



**TURBO**  
**PRODUCT CATALOGUE**

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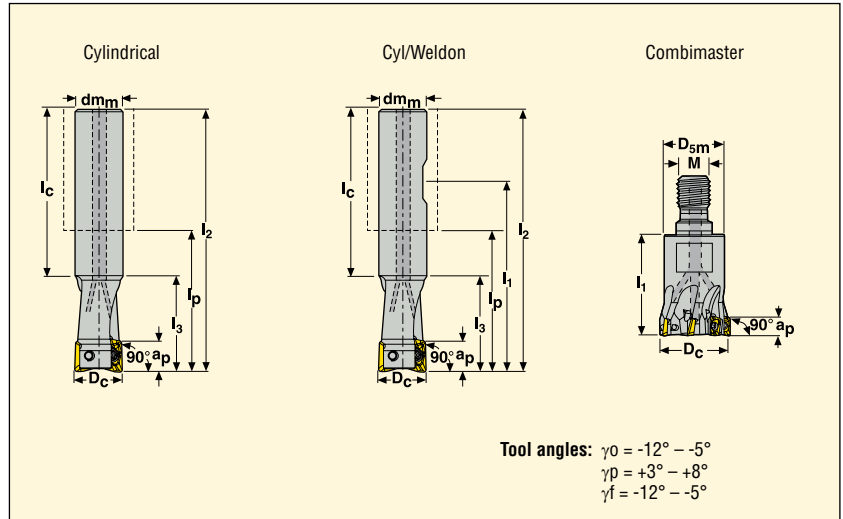


		HELICAL POWER	POWER TURBO		HELICAL SUPER	SUPER TURBO		HELICAL MICRO	MICRO TURBO		HELICAL NANO	NANO TURBO	
Cutter Bodies	Diameters	10-40 mm										<input type="checkbox"/>	
		12-20 mm									<input type="checkbox"/>		
		12-100 mm							<input type="checkbox"/>				
		20-40 mm							<input type="checkbox"/>				
		20-125 mm					<input type="checkbox"/>						
		25-63 mm				<input type="checkbox"/>							
		32-160 mm		<input type="checkbox"/>									
		40-100 mm	<input type="checkbox"/>										
	Versions	Cassettes Ø 125–250		<input type="checkbox"/>			<input type="checkbox"/>						
		Capto	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			
		Combimaster		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
		Normal Pitch	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>
		Coarse Pitch		<input type="checkbox"/>									
		Close Pitch		<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			
Inserts	Grades	F15M	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
		F25M							<input type="checkbox"/>	<input type="checkbox"/>			
		F30M	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
		F40M	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
		T25M							<input type="checkbox"/>	<input type="checkbox"/>			
		T150M	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			
		T200M	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			
		T250M	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			
		T350M	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			
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	H25	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>				
	Geometries	E (Easy)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
		ME	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			
		M (Medium)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
MD		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>							
D (Difficult)		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>							

## Nano Turbo 217.69-06



- For complete insert program see page 23
- For max RPM and torque values see page 22



Part No.	Dimensions in mm										Type of mounting	Locking screw	Key		
	Dc	dmm	l1	l2	lp	l3	lc	M	ap	KG					
R217.69 -1010.0-06-2A	10	10	-	55	15	16	38	-	5	2	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1010.0-06-2AD	10	10	-	55	15	16	38	-	5	2	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1212.0-06-2A	12	12	-	80	35	17	62	-	5	2	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1212.0-06-3A	12	12	-	60	15	17	42	-	5	3	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1212.0-06-3AD	12	12	-	80	35	17	62	-	5	3	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1616.0-06-3A	16	16	-	90	42	19	70	-	5	3	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1616.0-06-4A	16	16	-	90	42	19	70	-	5	4	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1616.0-06-4AD	16	16	-	90	42	19	70	-	5	4	0.3	Cylindrical	XO..0602	C01804-T06P	T06P-3
-2020.0-06-4A	20	20	-	105	55	17	85	-	5	4	0.2	Cylindrical	XO..0602	C01804-T06P	T06P-3
-2020.0-06-5A	20	20	-	105	55	17	85	-	5	5	0.2	Cylindrical	XO..0602	C01804-T06P	T06P-3
-2020.0-06-5AD	20	20	-	105	55	20	85	-	5	5	0.5	Cylindrical	XO..0602	C01804-T06P	T06P-3
-2025.0-06-7A	25	20	-	115	65	65	95	-	5	7	0.2	Cylindrical	XO..0602	C01804-T06P	T06P-3
-2532.0-06-8A	32	25	-	130	74	74	105	-	5	8	0.5	Cylindrical	XO..0602	C01804-T06P	T06P-3
-3240.0-06-10A	40	32	-	140	80	80	115	-	5	10	0.9	Cylindrical	XO..0602	C01804-T06P	T06P-3
R217.69 -1010.0-06-2	10	10	-	100	62	18	82	-	5	2	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1212.0-06-2	12	12	-	120	75	18	102	-	5	2	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
R217.69 -0810.0-06-2A	10	8	-	100	64	64	82	-	5	2	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1012.0-06-2A	12	10	-	120	80	80	102	-	5	2	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1214.0-06-3A	14	12	-	140	95	95	122	-	5	3	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1416.0-06-3A	16	14	-	160	115	115	140	-	5	3	0.2	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1618.0-06-4A	18	16	-	180	132	132	160	-	5	4	0.3	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1820.0-06-4A	20	18	-	200	150	150	180	-	5	4	0.4	Cylindrical	XO..0602	C01804-T06P	T06P-3
R217.69 -0810.0-06-2	10	8	-	100	64	64	82	-	5	2	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
-1012.0-06-2	12	10	-	120	80	80	102	-	5	2	0.1	Cylindrical	XO..0602	C01804-T06P	T06P-3
R217.69 -1616.3-06-3A	16	16	46	70	22	20	50	-	5	3	0.1	Cyl/Weldon	XO..0602	C01804-T06P	T06P-3
-1616.3-06-4A	16	16	46	70	22	20	50	-	5	4	0.1	Cyl/Weldon	XO..0602	C01804-T06P	T06P-3
-2020.3-06-4A	20	20	55	80	30	20	60	-	5	4	0.2	Cyl/Weldon	XO..0602	C01804-T06P	T06P-3
-2020.3-06-5A	20	20	60	85	35	20	65	-	5	5	0.2	Cyl/Weldon	XO..0602	C01804-T06P	T06P-3
-2025.3-06-7A	25	20	65	90	40	20	70	-	5	7	0.2	Cyl/Weldon	XO..0602	C01804-T06P	T06P-3
R217.69 -0816.RE-06-4A	16	-	23	-	-	-	-	M08	5	4	0.1	Combimaster*	XO..0602	C01804-T06P	T06P-3
-1020.RE-06-5A	20	-	28	-	-	-	-	M10	5	5	0.1	Combimaster*	XO..0602	C01804-T06P	T06P-3
-1225.RE-06-7A	25	-	30	-	-	-	-	M12	5	7	0.1	Combimaster*	XO..0602	C01804-T06P	T06P-3
-1632.RE-06-8A	32	-	35	-	-	-	-	M16	5	8	0.2	Combimaster*	XO..0602	C01804-T06P	T06P-3
-1640.RE-06-10A	40	-	35	-	-	-	-	M16	5	10	0.3	Combimaster*	XO..0602	C01804-T06P	T06P-3

