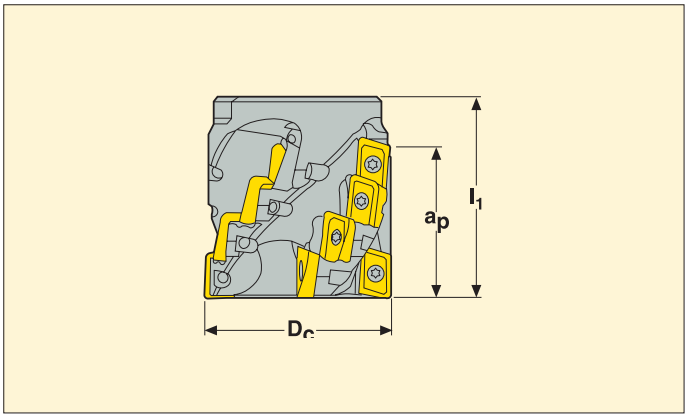
SPARE PARTS, INCLUDED IN DELIVERY

	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.69-18	C04510-T20P	**01577**	T20P-3	**01573**	C04510-T20P	**05103**
C-R217.6-18	C04510-T20P	**01577**	T20P-4	**01574**	C04510-T20P	**05103**

Locking screw torque value 44 in/lbs. (5 Nm)
***Dynamomentic Key ordered separately



- For insert selection and cutting data recommendations, see pages 47-48.
- For complete insert program, see pages 76-77.



Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p	z_c*	No. of flutes		lbs/kg		
Inch										
R220.69 -02.50-18S4AN	58608	2.50	2.75	1.86	4	4	12	1.83	7900	XO.X1806..
-02.50-18M4AN	58607	2.50	3.35	2.44	4	4	16	2.11	7900	XO.X1806..
-03.00-18M5AN	58610	3.00	3.50	2.48	5	5	20	3.70	7000	XO.X1806..
-04.00-18M6AN	58612	4.00	3.50	2.44	6	6	24	6.95	6300	XO.X1806..
Metric										
R220.69 -00063-047-18.4AN	58534	63	70	47	4	4	12	0.8	7900	XO.X1806..
-00063-062-18.3AN	58535	63	85	62	3	3	12	1.1	7900	XO.X1806..
-00063-062-18.4AN	58537	63	85	62	4	4	16	1.0	7900	XO.X1806..
-00080-047-18.5AN	58540	80	70	47	5	5	15	1.6	7000	XO.X1806..
-00080-062-18.5AN	58541	80	85	62	5	5	20	1.9	7000	XO.X1806..
-00100-062-18.6AN	58543	100	85	62	6	6	24	3.1	6300	XO.X1806..

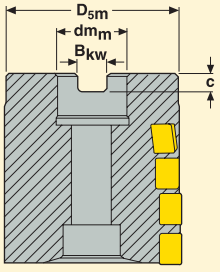
*Effective number of teeth.

SPARE PARTS, INCLUDED IN DELIVERY*

	Locking screw		Key		Arbor screw		Dynamomentic Key***	
Inch		EDP		EDP		EDP		EDP
R220.69.18 -02.50-18S	C04510-T20P	01577	T20P-4	01574	UC6S-1/2UNF X 2	03249	C04510-T20P	05103
-02.50-18M	C04510-T20P	01577	T20P-4	01574	UC6S-1/2UNF X 3	61845	C04510-T20P	05103
-03.00-18M	C04510-T20P	01577	T20P-4	01574	UC6S-5/8UNF X 3-1/2	61847	C04510-T20P	05103
-04.00-18M	C04510-T20P	01577	T20P-4	01574	UC6S-3/4UNF X 3	61848	C04510-T20P	05103

Locking screw torque value 44 in/lbs. (5 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*

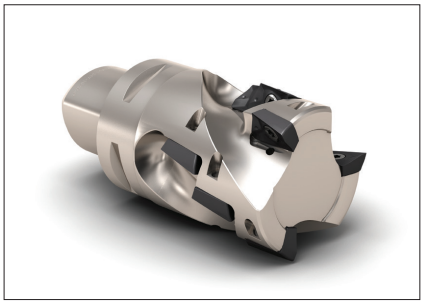


For cutter	Dimensions in inch dm_m	B_{kw}	c
R220.69 -02.50	1.00	.38	.22
-03.00	1.25	.51	.28
-04.00	1.50	.63	.38

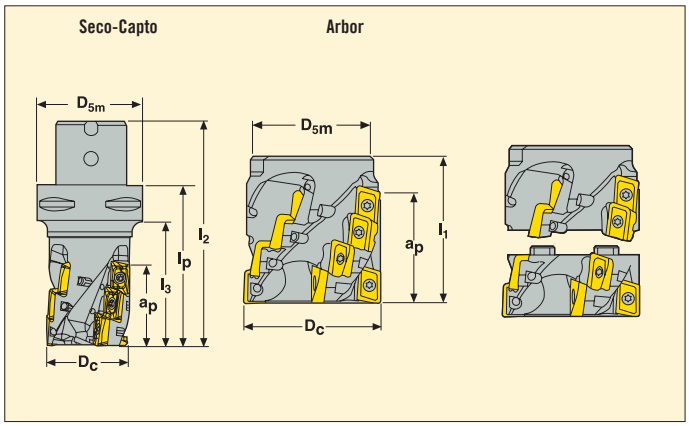
* For metric mounting and spare parts, please refer to the metric navigator

C6-R217/R220.69.18

REPLACEABLE END FOR CONTOURING ONLY



- For insert selection and cutting data recommendations, see pages 47-48.
- For complete insert program, see pages 76-77.



Part No.	EDP	Dimensions in inch/mm							z_c*	No. of flutes	Type of mounting		lbs/kg		
		D_c	D_{5m}	l_1	l_2	l_p	l_3	a_p							
Inch															
C6-R217.69 -02.00-18L2SAN	**07499**	2.00	2.48	–	5.98	4.49	3.50	3.02	2	2	Seco-Capto	10	3.31	8900	XO.X1806..
R220.69 -02.50-18L4SAN	**62462**	2.50	2.38	3.94	–	–	–	3.03	4	4	Arbor	20	2.38	7900	XO.X1806..
-03.00-18L4SAN	**62466**	3.00	2.88	3.94	–	–	–	3.03	4	4	Arbor	20	4.67	7000	XO.X1806..
-04.00-18L5SAN	**62467**	4.00	3.61	3.94	–	–	–	3.03	5	5	Arbor	25	7.98	6300	XO.X1806..
Metric															
C6-R217.69 -050-077-18.2SAN	**59261**	50	63	–	152	114	89	77	2	2	Seco-Capto	10	3.31	8900	XO.X1806..
C8-R217.69 -063-093-18.4SAN	**79428**	63	80	–	188	140	110	93	4	4	Seco-Capto	24	2.38	7900	XO.X1806..
C8-R217.69 -080-093-18.5SAN	**79431**	80	80	–	188	140	110	93	5	5	Seco-Capto	30	4.67	7000	XO.X1806..
R220.69 -00063-077-18.4SAN	**59238**	63	60	100	–	–	–	77	4	4	Arbor	20	2.38	7900	XO.X1806..
-00080-077-18.4SAN	**59239**	80	77	100	–	–	–	77	4	4	Arbor	20	4.67	7000	XO.X1806..
-00100-077-18.5SAN	**59240**	100	90	100	–	–	–	77	5	5	Arbor	25	7.98	6300	XO.X1806..

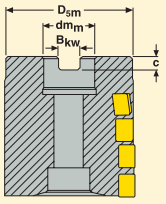
*Effective number of teeth.

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Retaining Screw		Replaceable end part no.		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**		**EDP**		**EDP**
C6-R217.69 -02.00	C04510-T20P	**01577**	T20P-4	**01574**	MC6S10 X 55	**57422**	R220.69-02.00-RE-18.2AN	**62446**	C04510-T20P	**05103**
R220.69 -02.50	C04510-T20P	**01577**	T20P-4	**01574**	UP6S-1/2UNF X 3-1/4	**37922**	R220.69-02.50-RE-18.4AN	**37922**	C04510-T20P	**05103**
-03.00	C04510-T20P	**01577**	T20P-4	**01574**	UP6S-5/8UNF X 3-1/4	**37923**	R220.69-03.00-RE-18.4AN	**37923**	C04510-T20P	**05103**
-04.00	C04510-T20P	**01577**	T20P-4	**01574**	UP6S-3/4UNF X 3-1/4	**01574**	R220.69-04.00-RE-18.5AN	**01574**	C04510-T20P	**05103**

Locking screw torque value 44 in/lbs. (5 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*



For cutter	Dimensions in inch		
	dm_m	B_{kw}	c
R220.69 -02.50	1.00	.38	.22
-03.00	1.25	.51	.28
-04.00	1.50	.63	.38

* For metric mounting and spare parts, please refer to the metric navigator

Insert selection – 217/220.69-18 Slotting/Contouring

Universal insert: XOMX180608TR-M14 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Alternative operations	
1	.006 – .010	XOMX180608TR-ME13 F40M	XOMX180608TR-M14 MP2500	
2	.006 – .010	XOMX180608TR-ME13 F40M	XOMX180608TR-M14 MP2500	
3	.006 – .009	XOMX180608TR-M14 MP2500	XOMX180608TR-M14 T350M	
4	.006 – .009	XOMX180608TR-M14 MP2500	XOMX180608TR-M14 T350M	
5	.005 – .008	XOMX180608TR-M14 MP2500	XOMX180608TR-MD15 T350M	
6	.005 – .007	XOMX180608TR-MD15 MP1500	XOMX180608TR-D16 MP1500	
7	.005 – .006	XOMX180608TR-D16 MP1500	XOMX180608TR-D16 MP3000	
8	.004 – .008	XOMX180608TR-M14 MP2500	XOMX180608TR-M14 T350M	
9	.004 – .007	XOMX180608TR-M14 MP2500	XOMX180608TR-M14 T350M	
10	.005 – .007	XOMX180608TR-M14 T350M	XOMX180608R-M10 MM4500	
11	.005 – .006	XOMX180608TR-M14 F40M	XOMX180608R-M10 MM4500	
12	.005 – .010	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
13	.005 – .009	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
14	.005 – .008	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
15	.005 – .007	XOMX180608TR-MD15 MP1500	XOMX180608TR-MD15 MP1500	
16	.006 – .012	XOEX180608FR-E10 H25	XOEX180608FR-E10 F40M	
17	.004 – .010	XOEX180608FR-E10 F40M	XOEX180608FR-E10 F40M	
18	.006 – .012	XOEX180608FR-E10 H25	XOEX180608FR-E10 F40M	
19	.004 – .006	XOMX180608TR-M14 T350M	XOMX180608R-M10 F40M	
20	.004 – .006	XOMX180608TR-M14 T350M	XOMX180608R-M10 F40M	
21	.003 – .005	XOMX180608R-M10 F40M	XOMX180608R-M10 T350M	
22	.004 – .007	XOMX180608R-M10 MS2050	XOMX180608R-M10 F40M	

Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																				
	MP1500			MP2500			MP3000			T350M			MM4500			F40M			F15M		
	f_z (in/tooth)																				
	.004	.006	.010	.004	.006	.010	.004	.006	.010	.004	.006	.010	.004	.006	.010	.004	.006	.010	.004	.006	.010
	v_c (sf/min)																				
1	1175	1050	890	1050	930	780	990	880	740	910	810	680	640	570	480	790	700	590	–	–	–
2	990	890	750	880	790	670	830	740	630	770	680	580	540	480	410	670	590	500	–	–	–
3	820	730	620	730	650	550	690	610	520	630	560	480	445	400	335	550	490	415	–	–	–
4	700	620	530	620	550	470	590	520	445	540	480	410	380	340	290	470	420	355	–	–	–
5	580	520	–	520	460	–	490	435	–	450	400	–	320	285	–	390	350	–	–	–	–
6	510	455	–	455	405	–	430	385	–	395	350	–	280	250	–	345	305	–	–	–	–
7	140	125	–	115	100	–	110	100	–	110	95	–	–	–	–	95	85	–	–	–	–
8	800	720	610	640	570	480	630	560	470	590	530	445	465	415	350	540	480	405	–	–	–
9	630	560	475	500	445	375	490	440	370	465	415	350	365	325	275	425	375	320	–	–	–
10	520	460	390	410	365	310	400	360	305	380	340	290	300	265	225	345	310	260	–	–	–
11	385	340	–	305	270	–	300	265	–	280	250	–	220	195	165	255	230	–	–	–	–
12	610	540	460	540	485	410	510	455	385	470	420	355	295	260	220	410	365	310	495	440	370
13	540	480	405	475	425	360	450	400	340	415	370	315	255	230	195	360	320	270	435	385	325
14	450	405	–	400	355	–	380	340	–	350	310	–	215	195	–	305	270	–	365	325	–
15	375	335	–	330	295	–	315	280	–	290	255	–	180	160	–	250	225	–	–	–	–
16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2050	1825	1550	–	–	–
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1650	1475	1250	–	–	–
18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1250	1125	950	–	–	–
19	–	–	–	140	–	–	130	–	–	125	–	–	80	–	–	115	–	–	–	–	–
20	–	–	–	110	–	–	105	–	–	100	–	–	65	–	–	90	–	–	–	–	–
21	–	–	–	95	–	–	90	–	–	85	–	–	55	–	–	80	–	–	–	–	–
22	–	–	–	115	105	–	110	95	–	105	90	–	90	80	–	95	85	–	–	–	–

Cutting data – Contouring

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.004	.006	.010	1.0
Side milling	30%	.005	.008	.012	1.3
	20%	.006	.009	.015	1.35
	15%	.006	.011	.017	1.4
	10%	.008	.013	.020	1.5
	5%	.010	.018	.028	1.6
Average chip thickness h_m		.0024	.0039	.0063	–

Radii insert alternatives

Radius	End row	Other rows
.016	✔	✔
.031	✔*	✔*
.047	✔*	✔*
.063-.157	✔	–
.197-.248	✔**	–

*Basic choice **Cutter body must be modified

Insert selection – 217/220.69-18 Slotting/Contouring

Universal insert: XOMX180608TR-M14 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Alternative operations	
1	.006 – .010	XOMX180608TR-ME13 F40M	XOMX180608TR-M14 MP2500	
2	.006 – .010	XOMX180608TR-ME13 F40M	XOMX180608TR-M14 MP2500	
3	.006 – .009	XOMX180608TR-M14 MP2500	XOMX180608TR-M14 T350M	
4	.006 – .009	XOMX180608TR-M14 MP2500	XOMX180608TR-M14 T350M	
5	.005 – .008	XOMX180608TR-M14 MP2500	XOMX180608TR-MD15 T350M	
6	.005 – .007	XOMX180608TR-MD15 MP1500	XOMX180608TR-D16 MP1500	
7	.005 – .006	XOMX180608TR-D16 MP1500	XOMX180608TR-D16 MP3000	
8	.004 – .008	XOMX180608TR-M14 MP2500	XOMX180608TR-M14 T350M	
9	.004 – .007	XOMX180608TR-M14 MP2500	XOMX180608TR-M14 T350M	
10	.005 – .007	XOMX180608TR-M14 T350M	XOMX180608R-M10 MM4500	
11	.005 – .006	XOMX180608TR-M14 F40M	XOMX180608R-M10 MM4500	
12	.005 – .010	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
13	.005 – .009	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
14	.005 – .008	XOMX180608TR-M14 MK1500	XOMX180608TR-MD15 MK2050	
15	.005 – .007	XOMX180608TR-MD15 MP1500	XOMX180608TR-MD15 MP1500	
16	.006 – .012	XOEX180608FR-E10 H25	XOEX180608FR-E10 F40M	
17	.004 – .010	XOEX180608FR-E10 F40M	XOEX180608FR-E10 F40M	
18	.006 – .012	XOEX180608FR-E10 H25	XOEX180608FR-E10 F40M	
19	.004 – .006	XOMX180608TR-M14 T350M	XOMX180608R-M10 F40M	
20	.004 – .006	XOMX180608TR-M14 T350M	XOMX180608R-M10 F40M	
21	.003 – .005	XOMX180608R-M10 F40M	XOMX180608R-M10 T350M	
22	.004 – .007	XOMX180608R-M10 MS2050	XOMX180608R-M10 F40M	

Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades														
	MK1500			MK2050			MS2050			H25					
	f_z (in/tooth)														
	.004	.006	.010	.004	.006	.010	.004	.006	.010	.004	.006	.010			
	v_c (sf/min)														
1	–	–	–	1025	910	770	880	850	640	–	–	–			
2	–	–	–	870	770	650	750	720	540	–	–	–			
3	–	–	–	720	640	540	620	590	450	–	–	–			
4	–	–	–	610	550	460	530	500	385	–	–	–			
5	–	–	–	510	455	385	440	420	–	–	–	–			
6	–	–	–	445	400	–	385	370	–	–	–	–			
7	–	–	–	–	–	–	–	–	–	–	–	–			
8	–	–	–	–	–	–	–	–	–	–	–	–			
9	–	–	–	–	–	–	–	–	–	–	–	–			
10	–	–	–	–	–	–	–	–	–	–	–	–			
11	–	–	–	–	–	–	–	–	–	–	–	–			
12	770	680	580	730	650	550	–	–	–	390	345	295			
13	670	600	510	640	570	480	–	–	–	345	305	260			
14	570	510	–	540	480	405	–	–	–	290	255	–			
15	470	420	–	445	395	–	–	–	–	–	–	–			
16	–	–	–	–	–	–	–	–	–	1925	1725	1450			
17	–	–	–	–	–	–	–	–	–	1575	1400	1175			
18	–	–	–	–	–	–	–	–	–	1200	1050	900			
19	–	–	–	–	–	–	–	–	–	–	–	–			
20	–	–	–	–	–	–	–	–	–	–	–	–			
21	–	–	–	–	–	–	–	–	–	–	–	–			
22	–	–	–	–	–	–	125	90	–	–	–	–			

Cutting data – Contouring

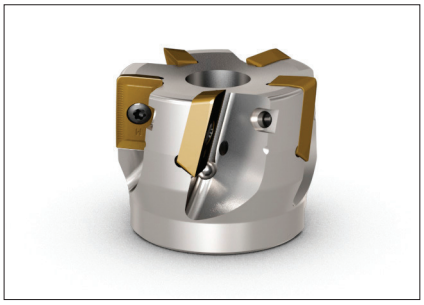
Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.004	.006	.010	1.0
Side milling	30%	.005	.008	.012	1.3
	20%	.006	.009	.015	1.35
	15%	.006	.011	.017	1.4
	10%	.008	.013	.020	1.5
	5%	.010	.018	.028	1.6
Average chip thickness h_m		.0024	.0039	.0063	–

Radii insert alternatives

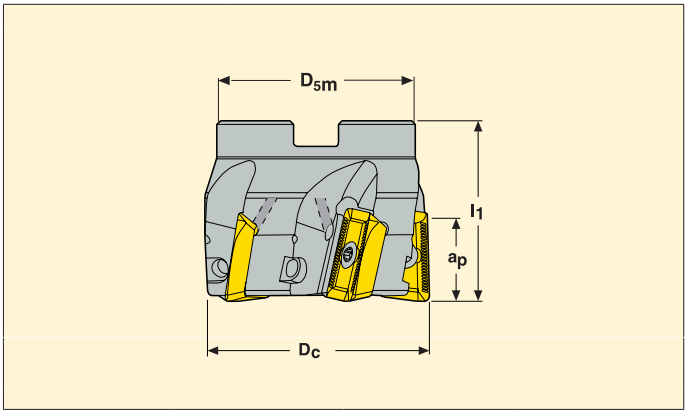
Radius	End row	Other rows
.016	✔	✔
.031	✔*	✔*
.047	✔*	✔*
.063-.157	✔	–
.197-.248	✔**	–

*Basic choice **Cutter body must be modified

R220.90 ABEX



- For insert selection and cutting data recommendations, see page 50.
- For complete insert program, see page 77.



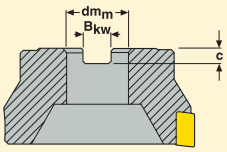
Pitch	Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p		lbs/kg		
Normal	Inch								
	R220.90 -02.00-26- 4AN	81496	2.00	1.97	0.787	4	0.88	6700	ABEX2606..
	-02.50-26- 5AN	81498	2.50	1.97	0.787	5	1.54	6700	ABEX2606..
	-03.00-26- 7AN	81500	3.00	1.97	0.787	7	2.20	5900	ABEX2606..
	-04.00-26- 8AN	81501	4.00	1.97	0.787	8	3.75	5300	ABEX2606..
	-05.00-26- 9AN	81502	5.00	2.50	0.787	9	7.94	4700	ABEX2606..
	-06.00-26- 10AN	81504	6.00	2.50	0.787	10	9.48	4200	ABEX2606..
Normal	Metric								
	R220.90 -0063-26-5AM	71036	63	50	20	5	0.7	6700	ABEX2606..
	-0080-26-7AM	71039	80	50	20	7	1.2	5900	ABEX2606..
	-0100-26-8AM	71042	100	50	20	8	1.8	5300	ABEX2606..
	-8160-26-10AM	71044	160	63	20	10	5.7	4200	ABEX2606..
Close	R220.90 -0063-26-6AM	71037	63	50	20	6	0.8	6700	ABEX2606..
Course	R220.90 -0063-26-4AM	71035	63	50	20	4	0.7	6700	ABEX2606..
	-0080-26-5AM	71038	80	50	20	5	1.1	5900	ABEX2606..
	-0100-26-6AM	71040	100	50	20	6	1.7	5300	ABEX2606..
	-0125-26-7AM	71043	125	63	20	7	3.2	4700	ABEX2606..