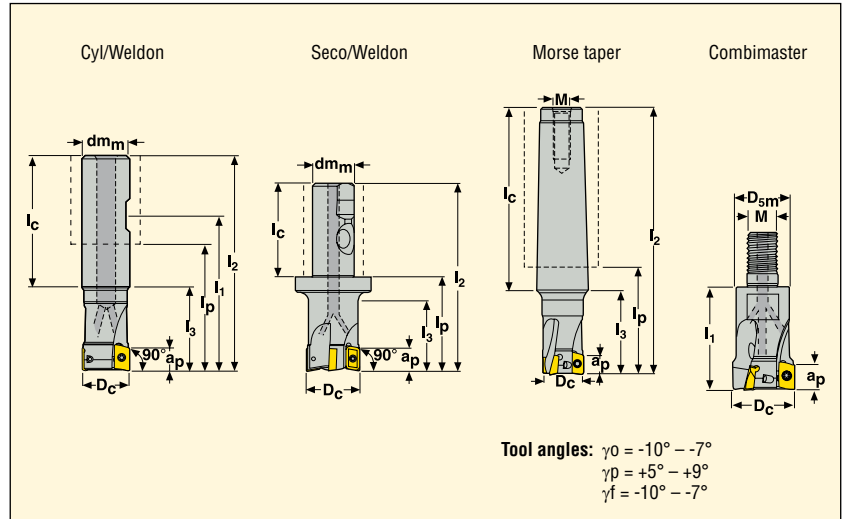
Please check availability in current price and stock-list.  
 \*For shanks and dimensions, see the Combimaster chapter in MN Milling part 2.

# Square shoulder and slot milling cutters

## Micro Turbo 217.69-09



- For complete insert program see page 24
- For max RPM and torque values see page 22



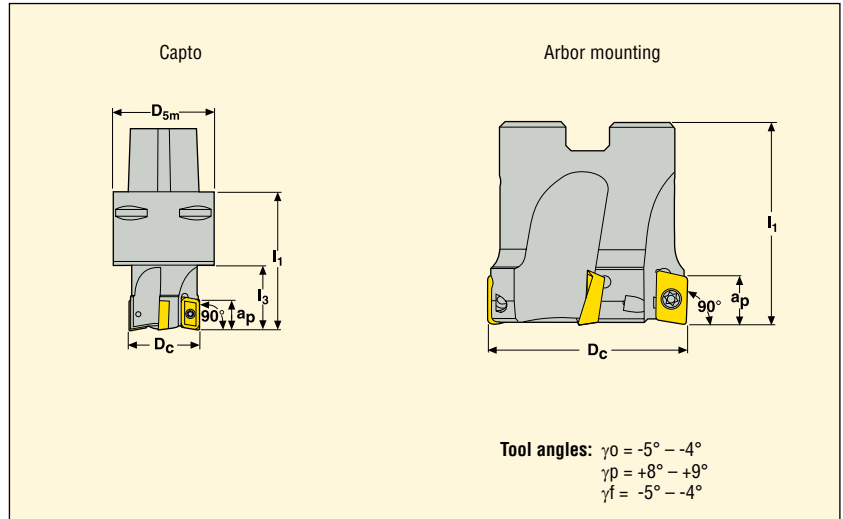
Part No.	Dimensions in mm									Dc	KG	Type of mounting	Insert	Spare parts	
	Dc	dm	l1	l2	lp	l3	lc	M	ap					Locking screw	Key
R217.69 -1612.3-09A	12	16	54	78	30	24	54	-	8	1	0.1	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
-1616.3-09A	16	16	54	78	30	24	54	-	8	2	0.1	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
-2018.3-09A	18	20	60	85	35	29	56	-	8	2	0.2	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
-2020.3-09A	20	20	65	90	40	29	61	-	8	2	0.2	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
-2525.3-09A	25	25	69	101	45	34	67	-	8	3	0.4	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
R217.69 -2020.3-09TA	20	20	65	90	40	29	61	-	8	3	0.2	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
-2525.3-09TA	25	25	69	101	45	34	67	-	8	4	0.4	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
R217.69 -2025.3S-09A	25	20	-	100	50	36	50	-	8	3	0.3	Seco/Weldon	XO..0903	C02505-T08P	T08P-3
-2532.3S-09A	32	25	-	111	55	41	56	-	8	3	0.5	Seco/Weldon	XO..0903	C02505-T08P	T08P-3
R217.69 -2025.3S-09TA	25	20	-	100	50	36	50	-	8	4	0.3	Seco/Weldon	XO..0903	C02505-T08P	T08P-3
-2532.3S-09TA	32	25	-	111	55	41	56	-	8	5	0.5	Seco/Weldon	XO..0903	C02505-T08P	T08P-3
R217.69 -1612.0-09-1A	12	16	-	135	87	22	105	-	8	1	0.2	Cylindrical	XO..0903	C02505-T08P	T08P-3
-1416.0-09-2A	16	14	-	160	112	24	133.5	-	8	2	0.3	Cylindrical	XO..0903	C02505-T08P	T08P-3
-1616.0-09-2A	16	16	-	135	87	24	105	-	8	2	0.2	Cylindrical	XO..0903	C02505-T08P	T08P-3
-1820.0-09-2A	20	18	-	200	150	29	170	-	8	2	0.4	Cylindrical	XO..0903	C02505-T08P	T08P-3
-2020.0-09-2A	20	20	-	150	100	29	115	-	8	2	0.4	Cylindrical	XO..0903	C02505-T08P	T08P-3
-2225.0-09-3A	25	22	-	200	144	29	170	-	8	3	0.6	Cylindrical	XO..0903	C02505-T08P	T08P-3
-2525.0-09-3A	25	25	-	170	114	29	130	-	8	3	0.6	Cylindrical	XO..0903	C02505-T08P	T08P-3
-3032.0-09-3A	32	30	-	200	140	31	168	-	8	3	1	Cylindrical	XO..0903	C02505-T08P	T08P-3
-3232.0-09-3A	32	32	-	195	135	31	155	-	8	3	1.2	Cylindrical	XO..0903	C02505-T08P	T08P-3
R217.69 -2020.0-09-3A	20	20	-	150	100	29	115	-	8	3	0.4	Cylindrical	XO..0903	C02505-T08P	T08P-3
-3232.0-09-5A	32	32	-	195	135	31	155	-	8	5	1.2	Cylindrical	XO..0903	C02505-T08P	T08P-3
R217.69 -0320.2-09	20	-	-	120	38	31	76	M12	8	2	0.3	Morse No.3	XO..0903	C02505-T08P	T08P-3
-0325.2-09	25	-	-	120	38	38	76	M12	8	3	0.4	Morse No.3	XO..0903	C02505-T08P	T08P-3
-0332.2-09	32	-	-	120	38	38	76	M12	8	3	0.4	Morse No.3	XO..0903	C02505-T08P	T08P-3
R217.69 -0320.2-09T	20	-	-	120	38	31	76	M12	8	3	0.3	Morse No.3	XO..0903	C02505-T08P	T08P-3
-0325.2-09T	25	-	-	120	38	38	76	M12	8	4	0.4	Morse No.3	XO..0903	C02505-T08P	T08P-3
-0332.2-09T	32	-	-	120	38	38	76	M12	8	4	0.4	Morse No.3	XO..0903	C02505-T08P	T08P-3
R217.69 -1020.RE-09.2A	20	-	28	-	-	-	-	M10	8	2	0.1	Combimaster*	XO..0903	C02505-T08P	T08P-3
-1020.RE-09.3A	20	-	28	-	-	-	-	M10	8	3	0.1	Combimaster*	XO..0903	C02505-T08P	T08P-3
R217.69 -1225.RE-09.2A	25	-	30	-	-	-	-	M12	8	2	0.2	Combimaster*	XO..0903	C02505-T08P	T08P-3
-1225.RE-09.3A	25	-	30	-	-	-	-	M12	8	3	0.2	Combimaster*	XO..0903	C02505-T08P	T08P-3
-1225.RE-09.4A	25	-	30	-	-	-	-	M12	8	4	0.2	Combimaster*	XO..0903	C02505-T08P	T08P-3
R217.69 -1632.RE-09.3A	32	-	40	-	-	-	-	M16	8	3	0.3	Combimaster*	XO..0903	C02505-T08P	T08P-3
-1632.RE-09.5A	32	-	40	-	-	-	-	M16	8	5	0.3	Combimaster*	XO..0903	C02505-T08P	T08P-3