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
Inch		EDP		EDP		EDP		EDP
R220.90-26-02.00 -02.50	C05013-T20P	00059	T20P-4	01574	UC6S 3/8 UNF x 1	87667	T00-20P50	05103
-03.00	C05013-T20P	00059	T20P-4	01574	UC6S 1/2 UNF x 1-1/4	77920	T00-20P50	05103
-04.00 to 05.00	C05013-T20P	00059	T20P-4	01574	UC6S 3/4 UNF x 1-1/4	03253	T00-20P50	05103
-06.00	C05013-T20P	00059	T20P-4	01574	–	–	T00-20P50	05103

Locking screw torque value 44 in/lbs. (5 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*



For cutter	Dimensions in inch dm_m	B_{kw}	c
R220.69 -02.00 to -02.50	0.75	.32	.19
-03.00	1.00	.38	.22
-04.00 to -05.00	1.50	.63	.38
-06.00	2.00	.76	.44

* For metric mounting and spare parts, please refer to the metric navigator

Insert selection – 220.90-26 Slotting/Contouring

Universal insert: ABEX2606ZFFR-M15 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice		
1	.006–.014	ABEX2606ZFFR-M15 T350M		
2	.006–.015	ABEX2606ZFFR-M15 T350M		
3	.005–.012	ABEX2606ZFFR-M15 T350M		
4	.005–.013	ABEX2606ZFFR-M15 T350M		
5	.005–.014	ABEX2606ZFFR-M15 MP1500		
6	.004–.011	ABEX2606ZFFR-M15 MP1500		
7	.004–.010	ABEX2606ZFFR-M15 MP1500		
8	.005–.012	ABEX2606ZFFR-M15 T350M		
9	.004–.012	ABEX2606ZFFR-M15 T350M		
10	.004–.011	ABEX2606ZFFR-M15 T350M		
11	.004–.011	ABEX2606ZFFR-M15 MM4500		
12	.006–.014	ABEX2606ZFFR-M15 MK1500		
13	.006–.012	ABEX2606ZFFR-M15 MK1500		
14	.004–.012	ABEX2606ZFFR-M15 MK1500		
15	.004–.010	ABEX2606ZFFR-M15 MP1500		
16	–	–		
17	–	–		
18	–	–		
19	–	–		
20	–	–		
21	–	–		
22	–	–		

Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																	
	MP1500			MP2500			T350M			MM4500			F40M			MK1500		
	f_z (in/tooth)																	
	.004	.008	.014	.004	.008	.014	.004	.008	.014	.004	.008	.014	.004	.008	.014	.004	.008	.014
	v_c (sf/min)																	
1	1558	1280	1050	1390	1145	935	1214	984	820	853	689	574	1051	854	706	–	–	–
2	1330	1082	902	1190	965	805	1017	836	689	722	590	492	887	723	608	–	–	–
3	1100	902	738	980	805	660	543	689	574	590	492	394	739	608	493	–	–	–
4	935	770	625	835	685	560	722	590	492	508	410	344	624	509	427	–	–	–
5	770	640	525	685	570	470	607	492	410	426	344	279	526	427	345	–	–	–
6	690	560	460	615	500	410	525	426	361	377	312	–	460	378	–	–	–	–
7	180	154	–	-	-	-	144	118	–	–	–	–	125	102	–	–	–	–
8	1066	870	722	950	775	645	787	640	525	623	508	410	723	591	493	–	–	–
9	836	689	574	745	615	515	623	508	426	492	394	328	558	460	378	–	–	–
10	689	558	460	615	500	410	508	410	344	394	328	246	460	378	312	–	–	–
11	508	410	344	455	365	305	377	312	246	295	246	197	345	279	230	–	–	–
12	820	672	558	730	600	500	623	508	426	394	312	262	542	443	378	1018	838	690
13	722	590	475	645	525	425	558	459	377	344	279	230	476	394	329	903	739	608
14	607	492	410	540	440	365	459	377	312	295	230	197	411	329	279	756	624	509
15	492	410	344	440	365	305	377	312	262	246	197	161	329	279	230	624	509	427
16	–	–	–	-	-	-	–	–	–	–	–	–	–	–	–	–	–	–
17	–	–	–	-	-	-	–	–	–	–	–	–	–	–	–	–	–	–
18	–	–	–	-	-	-	–	–	–	–	–	–	–	–	–	–	–	–
19	–	–	–	-	-	-	–	–	–	–	–	–	–	–	–	–	–	–
20	–	–	–	-	-	-	–	–	–	–	–	–	–	–	–	–	–	–
21	–	–	–	-	-	-	–	–	–	–	–	–	–	–	–	–	–	–
22	–	–	–	-	-	-	–	–	–	–	–	–	–	–	–	–	–	–

Cutting data – Contouring

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.004	.008	.014	1.00
Side milling	25%	.005	.011	.018	1.30
	10%	.008	.016	.028	1.50
	5%	.011	.022	.039	1.60
Average chip thickness h_m		.0023	.0051	.0086	-

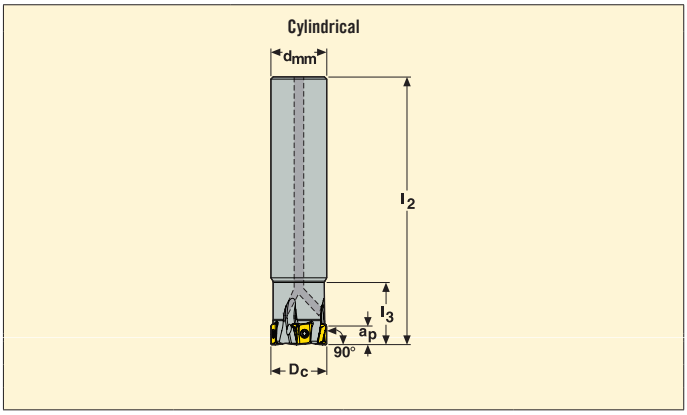
Radii insert alternatives

Insert size l	Max D.O.C. a_p	Wiper flat width
26	.787	.078

R217.94-08

FOR CONTOURING ONLY

- For insert selection and cutting data recommendations, see pages 54-55.
- For complete insert program, see page 78.



Part No.	EDP	Dimensions in inch/mm								Type of mounting		
		D_c	D_5 dm_m	l_1	l_2	l_3	a_p		lbs/kg			
Inch												
R217.94 -00.62-0-08-2A	**15581**	0.625	0.625	–	5.52	1.122	0.315	2	0.44	Cylindrical	20600	LOEX0804..
-00.75-0-08-2A	**15950**	0.75	0.75	–	6	1.138	0.315	2	0.66	Cylindrical	18400	LOEX0804..
-01.00-0-08-2A	**85504**	1.00	1.00	–	7.87	1.138	0.315	3	1.54	Cylindrical	16500	LOEX0804..
-01.25-0-08-4A	**85507**	1.25	1.25	–	7.87	1.11	0.315	4	2.65	Cylindrical	14600	LOEX0804..
Metric												
R217.94 -1616.0-08-2A	**15581**	16	16	–	90	29	8	2	0.3	Cylindrical	20600	LOEX0804..
-1820.0-08-2A	**15950**	20	18	–	160	29	8	2	0.3	Cylindrical	18400	LOEX0804..
-2020.0-08-2A	**85504**	20	20	–	160	29	8	2	0.4	Cylindrical	18400	LOEX0804..
-2020.0-08-3A	**85507**	20	20	–	110	29	8	3	0.3	Cylindrical	18400	LOEX0804..
-2225.0-08-3A	**82179**	25	22	–	180	29	8	3	0.6	Cylindrical	17600	LOEX0804..
-2525.0-08-3A	**82181**	25	25	–	180	29	8	3	0.7	Cylindrical	16500	LOEX0804..
-2525.0-08-4A	**82182**	25	25	–	120	29	8	4	0.5	Cylindrical	16500	LOEX0804..
-3032.0-08-4A	**82177**	30	25	–	200	29	8	4	1.1	Cylindrical	14600	LOEX0804..
-3232.0-08-3A	**82180**	32	32	–	200	29	8	3	1.2	Cylindrical	14600	LOEX0804..
-3232.0-08-5A	**82183**	32	32	–	130	29	8	5	0.8	Cylindrical	14600	LOEX0804..

SPARE PARTS, INCLUDED IN DELIVERY

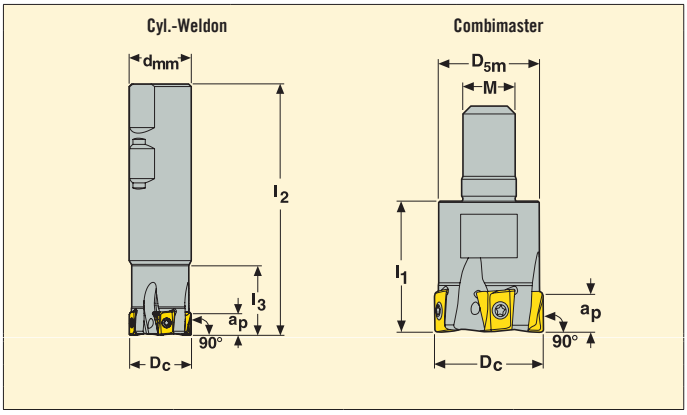
For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.96-04	C02708-T08P	**09962**	T08P-3	**10394**	T00-08P12	**12856**

* Torque value 10.6 in/lbs (1.2 Nm).
***Dynamomentic Key ordered separately

R217.94-08

FOR SLOTTING AND CONTOURING

- For insert selection and cutting data recommendations, see pages 54-55.
- For complete insert program, see page 78.



Part No.	EDP	Dimensions in inch/mm								lbs/kg	Type of mounting		
		D_c	D_5 dm_m	l_1	l_2	l_3	M	a_p					
Inch													
R217.94-00.62-3-08-2A	**15923**	0.625	0.625	–	3	0.921	–	0.315	2	0.22	Cyl/Weldon	20600	LOEX0804..
-00.75-3-08-2A	**85476**	0.75	0.75	–	3.5	1.138	–	0.315	2	0.44	Cyl/Weldon	18400	LOEX0804..
-00.75-3-08-3A	**85503**	0.75	0.75	–	3.5	1.138	–	0.315	3	0.44	Cyl/Weldon	18400	LOEX0804..
-01.00-3-08-3A	**85505**	1.00	1.00	–	4.0	1.138	–	0.315	3	0.88	Cyl/Weldon	16500	LOEX0804..
-01.00-3-08-4A	**85506**	1.00	1.00	–	4.0	1.138	–	0.315	4	0.88	Cyl/Weldon	16500	LOEX0804..
-01.25-3-08-4A	**85508**	1.25	1.25	–	4.5	1.11	–	0.315	4	1.54	Cyl/Weldon	14600	LOEX0804..
-01.25-3-08-5A	**85509**	1.25	1.25	–	4.5	1.11	–	0.315	5	1.54	Cyl/Weldon	14600	LOEX0804..
R217.94-00.625-08RE-08-2A	**85808**	0.625	0.53	0.91	–	–	M08	0.315	2	0.22	Combimaster	20600	LOEX0804..
-00.750-10RE-08-2A	**85809**	0.75	0.73	1.1	–	–	M10	0.315	2	0.22	Combimaster	18400	LOEX0804..
-01.00-12RE-08-3A	**85810**	1.00	0.91	1.18	–	–	M12	0.315	3	0.22	Combimaster	16500	LOEX0804..
-01.25-16RE-08-3A	**85811**	1.25	1.18	1.38	–	–	M16	0.315	3	0.44	Combimaster	14600	LOEX0804..
Metric													
R217.94-1616.3-08-2A	**82184**	16	16	–	78	23.4	–	8	2	0.3	Cyl.-Weldon	20600	LOEX0804..
-2018.3-08-2A	**09937**	18	20	–	90	26.7	–	8	2	0.3	Cyl.-Weldon	19400	LOEX0804..
-2020.3-08-2A	**82185**	20	20	–	90	28.8	–	8	2	0.2	Cyl.-Weldon	18400	LOEX0804..
-2020.3-08-3A	**82186**	20	20	–	90	28.9	–	8	3	0.2	Cyl.-Weldon	18400	LOEX0804..
-2522.3-08-3A	**09938**	22	25	–	101	26.5	–	8	3	0.4	Cyl.-Weldon	17600	LOEX0804..
-2525.3-08-3A	**82187**	25	25	–	101	28.9	–	8	3	0.2	Cyl.-Weldon	16500	LOEX0804..
-2525.3-08-4A	**82188**	25	25	–	101	28.9	–	8	4	0.4	Cyl.-Weldon	16500	LOEX0804..
-3232.3-08-3A	**82189**	32	32	–	105	28.2	–	8	3	0.6	Cyl.-Weldon	14600	LOEX0804..
-3232.3-08-5A	**82190**	32	32	–	105	28.2	–	8	5	0.7	Cyl.-Weldon	14600	LOEX0804..
R217.94-0816.RE-08-2A	**82191**	16	13.5	23	–	–	M8	8	2	0.1	Combimaster	20600	LOEX0804..
-1020.RE-08-2A	**82194**	20	18.5	28	–	–	M10	8	2	0.1	Combimaster	18400	LOEX0804..
-1020.RE-08-3A	**82195**	20	18.5	28	–	–	M10	8	3	0.1	Combimaster	18400	LOEX0804..
-1225.RE-08-3A	**82196**	25	23	30	–	–	M12	8	3	0.2	Combimaster	16500	LOEX0804..
-1225.RE-08-4A	**82197**	25	23	30	–	–	M12	8	4	0.2	Combimaster	16500	LOEX0804..
-1632.RE-08-3A	**82198**	32	30	35	–	–	M16	8	3	0.3	Combimaster	14600	LOEX0804..
-1632.RE-08-5A	**82199**	32	30	35	–	–	M16	8	5	0.3	Combimaster	14600	LOEX0804..

SPARE PARTS, INCLUDED IN DELIVERY

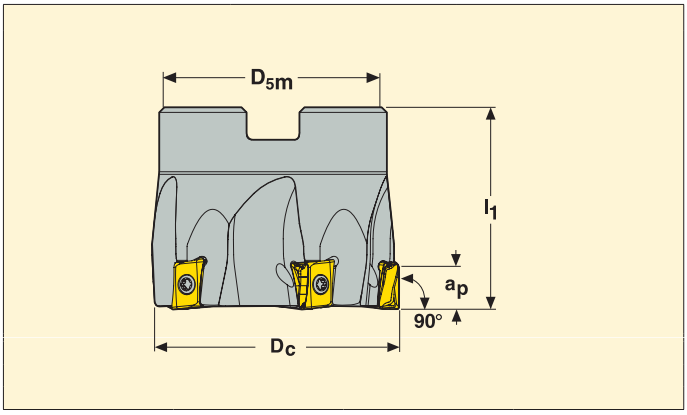
For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.96-04	C02708-T08P	**09962**	T08P-3	**10394**	T00-08P12	**12856**

* Torque value 10.6 in/lbs (1.2 Nm).
***Dynamomentic Key ordered separately

R217.94-08

FOR CONTOURING ONLY

- For insert selection and cutting data recommendations, see pages 54-55.
- For complete insert program, see page 78.



Pitch	Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p		lbs/kg		
Normal	Inch								
	R220.94 -01.50-08-4A	85510	1.50	1.57	0.315	4	0.44	16400	LOEX0804..
	-02.00-08-5A	85511	2.00	1.57	0.315	5	0.88	14800	LOEX0804..
	-02.50-08-6A	85513	2.50	1.57		6	1.32	13200	LOEX0804..
Close									
	R220.94 -02.00-08-7A	85512	2.00	1.57	0.315	7	0.88	14800	LOEX0804..
	-02.50-08-9A	85514	2.50	1.57	0.315	9	1.32	13200	LOEX0804..
Normal	Metric								
	R220.94 -0032-08-3A	77024	20	–	8	3	0.3	18400	LOEX0804..
	-0040-08-4A	82200	25	–	8	3	0.6	17600	LOEX0804..
	-0050-08-5A	82202	25	–	8	3	0.7	16500	LOEX0804..
	-0063-08-6A	82204	25	–	8	4	0.5	16500	LOEX0804..
Close	R220.94 -0032-08-5A	77025	32	40	8	5	0.2	20800	LOEX0804..
	-0040-08-6A	82201	40	40	8	6	0.3	16400	LOEX0804..
	-0050-08-7A	82203	50	40	8	7	0.4	14800	LOEX0804..
	-0063-08-9A	82205	63	40	8	9	0.7	13200	LOEX0804..

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
Inch		EDP		EDP		EDP		EDP
R220.94-08-01.50-02.00	C02708-T08P	09962	T08P-3	10394	UC6S 3/8 UNF x 1	87667	T00-08P12	12856

* Locking screw torque value 10.6 in/lbs (1.2 Nm).
***Dynamomentic Key ordered separately

* For metric mounting and spare parts, please refer to the metric navigator

Insert selection – 217/220.94-08

Universal insert: LOEX080108TR-M08MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice		
1	.004-.006	LOEX080408TR-M08	F40M	
2	.004-.006	LOEX080408TR-M08	F40M	
3	.003-.006	LOEX080408TR-M08	MP2500	
4	.003-.006	LOEX080408TR-M08	MP2500	
5	.002-.004	LOEX080408TR-M08	MP2500	
6	.002-.004	LOEX080408TR-M08	MP2500	
7	–	–	–	
8	.003-.006	LOEX080408TR-M08	F40M	
9	.003-.005	LOEX080408TR-M08	F40M	
10	–	–	–	
11	–	–	–	
12	.003-.006	LOEX080408TR-MD08	MK2050	
13	.003-.005	LOEX080408TR-MD08	MK2050	
14	.003-.005	LOEX080408TR-MD08	MK2050	
15	.002-.004	LOEX080408TR-MD08	MK2050	
16	.004-.008	LOEX080408TR-M08	F40M	
17	.004-.008	LOEX080408TR-M08	F40M	
18	.004-.008	LOEX080408TR-M08	F40M	
19	–	–	–	
20	–	–	–	
21	–	–	–	
22	–	–	–	

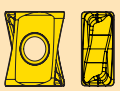
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																				
	MP1500			MP2500			MP3000			F40M			MK1500			MK2050			MM4500		
	f_z (in/tooth)																				
	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008
	v_c (sf/min)																				
1	1610	1360	1165	1425	1200	1035	1345	1130	985	1085	920	785	–	–	–	1395	1180	1015	870	740	640
2	1360	1150	985	1200	1015	885	1130	970	835	920	770	675	–	–	–	1180	1000	870	740	625	540
3	1115	950	820	1000	835	720	935	805	690	755	640	560	–	–	–	985	835	720	605	510	445
4	950	805	705	855	720	625	805	675	590	640	540	475	–	–	–	835	705	605	525	445	375
5	805	675	–	705	590	–	675	575	–	540	460	–	–	–	–	690	590	510	425	360	–
6	705	590	–	625	525	–	590	490	–	475	395	–	–	–	–	605	525	–	375	330	–
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	1100	935	–	870	740	–	855	720	625	740	625	–	–	–	–	–	–	–	640	540	–
9	870	720	–	690	575	–	675	575	490	575	490	–	–	–	–	–	–	–	490	425	–
10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12	835	705	605	740	625	540	705	590	510	560	475	410	1050	885	770	1000	835	720	395	345	295
13	740	625	540	655	560	475	625	525	445	490	410	360	920	785	675	870	740	640	345	295	260
14	625	525	–	540	460	–	525	445	–	410	345	–	770	655	–	740	625	–	295	245	–
15	510	425	–	460	375	–	425	360	–	345	295	–	640	540	–	605	510	–	245	215	–
16	–	–	–	–	–	–	–	–	–	2790	2360	2035	–	–	–	–	–	–	–	–	–
17	–	–	–	–	–	–	–	–	–	2265	1905	1640	–	–	–	–	–	–	–	–	–
18	–	–	–	–	–	–	–	–	–	1705	1445	1245	–	–	–	–	–	–	–	–	–
19	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
21	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
22	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Cutting data – Side milling