Please check availability in current price and stock-list.  
 \*For shanks and dimensions, see the Combimaster chapter in MN Milling part 2.

## Nano-MicroTurbo



- For complete insert program see page 23-24
- For max RPM and torque values see page 22



Fortanding	Part No.	Dimensions in mm							Material	Coating	Spare parts		
		Dc	l <sub>1</sub>	l <sub>3</sub>	D <sub>sm</sub>	ap	Symbol 1	Symbol 2			Symbol 3	Locking screw	Key
Nano Turbo	R220.69 -0032-06-8A	32	35	-	-	5	8	0.2	XO..0602	C01804-T06P	T06P-3	TCEI 0825	
	-0040-06-10A	40	35	-	-	5	10	0.2	XO..0602	C01804-T06P	T06P-3	TCEI 0825	
	Micro Turbo												
Normal	R220.69 -0040-09-4A	40	40	-	-	8	4	0.3	XO..0903	C02505-T08P	T08P-3	MC6S 8x30	
	-0050-09-5A	50	40	-	-	8	5	0.4	XO..0903	C02505-T08P	T08P-3	220.17-692	
Close	R220.69 -0040-09-6A	40	40	-	-	8	6	0.3	XO..0903	C02505-T08P	T08P-3	MC6S 8x30	
	-0050-09-7A	50	40	-	-	8	7	0.4	XO..0903	C02505-T08P	T08P-3	220.17-692	
	-0063-09-8A	63	40	-	-	8	8	0.5	XO..0903	C02505-T08P	T08P-3	220.17-692	
	-0080-09-10A	80	50	-	-	8	10	1.0	XO..0903	C02505-T08P	T08P-3	-	
	-0100-09-12A	100	50	-	-	8	12	1.6	XO..0903	C02505-T08P	T08P-3	-	
Capto	Micro Turbo												
	R217.69 -C5-040-09-6A*	40	80	57	50	8	6	0.9	XO..0903	C02505-T08P	T08P-3	-	
	-C5-054-09-7A*	54	60	60	50	8	7	1.0	XO..0903	C02505-T08P	T08P-3	-	
	-C5-063-09-8A*	63	60	60	50	8	8	1.1	XO..0903	C02505-T08P	T08P-3	-	

\* In stock first quarter 2007

## Dimensions of mounting

For cutter	Dimensions in mm			For arbor
	d <sub>mm</sub>	B <sub>kw</sub>	c	
R220.69 -0032-0040	16	8.4	5.6	16
R220.69 -0050-0063	22	10.4	6.3	22
R220.69 -0080	27	12.4	7	27
R220.69 -0100	32	14.4	8	32

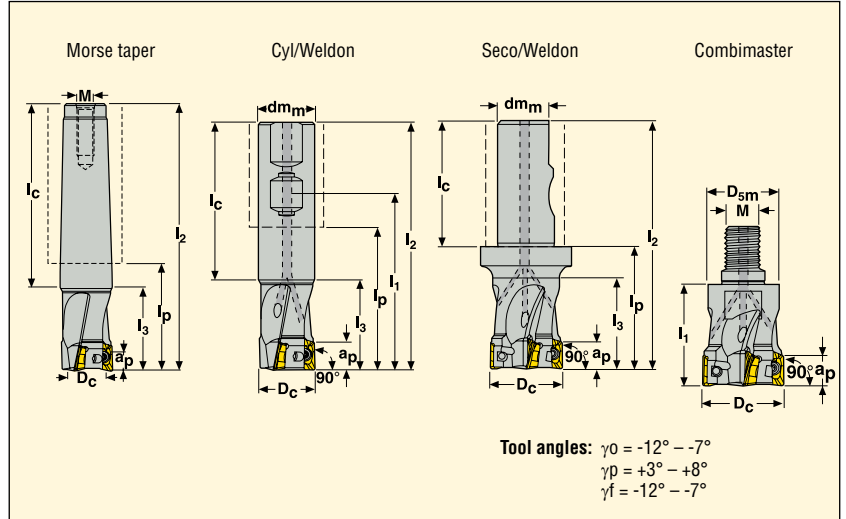
Please check availability in current price and stock-list.