Operations	a_e/D_c	Recom. feed f_z in/tooth			Speed factor
Full engagement	100%	0.002	0.004	0.006	1.00
Side milling	25%	0.002	0.005	0.008	1.30
	10%	0.003	0.006	0.012	1.50
	5%	0.004	0.009	0.016	1.60
Average chip thickness h_m		0.001	0.002	0.004	–

Dimensions in inch



Insert type l	Max D.O.C a_p	Wiper flat width
LOEX080404	0.315	0.051
LOEX080408	0.315	0.047
LOEX080412	0.315	0.043
LOEX080416	0.315	0.039

Insert selection – 217/220.94-08

Universal insert: LOEX080108TR-M08MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice		
1	.004-.006	LOEX080408TR-M08	F40M	
2	.004-.006	LOEX080408TR-M08	F40M	
3	.003-.006	LOEX080408TR-M08	MP2500	
4	.003-.006	LOEX080408TR-M08	MP2500	
5	.002-.004	LOEX080408TR-M08	MP2500	
6	.002-.004	LOEX080408TR-M08	MP2500	
7	–	–	–	
8	.003-.006	LOEX080408TR-M08	F40M	
9	.003-.005	LOEX080408TR-M08	F40M	
10	–	–	–	
11	–	–	–	
12	.003-.006	LOEX080408TR-MD08	MK2050	
13	.003-.005	LOEX080408TR-MD08	MK2050	
14	.003-.005	LOEX080408TR-MD08	MK2050	
15	.002-.004	LOEX080408TR-MD08	MK2050	
16	.004-.008	LOEX080408TR-M08	F40M	
17	.004-.008	LOEX080408TR-M08	F40M	
18	.004-.008	LOEX080408TR-M08	F40M	
19	–	–	–	
20	–	–	–	
21	–	–	–	
22	–	–	–	

Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades							
	T350M							
	f_z (in/tooth)							
	.002	.005	.008					
	v_c (sf/min)							
1	1230	1050	900					
2	1050	885	770					
3	870	740	640					
4	740	625	540					
5	625	525	–					
6	540	460	–					
7	–	–	–					
8	805	690	–					
9	640	540	–					
10	–	–	–					
11	–	–	–					
12	640	540	475					
13	575	475	410					
14	475	410	–					
15	395	330	–					
16	3215	2725	2330					
17	2590	2200	1905					
18	1970	1675	1445					
19	–	–	–					
20	–	–	–					
21	–	–	–					
22	–	–	–					

Cutting data – Side milling

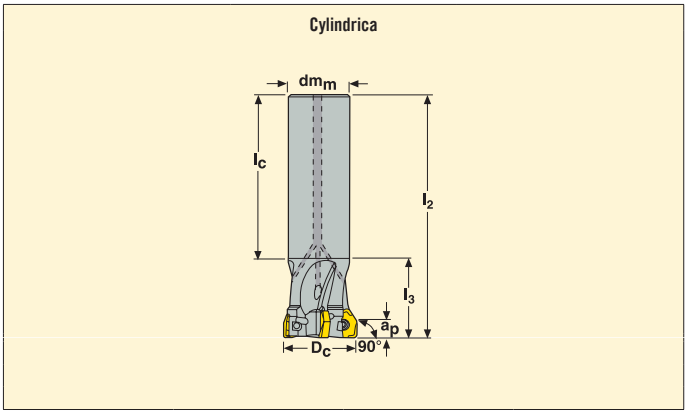
Operations	a_e/D_c	Recom. feed f_z in/tooth			Speed factor
Full engagement	100%	0.002	0.004	0.006	1.00
Side milling	25%	0.002	0.005	0.008	1.30
	10%	0.003	0.006	0.012	1.50
	5%	0.004	0.009	0.016	1.60
Average chip thickness h_m		0.001	0.002	0.004	–

Dimensions in inch

Insert type l	Max D.O.C a_p	Wiper flat width
LOEX080404	0.315	0.051
LOEX080408	0.315	0.047
LOEX080412	0.315	0.043
LOEX080416	0.315	0.039

217.96-04

- For insert selection and cutting data recommendations, see pages 59-60
- For complete insert program, see page 79.



Part No.	EDP	Dimensions in inch/mm								lbs/kg		Type of mounting	
		D_c	D_{5m} dm_m	l_1	l_2	l_3	l_c	a_p					
Inch													
R217.96 -00.750-0-04-2A	**70287**	0.75	0.75	–	5.91	1.38	4.52	.157	2	0.66	29400	Cylindrical	XNEX04..
-00.750-0-04-3A	**68231**	0.75	0.75	–	5.91	1.38	4.52	.157	3	0.66	29400	Cylindrical	XNEX04..
-01.00-0-04-4A	**68245**	1.00	1.00	–	6.69	1.57	5.11	.157	4	1.32	26300	Cylindrical	XNEX04..
-01.00-0-04-5A	**68246**	1.00	1.00	–	6.69	1.57	5.11	.157	5	1.32	26300	Cylindrical	XNEX04..
-01.25-0-04-5A	**68278**	1.25	1.25	–	7.68	1.58	6.10	.157	5	2.42	23200	Cylindrical	XNEX04..
-01.25-0-04-6A	**68279**	1.25	1.25	–	7.68	1.58	6.10	.157	6	2.42	23200	Cylindrical	XNEX04..
Metric													
R217.96 -2020.0-04-2A	**71736**	20	20	–	150	29	121	4	2	0.7	29400	Cylindrical	XNEX04..
-2020.0-04-3A	**67817**	20	20	–	150	29	121	4	3	0.7	29400	Cylindrical	XNEX04..
-2525.0-04-4A	**67823**	25	25	–	170	29	141	4	4	0.6	26300	Cylindrical	XNEX04..
-2525.0-04-5A	**67824**	25	25	–	170	29	141	4	5	0.6	26300	Cylindrical	XNEX04..
-3232.0-04-5A	**67829**	32	32	–	195	31	164	4	5	1.2	23200	Cylindrical	XNEX04..
-3232.0-04-6A	**67830**	32	32	–	195	31	164	4	6	1.2	23200	Cylindrical	XNEX04..

SPARE PARTS, INCLUDED IN DELIVERY

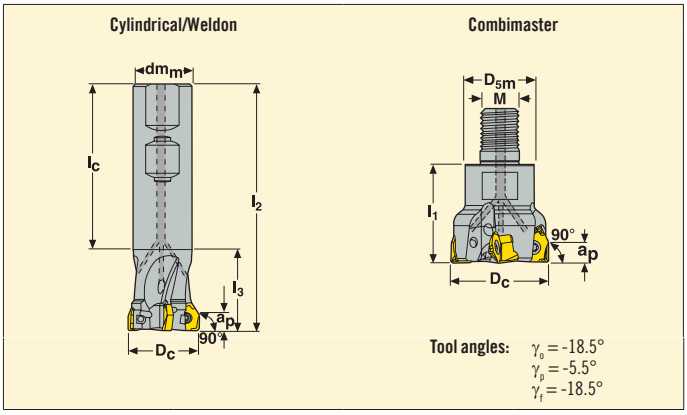
For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.96-04	C02506-T08P	**07369**	T08P-3	**10394**	T00-08P12	**12856**

* Locking screw torque value 10.6 in/lbs (1.2 Nm).
***Dynamomentic Key ordered separately

SQUARE 6™-04

217.96-04

- For insert selection and cutting data recommendations, see pages 59-60
- For complete insert program, see page 79.



Part No.	EDP	Dimensions in inch/mm								lbs/kg		Type of mounting	
		D_c	D_{5m} dm_m	l_1	M l_2	l_3	l_c	a_p					
Inch													
R217.96 -00.750-3-04-2A	**70288**	0.75	0.75	–	3.39	1.18	2.20	.157	2	0.40	29400	Cyl/Weldon	XNEX04..
-00.750-3-04-3A	**68234**	0.75	0.75	–	3.39	1.18	2.20	.157	3	0.40	29400	Cyl/Weldon	XNEX04..
-01.00-3-04-4A	**68247**	1.00	1.00	–	3.78	1.18	2.50	.157	4	0.72	26300	Cyl/Weldon	XNEX04..
-01.00-3-04-5A	**68248**	1.00	1.00	–	3.78	1.18	2.50	.157	5	0.72	26300	Cyl/Weldon	XNEX04..
-01.25-3-04-5A	**68251**	1.25	1.25	–	4.00	1.24	2.76	.157	5	1.21	23200	Cyl/Weldon	XNEX04..
-01.25-3-04-6A	**68252**	1.25	1.25	–	4.00	1.24	2.76	.157	6	1.21	23200	Cyl/Weldon	XNEX04..
R217.96 -00.750-10RE-04-2A	**70286**	0.75	0.75	1.37	M10	–	–	.157	2	0.13	29400	Combimaster	XNEX04..
-00.750-10RE-04-3A	**68227**	0.75	0.75	1.37	M10	–	–	.157	3	0.13	29400	Combimaster	XNEX04..
-01.00-12RE-04-4A	**68243**	1.00	1.00	1.57	M12	–	–	.157	4	0.31	26300	Combimaster	XNEX04..
-01.00-12RE-04-5A	**68244**	1.00	1.00	1.57	M12	–	–	.157	5	0.31	26300	Combimaster	XNEX04..
-01.25-16RE-04-5A	**68249**	1.25	1.25	1.57	M16	–	–	.157	5	0.51	23200	Combimaster	XNEX04..
-01.25-16RE-04-6A	**68250**	1.25	1.25	1.57	M16	–	–	.157	6	0.51	23200	Combimaster	XNEX04..
Metric													
R217.96 -2020.3-04-2A	**71737**	20	20	65	90	29	61	4	2	0.2	29400	Cyl/Weldon	XNEX04..
-2020.3-04-3A	**67819**	20	20	65	90	29	61	4	3	0.2	29400	Cyl/Weldon	XNEX04..
-2525.3-04-4A	**67825**	25	25	69	101	34	67	4	4	0.3	26300	Cyl/Weldon	XNEX04..
-2525.3-04-5A	**67826**	25	25	69	101	34	67	4	5	0.3	26300	Cyl/Weldon	XNEX04..
-3232.3-04-5A	**67831**	32	32	69	105	37	68	4	5	0.6	23200	Cyl/Weldon	XNEX04..
-3232.3-04-6A	**67832**	32	32	69	105	37	68	4	6	0.6	23200	Cyl/Weldon	XNEX04..
R217.96 -1020.RE-04-2A	**71728**	20	18	28	M10		–	4	2	0.1	29400	Combimaster	XNEX04..
-1020.RE-04-3A	**67821**	20	18	28	M10		–	4	3	0.1	29400	Combimaster	XNEX04..
-1225.RE-04-4A	**67827**	25	23	30	M12		–	4	4	0.2	26300	Combimaster	XNEX04..
-1225.RE-04-5A	**67828**	25	23	30	M12		–	4	5	0.2	26300	Combimaster	XNEX04..
-1632.RE-04-5A	**67833**	32	30	40	M16		–	4	5	0.3	23200	Combimaster	XNEX04..
-1632.RE-04-6A	**67834**	32	30	40	M16		–	4	6	0.3	23200	Combimaster	XNEX04..

SPARE PARTS, INCLUDED IN DELIVERY

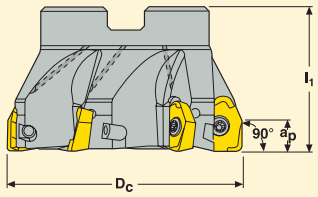
For cutter	Locking screw		Key		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**
R217.96-04	C02506-T08P	**07369**	T08P-3	**10394**	T00-08P12	**12856**

* Torque value 10.6 in/lbs (1.2 Nm).
***Dynamomentic Key ordered separately

SQUARE 6™-04

220.96-04

- For insert selection and cutting data recommendations, see pages 59-60
- For complete insert program, see page 79.



Tool angles: $\gamma_o = -18.5°$
$\gamma_p = -5.5°$
$\gamma_f = -18.5°$

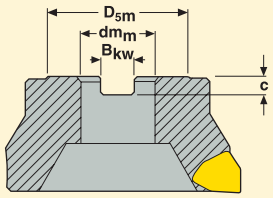
Pitch	Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p		lbs/kg		
Normal	Inch								
	R220.96 -01.50-04-6A	68256	1.50	1.57	.157	6	0.20	20700	XNEX04..
	-02.00-04-8A	68260	2.00	1.57	.157	8	0.42	18600	XNEX04..
	-02.50-04-9A	68263	2.50	1.57	.157	9	0.72	16500	XNEX04..
Close	R220.96 -01.50-04-7A	68257	1.50	1.57	.157	7	0.20	20700	XNEX04..
	-02.00-04-9A	68262	2.00	1.57	.157	9	0.42	18600	XNEX04..
	-02.50-04-10A	68264	2.50	1.57	.157	10	0.72	16500	XNEX04..
Course	R220.96 -02.00-04-6A	81084	2.00	1.57	.157	6	0.42	18600	XNEX04..
	-02.50-04-7A	81085	2.50	1.57	.157	7	0.72	16500	XNEX04..
Normal	Metric								
	R220.96-0032-04-4A	17457	40	40	4	4	0.2	24800	XNEX04..
	R220.96-0040-04-6A	67836	40	40	4	6	0.3	20700	XNEX04..
	R220.96-0050-04-8A	67838	50	40	4	8	0.4	18600	XNEX04..
	R220.96-0063-04-9A	67842	63	40	4	9	0.7	16500	XNEX04..
Close	R220.96-0032-04-6A	17459	32	40	4	4	0.2	24800	XNEX04..
	R220.96-0040-04-7A	67835	40	40	4	7	0.3	20700	XNEX04..
	R220.96-0050-04-9A	67837	50	40	4	9	0.4	18600	XNEX04..
	R220.96-0063-04-10A	67841	63	40	4	10	0.7	16500	XNEX04..
Course									
	R220.96-0040-04-5A	81081	40	40	4	5	0.3	20700	XNEX04..
	R220.96-0050-04-6A	81082	50	40	4	6	0.4	18600	XNEX04..
	R220.96-0063-04-7A	81083	63	40	4	7	0.7	16500	XNEX04..

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
Inch		EDP		EDP		EDP		EDP
R220.96-04-01.50 to -02.50	C02506-T08P	07369	T08P-3	10394	UC6S 3/8UNFx1	87667	T00-08P12	12856

* Locking screw torque value 10.6 in/lbs (1.2 Nm).
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*



For cutter	Dimensions in inch dm_m	D_{5m}	B_{kw}	c
R220.96 -01.50	0.75	1.811	.321	.193
-02.00	0.75	1.811	.321	.193
-02.50	0.75	2.402	.382	.224

* For metric mounting and spare parts, please refer to the metric navigator

Insert selection – 217/220.96-04

Universal insert: XNEX 040304TR-M08 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice		Difficult operations		
1	.003 – .006	XNEX040304TR-M08	F40M	XNEX040304TR-M08	F40M	
2	.003 – .006	XNEX040304TR-M08	F40M	XNEX040304TR-M08	F40M	
3	.003 – .005	XNEX040304TR-M08	MP2500	XNEX040304TR-M08	F40M	
4	.003 – .005	XNEX040304TR-M08	MP2500	XNEX040304TR-M08	F40M	
5	.003 – .005	XNEX040304TR-M08	MP2500	XNEX040304TR-M08	F40M	
6	.003 – .004	XNEX040304TR-M08	MP1500	XNEX040304TR-M08	MP2500	
7	.002 – .004	XNEX040304TR-M08	MP1500	XNEX040304TR-M08	MP3000	
8	.003 – .005	XNEX040304TR-M08	F40M	XNEX040304TR-M08	F40M	
9	.003 – .004	XNEX040304TR-M08	F40M	XNEX040304TR-M08	F40M	
10	.003 – .004	XNEX040304TR-M08	F40M	XNEX040304TR-M08	MM4500	
11	.003 – .004	XNEX040304TR-M08	F40M	XNEX040304TR-M08	MM4500	
12	.003 – .007	XNEX040304TR-M08	MK1500	XNEX040304TR-M08	MK2050	
13	.003 – .006	XNEX040304TR-M08	MK1500	XNEX040304TR-M08	MK2050	
14	.003 – .005	XNEX040304TR-M08	MK1500	XNEX040304TR-M08	MK2050	
15	.003 – .005	XNEX040304TR-M08	MP1500	XNEX040304TR-M08	MP1500	
16	.003 – .005	XNEX040304TR-M08	F40M	XNEX040304TR-M08	F40M	
17	.003 – .005	XNEX040304TR-M08	F40M	XNEX040304TR-M08	F40M	
18	.003 – .005	XNEX040304TR-M08	F40M	XNEX040304TR-M08	F40M	
19	.002 – .003	XNEX040304TR-M08	T350M	XNEX040304TR-M08	F40M	
20	.002 – .003	XNEX040304TR-M08	T350M	XNEX040304TR-M08	F40M	
21	.002 – .003	XNEX040304TR-M08	F40M	XNEX040304TR-M08	MP3000	
22	.002 – .004	XNEX040304R-M06	MS2050	XNEX040304R-M06	F40M	

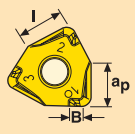
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																				
	MP1020			MP1500			MP2500			MP3000			MM4500			F40M			F15M		
	f_z (in/tooth)																				
	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006
	v_c (sf/min)																				
1	1775	1725	1400	1975	1700	1500	1750	1500	1350	1650	1425	1275	1075	920	820	1325	1125	1025	–	–	–
2	1500	1450	1175	1675	1425	1275	1475	1275	1125	1400	1200	1075	910	780	700	1125	960	860	–	–	–
3	1225	1200	980	1375	1175	1050	1225	1050	940	1150	990	890	750	640	570	930	790	710	–	–	–
4	1050	1025	830	1175	1000	900	1050	890	800	990	850	760	640	550	490	790	680	610	–	–	–
5	880	860	690	990	840	750	870	740	670	830	710	630	540	455	410	660	560	500	–	–	–
6	770	750	–	860	740	660	770	650	580	730	620	550	–	–	–	580	495	445	–	–	–
7	–	–	–	235	200	–	190	160	–	185	160	–	–	–	–	160	135	–	–	–	–
8	–	–	–	1350	1150	1025	1075	910	820	1050	900	800	780	670	600	910	780	690	–	–	–
9	–	–	–	1075	910	810	840	720	640	830	710	630	620	530	470	710	610	540	–	–	–
10	–	–	–	870	740	660	690	590	530	680	580	520	500	430	385	580	500	445	–	–	–
11	–	–	–	640	550	–	510	435	–	500	430	–	375	320	285	435	370	–	–	–	–
12	–	–	–	1025	880	790	910	780	700	870	740	660	495	420	375	690	590	530	830	710	630
13	–	–	–	910	770	690	800	680	610	760	650	580	435	370	330	610	520	465	730	620	560
14	–	–	–	760	650	580	680	580	520	640	550	490	365	310	280	510	435	390	610	520	470
15	–	–	–	630	540	480	560	475	425	530	450	405	300	260	230	425	360	325	–	–	–
16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3450	2925	2625	4125	3525	3150
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2775	2375	2125	3325	2850	2550
18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2125	1800	1625	2550	2175	1950
19	–	–	–	–	–	–	235	200	–	220	190	–	135	115	–	190	160	–	–	–	–
20	–	–	–	–	–	–	190	160	–	180	150	–	110	90	–	155	130	–	–	–	–
21	–	–	–	–	–	–	165	140	–	155	130	–	95	80	–	130	115	–	–	–	–
22	–	–	–	–	–	–	195	165	–	185	155	–	150	125	–	160	135	–	–	–	–

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.004	.006	1.00
Side milling	25%	.004	.009	.016	1.30
	10%	.005	.015	.024	1.50
	5%	.008	.020	.034	1.60
Average chip thickness h_m		.002	.004	.007	–

Type of insert



Insert size	Max D.O.C a_p	Wiper flat width B
040304	.157	.0315
040308	.157	.0157

Insert selection – 217/220.96-04

Universal insert: XNEX 040304TR-M08 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Difficult operations	
1	.003 – .006	XNEX040304TR-M08 F40M	XNEX040304TR-M08 F40M	
2	.003 – .006	XNEX040304TR-M08 F40M	XNEX040304TR-M08 F40M	
3	.003 – .005	XNEX040304TR-M08 MP2500	XNEX040304TR-M08 F40M	
4	.003 – .005	XNEX040304TR-M08 MP2500	XNEX040304TR-M08 F40M	
5	.003 – .005	XNEX040304TR-M08 MP2500	XNEX040304TR-M08 F40M	
6	.003 – .004	XNEX040304TR-M08 MP1500	XNEX040304TR-M08 MP2500	
7	.002 – .004	XNEX040304TR-M08 MP1500	XNEX040304TR-M08 MP3000	
8	.003 – .005	XNEX040304TR-M08 F40M	XNEX040304TR-M08 F40M	
9	.003 – .004	XNEX040304TR-M08 F40M	XNEX040304TR-M08 F40M	
10	.003 – .004	XNEX040304TR-M08 F40M	XNEX040304TR-M08 MM4500	
11	.003 – .004	XNEX040304TR-M08 F40M	XNEX040304TR-M08 MM4500	
12	.003 – .007	XNEX040304TR-M08 MK1500	XNEX040304TR-M08 MK2050	
13	.003 – .006	XNEX040304TR-M08 MK1500	XNEX040304TR-M08 MK2050	
14	.003 – .005	XNEX040304TR-M08 MK1500	XNEX040304TR-M08 MK2050	
15	.003 – .005	XNEX040304TR-M08 MP1500	XNEX040304TR-M08 MP1500	
16	.003 – .005	XNEX040304TR-M08 F40M	XNEX040304TR-M08 F40M	
17	.003 – .005	XNEX040304TR-M08 F40M	XNEX040304TR-M08 F40M	
18	.003 – .005	XNEX040304TR-M08 F40M	XNEX040304TR-M08 F40M	
19	.002 – .003	XNEX040304TR-M08 T350M	XNEX040304TR-M08 F40M	
20	.002 – .003	XNEX040304TR-M08 T350M	XNEX040304TR-M08 F40M	
21	.002 – .003	XNEX040304TR-M08 F40M	XNEX040304TR-M08 MP3000	
22	.002 – .004	XNEX040304R-M06 MS2050	XNEX040304R-M06 F40M	

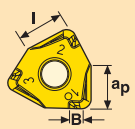
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																
	MS2500			MK1500			MK2050			MS2050			H15				
	f_z (in/tooth)																
	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006	.002	.004	.006		
	v_c (sf/min)																
1	1925	1625	1450	–	–	–	1725	1475	1325	1175	1175	1175	–	–	–		
2	1625	1375	1225	–	–	–	1475	1250	1125	1000	1000	990	–	–	–		
3	1350	1150	1025	–	–	–	1200	1025	920	830	830	810	–	–	–		
4	1150	970	870	–	–	–	1025	880	790	710	710	700	–	–	–		
5	950	810	730	–	–	–	860	730	660	590	590	580	–	–	–		
6	840	710	640	–	–	–	750	640	–	520	520	510	–	–	–		
7	205	175	–	–	–	–	–	–	–	–	–	–	–	–	–		
8	1175	990	890	–	–	–	–	–	–	–	–	–	–	–	–		
9	910	780	700	–	–	–	–	–	–	–	–	–	–	–	–		
10	750	640	570	–	–	–	–	–	–	–	–	–	–	–	–		
11	550	475	–	–	–	–	–	–	–	–	–	–	–	–	–		
12	1000	850	760	1300	1100	990	1225	1050	940	–	–	–	660	560	500		
13	880	750	670	1150	970	870	1075	920	820	–	–	–	580	495	440		
14	740	630	560	960	820	730	910	770	690	–	–	–	485	415	370		
15	610	520	465	790	680	600	750	640	–	–	–	–	405	345	305		
16	–	–	–	–	–	–	–	–	–	–	–	–	3275	2775	2500		
17	–	–	–	–	–	–	–	–	–	–	–	–	2650	2250	2025		
18	–	–	–	–	–	–	–	–	–	–	–	–	2000	1725	1525		
19	255	220	–	–	–	–	–	–	–	–	–	–	–	–	–		
20	205	175	–	–	–	–	–	–	–	–	–	–	–	–	–		
21	175	150	–	–	–	–	–	–	–	–	–	–	–	–	–		
22	215	180	–	–	–	–	–	–	–	240	175	–	–	–	–		

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.004	.006	1.00
Side milling	25%	.004	.009	.016	1.30
	10%	.005	.015	.024	1.50
	5%	.008	.020	.034	1.60
Average chip thickness h_m		.002	.004	.007	–

Type of insert

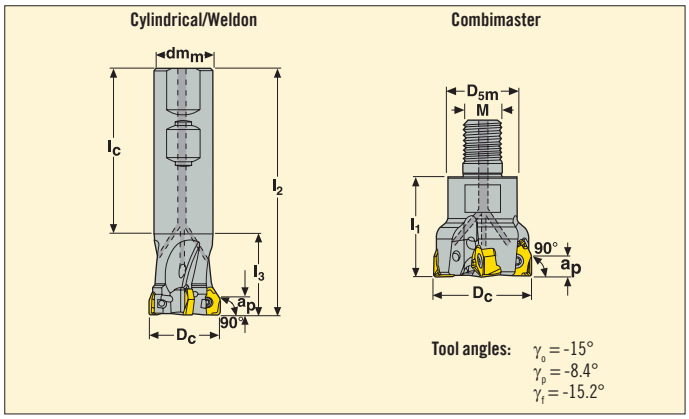


Insert size	Max D.O.C a_p	Wiper flat width B
040304	.157	.0315
040308	.157	.0157

SQUARE 6™-08

R217.96-08

- For insert selection and cutting data recommendations, see pages 65-66.
- For complete insert program, see page 80.



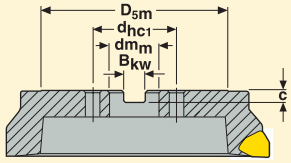
Part No.	EDP	Dimensions in inch/mm									lbs/kg	Type of mounting		
		D_c	dm_m D_{5m}	l_1	l_2	l_3	l_c	M	a_p					
Inch														
R217.96 -01.50-3-08-3A	**43719**	1.50	1.25	–	4.5	1.15	3.35	–	.295	3	1.32	Cyl/Weldon	11800	XNEX 0806..
-01.50-16RE-08-3A	**51594**	1.50	1.10	1.57	–	–	–	16	.295	3	0.50	Combimaster	11800	XNEX 0806..
Metric														
R217.96 -3240.3-08-3A	**39902**	40.00	32	–	120	50	60	–	7.5	3	0.8	Cyl/Weldon	11800	XNEX 0806..
-3240.3-08-4A	**39903**	40.00	32	–	120	50	60	–	7.5	4	0.8	Cyl/Weldon	11800	XNEX 0806..
-3240.3S-08-3A	**39849**	40.00	32	84	120	35	85	–	7.5	3	0.6	Seco/Weldon	11800	XNEX 0806..
-3240.3S-08-4A	**39850**	40.00		84	120	35	85	–	7.5	4	0.6	Seco/Weldon	11800	XNEX 0806..
-1640.RE-08-3A	**51576**	40.00	28	40	–	–	–	M16	7.5	3	0.2	Combimaster	11800	XNEX 0806..
-1640.RE-08-4A	**51577**	40.00	28	40	–	–	–	M16	7.5	4	0.2	Combimaster	11800	XNEX 0806..

SPARE PARTS, INCLUDED IN DELIVERY

For cutter	Locking screw		Key		Dynamomentic Key***	
		EDP		EDP		EDP
Inch						
R217.96-08	C04011-T15P	**04199**	T15P-4	**04200**	T00-15P35	**12870**

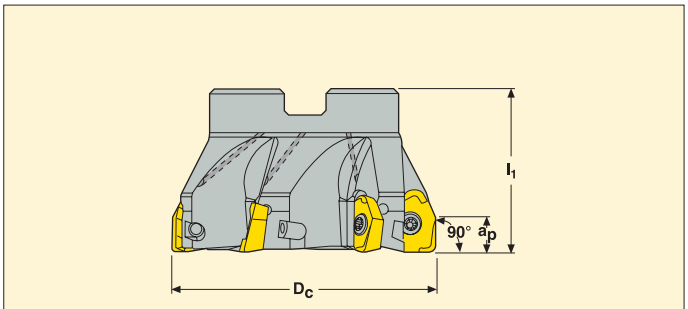
*Locking screw torque value 31 in/lbs. (3.5 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS



For cutter	Dimensions in inch		
	dm_m	B_{kw}	c
R220.96-02.00 - 2.50	0.75	0.32	0.19
-03.00	1.00	0.38	0.22
-04.00 - 5.00	1.50	0.63	0.38
-06.00	2.00	0.76	0.44

- For insert selection and cutting data recommendations, see pages 65-66.
- For complete insert program, see page 80.



Tool angles: $\gamma_o = -11.5° – -13.2°$
$\gamma_p = -6.3° – -6.9°$
$\gamma_f = -11.15° – -13.2°$

Pitch	Part No.	EDP	Dimensions in inch/mm D_c	l_1	a_p		lbs/kg		
Normal	Inch								
	R220.96 -02.00-08-4A	43721	2.00	1.57	0.295	4	0.66	10600	XNEX0806..
	-02.50-08-6A	43729	2.50	1.57	0.295	6	0.88	9400	XNEX0806..
	-03.00-08-7A	43735	3.00	1.97	0.295	7	2.2	8400	XNEX0806..
	-04.00-08-8A	43739	4.00	1.97	0.295	8	3.31	7500	XNEX0806..
	-05.00-08-11A	43745	5.00	2.48	0.295	11	6.17	6700	XNEX0806..
	-06.00-08-12	43747	6.00	2.48	0.295	12	10.58	5900	XNEX0806..
Close	R220.96 -02.00-08-5A	43722	2.00	1.57	0.295	5	0.66	10600	XNEX0806..
	-02.50-08-7A	43732	2.50	1.57	0.295	7	0.88	9400	XNEX0806..
	-03.00-08-9A	43737	3.00	1.97	0.295	9	2.2	8400	XNEX0806..
	-04.00-08-11A	43740	4.00	1.97	0.295	11	3.31	7500	XNEX0806..
	-05.00-08-14A	43746	5.00	2.48	0.295	14	6.17	6700	XNEX0806..
	-06.00-08-16	43748	6.00	2.48	0.295	16	10.5	5900	XNEX0806..
Course	R220.96 -02.50-08-4A	43726	2.50	1.57	0.295	4	0.88	9400	XNEX0806..
	-03.00-08-5A	43734	3.00	1.97	0.295	5	2.2	8400	XNEX0806..
	-04.00-08-6A	43738	4.00	1.97	0.295	6	3.31	7500	XNEX0806..
	-05.00-08-7A	43743	5.00	2.48	0.295	7	6.17	6700	XNEX0806..
Normal	Metric								
	R220.96 -0050-08-4A	39980	50	40	7.5	4	0.3	10600	XNEX0806..
	-0063-08-6A	39983	63	40	7.5	6	0.4	9400	XNEX0806..
	-0063-08-6A-27	65015	63	40	7.5	6	0.4	9400	XNEX0806..
	-0080-08-7A	39992	80	50	7.5	7	1	8400	XNEX0806..
	-0100-08-8A	39995	100	50	7.5	8	1.5	7500	XNEX0806..
	-0125-08-11A	43527	125	63	7.5	11	2.8	6700	XNEX0806..
	-8160-08-12	43530	160	63	7.5	12	4.8	5900	XNEX0806..
Close	R220.96 -0050-08-5A	39981	50	40	7.5	5	0.3	10600	XNEX0806..
	-0063-08-7A	39990	63	40	7.5	7	0.4	9400	XNEX0806..
	-0063-08-7A-27	65016	63	40	7.5	7	0.4	9400	XNEX0806..
	-0080-08-9A	39993	80	50	7.5	9	1	8400	XNEX0806..
	-0100-08-11A	39996	100	50	7.5	11	1.5	7500	XNEX0806..
	-0125-08-14A	43529	125	63	7.5	14	2.8	6700	XNEX0806..
	-8160-08-16	43531	160	63	7.5	16	4.8	5900	XNEX0806..
Course	R220.96 -0063-08-4A	39982	63	40	7.5	4	0.4	9400	XNEX0806..
	-0063-08-5A-27	67756	63	40	7.5	5	0.4	9400	XNEX0806..
	-0080-08-5A	39991	80	50	7.5	5	1	8400	XNEX0806..
	-0100-08-6A	39994	100	50	7.5	6	1.5	7500	XNEX0806..
	-0125-08-7A	43525	125	63	7.5	7	2.8	6700	XNEX0806..

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
Inch		EDP		EDP		EDP		EDP
R220.96 -02.00 - 2.50	C04011-T15P	04199	T15P-4	04200	UC6S 3/8UNF x 1	87667	T00-15P35	12870
-03.00	C04011-T15P	04199	T15P-4	04200	UC6S 1/2 UNF x 1-1/4	77920	T00-15P35	12870
-04.00 - 5.00	C04011-T15P	04199	T15P-4	04200	UC6S 3/4UNF X 1 3/4	21238	T00-15P35	12870
-06.00	C04011-T15P	04199	T15P-4	04200	–	–	T00-15P35	12870

*Locking screw torque value 31 in/lbs. (3.5 Nm)
***Dynamomentic Key ordered separately

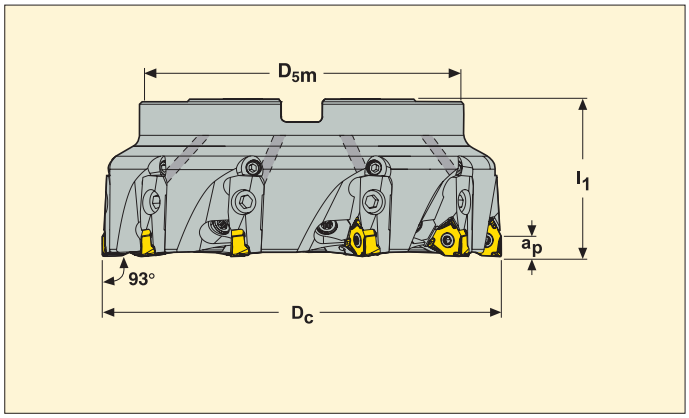
*For inch mounting dimensions please see page 63
* For metric mounting and spare parts, please refer to the metric navigator

SQUARE 6™-08

R220.96-08

WITH CASSETTES

- For insert selection and cutting data recommendations, see pages 65-66.
- For complete insert program, see page 80.



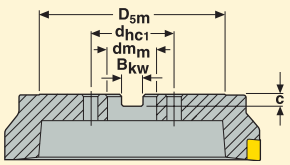
Pitch	Part No.	EDP	Dimensions in inch/mm						
			D_c	l_1	a_p		lbs/kg		
Normal	Inch								
	R220.96 -05.00-08-8C	84950	5.00	2.48	0.276	8	7.94	5900	XNEX0806..
	-06.00-08-10C	84951	6.00	2.48	0.276	10	9.04	5900	XNEX0806..
	-808.00-08-12C	84952	8.00	2.48	0.276	12	17.64	5300	XNEX0806..
	-810.00-08-16C	84953	10.00	2.48	0.276	16	33.51	4200	XNEX0806..
	-812.00-08-20C	84954	12.00	2.48	0.276	20	55.12	4200	XNEX0806..
Normal	Metric								
	R220.96 -8160-08-10C	84981	160	63	7.5	10	5.4	5900	XNEX0806..
	-8200-08-12C	14616	200	63	7.5	12	7.7	5300	XNEX0806..
	-8250-08-16C	14621	250	63	7.5	16	14.9	4200	XNEX0806..
	-8315-08-20C	14622	315	63	7.5	20	25.9	4200	XNEX0806..
Course	R220.96 -8160-08-7C	14623	160	63	7.5	7	5.7	5900	XNEX0806..
	-8200-08-8C	14624	200	63	7.5	8	7.9	5300	XNEX0806..
	-8250-08-10C	14625	250	63	7.5	10	15.1	4200	XNEX0806..
	-8315-08-12C	14626	315	63	7.5	12	25.9	4200	XNEX0806..

SPARE PARTS, INCLUDED IN DELIVERY*

For cutter	Locking screw		Key		Wedge screw		Wedge Clamp		Wedge Clamp Axial		Nest screw		Nest		Dynamomentic Key ***	
Inch		EDP		EDP		EDP		EDP		EDP		EDP		EDP		EDP
R220.96-08-C	C04011-T15P	04199	T15P-3	04200	LD8020-T25P	21629	T15P-4	04877	AU1114T-T15P	21663	FS96018	12063	XN08PRN	81804	T00-15P35	12870

*Locking screw torque value 31 in/lbs. (3.5 Nm)
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS*



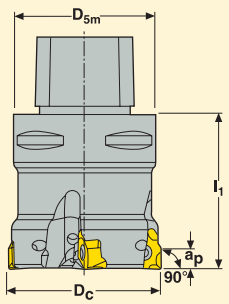
For cutter	Dimensions in inch					
	dm_m	D_{5m}	B_{kw}	c	d_{hc1}	d_{hc2}
R220.96-02.00 - 02.50	0.75	-	0.32	0.19	-	-
-03.00	1.00	-	0.38	0.22	-	-
-04.00 - 05.00	1.50	-	0.63	0.38	-	-
-06.00	2.00	-	0.76	0.44	-	-
R220.96-05.00-08-8C	1.50	3.54	0.63	0.40	-	-
-06.00-08-10C	2.00	4.33	0.76	0.44	-	-
-808.00-08-12C	2.50	6.30	1.00	0.55	4.00	-
-810.00-08-16C	2.50	8.27	1.00	0.55	4.00	-
-812.00-08-20C	2.50	10.63	1.00	0.55	4.00	7.00

* For metric mounting and spare parts, please refer to the metric navigator

R217.96-08 SECO-CAPTO™

- For insert selection and cutting data recommendations, see pages 65-66.
- For complete insert program, see page 80.

Seco-Capto



Tool angles: $\gamma_o = -15°$
$\gamma_p = -8.4°$
$\gamma_f = -15.2°$

Pitch	Part No.	EDP	Dimensions in mm								
			D_c	D_{5m}	l_1	a_p		kg		Type of mounting	
Normal											
	C4-R217.96-044-08-3A	**52717**	44	40	60	7.5	3	0.5	11300	Seco-Capto	XNEX0806..
	C5-R217.96-054-08-4A	**52987**	54	50	60	7.5	4	0.9	10200	Seco-Capto	XNEX0806..
	C5-R217.96-063-08-6A	**53053**	63	50	60	7.5	6	1	9400	Seco-Capto	XNEX0806..
	C6-R217.96-080-08-7A	**53065**	80	63	60	7.5	9	1.7	8400	Seco-Capto	XNEX0806..
Close											
	C4-R217.96-044-08-4A	**52984**	44	40	60	7.5	4	0.5	11300	Seco-Capto	XNEX0806..
	C5-R217.96-054-08-5A	**53039**	54	50	60	7.5	5	0.9	10200	Seco-Capto	XNEX0806..
	C5-R217.96-063-08-7A	**53057**	63	50	60	7.5	7	1	9400	Seco-Capto	XNEX0806..
	C6-R217.96-080-08-9A	**53066**	80	63	60	7.5	7	1.7	8400	Seco-Capto	XNEX0806..