# Square shoulder and slot milling cutters

## Super Turbo 217.69-12



- For complete insert program see page 25
- For max RPM and torque values see page 22



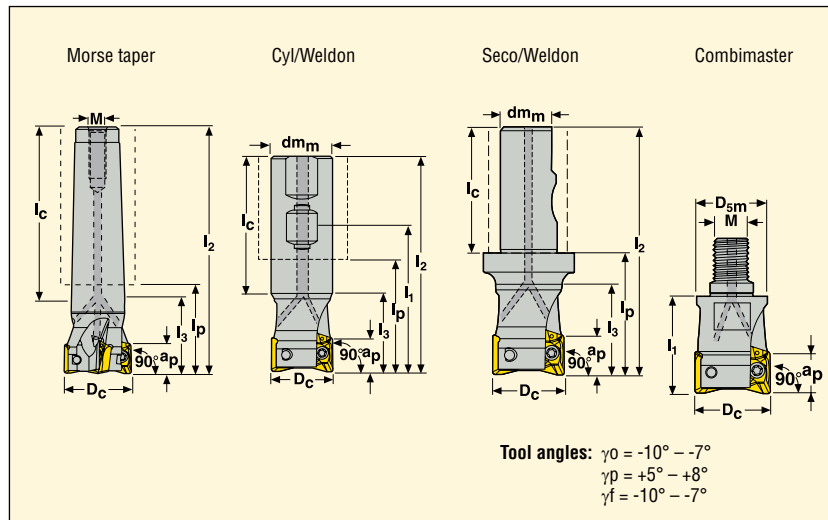
Part No.	Dimensions in mm									Type of mounting	Type of insert	Spare parts			
	Dc	dmm	l1	l2	lp	l3	lc	M	ap			Locking screw	Key		
R217.69 -1820.0-12-2A	20	18	-	150	100	100	120	-	11	2	0.3	Cylindrical	XO..1204	C03507-T10P	T10P-3
-2020.0-12-2A	20	20	-	150	100	30	120	-	11	2	0.4	Cylindrical	XO..1204	C03507-T10P	T10P-3
-2225.0-12-2A	25	22	-	170	114	114	135	-	11	2	0.5	Cylindrical	XO..1204	C03507-T10P	T10P-3
-2525.0-12-2A	25	25	-	170	114	35	135	-	11	2	0.6	Cylindrical	XO..1204	C03507-T10P	T10P-3
-2525.0-12-3A	25	25	-	170	114	35	135	-	11	3	0.6	Cylindrical	XO..1204	C03507-T10P	T10P-3
-3032.0-12-3A	32	30	-	195	135	135	155	-	11	3	1.0	Cylindrical	XO..1204	C03507-T10P	T10P-3
-3232.0-12-3A	32	32	-	195	135	37	155	-	11	3	1.2	Cylindrical	XO..1204	C03507-T10P	T10P-3
R217.69 -0320.2-12-2	20	-	-	120	39	30	81	M12	11	2	0.3	Morse No.3	XO..1204	C03507-T10P	T10P-3
-0325.2-12-3	25	-	-	126	45	45	81	M12	11	3	0.4	Morse No.3	XO..1204	C03507-T10P	T10P-3
-0332.2-12-4	32	-	-	126	45	45	81	M12	11	4	0.4	Morse No.3	XO..1204	C03507-T10P	T10P-3
R217.69 -2020.3-12-2A	20	20	60	85	35	30	55	-	11	2	0.2	Cyl/Weldon	XO..1204	C03507-T10P	T10P-3
-2525.3-12-3A	25	25	63	95	39	32	60	-	11	3	0.4	Cyl/Weldon	XO..1204	C03507-T10P	T10P-3
-3232.3-12-3A	32	32	69	105	45	37	65	-	11	3	0.6	Cyl/Weldon	XO..1204	C03507-T10P	T10P-3
R217.69 -3232.3-12-4A	32	32	69	105	45	37	65	-	11	4	0.6	Cyl/Weldon	XO..1204	C03507-T10P	T10P-3
R217.69 -2025.3S-12-3A	25	20	-	100	50	36	50	-	11	3	0.3	Seco/Weldon	XO..1204	C03507-T10P	T10P-3
-2532.3S-12-4A	32	25	-	110	54	40	56	-	11	4	0.5	Seco/Weldon	XO..1204	C03507-T10P	T10P-3
R217.69 -3240.3S-12-5A	40	32	-	120	60	46	60	-	11	5	0.8	Seco/Weldon	XO..1204	C03509-T10P	T10P-3
R217.69 -1020.RE-12-2A	20	-	28	-	-	-	-	M10	11	2	0.1	Combimaster*	XO..1204	C03507-T10P	T10P-3
-1225.RE-12-3A	25	-	30	-	-	-	-	M12	11	3	0.1	Combimaster*	XO..1204	C03507-T10P	T10P-3
-1632.RE-12-3A	32	-	40	-	-	-	-	M16	11	3	0.2	Combimaster*	XO..1204	C03507-T10P	T10P-3
-1632.RE-12-4A	32	-	40	-	-	-	-	M16	11	4	0.2	Combimaster*	XO..1204	C03507-T10P	T10P-3
-1640.RE-12-4A	40	-	40	-	-	-	-	M16	11	4	0.2	Combimaster*	XO..1204	C03509-T10P	T10P-3
-1640.RE-12-5A	40	-	40	-	-	-	-	M16	11	5	0.3	Combimaster*	XO..1204	C03509-T10P	T10P-3

Please check availability in current price and stock-list.  
 \*For shanks and dimensions, see the Combimaster chapter in MN Milling part 2.

## Power Turbo 217.69-18A



- For complete insert program see page 26
- For max RPM and torque values see page 22



Part No.	Dimensions in mm										Type of mounting	Spare parts			
	Dc	dmm	l1	l2	lp	l3	lc	M	ap	KG			Locking screw	Key	
R217.69 -3032.0-18-2A	32	30	-	210	150	150	170	-	17	2	1	Cylindrical	XO..1806	C04510-T20P	T20P-3
-3232.0-18-2A	32	32	-	210	150	38	170	-	17	2	1.1	Cylindrical	XO..1806	C04510-T20P	T20P-3
-3232.0-18-3A	32	32	-	210	150	38	170	-	17	3	1.1	Cylindrical	XO..1806	C04510-T20P	T20P-3
-3240.0-18-3A	40	32	-	210	150	150	165	-	17	3	1.2	Cylindrical	XO..1806	C04510-T20P	T20P-3
-3240.0-18-4A	40	32	-	210	150	150	165	-	17	4	1.2	Cylindrical	XO..1806	C04510-T20P	T20P-3
R217.69 -0332.2-18-2A	32	-	-	125	44	39	86	M12	17	2	0.4	Morse No. 3	XO..1806	C04510-T20P	T20P-3
-0332.2-18-3A	32	-	-	125	44	39	86	M12	17	3	0.5	Morse No. 3	XO..1806	C04510-T20P	T20P-3
-0440.2-18-3A	40	-	-	145	42.5	36	109	M16	17	3	0.7	Morse No. 4	XO..1806	C04510-T20P	T20P-3
-0440.2-18-4A	40	-	-	145	42.5	36	109	M16	17	4	0.7	Morse No. 4	XO..1806	C04510-T20P	T20P-3
R217.69 -3232.3-18-2A	32	32	74	110	50	38	70	-	17	2	0.6	Cyl/Weldon	XO..1806	C04510-T20P	T20P-3
-3232.3-18-3A	32	32	74	110	50	38	70	-	17	3	0.6	Cyl/Weldon	XO..1806	C04510-T20P	T20P-3
R217.69 -2532.3S-18-2A	32	25	-	109.5	54	40	55.5	-	17	2	0.5	Seco/Weldon	XO..1806	C04510-T20P	T20P-3
-3240.3S-18-3A	40	32	-	119.5	60	46	59.5	-	17	3	0.8	Seco/Weldon	XO..1806	C04510-T20P	T20P-3
R217.69 -1632.RE-18-2A	32	-	45	-	-	-	-	M16	17	2	0.2	Combimaster*	XO..1806	C04510-T20P	T20P-3
-1632.RE-18-3A	32	-	45	-	-	-	-	M16	17	3	0.2	Combimaster*	XO..1806	C04510-T20P	T20P-3
-1640.RE-18-3A	40	-	45	-	-	-	-	M16	17	3	0.3	Combimaster*	XO..1806	C04510-T20P	T20P-3
-1640.RE-18-4A	40	-	45	-	-	-	-	M16	17	4	0.3	Combimaster*	XO..1806	C04510-T20P	T20P-3

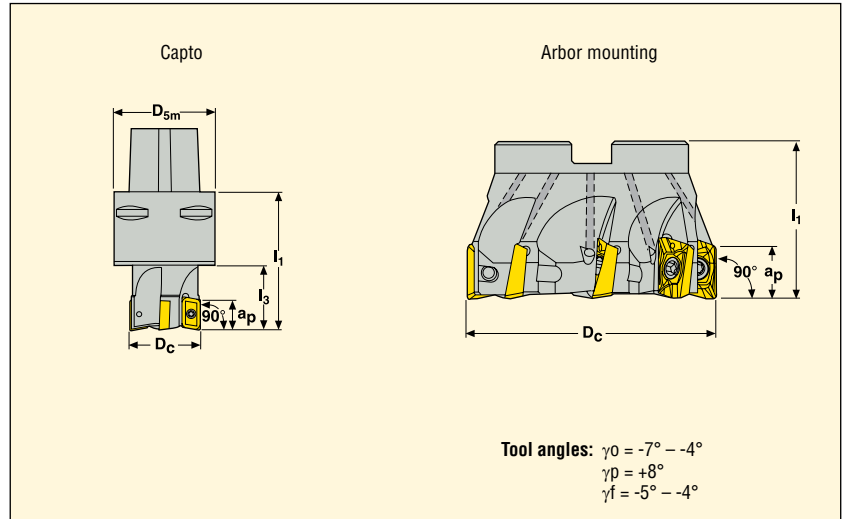
Please check availability in current price and stock-list.  
 \*For shanks and dimensions, see the Combimaster chapter in MN Milling part 2.



## Super Turbo 217/220.69-12



- For complete insert program see page 25
- For max RPM and torque values see page 22



Pitch	Part No.	Dimensions in mm					Z	KG	Insert	Spare parts		
		Dc	l1	l3	D5m	ap				Locking screw	Key	Arbor screw
Normal	<b>Super Turbo</b>											
	R220.69 -0040-12-4A	40	40	-	-	11	4	0.3	XO..1204	C03509-T10P	T10P-3	MC6S 8x30
	-0050-12-5A	50	40	-	-	11	5	0.4	XO..1204	C03509-T10P	T10P-3	220.17-692
	-0063-12-6A	63	40	-	-	11	6	0.6	XO..1204	C03509-T10P	T10P-3	220.17-693
	-0080-12-7A	80	50	-	-	11	7	1.0	XO..1204	C03509-T10P	T10P-3	-
	-0100-12-8A	100	50	-	-	11	8	1.7	XO..1204	C03509-T10P	T10P-3	-
	-0125-12-10A	125	63	-	-	11	10	3.0	XO..1204	C03509-T10P	T10P-3	-
Close	R220.69 -0040-12-5A	40	40	-	-	11	5	0.3	XO..1204	C03509-T10P	T10P-3	MC6S 8x30
	-0050-12-7A	50	40	-	-	11	7	0.4	XO..1204	C03509-T10P	T10P-3	220.17-692
	-0063-12-8A	63	40	-	-	11	8	0.6	XO..1204	C03509-T10P	T10P-3	220.17-693
	-0080-12-10A	80	50	-	-	11	10	1.0	XO..1204	C03509-T10P	T10P-3	-
	-0100-12-12A	100	50	-	-	11	12	1.7	XO..1204	C03509-T10P	T10P-3	-
	-0125-12-14A	125	63	-	-	11	14	3.0	XO..1204	C03509-T10P	T10P-3	-
	<b>Capto</b>											
	R217.69 -C5-040-12-4A*	40	80	57	50	11	4	0.8	XO..1204	C03509-T10P	T10P-3	-
	-C5-054-12-5A*	54	60	60	50	11	5	0.9	XO..1204	C03509-T10P	T10P-3	-
	-C5-063-12-6A*	63	60	60	50	11	6	1.0	XO..1204	C03509-T10P	T10P-3	-
	-C5-080-12-7A*	80	60	60	50	11	7	1.3	XO..1204	C03509-T10P	T10P-3	-
	-C6-040-12-4A*	40	80	55	63	11	4	1.2	XO..1204	C03509-T10P	T10P-3	-
	-C6-050-12-5A*	50	60	36	63	11	5	1.2	XO..1204	C03509-T10P	T10P-3	-
	-C6-066-12-6A*	66	60	60	63	11	6	1.5	XO..1204	C03509-T10P	T10P-3	-
	-C6-080-12-7A*	80	60	60	63	11	7	1.7	XO..1204	C03509-T10P	T10P-3	-