SPARE PARTS, INCLUDED IN DELIVERY

For cutter	Locking screw		Key		Dynamomentic Key***	
						
Inch		**EDP**		**EDP**		**EDP**
C-R217.96-08	C04011-T15P	**04199**	T15P-4	**04200**	T00-15P35	**12870**

*Locking screw torque value 31 in/lbs. (3.5 Nm)
***Dynamomentic Key ordered separately

Insert selection – 217/220.96-08

Universal insert: XNEX 080608TR-M13 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Difficult operations	
1	.004 – .010	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 T350M	
2	.004 – .010	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 T350M	
3	.004 – .009	XNEX080608TR-M13 MP2500	XNEX080608TR-M13 T350M	
4	.004 – .008	XNEX080608TR-M13 MP2500	XNEX080608TR-M13 T350M	
5	.004 – .007	XNEX080608TR-M13 MP2500	XNEX080608TR-M13 T350M	
6	.004 – .007	XNEX080608TR-MD15 MP1500	XNEX080608TR-MD15 MP2500	
7	.003 – .006	XNEX080608TR-MD15 MP1500	XNEX080608TR-MD15 MP3000	
8	.004 – .008	XNEX080608TR-ME09 F40M	XNEX080608TR-M13 T350M	
9	.004 – .007	XNEX080608TR-ME09 F40M	XNEX080608TR-M13 T350M	
10	.004 – .007	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 MM4500	
11	.004 – .006	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 MM4500	
12	.004 – .012	XNEX080608TR-M13 MK1500	XNEX080608TR-MD15 MK2050	
13	.004 – .010	XNEX080608TR-M13 MK1500	XNEX080608TR-MD15 MK2050	
14	.004 – .008	XNEX080608TR-M13 MK1500	XNEX080608TR-MD15 MK2050	
15	.004 – .007	XNEX080608TR-M13 MP1500	XNEX080608TR-MD15 MP1500	
16	.004 – .008	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 F40M	
17	.004 – .007	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 F40M	
18	.004 – .007	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 F40M	
19	.003 – .005	XNEX080608TR-ME09 T350M	XNEX080608TR-ME09 F40M	
20	.003 – .005	XNEX080608TR-ME09 T350M	XNEX080608TR-ME09 F40M	
21	.003 – .004	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 MP3000	
22	.003 – .005	XNEX080608R-M08 MS2050	XNEX080608R-M08 F40M	

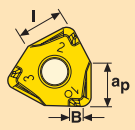
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																				
	MP1020			MP1500			MP2500			MP3000			T350M			MM4500			F40M		
	f_z (in/tooth)																				
	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008
	v_c (sf/min)																				
1	1700	1550	1000	1850	1550	1325	1625	1375	1175	1550	1300	1125	1425	1200	1025	1000	840	720	1225	1050	890
2	1450	1300	860	1550	1325	1125	1375	1175	1000	1300	1100	950	1200	1025	870	850	710	610	1050	880	760
3	1200	1075	710	1275	1075	930	1150	960	830	1075	910	780	990	840	720	700	590	510	860	730	630
4	1025	920	600	1100	930	800	970	820	710	920	780	670	850	710	610	600	500	435	740	620	530
5	850	770	500	920	770	660	810	680	590	770	650	560	710	600	510	500	420	360	610	520	445
6	750	670	–	800	680	580	710	600	520	670	570	490	620	520	450	–	–	–	540	455	390
7	–	–	–	220	185	–	175	150	–	175	145	–	170	145	–	–	–	–	145	125	–
8	–	–	–	1250	1050	910	1000	840	720	980	830	710	930	780	670	730	610	530	840	710	610
9	–	–	–	990	830	720	780	660	570	770	650	560	730	620	530	570	485	415	660	560	480
10	–	–	–	810	680	590	640	540	465	630	530	455	600	500	435	470	395	340	540	460	395
11	–	–	–	600	510	–	475	400	–	465	395	–	440	375	–	345	295	250	400	340	–
12	–	–	–	960	810	690	850	720	620	800	680	580	740	620	540	460	385	330	640	540	465
13	–	–	–	840	710	610	750	630	540	710	600	510	650	550	470	405	340	290	570	475	410
14	–	–	–	710	600	510	630	530	455	590	500	430	550	460	395	340	285	245	475	400	345
15	–	–	–	590	495	425	520	440	375	490	415	355	455	380	330	280	235	205	395	330	285
16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3200	2700	2325
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2575	2175	1875
18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1975	1650	1425
19	–	–	–	–	–	–	220	185	–	205	175	–	195	165	–	125	105	–	175	150	–
20	–	–	–	–	–	–	175	150	–	165	140	–	155	130	–	100	85	–	145	120	–
21	–	–	–	–	–	–	150	125	–	145	120	–	135	115	–	85	75	–	125	105	–
22	–	–	–	–	–	–	180	155	–	170	145	–	160	135	–	140	115	–	145	125	–

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.005	.008	1.00
Side milling	25%	.004	.009	.016	1.30
	10%	.005	.015	.024	1.50
	5%	.008	.020	.034	1.60
Average chip thickness h_m		.002	.004	.007	–

Type of insert



Insert size	Max D.O.C a_p	Wiper flat width B
080608	.295	.051
080612	.295	.035
080616	.295	.020

Insert selection – 217/220.96-08

Universal insert: XNEX 080608TR-M13 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice	Difficult operations	
1	.004 – .010	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 T350M	
2	.004 – .010	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 T350M	
3	.004 – .009	XNEX080608TR-M13 MP2500	XNEX080608TR-M13 T350M	
4	.004 – .008	XNEX080608TR-M13 MP2500	XNEX080608TR-M13 T350M	
5	.004 – .007	XNEX080608TR-M13 MP2500	XNEX080608TR-M13 T350M	
6	.004 – .007	XNEX080608TR-MD15 MP1500	XNEX080608TR-MD15 MP2500	
7	.003 – .006	XNEX080608TR-MD15 MP1500	XNEX080608TR-MD15 MP3000	
8	.004 – .008	XNEX080608TR-ME09 F40M	XNEX080608TR-M13 T350M	
9	.004 – .007	XNEX080608TR-ME09 F40M	XNEX080608TR-M13 T350M	
10	.004 – .007	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 MM4500	
11	.004 – .006	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 MM4500	
12	.004 – .012	XNEX080608TR-M13 MK1500	XNEX080608TR-MD15 MK2050	
13	.004 – .010	XNEX080608TR-M13 MK1500	XNEX080608TR-MD15 MK2050	
14	.004 – .008	XNEX080608TR-M13 MK1500	XNEX080608TR-MD15 MK2050	
15	.004 – .007	XNEX080608TR-M13 MP1500	XNEX080608TR-MD15 MP1500	
16	.004 – .008	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 F40M	
17	.004 – .007	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 F40M	
18	.004 – .007	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 F40M	
19	.003 – .005	XNEX080608TR-ME09 T350M	XNEX080608TR-ME09 F40M	
20	.003 – .005	XNEX080608TR-ME09 T350M	XNEX080608TR-ME09 F40M	
21	.003 – .004	XNEX080608TR-ME09 F40M	XNEX080608TR-ME09 MP3000	
22	.003 – .005	XNEX080608R-M08 MS2050	XNEX080608R-M08 F40M	

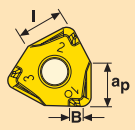
Cutting data – Full engagement width (a_e/D_c = 100%)

SMG	Grades																
	MS2500			MK1500			MK2050			MS2050			H25				
	f_z (in/tooth)																
	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008		
	v_c (sf/min)																
1	1775	1500	1300	–	–	–	1600	1350	1175	1150	1150	1025	–	–	–		
2	1500	1275	1100	–	–	–	1350	1150	990	970	970	870	–	–	–		
3	1250	1050	900	–	–	–	1125	950	810	800	800	710	–	–	–		
4	1050	900	770	–	–	–	960	810	690	680	680	610	–	–	–		
5	880	750	640	–	–	–	800	670	580	570	570	510	–	–	–		
6	780	650	560	–	–	–	700	590	–	500	500	445	–	–	–		
7	190	160	–	–	–	–	–	–	–	–	–	–	–	–	–		
8	1075	910	780	–	–	–	–	–	–	–	–	–	–	–	–		
9	850	720	620	–	–	–	–	–	–	–	–	–	–	–	–		
10	690	590	500	–	–	–	–	–	–	–	–	–	–	–	–		
11	510	435	–	–	–	–	–	–	–	–	–	–	–	–	–		
12	930	780	670	1200	1025	870	1150	960	820	–	–	–	–	–	–		
13	810	690	590	1050	890	770	1000	840	720	–	–	–	–	–	–		
14	680	580	495	890	750	640	840	710	610	–	–	–	–	–	–		
15	570	480	410	740	620	530	700	590	–	–	–	–	–	–	–		
16	–	–	–	–	–	–	–	–	–	–	–	–	3025	2550	2200		
17	–	–	–	–	–	–	–	–	–	–	–	–	2450	2075	1775		
18	–	–	–	–	–	–	–	–	–	–	–	–	1875	1575	1350		
19	235	200	–	–	–	–	–	–	–	–	–	–	–	–	–		
20	190	160	–	–	–	–	–	–	–	–	–	–	–	–	–		
21	165	140	–	–	–	–	–	–	–	–	–	–	–	–	–		
22	200	165	–	–	–	–	–	–	–	215	150	–	–	–	–		

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.005	.008	1.00
Side milling	25%	.004	.009	.016	1.30
	10%	.005	.015	.024	1.50
	5%	.008	.020	.034	1.60
Average chip thickness h_m		.002	.004	.007	–

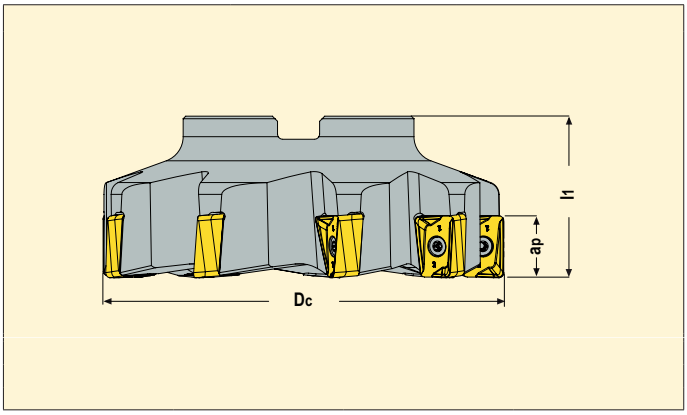
Type of insert



Insert size	Max D.O.C a_p	Wiper flat width B
080608	.295	.051
080612	.295	.035
080616	.295	.020

R220.LN14

- For insert selection and cutting data recommendations, see page 68.
- For complete insert program, see page 81.



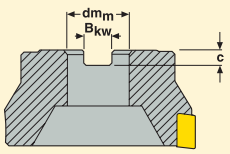
Pitch	Part No.	EDP	Dimensions in inch D_c	l_1	a_p		lbs		
Normal	Inch								
	R220.LN14 -02.00-14-4A	11267	2.00	1.57	0.51	4	0.7	8900	LN1407..
	-02.50-14-6A	11268	2.50	1.57	0.51	6	1.1	7900	LN1407..
	-03.00-14-7A	11269	3.00	1.97	0.51	7	2.2	7000	LN1407..
	-04.00-14-8A	11270	4.00	1.97	0.51	8	3.3	6300	LN1407..

SPARE PARTS, INCLUDED IN DELIVERY

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
Inch		EDP		EDP		EDP		EDP
R220.LN14-02.00 -02.50	C04011-T15P	04199	T15P-4	04200	UC6S 3/8 UNF x 1	87667	T00-15P35	12870
-03.00	C04011-T15P	04199	T15P-4	04200	UC6S 1/2 UNF x 1-1/4	77920	T00-15P35	12870
-04.00	C04011-T15P	04199	T15P-4	04200	UC6S 3/4UNF X 1 3/4	21238	T00-15P35	12870

* Locking screw torque value 31 in/lbs (3.5 Nm).
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS



For cutter	Dimensions in inch dm_m	B_{kw}	c
R220.69 -02.00 to -02.50	0.75	.32	.19
-03.00	1.00	.38	.22
-04.00	1.50	.63	.38

Insert selection – 220.LN14

Universal insert: LN140708TR-M07 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice		
1	.004-.010	LN140708TR-M07 MP2500		
2	.004-.010	LN140708TR-M07 MP2500		
3	.004-.009	LN140708TR-M07 MP2500		
4	.004-.008	LN140708TR-M07 MP2500		
5	.004-.007	LN140708TR-M07 MP2500		
6	.004-.007	LN140708TR-M13 MP2500		
7	.003-.006	LN140708TR-M13 MP2500		
8	.004-.008	LN140708TR-M07 MS2500		
9	.004-.007	LN140708TR-M07 MS2500		
10	.004-.007	LN140708TR-M07 MS2500		
11	.004-.006	LN140708TR-M07 MS2500		
12	.004-.012	LN140708TR-M13 MK1500		
13	.004-.010	LN140708TR-M13 MK1500		
14	.004-.008	LN140708TR-M13 MK1500		
15	.004-.007	LN140708TR-M13 MK1500		
16	.004-.008	-		
17	.004-.007	-		
18	.004-.007	-		
19	.003-.005	LN140708TR-M07 MS2500		
20	.003-.005	LN140708TR-M07 MS2500		
21	.003-.004	LN140708TR-M07 MS2500		
22	.003-.005	LN140708TR-M07 MS2500		

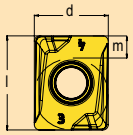
Cutting data - Full engagement width (a_e/D_c=100%)

SMG	Grades																	
	MP2500			MK1500			MS2500			150060			029060			420470		
	f_z (in/tooth)																	
	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008	.002	.005	.008
	v_c (sf/min)																	
1	1625	1375	1175	–	–	–	1770	1495	1295	1230	1035	900	1560	1315	1140	1240	1045	905
2	1375	1175	1000	–	–	–	1510	1265	1100	1050	885	755	1330	1115	970	1055	885	770
3	1150	960	830	–	–	–	1245	1050	900	870	720	625	1095	925	790	870	735	630
4	970	820	710	–	–	–	1065	900	770	740	625	540	935	790	680	745	630	540
5	810	680	590	–	–	–	885	740	640	605	525	445	780	650	565	620	520	450
6	710	600	520	–	–	–	770	655	560	540	460	395	680	575	495	540	460	390
7	175	150	–	–	–	–	195	160	–	150	125	–	170	140	–	135	110	–
8	1000	840	720	–	–	–	1085	920	785	835	705	605	955	810	690	760	645	550
9	780	660	570	–	–	–	855	720	625	655	560	475	750	635	550	600	505	435
10	640	540	465	–	–	–	690	590	510	540	460	395	605	520	450	485	415	355
11	475	400	–	–	–	–	510	425	-	410	345	–	450	375	–	355	300	–
12	850	720	620	1200	1025	870	920	785	675	640	540	460	810	690	595	–	–	–
13	750	630	540	1050	890	770	820	690	590	560	475	410	720	605	520	–	–	–
14	630	530	455	890	750	640	690	575	490	475	395	345	605	505	430	–	–	–
15	520	440	375	740	620	530	575	475	410	395	330	280	505	420	360	–	–	–
16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–			
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–			
18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–			
19	220	185	–	–	–	–	230	195	–	180	150	–	–	–	–	160	135	
20	175	150	–	–	–	–	195	160	–	140	120	–	–	–	–	135	110	
21	150	125	–	–	–	–	165	140	–	120	105	–	–	–	–	115	100	
22	180	155	–	–	–	–	195	165	–	150	125	–	–	–	–	135	115	

Cutting data – Side milling

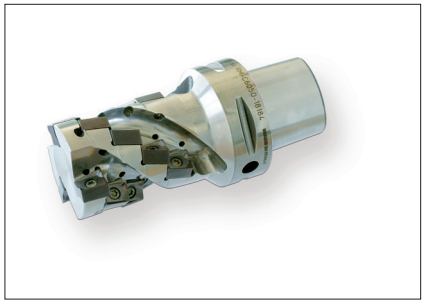
Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.005	.008	1.00
Side milling	25%	.004	.009	.016	1.30
	10%	.005	.015	.024	1.50
	5%	.008	.020	.034	1.60
Average chip thickness h_m		.002	.004	.007	–

Type of insert

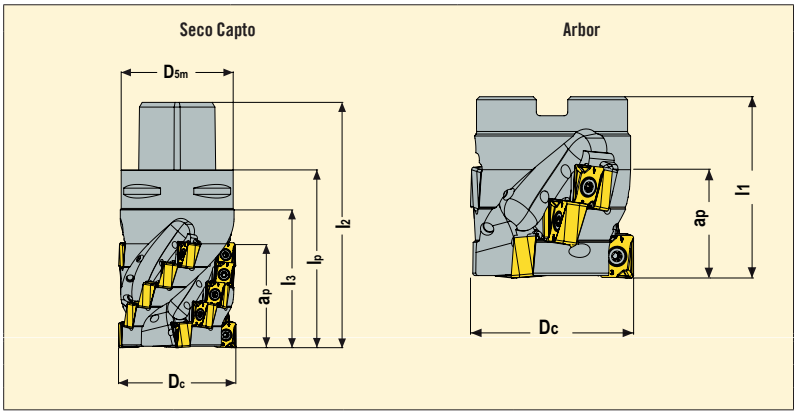


Insert size	Max D.O.C a_p	Wiper flat width B
LN140708	.295	-
LN140716	.295	-

R220.LN14



- For insert selection and cutting data recommendations, see pages 70-71.
- For complete insert program, see page 81.



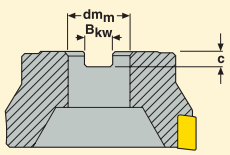
Part No.	EDP	Dimensions in inch							Z_c	Flutes		lbs		
		D_c	D_{5m}	l_1	l_2	l_p	l_3	a_p						
Inch - Slotting & Contouring														
C5-R217.LN14-02.00-02.28-14.3A	**89213**	2.00	-	-	4.72	3.54	2.56	2.28	3	3	2.12	Capto	15	LN1407..
C6-R217.LN14-02.00-02.28-14.3A	**89214**	2.00	-	-	5.43	3.94	2.95	2.28	3	3	3.15	Capto	15	LN1407..
R220.LN14-02.50-02.71-14.4A	**89215**	2.50	2.36	3.94	-	-	-	2.71	4	4	2.66	Arbor	24	LN1407..
R220.LN14-03.00-03.18-14.5A	**89217**	3.00	2.88	4.33	-	-	-	3.18	5	5	4.77	Arbor	35	LN1407..
R220.LN14-03.15-02.28-14.5A	**89253**	3.15	3.07	3.15	-	-	-	2.28	5	5	3.54	Arbor	25	LN1407..
Inch - Contouring only														
C6-R217.LN14-02.50-04.07-14.4A	**89216**	2.50	-	-	7.40	5.90	4.92	4.07	4	4	5.63	Capto	36	LN1407..
R220.LN14-03.00-04.60-14.5A	**10871**	3.00	2.88	5.71	-	-	-	4.50	5	5	-	Arbor	50	LN1407..

SPARE PARTS, INCLUDED IN DELIVERY

For cutter	Locking screw		Key		Arbor screw		Dynamomentic Key***	
Inch		**EDP**		**EDP**		**EDP**		**EDP**
C-R217.LN14	C04011-T15P	**04199**	T15P-4	**04200**	-	-	T00-15P35	**12870**
R220.LN14-02.50	C04011-T15P	**04199**	T15P-4	**04200**	UC6S 1/2 UNF X 3.5	**62293**	T00-15P35	**12870**
R220.LN14-03.00-03.18	C04011-T15P	**04199**	T15P-4	**04200**	UC6S - 5/8UNF X 3-1/2	**61847**	T00-15P35	**12870**
R220.LN14-03.00-04.60	C04011-T15P	**04199**	T15P-4	**04200**	UC6S - 5/8UNF X 5	**50431**	T00-15P35	**12870**
R220.LN14-03.15	C04011-T15P	**04199**	T15P-4	**04200**	MC6S16X70	**24529**	T00-15P35	**12870**

* Locking screw torque value 31 in/lbs (3.5 Nm).
***Dynamomentic Key ordered separately

MOUNTING DIMENSIONS



For cutter	Dimensions in inch		
	dm_m	B_{kw}	c
R220.69 -02.00 to -02.50	0.75	.32	.19
-03.00	1.00	.38	.22
-04.00	1.50	.63	.38

Insert selection – 220.LN14

Universal insert: LN140708TR-M07 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice		
1	.004-.010	LN140708TR-M07 MP2500		
2	.004-.010	LN140708TR-M07 MP2500		
3	.004-.009	LN140708TR-M07 MP2500		
4	.004-.008	LN140708TR-M07 MP2500		
5	.004-.007	LN140708TR-M07 MP2500		
6	.004-.007	LN140708TR-M13 MP2500		
7	.003-.006	LN140708TR-M13 MP2500		
8	.004-.008	LN140708TR-M07 MS2500		
9	.004-.007	LN140708TR-M07 MS2500		
10	.004-.007	LN140708TR-M07 MS2500		
11	.004-.006	LN140708TR-M07 MS2500		
12	.004-.012	LN140708TR-M13 MK1500		
13	.004-.010	LN140708TR-M13 MK1500		
14	.004-.008	LN140708TR-M13 MK1500		
15	.004-.007	LN140708TR-M13 MK1500		
16	.004-.008	-		
17	.004-.007	-		
18	.004-.007	-		
19	.003-.005	LN140708TR-M07 MS2500		
20	.003-.005	LN140708TR-M07 MS2500		
21	.003-.004	LN140708TR-M07 MS2500		
22	.003-.005	LN140708TR-M07 MS2500		

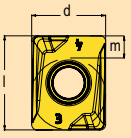
Cutting data - Full engagement width (a_e/D_c=100%) - Helicals

SMG	Grades																	
	MP2500			MK1500			MS2500			150060			029060			420470		
	f_z (in/tooth)																	
	.002	.004	.007	.002	.004	.007	.002	.004	.007	.002	.004	.007	.002	.004	.007	.002	.004	.007
	v_c (sf/min)																	
1	1140	960	825	-	-	-	1240	1045	905	860	725	630	1090	920	800	870	730	635
2	960	825	700	-	-	-	1055	885	770	735	620	530	930	780	680	740	620	540
3	805	670	580	-	-	-	870	735	630	610	505	440	765	650	555	610	515	440
4	680	575	495	-	-	-	745	630	540	520	440	380	655	555	475	520	440	380
5	565	475	415	-	-	-	620	520	450	425	370	310	545	455	395	435	365	315
6	495	420	365	-	-	-	540	460	390	380	320	275	475	405	345	380	320	275
7	125	105	-	-	-	-	135	110	-	105	90	-	120	100	-	95	75	-
8	700	590	505	-	-	-	760	645	550	585	495	425	670	565	485	530	450	385
9	545	460	400	-	-	-	600	505	440	460	390	335	525	445	385	420	355	305
10	450	380	325	-	-	-	485	415	355	380	320	275	425	365	315	340	290	250
11	335	280	-	-	-	-	355	300	-	285	240	-	315	265	-	250	210	-
12	595	505	435	840	720	610	645	550	470	450	380	320	565	485	415	-	-	-
13	525	440	380	735	625	540	575	485	415	390	335	285	505	425	365	-	-	-
14	440	370	320	625	525	450	485	405	345	335	275	240	425	355	300	-	-	-
15	365	310	265	520	435	370	405	335	285	275	230	195	355	295	250	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	t-			
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
19	155	130	-	-	-	-	160	135	-	125	105	-	-	-	-	110	95	
20	125	105	-	-	-	-	135	110	-	100	85	-	-	-	-	95	75	
21	105	90	-	-	-	-	115	100	-	85	75	-	-	-	-	80	70	
22	125	110	-	-	-	-	135	115	-	105	90	-	-	-	-	95	80	

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	100%	.002	.005	.008	1.00
Side milling	25%	.004	.009	.016	1.30
	10%	.005	.015	.024	1.50
	5%	.008	.020	.034	1.60
Average chip thickness h_m		.002	.004	.007	–

Type of insert



Insert size	Max D.O.C a_p	Wiper flat width B
LN140708	.510	-
LN140716	.510	-

Insert selection – 220.LN14

Universal insert: LN140708TR-M07 MP2500

SMG	f_z in/tooth a_e/D_c = 100%	First choice		
1	.004-.010	LN140708TR-M07 MP2500		
2	.004-.010	LN140708TR-M07 MP2500		
3	.004-.009	LN140708TR-M07 MP2500		
4	.004-.008	LN140708TR-M07 MP2500		
5	.004-.007	LN140708TR-M07 MP2500		
6	.004-.007	LN140708TR-M13 MP2500		
7	.003-.006	LN140708TR-M13 MP2500		
8	.004-.008	LN140708TR-M07 MS2500		
9	.004-.007	LN140708TR-M07 MS2500		
10	.004-.007	LN140708TR-M07 MS2500		
11	.004-.006	LN140708TR-M07 MS2500		
12	.004-.012	LN140708TR-M13 MK1500		
13	.004-.010	LN140708TR-M13 MK1500		
14	.004-.008	LN140708TR-M13 MK1500		
15	.004-.007	LN140708TR-M13 MK1500		
16	.004-.008	-		
17	.004-.007	-		
18	.004-.007	-		
19	.003-.005	LN140708TR-M07 MS2500		
20	.003-.005	LN140708TR-M07 MS2500		
21	.003-.004	LN140708TR-M07 MS2500		
22	.003-.005	LN140708TR-M07 MS2500		

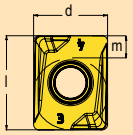
Cutting data - Full engagement width (a_e/D_c=30%) - Helicals

SMG	Grades																	
	MP2500			MK1500			MS2500			150060			029060			420470		
	f_z (in/tooth)																	
	0.003	.005	.008	.003	.005	.008	.003	.005	.008	.003	.005	.008	.003	.005	.008	.003	.005	.008
	v_c (sf/min)																	
1	1425	1200	1030	-	-	-	1550	1305	1130	1075	905	790	1365	1150	1000	1090	915	795
2	1200	1030	875	-	-	-	1320	1105	965	920	775	665	1165	975	850	925	775	675
3	1005	840	725	-	-	-	1090	920	790	765	630	550	955	815	695	765	645	550
4	850	720	620	-	-	-	930	790	675	650	550	475	820	695	595	650	550	475
5	705	595	520	-	-	-	775	650	565	530	465	390	680	570	495	545	455	395
6	620	525	455	-	-	-	675	575	490	475	400	345	595	505	430	475	400	345
7	155	130	-	-	-	-	170	140	-	130	115	-	150	125	-	120	95	-
8	875	740	630	-	-	-	950	805	690	730	620	530	840	705	605	665	565	480
9	680	575	500	-	-	-	750	630	550	575	490	420	655	555	480	525	445	380
10	565	475	405	-	-	-	605	520	445	475	400	345	530	455	395	425	365	315
11	420	350	-	-	-	-	445	375	-	355	300	-	395	330	-	315	265	-
12	745	630	545	1050	900	765	805	690	590	565	475	400	705	605	520	-	-	-
13	655	550	475	920	780	675	720	605	520	490	420	355	630	530	455	-	-	-
14	550	465	400	780	655	565	605	505	430	420	345	300	530	445	375	-	-	-
15	455	390	330	650	545	465	505	420	355	345	290	245	445	370	315	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	195	165	-	-	-	-	200	170	-	155	130	-	-	-	-	140	120	-
20	155	130	-	-	-	-	170	140	-	125	105	-	-	-	-	120	95	-
21	130	115	-	-	-	-	145	125	-	105	95	-	-	-	-	100	90	-
22	155	140	-	-	-	-	170	145	-	130	115	-	-	-	-	120	100	-

Cutting data – Side milling

Operations	a_e/D_c	Recommended feed f_z in/tooth			Speed factor
Full engagement	30%	0.003	0.005	0.008	1.00
Side milling	20%	0.004	0.007	0.012	1.05
	15%	0.005	0.008	0.013	1.10
	10%	0.006	0.009	0.015	1.15
	5%	0.008	0.013	0.020	1.25
Average chip thickness h_m		0.0016	0.0028	0.0045	-

Type of insert



Radius	End row	Other rows
.031	✔	✔
.063	✔	✔

XOEX/XOMX-06 – INSERTS

Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
XOEX 060202FR-E03	H15					■		13862
XOEX 060204FR-E03	F40M						□	28603
XOEX 060204FR-E03	H15					■		13863
XOEX 060204FR-E03	MP1020	□						10019
XOMX 060202R-M05	F30M			□			□	03769
XOMX 060202R-M05	F40M	■		■			■	26497
XOMX 060202R-M05	MP3000	□	■	□	■		□	44604
XOMX 060204R-M05	F30M			□			□	03771
XOMX 060204R-M05	F40M	■		■			■	35416
XOMX 060204R-M05	MP1020	□						10012
XOMX 060204R-M05	MP3000	□	■	□	■		□	44606
XOMX 060208R-M05	F15M					□		31809
XOMX 060208R-M05	F30M			□			□	03795
XOMX 060208R-M05	F40M	■		■			■	35449
XOMX 060208R-M05	MM4500	□		□				65164
XOMX 060208R-M05	MP1020	□						10013
XOMX 060208R-M05	MP3000	□	■	□	■		□	44608
XOMX 060216R-M05	F30M			□			□	03796
XOMX 060216R-M05	F40M	■		■			■	35451
XOMX 060216R-M05	MP3000	□	■	□	■		□	44609

■ FIRST CHOICE □ ALTERNATE CHOICE

XOEX/XOMX-10 – INSERTS

Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
XOEX 10T304FR-E05	F40M					■		17183
XOEX 10T304FR-E05	H15					■		17211
XOEX 10T308FR-E05	F40M					■		17212
XOEX 10T308FR-E05	H15					■		17214
XOEX 10T312FR-E05	F40M					■		17328
XOEX 10T312FR-E05	H15					■		17329
XOEX 10T316FR-E05	F40M					■		17331
XOEX 10T316FR-E05	H15					■		17335
XOEX 10T320FR-E05	F40M					■		17343
XOMX 10T304TR-ME07	F40M	□		■			■	67856
XOMX 10T304TR-ME07	MK1500				■			67849
XOMX 10T304TR-ME07	MM4500	□		□				67857
XOMX 10T304TR-ME07	MP1500	■			□			67851
XOMX 10T304TR-ME07	MP2500	■		□				67852
XOMX 10T304TR-ME07	MP3000	■		□				67853
XOMX 10T304TR-ME07	MS2500	□					□	67854
XOMX 10T304TR-ME07	T350M	□		□			□	67855
XOMX 10T308TR-ME07	F40M	□		■			■	67865
XOMX 10T308TR-ME07	MK1500				■			67858
XOMX 10T308TR-ME07	MM4500	□		□				67866
XOMX 10T308TR-ME07	MP1500	■			□			67860
XOMX 10T308TR-ME07	MP2500	■		□				67861
XOMX 10T308TR-ME07	MP3000	■		□				67862
XOMX 10T308TR-ME07	MS2500	□					□	67863
XOMX 10T308TR-ME07	T350M	□		□			□	67864
XOMX 10T312TR-ME07	F40M	■					■	17321
XOMX 10T312TR-ME07	MM4500	□		□			□	17326
XOMX 10T312TR-ME07	MP2500	■		□				17325
XOMX 10T312TR-ME07	MP3000	■		□				81650
XOMX 10T312TR-ME07	T350M	□		□			□	17324
XOMX 10T316TR-ME07	F40M	■					■	17389
XOMX 10T316TR-ME07	MM4500	□		□			□	17398
XOMX 10T316TR-ME07	MP2500	■		□				17397
XOMX 10T316TR-ME07	MP3000	■		□				81651
XOMX 10T316TR-ME07	T350M	□		□			□	17391
XOMX 10T320TR-ME07	F40M	■					■	17362
XOMX 10T320TR-ME07	MM4500	□		□			□	17375
XOMX 10T320TR-ME07	MP2500	■		□				17369
XOMX 10T320TR-ME07	MP3000	■		□				81652
XOMX 10T320TR-ME07	T350M	□		□			□	17366
XOMX 10T324TR-ME07	F40M	■					■	17433
XOMX 10T324TR-ME07	MP2500	■		□				17438
XOMX 10T324TR-ME07	T350M	□		□			□	17434
XOMX 10T331TR-ME07	F40M	■					■	17348
XOMX 10T331TR-ME07	MP2500	■		□				17355
XOMX 10T331TR-ME07	T350M	□		□			□	17354
XOEX 10T304R-M06	F40M			□			■	17218
XOEX 10T304R-M06	MP1020	□						17246
XOEX 10T304R-M06	MP2500			□				17230
XOEX 10T304R-M06	MS2050			□			■	90178
XOEX 10T304R-M06	MS2500						■	17239
XOEX 10T304R-M06	T350M			■			□	17219

Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
XOEX 10T308R-M06	F40M			□			■	17249
XOEX 10T308R-M06	MM4500	□		□				17278
XOEX 10T308R-M06	MP1020	□						17283
XOEX 10T308R-M06	MP2500			□				17275
XOEX 10T308R-M06	MS2050			□			■	90179
XOEX 10T308R-M06	MS2500						■	17282
XOEX 10T308R-M06	T350M			■			□	17271
XOEX 10T312R-M06	F40M			□			■	17285
XOEX 10T312R-M06	MS2050			□			■	90180
XOEX 10T312R-M06	MS2500						■	17307
XOEX 10T312R-M06	T350M			■			□	17289
XOEX 10T316R-M06	F40M			□			■	17314
XOEX 10T316R-M06	MS2050			□			■	90181
XOEX 10T316R-M06	MS2500						■	17319
XOEX 10T316R-M06	T350M			■			□	17316
XOEX 10T320R-M06	F40M			□			■	17415
XOEX 10T320R-M06	MS2050			□			■	90182
XOEX 10T320R-M06	MS2500						■	17419
XOEX 10T320R-M06	T350M			■			□	17417
XOEX 10T324R-M06	F40M			□			■	17359
XOEX 10T324R-M06	MS2500						■	17361
XOEX 10T324R-M06	T350M			■			□	17360
XOEX 10T331R-M06	F40M			□			■	08769
XOEX 10T331R-M06	MS2050			□			■	90183
XOEX 10T331R-M06	MS2500						■	17430
XOEX 10T331R-M06	T350M			■			□	17427
XOMX 10T304TR-M09	F40M	■					■	67872
XOMX 10T304TR-M09	MK1500				■			67867
XOMX 10T304TR-M09	MK2050				■			78552
XOMX 10T304TR-M09	MM4500	□		□			□	67873
XOMX 10T304TR-M09	MP1020	□						10022
XOMX 10T304TR-M09	MP1500	■			□			71747
XOMX 10T304TR-M09	MP2500	■		□				67869
XOMX 10T304TR-M09	MS2500	□					□	67870
XOMX 10T304TR-M09	T350M	□		□			□	67871
XOMX 10T308TR-M09	F40M	■					■	67879
XOMX 10T308TR-M09	MK1500				■			67874
XOMX 10T308TR-M09	MK2050				■			78548
XOMX 10T308TR-M09	MM4500	□		□			□	67880
XOMX 10T308TR-M09	MP1020	□						10023
XOMX 10T308TR-M09	MP1500	■			□			71748
XOMX 10T308TR-M09	MP2500	■		□				67876
XOMX 10T308TR-M09	MP3000	■		□				70136
XOMX 10T308TR-M09	MS2500	□					□	67877
XOMX 10T308TR-M09	T350M	□		□			□	67878
XOMX 10T312TR-M09	F40M	■					■	17420
XOMX 10T312TR-M09	MK2050				■			79072
XOMX 10T312TR-M09	MM4500	□		□			□	17426
XOMX 10T312TR-M09	T350M	□		□			□	17423
XOMX 10T316TR-M09	F40M	■					■	17403
XOMX 10T316TR-M09	MM4500	□		□			□	17413
XOMX 10T316TR-M09	T350M	□		□			□	17411
XOMX 10T320TR-M09	F40M	■					■	17380
XOMX 10T320TR-M09	MM4500	□		□			□	17388
XOMX 10T320TR-M09	T350M	□		□			□	17384
XOMX 10T324TR-M09	F40M	■					■	17439
XOMX 10T324TR-M09	T350M	□		□			□	17442
XOMX 10T331TR-M09	F40M	■					■	17356
XOMX 10T331TR-M09	T350M	□		□			□	17358

■ FIRST CHOICE □ ALTERNATE CHOICE

Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
XOEX 120404FR-E06	F15M					■		05970
XOEX 120404FR-E06	F40M					□		13481
XOEX 120404FR-E06	H15					■		04254
XOEX 120408FR-E06	F15M					■		05980
XOEX 120408FR-E06	F40M					□		05981
XOEX 120408FR-E06	H15					■		04255
XOEX 120416FR-E06	F15M					■		05982
XOEX 120416FR-E06	F40M					□		05983
XOEX 120420FR-E06	F15M					■		05985
XOEX 120420FR-E06	F40M					□		05990
XOEX 120431FR-E06	F40M					□		27185
XOEX 120402R-M07	F40M			□			■	27187
XOEX 120404R-M07	F30M			□			□	27188
XOEX 120404R-M07	F40M			□			■	27189
XOEX 120404R-M07	MP1020	□						10020
XOEX 120404R-M07	MP2500			□				31708
XOEX 120404R-M07	MS2050			□			■	90184
XOEX 120408R-M07	F30M			□			□	06003
XOEX 120408R-M07	F40M			□			■	35445
XOEX 120408R-M07	MM4500	□		□				65186
XOEX 120408R-M07	MP1020	□						10010
XOEX 120408R-M07	MP2500			□				31709
XOEX 120408R-M07	MP3000	□		□			□	44622
XOEX 120408R-M07	MS2050			□			■	90185
XOEX 120408R-M07	MS2500						■	43292
XOEX 120408R-M07	T350M			■			□	03976
XOEX 120408ZZR-M07	F30M			□			□	42929
XOEX 120408ZZR-M07	F40M			□			■	77980
XOEX 120408ZZR-M07	MP1020	□						10011
XOEX 120408ZZR-M07	MP3000	□		□			□	44624
XOEX 120416R-M07	F40M			□			■	27190
XOEX 120416R-M07	MM4500	□		□				65190
XOEX 120416R-M07	MP3000	□		□			□	44626
XOEX 120424R-M07	F30M			□			□	35410
XOEX 120424R-M07	F40M			□			■	35411
XOEX 120431R-M07	F40M			□			■	98804
XOEX 120431R-M07	MM4500	□		□				65194
XOEX 120431R-M07	MS2050			□			■	90186
XOEX 120431R-M07	MS2500						■	43291
XOEX 120431R-M07	T350M			■			□	25396
XOEX 120440R-M07	F40M			□			■	35412
XOEX 120440R-M07	MS2050			□			■	90187
XOEX 120450R-M07	F40M			□			■	64871
XOEX 120463R-M07	F40M			□			■	64874
XOEX 120463R-M07	MS2050			□			■	90188
XOMX 120404TR-ME08	F40M	■		□				05963
XOMX 120404TR-ME08	MK1500				■			31619
XOMX 120404TR-ME08	MP1020	□						10014
XOMX 120404TR-ME08	MP2500	■		□				31720
XOMX 120404TR-ME08	MS2050			□			■	90189
XOMX 120404TR-ME08	T350M	□						03974
XOMX 120408TR-ME08	F40M	■		□				05973
XOMX 120408TR-ME08	MK1500				■			31623
XOMX 120408TR-ME08	MK2050				■			78318
XOMX 120408TR-ME08	MM4500	□		□				65209
XOMX 120408TR-ME08	MP1020	□						10016
XOMX 120408TR-ME08	MP2500	■		□				31723
XOMX 120408TR-ME08	MS2050			□			■	90192
XOMX 120408TR-ME08	T350M	□						03975
XOMX 120412TR-ME08	F40M	■						54991
XOMX 120412TR-ME08	MP2500	■		□				31724
XOMX 120412TR-ME08	T350M	□						17014
XOMX 120416TR-ME08	F40M	■						05994
XOMX 120416TR-ME08	MM4500	□		□				65210
XOMX 120416TR-ME08	MP2500	■		□				31725
XOMX 120416TR-ME08	T350M	□						17017
XOMX 120420TR-ME08	F40M	■						54996
XOMX 120420TR-ME08	MP2500	■		□				31726
XOMX 120420TR-ME08	MS2050			□			■	90193
XOMX 120420TR-ME08	T350M	□						17022
XOMX 120424TR-ME08	F40M	■						05964
XOMX 120424TR-ME08	MP2500	■		□				31727
XOMX 120424TR-ME08	T350M	□						17023
XOMX 120431TR-ME08	F40M	■						06000
XOMX 120431TR-ME08	MM4500	□		□				65212
XOMX 120431TR-ME08	MP2500	■		□				31728
XOMX 120431TR-ME08	MS2050			□			■	90194
XOMX 120431TR-ME08	T350M	□						17024

■ FIRST CHOICE □ ALTERNATE CHOICE

Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
XOMX 120440TR-ME08	F40M	■						06002
XOMX 120440TR-ME08	MP2500	■		□				31729
XOMX 120440TR-ME08	MS2050			□			■	90195
XOMX 120440TR-ME08	T350M	□						17032
XOMX 120408TR-M12	F40M	■						05979
XOMX 120408TR-M12	MK1500				■			31621
XOMX 120408TR-M12	MK2050				■			78331
XOMX 120408TR-M12	MP1020	□						10015
XOMX 120408TR-M12	MP1500	■						35279
XOMX 120408TR-M12	MP2500	■						31722
XOMX 120408TR-M12	MP3000	■		□				44689
XOMX 120408TR-M12	T350M	□						17012
XOMX 120416TR-M12	F40M	■						05998
XOMX 120416TR-M12	MP3000	■		□				44630
XOMX 120416TR-M12	T350M	□						17013
XOMX 120431TR-M12	F40M	■						75384
XOMX 120431TR-M12	MP3000	■		□				75386
XOMX 120431TR-M12	T350M	□						75385
XOMX 120404TR-MD13	F40M	□						25385
XOMX 120404TR-MD13	MK1500				■			32627
XOMX 120404TR-MD13	MP1500	■						36008
XOMX 120408TR-MD13	F40M	□						25387
XOMX 120408TR-MD13	MK1500				■			31622
XOMX 120408TR-MD13	MK2050				■			78321
XOMX 120408TR-MD13	MP1500	■						35195
XOMX 120408TR-MD13	MP2500	■						45249
XOMX 120408TR-MD13	MP3000	■						44629
XOMX 120408TR-MD13	T350M	□						25377
XOMX 120412TR-MD13	F40M	□						25388
XOMX 120412TR-MD13	MK1500				■			32628
XOMX 120412TR-MD13	MP1500	■						36009
XOMX 120412TR-MD13	MP3000	■						44646
XOMX 120416TR-MD13	F40M	□						25389
XOMX 120416TR-MD13	MK1500				■			32626
XOMX 120416TR-MD13	MP1500	■						36010
XOMX 120416TR-MD13	MP3000	■						44648
XOMX 120408TR-D14	F30M		□					52282
XOMX 120408TR-D14	MK1500				■			31620
XOMX 120408TR-D14	MP1500	■	■					35278
XOMX 120408TR-D14	MP2500	■						31721
XOMX 120408TR-D14	MP3000	□	■					44628
XOMX 120431TR-D14	F30M		□					52322
XOMX 120431TR-D14	MP3000		■					44632