\* In stock first quarter 2007

## Dimensions of mounting

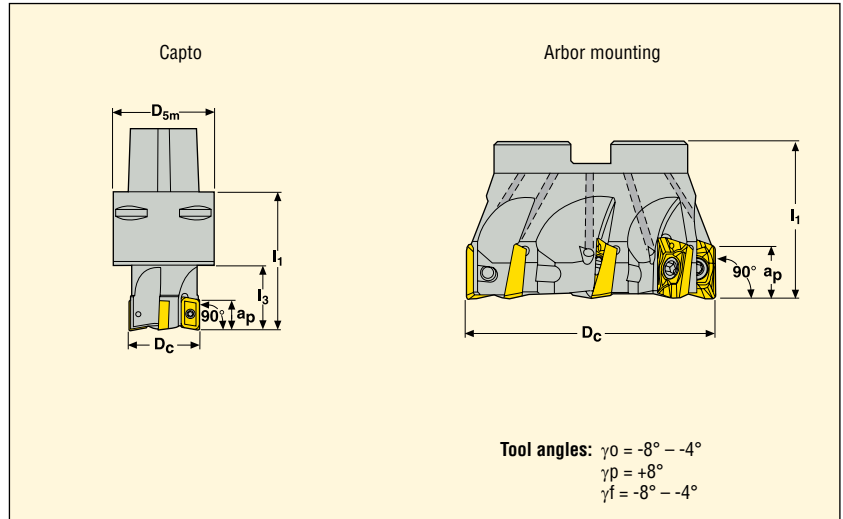
For cutter	Dimensions in mm				For arbor	For spindle nose
	dmm	Bkw	c	dhc1		
R220.69 -0040	16	8.4	5.6	-	16	-
-0050	22	10.4	6.3	-	22	-
-0063-0080	27	12.4	7	-	27	-
-0100	32	14.4	8	-	32	-
-0125	40	16.4	9	-	40	-

Please check availability in current price and stock-list.

## Power Turbo 217/220.69-18



- For complete insert program see page 26
- For max RPM and torque values, see page 22



## Power Turbo

Pitch	Part No.	Dimensions in mm						Pitch	KG	Insert	Spare parts		
		Dc	l1	l3	D5m	ap	Locking screw				Key	Arbor screw	
Normal	<b>Power Turbo</b>												
	R220.69 -0050-18-4A	50	40	-	-	17	4	0.3	XO..1806	C04510-T20P	T20P-4	220.17-692	
	-0063-18-5A	63	40	-	-	17	5	0.5	XO..1806	C04510-T20P	T20P-4	220.17-693	
	-0080-18-6A	80	50	-	-	17	6	1.0	XO..1806	C04510-T20P	T20P-4	-	
	-0100-18-7A	100	50	-	-	17	7	1.7	XO..1806	C04510-T20P	T20P-4	-	
	-0125-18-8A	125	63	-	-	17	8	3.1	XO..1806	C04510-T20P	T20P-4	-	
-8160-18-12	160	63	-	-	17	12	5.2	XO..1806	C04510-T20P	T20P-4	-		
Close	R220.69 -0050-18-5A	50	40	-	-	17	5	0.3	XO..1806	C04510-T20P	T20P-4	220.17-692	
	-0063-18-6A	63	40	-	-	17	6	0.5	XO..1806	C04510-T20P	T20P-4	220.17-693	
	-0080-18-8A	80	50	-	-	17	8	1.0	XO..1806	C04510-T20P	T20P-4	-	
	-0100-18-9A	100	50	-	-	17	9	1.7	XO..1806	C04510-T20P	T20P-4	-	
	-0125-18-11A	125	63	-	-	17	11	3.1	XO..1806	C04510-T20P	T20P-4	-	
Coarse	R220.69 -0063-18-4A	63	40	-	-	17	4	0.5	XO..1806	C04510-T20P	T20P-4	220.17-693	
	-0080-18-5A	80	50	-	-	17	5	1.0	XO..1806	C04510-T20P	T20P-4	-	
	-0100-18-6A	100	50	-	-	17	6	1.7	XO..1806	C04510-T20P	T20P-4	-	
	-0125-18-7A	125	63	-	-	17	7	3.1	XO..1806	C04510-T20P	T20P-4	-	
	-8160-18-7	160	63	-	-	17	7	4.6	XO..1806	C04510-T20P	T20P-4	-	
	-8160-18-9	160	63	-	-	17	9	4.7	XO..1806	C04510-T20P	T20P-4	-	
Capto	R217.69 -C6-040-18-3A*	40	80	55	63	17	3	1.0	XO..1806	C04510-T20P	T20P-4	-	
	-C6-050-18-4A*	50	80	55	63	17	4	1.3	XO..1806	C04510-T20P	T20P-4	-	
	-C6-066-18-5A*	66	60	60	63	17	5	1.5	XO..1806	C04510-T20P	T20P-4	-	
	-C6-080-18-6A*	80	60	60	63	17	6	1.8	XO..1806	C04510-T20P	T20P-4	-	