■ FIRST CHOICE □ ALTERNATE CHOICE

Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
XOEX 180604FR-E10	F40M					□		03810
XOEX 180604FR-E10	H25					■		03811
XOEX 180608FR-E10	F40M					□		03812
XOEX 180608FR-E10	H25					■		03814
XOEX 180616FR-E10	H25					■		03816
XOEX 180620FR-E10	H25					■		03817
XOEX 180631FR-E10	H25					■		03819
XOEX 180608ZZR-M10	F40M					□		01485
XOEX 180616ZZR-M10	F40M					□		16858
XOMX 180604R-M10	F40M			□			■	03823
XOMX 180604R-M10	MS2050			□			■	90196
XOMX 180608R-M10	F30M			□			□	03825
XOMX 180608R-M10	F40M			□			■	03826
XOMX 180608R-M10	MM4500	□		□				65213
XOMX 180608R-M10	MP1020	□						10017
XOMX 180608R-M10	MP2500			□				31731
XOMX 180608R-M10	MS2050			□			■	90197
XOMX 180608R-M10	T350M			■			■	03829
XOMX 180616R-M10	F40M			□			■	03846
XOMX 180616R-M10	MM4500			□				65218
XOMX 180616R-M10	MS2050			□			■	90198
XOMX 180616R-M10	T350M			■			■	17069
XOMX 180620R-M10	F40M			□			■	03848
XOMX 180620R-M10	MS2050			□			■	90199
XOMX 180620R-M10	T350M			■			■	17071
XOMX 180624R-M10	F40M			□			■	03851
XOMX 180624R-M10	MS2050			□			■	90200
XOMX 180631R-M10	F40M			□			■	03854
XOMX 180631R-M10	MM4500			□				65219
XOMX 180631R-M10	MS2050			□			■	90201
XOMX 180631R-M10	T350M			■			■	22337
XOMX 180640R-M10	F40M			□			■	03859
XOMX 180640R-M10	MS2050			□			■	90202
XOMX 180640R-M10	T350M			■				17073
XOMX 180650R-M10	F40M			□			■	03862
XOMX 180650R-M10	T350M			■				17074
XOMX 180663R-M10	F40M			□			■	03863
XOMX 180663R-M10	MS2050			□			■	90203
XOMX 180663R-M10	T350M			■				17077
XOMX 180604TR-ME13	F40M	■		□				03634
XOMX 180604TR-ME13	MP2500			□				31730
XOMX 180608TR-ME13	F40M	■		□				03841
XOMX 180608TR-ME13	MK1500				■			31627
XOMX 180608TR-ME13	MM4500	□		□				65220
XOMX 180608TR-ME13	MP2500			□				31734
XOMX 180608TR-ME13	T350M			■			■	03843
XOMX 180616TR-ME13	MM4500	□		□				65223
XOMX 180616TR-ME13	MP2500			□				31737
XOMX 180620TR-ME13	F40M	■		□				03849
XOMX 180620TR-ME13	MP2500			□				31739
XOMX 180631TR-ME13	F40M	■		□				03857
XOMX 180631TR-ME13	MM4500	□		□				65224
XOMX 180631TR-ME13	MP2500			□				31743
XOMX 180640TR-ME13	MP2500			□				31744
XOMX 180608TR-M14	F30M			□				03834
XOMX 180608TR-M14	F40M	□		□				03835
XOMX 180608TR-M14	MK1500				■			31625
XOMX 180608TR-M14	MK2050				■			78317
XOMX 180608TR-M14	MP1020	□						10018
XOMX 180608TR-M14	MP1500	■						35281
XOMX 180608TR-M14	MP2500	■		■				31733
XOMX 180608TR-M14	MP3000	■		□				44658
XOMX 180608TR-M14	T350M	■						03838
XOMX 180612TR-M14	F40M	□		□				21556
XOMX 180612TR-M14	MK1500				■			31628
XOMX 180612TR-M14	MK2050				■			78315
XOMX 180612TR-M14	MP1500	■						35283
XOMX 180612TR-M14	MP2500	■		■				31735
XOMX 180612TR-M14	MP3000	■		□				44659
XOMX 180612TR-M14	T350M	■						21558
XOMX 180616TR-M14	F40M	□		□				01852
XOMX 180616TR-M14	MK1500				■			31630
XOMX 180616TR-M14	MP2500	■		■				31736
XOMX 180616TR-M14	MP3000	■		□				44660
XOMX 180616TR-M14	T350M	■						16896
XOMX 180620TR-M14	F40M	□		□				01853
XOMX 180620TR-M14	MP2500	■		■				31738
XOMX 180620TR-M14	T350M	■						16906

■ FIRST CHOICE □ ALTERNATE CHOICE

Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
XOMX 180624TR-M14	F40M	□		□				01854
XOMX 180624TR-M14	MP2500	■		■				31740
XOMX 180624TR-M14	T350M	■						16907
XOMX 180631TR-M14	F40M	□		□				03855
XOMX 180631TR-M14	MP2500	■		■				31742
XOMX 180631TR-M14	MP3000	■		□				44663
XOMX 180631TR-M14	T350M	■						16910
XOMX 180608TR-MD15	F30M	□						22991
XOMX 180608TR-MD15	F40M	□						21803
XOMX 180608TR-MD15	MK1500				■			31626
XOMX 180608TR-MD15	MK2050				■			78316
XOMX 180608TR-MD15	MP1500	■	□					35282
XOMX 180608TR-MD15	MP2500	■						45250
XOMX 180608TR-MD15	MP3000	■						44652
XOMX 180608TR-MD15	T350M	■						21802
XOMX 180612TR-MD15	F40M	□						22154
XOMX 180612TR-MD15	MK1500				■			31629
XOMX 180612TR-MD15	MK2050				■			78312
XOMX 180612TR-MD15	MP1500	■	□					36015
XOMX 180612TR-MD15	MP3000	■						44654
XOMX 180612TR-MD15	T350M	■						22153
XOMX 180616TR-MD15	F40M	□						22157
XOMX 180616TR-MD15	MK1500				■			31631
XOMX 180616TR-MD15	MP3000	■						44655
XOMX 180616TR-MD15	T350M	■						22156
XOMX 180608TR-D16	F30M		□					03830
XOMX 180608TR-D16	MK1500				■			31624
XOMX 180608TR-D16	MP1500	■	■					35280
XOMX 180608TR-D16	MP2500	□						31732
XOMX 180608TR-D16	T350M	■						03833
XOMX 180631TR-D16	MP1500	■	■					35284
XOMX 180631TR-D16	MP3000	■						44657

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Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
ABEX 2606ZFFR-M15	F40M	□		□				71045
ABEX 2606ZFFR-M15	T350M	■						71046
ABEX 2606ZFFR-M15	MP2500	■		■				71047
ABEX 2606ZFFR-M15	MP1500	■						71048
ABEX 2606ZFFR-M15	MK1500				■			71049
ABEX 2606ZFFR-M15	MM4500	□		□				75776
ABEX 2606ZZFR-M15	T350M	■						75902

■ FIRST CHOICE □ ALTERNATE CHOICE

Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
LOEX080404TR-M08	F40M	□						82153
LOEX080404TR-M08	MP1500	■						82154
LOEX080404TR-M08	MP2500	■						82155
LOEX080404TR-M08	MM4500	□						82156
LOEX080404TR-M08	MK2050				■			82318
LOEX080404TR-MD08	MK1500				■			91889
LOEX080404TR-MD08	MK2050				■			91890
LOEX080404TR-MD08	MP2500	■						91905
LOEX080404TR-MD08	F40M	□						91906
LOEX080408TR-M08	F40M	■						82157
LOEX080408TR-M08	MP1500	■						82158
LOEX080408TR-M08	MP2500	■						82159
LOEX080408TR-M08	MP3000	■		□				82160
LOEX080408TR-M08	MK1500				■			82161
LOEX080408TR-M08	MM4500	□						82162
LOEX080408TR-M08	MK2050				■			82319
LOEX080408TR-M08	T350M	□		□				91923
LOEX080408TR-MD08	MK1500				■			91907
LOEX080408TR-MD08	MK2050				■			91908
LOEX080408TR-MD08	MP1500	■			□			91909
LOEX080408TR-MD08	MP2500	■						91910
LOEX080408TR-MD08	F40M	□						91911
LOEX080408TR-MD08	T350M	□		□				91912
LOEX080412TR-M08	F40M	■						82163
LOEX080412TR-M08	MP2500	■						82164
LOEX080412TR-M08	MP1500	■						82165
LOEX080412TR-M08	MK1500				■			82166
LOEX080412TR-M08	MM4500	□						82167
LOEX080412TR-M08	MK2050				■			82320
LOEX080412TR-MD08	MK1500				■			91913
LOEX080412TR-MD08	MK2050				■			91914
LOEX080412TR-MD08	MP2500	■						91915
LOEX080412TR-MD08	F40M	□						91916
LOEX080412TR-MD08	T350M	□		□				91917
LOEX080416TR-M08	F40M	■						82168
LOEX080416TR-M08	MP2500	■						82169
LOEX080416TR-M08	MP1500	■						82171
LOEX080416TR-M08	MK1500				■			82172
LOEX080416TR-M08	MM4500	□						82173
LOEX080416TR-M08	MK2050				■			82321
LOEX080416TR-MD08	MK1500				■			91918
LOEX080416TR-MD08	MK2050				■			91919
LOEX080416TR-MD08	MP2500	■						91920
LOEX080416TR-MD08	F40M	□						91921
LOEX080416TR-MD08	T350M	□		□				91922

■ FIRST CHOICE □ ALTERNATE CHOICE

Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
XNEX 040304R-M06	F40M			☐				79050
XNEX 040304R-M06	MP2500	■		☐				79051
XNEX 040304R-M06	MP3000	■		☐				79052
XNEX 040304R-M06	MM4500	☐		☐				79053
XNEX 040304R-M06	MS2050			☐			■	90176
XNEX 040304TR-M08	F40M	■		☐				67702
XNEX 040304TR-M08	MP3000	■		☐				67705
XNEX 040304TR-M08	MP2500	■		☐				67706
XNEX 040304TR-M08	MM4500	☐		☐				67708
XNEX 040304TR-M08	MK1500				■			70128
XNEX 040304TR-M08	MP1500	■						70129
XNEX 040304TR-M08	MK2050				■			79071
XNEX 040308R-M06	F40M			☐				79066
XNEX 040308R-M06	MP2500	■		☐				79067
XNEX 040308R-M06	MP3000	■		☐				79068
XNEX 040308R-M06	MM4500	☐		☐				79069
XNEX 040308TR-M08	MP1020	☐						09970
XNEX 040308TR-M08	F40M	■		☐				67725
XNEX 040308TR-M08	MP3000	■		☐				67726
XNEX 040308TR-M08	MP2500	■		☐				67727
XNEX 040308TR-M08	MM4500	☐		☐				67729
XNEX 040308TR-M08	MK1500				■			70133
XNEX 040308TR-M08	MP1500	■						70134
XNEX 040308TR-M08	MK2050				■			79070

■ FIRST CHOICE ☐ ALTERNATE CHOICE

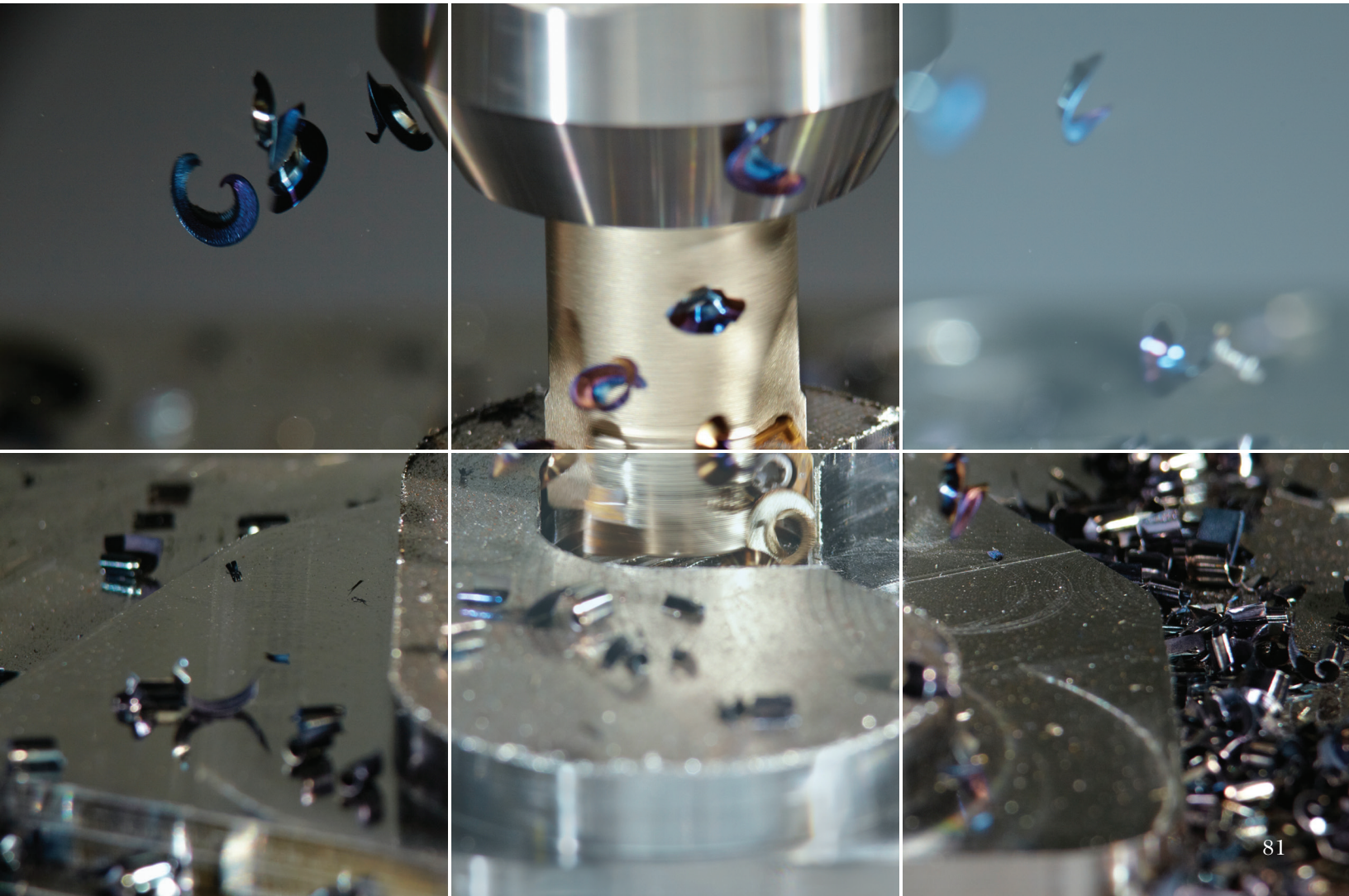
Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
XNEX 080608R-M08	MM4500			□			□	69461
XNEX 080608R-M08	MP3000	□		□				69462
XNEX 080608R-M08	MS2500	□					□	69464
XNEX 080608R-M08	F40M			■		□	■	69460
XNEX 080608R-M08	H25					■	□	69463
XNEX 080608R-M08	T350M			□			□	69465
XNEX 080608R-M08	MS2050			□			■	90177
XNEX 080608ZZR-M11	F40M	□		■				70595
XNEX 080608ZZR-M11	MP3000	■		□				70601
XNEX080608ZZR-M11	MK1500				■			70597
XNEX 080604TR-M13	F40M	■		□				79288
XNEX 080604TR-M13	MP3000	■		□				79289
XNEX 080604TR-M13	T350M	■		□				79290
XNEX 080604TR-M13	MM4500			□			□	79291
XNEX 080608TR-M13	F40M	■		□				40014
XNEX 080608TR-M13	T350M	■		□				40017
XNEX 080608TR-M13	MP2500	■		□				40018
XNEX 080608TR-M13	MK1500				■			40019
XNEX 080608TR-M13	MP1500	■						40024
XNEX 080608TR-M13	MP3000	■		□				43521
XNEX 080608TR-M13	MK2050				■			78563
XNEX 080612TR-M13	MP1020	□						09968
XNEX 080612TR-M13	F40M	■		□				62214
XNEX 080612TR-M13	MK1500				■			62217
XNEX 080612TR-M13	MP2500	■		□				62224
XNEX 080612TR-M13	MK2050				■			78556
XNEX 080616TR-M13	MP3000	■		□				43663
XNEX 080616TR-M13	F40M	■		□				43657
XNEX 080616TR-M13	MK1500				■			43658
XNEX 080616TR-M13	MP1500	■						43660
XNEX 080616TR-M13	MP2500	■		□				43661
XNEX 080616TR-M13	T350M	■		□				43662
XNEX 080616TR-M13	MK2050				■			78554
XNEX 080608TR-MD15	T350M	■		□				40027
XNEX 080608TR-MD15	F40M	■		□				40026
XNEX 080608TR-MD15	MP2500	■						40028
XNEX 080608TR-MD15	MK1500				■			40029
XNEX 080608TR-MD15	MP1500	■	■					40031
XNEX 080608TR-MD15	MP3000	■	□					43522
XNEX 080608TR-MD15	MK2050				■			78562
XNEX 080612TR-MD15	MP1020	□						09969
XNEX 080612TR-MD15	F40M	■		□				62228
XNEX 080612TR-MD15	MK1500				■			62230
XNEX 080612TR-MD15	MP2500	■						62240
XNEX 080612TR-MD15	MP1500	■						62239
XNEX 080616TR-MD15	F40M	■		□				43677
XNEX 080616TR-MD15	MK1500				■			43678
XNEX 080616TR-MD15	T350M	■		□				43681
XNEX 080616TR-MD15	MP3000	■	□					43682
XNEX 080616TR-MD15	MP1500	■	■					43680
XNEX 080616TR-MD15	MP2500	■						44468
XNEX 080616TR-MD15	MK2050				■			78553
XNEX 080604TR-ME09	MP3000	■		□				79294
XNEX 080604TR-ME09	T350M	■		□				79295
XNEX 080604TR-ME09	MM4500			■				79296
XNEX 080604TR-ME09	F40M	■		□				79292
XNEX 080604TR-ME09	MP2500	■		□				79293
XNEX 080608TR-ME09	T350M	■		□				39998
XNEX 080608TR-ME09	MM4500	□		□				65226
XNEX 080608TR-ME09	F40M	■		■		□	■	39997
XNEX 080608TR-ME09	MP2500	■		□				39999
XNEX 080608TR-ME09	MK1500				■			43515
XNEX 080608TR-ME09	MP3000	■		□				43519
XNEX 080608TR-ME09	MP1500	■		□				44691
XNEX 080608TR-ME09	MK2050				■			78561
XNEX 080612TR-ME09	T350M	■		□				62461
XNEX 080612TR-ME09	MM4500	□		□				65227
XNEX 080612TR-ME09	F40M	■		■		□	■	62241
XNEX 080612TR-ME09	MP2500	■		□				62243
XNEX 080612TR-ME09	MK2050				■			78555
XNEX 080616TR-ME09	MP2500	■		□				43648
XNEX 080616TR-ME09	T350M	■		□				43649
XNEX 080616TR-ME09	MM4500	□		□				65230
XNEX 080616TR-ME09	MK2050				■			81288
XNEX 080616TR-ME09	F40M	■		■		□	■	43645
XNEX 080616TR-ME09	MP3000	■		□				43650

■ FIRST CHOICE □ ALTERNATE CHOICE

LN14 – INSERTS

Desc	Grade	ST	HM	SS	CI	NF	SA	EDP
LN140708TR-M07	MS2500	☐					☐	15408
LN140708TR-M07	420470	☐		☐			☐	79198
LN140708TR-M07	150060			☐			■	81810
LN140708TR-M07	MP2500	■		☐				13744
LN140708TR-M07	MK1500				■			13745
LN140716TR-M07	150060			☐			■	13914
LN140716TR-M07	MS2500	☐					☐	13916
LN140708TR-M13	029060				☐			85463
LN140708TR-M13	150060			☐			■	85464
LN140708TR-M13	420470	☐		■			☐	85466
LN140708TR-M13	MK1500				■			13742
LN140708TR-M13	MP2500	■		☐				13743
LN140716TR-M13	MP2500	■		☐				13917

■ FIRST CHOICE ☐ ALTERNATE CHOICE

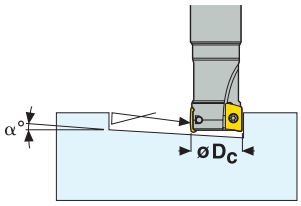


Ramping

The milling cutter design and the clearance on the bottom side of the chosen insert determines the tool's suitability for ramping.

Maximum ramping angle and cutting depth recommendations for suitable tools are found in the tables below.

Use the cutting speeds and feed rates recommended for normal operations.



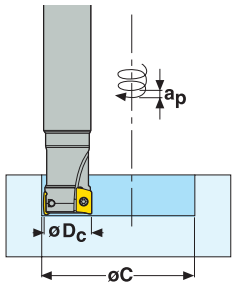
	Cutter dia. D_c inch	a_p max	α° max
217/220.69-06*			
	0.375	0.197	10
	0.500	0.197	6.5
	0.625	0.197	4
	0.750	0.197	2.3
*When changing ramping direction using max. ramping angle, retract the cutter .024 in.	0.875	0.197	2
	1.000	0.197	1.3
	1.250	0.197	1
	1.500	0.197	1
217/220.69-10*			
	0.625	0.354	8.8
	0.750	0.354	5.5
	0.875	0.354	4
	1.000	0.354	3
	1.250	0.354	2
*When changing ramping direction using max. ramping angle, retract the cutter .031 in.	1.500	0.354	1.8
	2.000	0.354	1.2
	2.500	0.354	0.9
	3.000	0.354	0.8
	4.000	0.354	0.55
217/220.69-12*			
	0.750	0.433	8
	1.000	0.433	5
	1.250	0.433	3
	1.500	0.433	2.5
*When changing ramping direction using max. ramping angle, retract the cutter .055 in.	2.000	0.433	2
	2.500	0.433	1.5
	3.000	0.433	1
	4.000	0.433	0.5
217/220.69-18*			
	1.000	0.669	8.65
	1.250	0.669	7.15
	1.500	0.669	4.5
	2.000	0.669	3.15
*When changing ramping direction using max. ramping angle, retract the cutter .075 in.	2.500	0.669	2.4
	3.000	0.669	1.55
	4.000	0.669	1.3
	5.000	0.669	1
	6.000	0.669	0.65

Helical interpolation ramping

The milling cutter design and the clearance on the bottom side of the chosen insert determines the tool's suitability for helical interpolation ramping.

Maximum and minimum hole diameters and maximum cutting depth per revolution recommendations for suitable tools are found in the tables below.

Use the cutting speeds and feed rates recommended for normal operations.

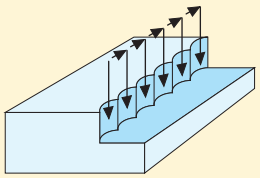


	Cutter dia. D_c inch	C min/a_p max		C max/a_p max	
		C min dia.	a_p max	C max dia.	a_p max
217/220.69-06					
	0.375	0.493	0.067	0.710	0.157
	0.500	0.697	0.071	0.960	0.157
	0.551	0.827	0.076	1.062	0.141
	0.625	0.979	0.079	1.210	0.130
	0.708	1.141	0.071	1.376	0.110
	0.750	1.262	0.071	1.460	0.102
	0.875	1.477	0.066	1.710	0.098
	1.000	1.709	0.059	1.960	0.094
	1.250	2.234	0.051	2.460	0.091
	1.500	2.799	0.071	2.960	0.087
217/220.69-10					
	0.625	0.731	0.054	1.181	0.273
	0.750	0.984	0.071	1.435	0.207
	0.875	1.232	0.079	1.681	0.178
	1.000	1.482	0.080	1.931	0.101
	1.250	1.983	0.080	2.431	0.130
	1.500	2.483	0.097	2.931	0.142
	2.000	3.484	0.098	3.931	0.127
	2.500	4.485	0.098	4.931	0.120
	3.000	5.485	0.109	5.931	0.129
	4.000	7.486	0.105	7.931	0.119
217/220.69-12					
	0.750	0.986	0.104	1.420	0.313
	1.000	1.433	0.119	1.920	0.249
	1.250	1.959	0.117	2.420	0.194
	1.500	2.524	0.140	2.882	0.200
	2.000	3.457	0.160	3.882	0.203
	2.500	4.429	0.159	4.882	0.194
	3.000	5.598	0.142	5.882	0.166
	4.000	7.386	0.093	7.882	0.105
	5.000	9.370	0.120	9.882	0.132
217/220.69-18					
	1.000	1.150	0.070	1.940	0.440
	1.250	1.659	0.161	2.420	0.465
	1.500	2.226	0.184	2.882	0.368
	2.000	3.121	0.201	3.882	0.331
	2.500	4.133	0.214	4.882	0.310
	3.000	5.303	0.224	5.882	0.294
	4.000	7.092	0.229	7.882	0.283
	5.000	9.077	0.233	9.882	0.274
	6.000	11.457	0.224	11.882	0.254

PLUNGE MILLING

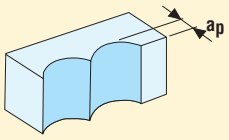
The insert design and the insert clamping system determines the tool's suitability for plunging. Maximum cutting depth recommendations for suitable tools are in the tables below. Note that the definition of a_p is different for plunge milling. Use the cutting speeds and feed rates recommended for normal operations.

Plunging - Axial feed direction



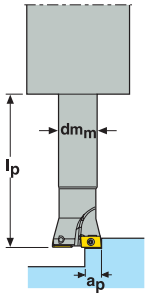
Type of cutter	a_p max inch
217/220.69-06	.138*
217/220.69-10	.236*
217/220.69-12	.275*
217/220.69-18	.413*
217/220.96-04	.157*
220.96-08	.295*

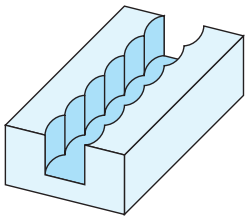
Plunging

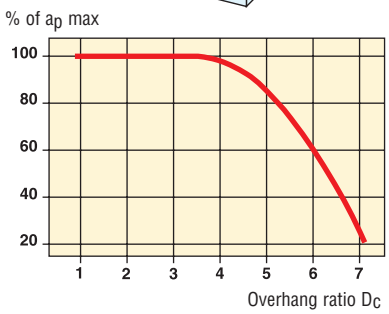


Type of cutter	a_p max inch
217/220.69-06	.138
217/220.69-10	.236
217/220.69-12	.275
217/220.69-18	.413
217/220.96-04	.157
220.96-08	.295

* To create a flat bottom surface, a_p max = the wiper flat B width.
B dimensions can be found at the bottom of the cutting data pages.







a_p max can normally be used if the overhang ratio is up to 4 but should be reduced at higher ratios as shown in the graph.

MILLING CUTTING DATA

Nomenclature and formula

RPM

$$n = \frac{v_c \cdot 12}{\pi \cdot D_c} \quad \text{(rev/min)}$$

Cutting speed

$$v_c = \frac{n \cdot \pi \cdot D_c}{12} \quad \text{(ft/min)}$$

Feed speed

$$v_f = n \cdot z_n \cdot f_z \quad \text{(inch/min)}$$

$$v_f = n \cdot z_c \cdot f_z \quad \text{(inch/min)}$$

Feed per revolution

$$f = z_n \cdot f_z \quad \text{(inch/rev)}$$

$$f = z_c \cdot f_z \quad \text{(inch/rev)}$$

Metal removal rate

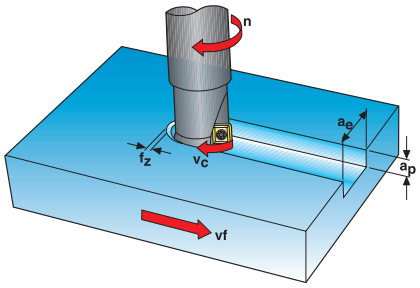
$$Q = a_e \cdot a_p \cdot v_f \quad \text{(inch}^3\text{/min)}$$

Cutting speed and RPM for copying

$$v_c = \frac{n \cdot \pi \cdot D_w}{12} \quad \text{(ft/min)}$$

$$n = \frac{v_c \cdot 12}{\pi \cdot D_w} \quad \text{(RPM)}$$

$$D_w = 2 \cdot \sqrt{R^2-(R-a_p)^2} \quad \text{(inch)}$$



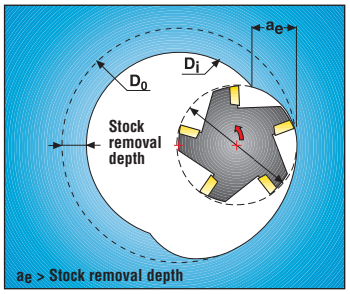
D_c = Cutter diameter
z_n = No of teeth
z_c = Effective No. of teeth for calculation of feed speed or feed per rev (see below)
v_c = Surface footage/min.
n = Rev./min. RPM
v_f = Table travel (in./min.)
f_z = Feed per tooth
f = Feed per revolution
Q = Metal removal rate in. ^{3}/min.
a_e = Width of cut/radial depth of cut
a_p = Depth of cut/axial depth of cut
R = Cutter radius
D_w = Working diameter

INTERNAL CIRCULAR INTERPOLATION

When using circular interpolation or helical interpolation ramping to increase the diameter of a hole in a workpiece, the stock removal depth is not the same as the width of cut value. The real width of cut must be calculated from the formula below.

The width of cut value is then used for calculation of feed/tooth and feed speed.

$$a_e = \frac{D_0^2 - D_i^2}{4\,(D_0 - D_C)}$$

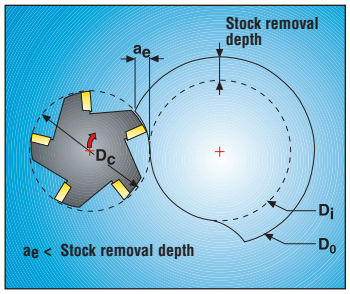


EXTERNAL CIRCULAR INTERPOLATION

When using external circular interpolation or helical interpolation ramping to decrease the diameter of a round workpiece the stock removal depth is not the same as the width of cut value. The real width of cut must be calculated from the formula below.

The width of cut is then used for calculation of feed/tooth and feed speed.

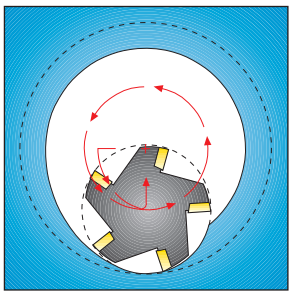
$$a_e = \frac{D_0^2 - D_i^2}{4\,(D_i + D_C)}$$



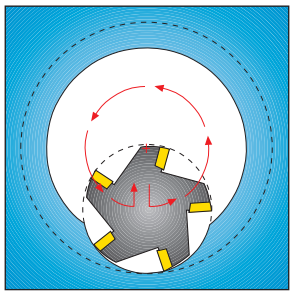
INCREASE THE WIDTH OF CUT SUCCESSIVELY TO FULL VALUE

For circular interpolation operations it is recommended to successively increase the width of cut up to full value.

When using radial infeed up to full width of cut, reduce the feed/tooth and feed speed to half.



Successive increase of width of cut – recommended method.



Radial infeed – Reduce feed/tooth.

FEED SPEED RELATED TO THE CENTER OF THE CUTTER

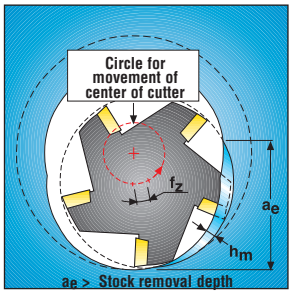
When calculating feed speed and feed/tooth from average chip thickness using circular interpolation or helical interpolation ramping in an operation, the feed speed and feed/tooth are always related to the center and not to the periphery of the cutter.

Int.

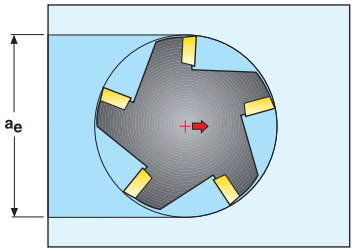
$$v_f = \frac{(D_0 - D_C) \cdot n \cdot z_c \cdot f_z}{D_0}$$

Ext.

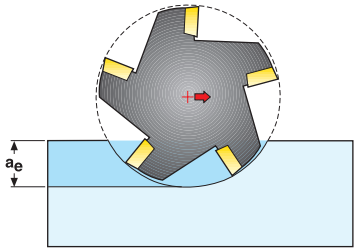
$$v_f = \frac{(D_i + D_C) \cdot n \cdot z_c \cdot f_z}{D_i}$$



SLOT MILLING COMPARED WITH SIDE MILLING



Slot milling



Side milling

Relative engagement of the cutter diameter (a_e/D_C=%)	Multiply the feed per tooth by the following factor
30%	1.25
20%	1.5
10%	2.0
5%	3.0

CALCULATION OF FEED PER TOOTH AND CUTTING SPEED FOR SIDE MILLING OPERATIONS

When using side milling it is necessary to increase the feed per tooth to keep the chip thickness at the same value. It is also possible to increase the cutting speed and keep the same tool life. Use the tables below.

This table can be used for cutters with cutting edge angle = 90°

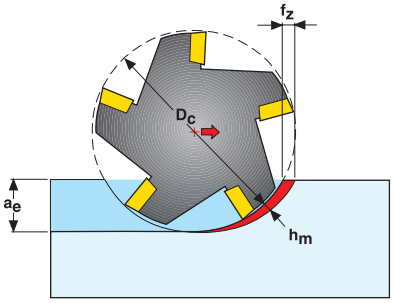
a_e/D_c %	Feed Per Tooth, in/tooth (f_z)													Speed Factor
	.0012	.0024	.0031	.004	.006	.008	.010	.012	.016	.020	.024	.031	.039	
	Average Chip Thickness, in/tooth (h_m)													
Width of cut up to and including D/2														
2 (0.02)					.0008	.0012	.0016	.0016	.0024	.0028	.0031	.0043	.0055	1.8
3 (0.03)				.0008	.0012	.0012	.0016	.0020	.0028	.0035	.0039	.0055	.0067	1.7
5 (0.05)			.0008	.0008	.0012	.0016	.0024	.0028	.0035	.0043	.0051	.0071	.0087	1.6
10 (0.10)		.0008	.0008	.0012	.0020	.0024	.0031	.0035	.0047	.0063	.0075	.0098	.0122	1.5
15 (0.15)	.0004	.0008	.0012	.0016	.0024	.0031	.0035	.0043	.0059	.0075	.0091	.0118		1.4
20 (0.20)	.0005	.0012	.0012	.0016	.0024	.0035	.0043	.0051	.0067	.0087	.0102			1.35
30 (0.30)	.0006	.0012	.0016	.0020	.0031	.0039	.0051	.0063	.0083	.0102	.0122			1.3
40 (0.40)	.0007	.0016	.0020	.0024	.0035	.0047	.0059	.0071	.0091	.0114				1.25
50 (0.50)	.0008	.0016	.0020	.0024	.0039	.0051	.0063	.0075	.0098	0.126				1.2
Slotting (Width of cut = D)														
100 (1.00)	.0008	.0016	.0020	.0024	.0039	.0051	.0063	.0075	.0098	.0126				1.0

= Feed per tooth correction example: at 20% engagement also increase speed by 1.35.

Instead of using the table above for calculating h_m and f_z, the following formula could be used if $a_e/D_C < 30\%$.

$$h_m = f_z \cdot \sqrt{\frac{a_e}{D_C}}$$

$$f_z = h_m \cdot \sqrt{\frac{D_C}{a_e}}$$



WORKPIECE MATERIALS - SECO MATERIAL GROUPS

Steel, ferritic and martensitic stainless steel

ISO	SMG No.	Representative material	Description	BHN	kc1.1 x 1000 lbf/in2	m_c
P	1	1010	Very soft carbon steels Purely ferritic steels	<135	196	0.21
	2	1140	Free-cutting steels	120 <210	218	0.22
	3	1045	Structural steels. Ordinary carbon steels with low to medium carbon content (<0,5%C)	135 <165	218	0.25
	4	4140	Carbon steels with high carbon content (>0,5%C) Medium hard steels for toughening. Ordinary low-alloy steels Ferritic and martensitic stainless steels	165 <210	247	0.24
	5	4340	Normal tool steels Harder steels for toughening Martensitic stainless steels	210 <270	276	0.24
	6	D2	Difficult tool steels High-alloy steels with high hardness Martensitic stainless steels	270 <360	290	0.24
H	7	A128 Grade A	Difficult high-strength steels with 42 to 56 HRC hardness Hardened steels from material group 3-6 Martensitic stainless steels	>360	421	0.22

Free-cutting, austenitic and duplex stainless steel

M	8	304	Easy-cutting stainless steels Free-cutting stainless steels Calcium-treated stainless steels		254	0.22
	9	316	Moderately difficult stainless steels Austenitic and duplex stainless steels		276	0.2
	10	310	Difficult stainless steels Austenitic and duplex stainless steels		297	0.2
	11	330	Very difficult stainless steels Austenitic and duplex stainless steels		312	0.2

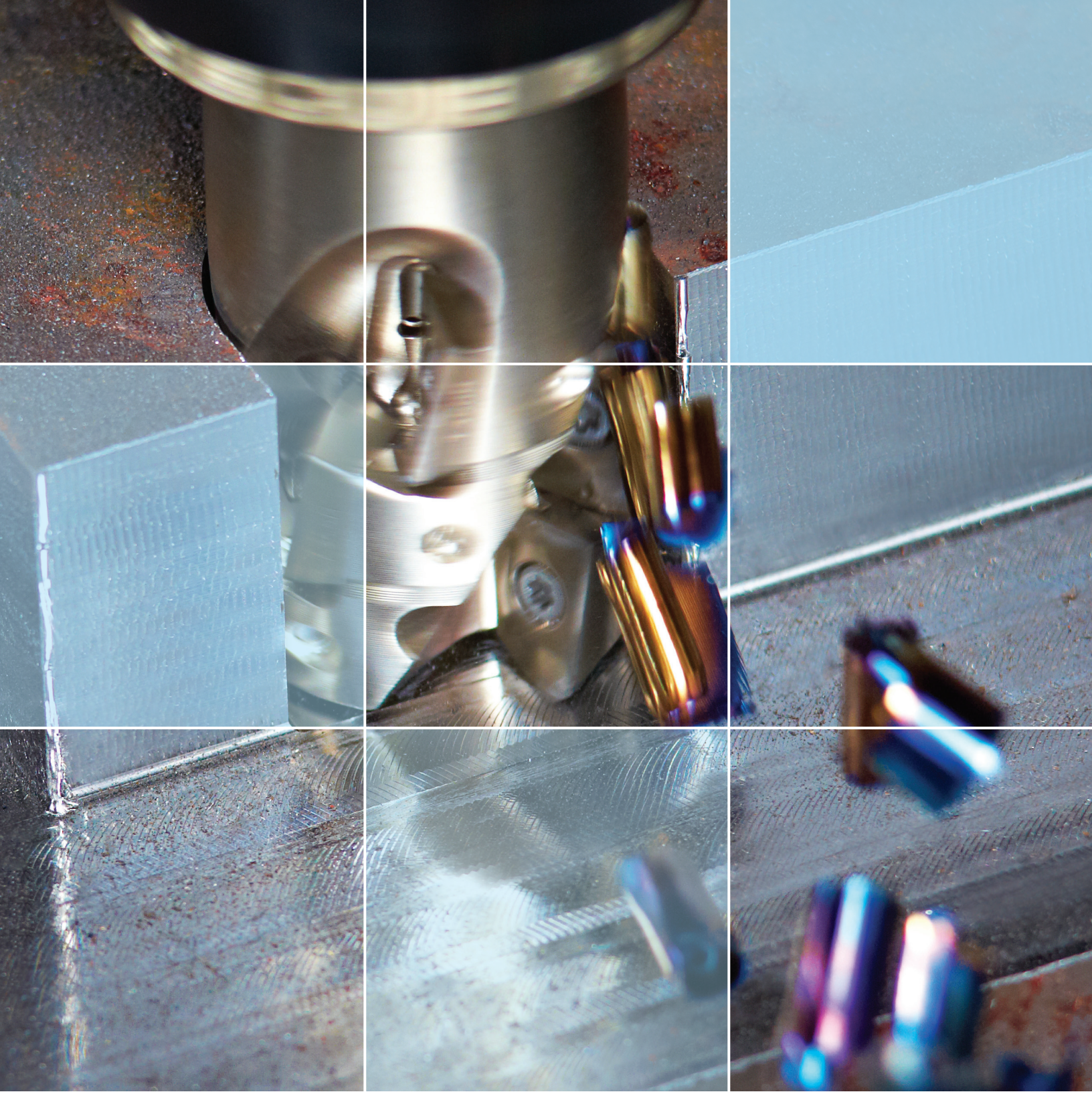
Cast iron

K	12	60-40-18	Medium hard cast iron Grey cast iron		167	0.22
	13	A536 80-55-06	Low-alloy cast iron Malleable cast iron Nodular cast iron		178	0.25
	14	A536 100-70-03	Moderately difficult alloy cast iron Moderately difficult malleable cast iron Nodular cast iron		196	0.28
	15	A536 120-90-02	Difficult high-alloy cast iron Difficult malleable cast iron Nodular cast iron		213	0.3

Other materials

N	16	A380	Aluminum alloys: Low Si		101	0.25
	17	B390.0	Aluminum alloys: High Si		101	0.27
	18	CA937	Copper alloys			
S	19	Discalloy	Fe-based superalloys			
	20	Stellite 21	Co-based superalloys		377	0.24
	21	Inconel 718 (bar, forge, ring)	Ni-based superalloys		479	0.24
	22	Ti 6Al-4V (annealed)	Titanium alloys		210	0.23

k_c1.1-values with 0 degree effective cutting rake angle. For other rake angles, reduce the k_c1.1-value by 1% for every degree increase in the cutting rake angle and vice versa. Keep in mind that the BHN-value is only an aid in the selection of the material group when the material has been worked by rolling, drawing, heat treatment or other methods that increase the strength of the material.



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