\* In stock first quarter 2007

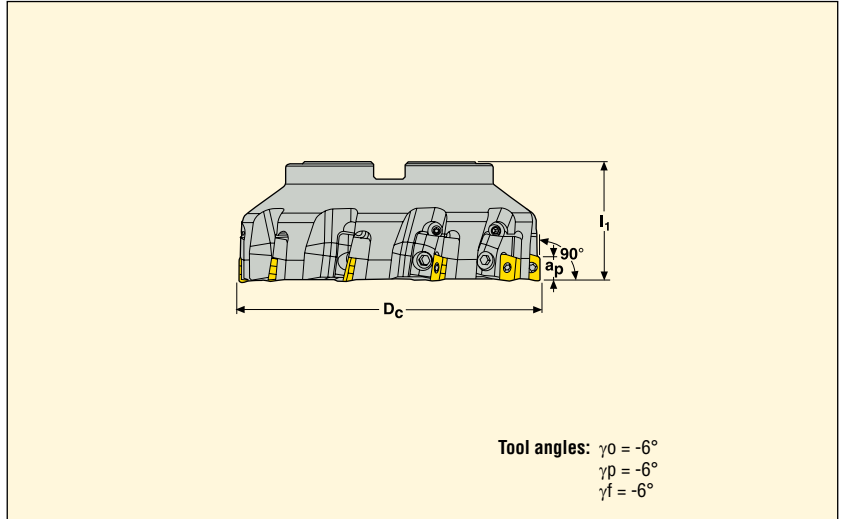
## Dimensions of mounting

For cutter	Dimensions in mm				For arbor	For spindle nose
	dmm	Bkw	c	dhc1		
R220.69 -0050	22	10.4	6.3	-	22	-
-0063-0080	27	12.4	7	-	27	-
-0100	32	14.4	8	-	32	-
-0125	40	16.4	9	-	40	-
-8160	40	16.4	9	66.7	40	ISO40

Please check availability in current price and stock-list.

# Square shoulder and slot milling cutters

## Super Turbo 220.69-12C and Power Turbo 220.69-18C



- For complete insert program see page 25-26
- For max RPM and torque values see page 22

Pitch	Part No.	Dimensions in mm						Spare parts					
		Dc	l1	ap									
Normal	<b>Super Turbo</b>												
	<b>R220.69 -0125-12-8C</b>	125	63	11	8	3.1	XO..1204	XO12PR	FS96018	H05-4	AU1114T-T15P	T15P-3	
	<b>-8160-12-10C</b>	160	63	11	10	5.0	XO..1204	XO12PR	FS96018	H05-4	AU1114T-T15P	T15P-3	
	<b>-8200-12-12C</b>	200	63	11	12	7.5	XO..1204	XO12PR	FS96018	H05-4	AU1114T-T15P	T15P-3	
	<b>-8250-12-16C</b>	250	63	11	16	13.0	XO..1204	XO12PR	FS96018	H05-4	AU1114T-T15P	T15P-3	
Normal	<b>Power Turbo</b>												
	<b>R220.69 -0125-18-8C</b>	125	63	17	8	3.1	XO..1806	XO18PR	FS96018	H05-4	AU1114T-T15P	T15P-3	
	<b>-8160-18-10C</b>	160	63	17	10	5.0	XO..1806	XO18PR	FS96018	H05-4	AU1114T-T15P	T15P-3	
	<b>-8200-18-12C</b>	200	63	17	12	7.5	XO..1806	XO18PR	FS96018	H05-4	AU1114T-T15P	T15P-3	
	<b>-8250-18-16C</b>	250	63	17	16	13.0	XO..1806	XO18PR	FS96018	H05-4	AU1114T-T15P	T15P-3	

## Dimensions of mounting

	Dimensions in mm				For arbor	For spindle nose	
	For cutter	dmm	Bkw	c			dhc1
	<b>R220.69 -0125</b>	40	16,4	9	—	40	—
	<b>-8160</b>	40	16,4	9	66,7	40	ISO40
	<b>-8200-8250</b>	60	25,7	14	101,6	—	ISO60

Please check availability in current price and stock-list.

\*Locking screw C03509-T10P-3 and insert locking key T10P-3 included for Super Turbo cutters.

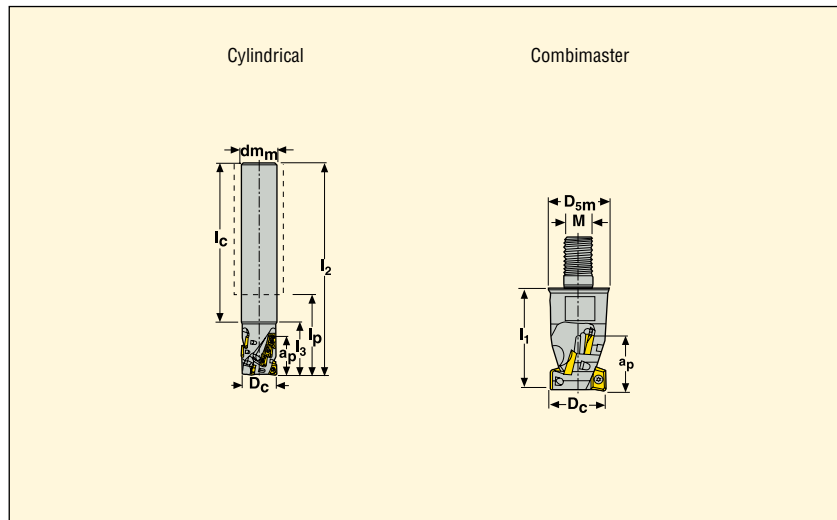
\*Locking screw C04510-T20P and insert locking key T20P-4 included for Power Turbo cutters.



## Helical Nano Turbo 217.69-06



- For complete insert program see page 23
- For max RPM and torque values see page 22



Part No.	Dimensions in mm											No of flute			Type of mounting		Spare parts	
	$D_c$	$d_{mm}$	$l_1$	$l_2$	$l_p$	$l_3$	$l_c$	M	$ap^*$	$z_c$	Locking screw						Key	
<b>For Contouring</b>																		
R217.69 -1612.0-10-06.2	12	16	-	98	53	23	66	-	10	2	2	4	0.13	Cylindrical	XO..0602	C01804-T06P	T06P-3	
-1212.0-10-06.2E	12	12	-	135	90	50	85	-	10	2	2	4	0.43	Cyl/carbide	XO..0602	C01804-T06P	T06P-3	
-1616.0-15-06.3	16	16	-	110	62	30	80	-	15	3	3	9	0.16	Cylindrical	XO..0602	C01804-T06P	T06P-3	
-1616.0-15-06.3E	16	16	-	165	117	50	115	-	15	3	3	9	0.43	Cyl/carbide	XO..0602	C01804-T06P	T06P-3	
-1616.0-20-06.2	16	16	-	110	62	30	80	-	20	2	2	8	0.16	Cylindrical	XO..0602	C01804-T06P	T06P-3	
-2020.0-25-06.3	20	20	-	120	70	35	85	-	25	3	3	15	0.27	Cylindrical	XO..0602	C01804-T06P	T06P-3	
R217.69 -0814.RE-15-06.2	14	-	25	-	-	-	-	M08	15	2	2	6	0.03	Combimaster**	XO..0602	C01804-T06P	T06P-3	
-0816.RE-15-06.3	16	-	25	-	-	-	-	M08	15	3	3	9	0.03	Combimaster**	XO..0602	C01804-T06P	T06P-3	
-0816.RE-15-06.2	16	-	25	-	-	-	-	M08	15	2	2	6	0.03	Combimaster**	XO..0602	C01804-T06P	T06P-3	
-1020.RE-20-06.3A	20	-	35	-	-	-	-	M10	20	3	3	12	0.07	Combimaster**	XO..0602	C01804-T06P	T06P-3	

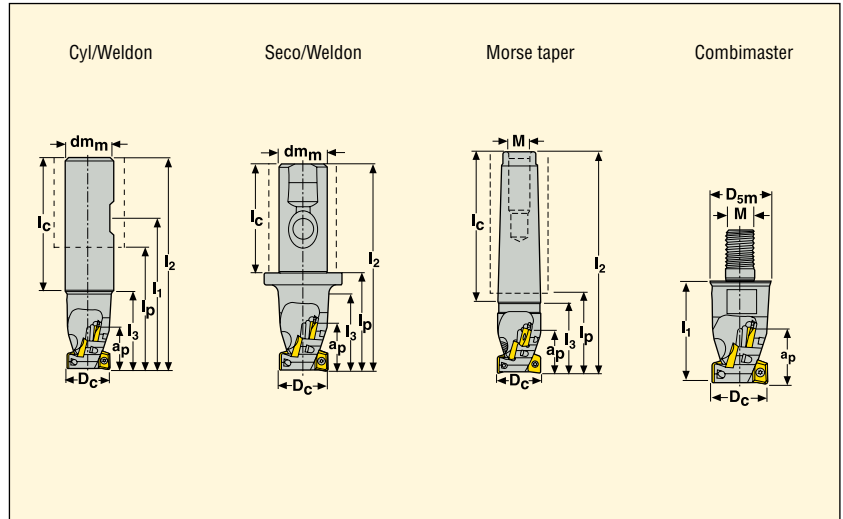
\*max  $ap$  for slotting  $0,5 \times D_c$   
**Please check availability in current price and stock-list.**

\*\*For shanks and dimensions, see the Combimaster chapter in MN Milling part 2.

## Helical Micro Turbo 217.69-09



- For complete insert program see page 24
- For max RPM and torque values see page 22



Part No.	Dimensions in mm										No of flute		KG	Type of mounting		Spare parts	
	Dc	dmm	l1	l2	lp	l3	lc	M	ap	zc						Locking screw	Key
<b>Slotting &amp; contouring</b>																	
R217.69 -2020.3-024-09.1	20	20	65	90	40	39.5	50	-	24	1	1	3	0.3	Cyl/Weldon	XO..0903	C02555-T08P	T08P-3
R217.69 -2525.3S-024-09.2	25	25	-	105	50	42	55	-	24	2	2	6	0.5	Seco/Weldon	XO..0903	C02506-T08P	T08P-3
-2532.3S-024-09.3A	32	25	-	110	55	47	55	-	24	3	3	9	0.5	Seco/Weldon	XO..0903	C02506-T08P	T08P-3
R217.69 -0325.2-024-09.2	25	-	-	125.5	45	39	81	M12	24	2	2	6	0.4	Morse No.3	XO..0903	C02506-T08P	T08P-3
-0432.2-024-09.3	32	-	-	152	50	43.5	102.5	M16	24	3	3	9	0.7	Morse No.4	XO..0903	C02506-T08P	T08P-3
R217.69 -1225.RE-024-09.2	25	-	35	-	-	-	-	M12	24	2	2	6	0.1	Combimaster*	XO..0903	C02506-T08P	T08P-3
-1632.RE-024-09.3A	32	-	40	-	-	-	-	M16	24	3	3	9	0.2	Combimaster*	XO..0903	C02506-T08P	T08P-3
<b>Contouring only</b>																	
R217.69 -2020.3-016-09.2	20	20	60	85	35	34.5	50	-	16	2	2	4	0.2	Cyl/Weldon	XO..0903	C02555-T08P	T08P-3
R217.69 -2025.3S-031-09.3	25	20	-	110	55	47	50	-	31	3	3	12	0.4	Seco/Weldon	XO..0903	C02506-T08P	T08P-3
-2525.3S-039-09.2	25	25	-	120	65	57	55	-	39	2	2	10	0.5	Seco/Weldon	XO..0903	C02506-T08P	T08P-3
-2525.3S-031-09.3	25	25	-	110	55	47	55	-	31	3	3	12	0.4	Seco/Weldon	XO..0903	C02506-T08P	T08P-3
-2532.3S-047-09.3A	32	25	-	120	65	57	55	-	47	3	3	18	0.5	Seco/Weldon	XO..0903	C02506-T08P	T08P-3
-2532.3S-031-09.4A	32	25	-	115	60	52	55	-	31	4	4	16	0.5	Seco/Weldon	XO..0903	C02506-T08P	T08P-3
R217.69 -0432.2-031-09.4	32	-	-	162	60	53.5	109	M16	31	4	4	16	0.8	Morse No.4	XO..0903	C02506-T08P	T08P-3
R217.69 -1020.RE-016-09.2	20	-	28	-	-	-	-	M10	16	2	2	4	0.1	Combimaster*	XO..0903	C02506-T08P	T08P-3
-1632.RE-031-09.4A	32	-	40	-	-	-	-	M16	31	4**	4	14	0.3	Combimaster*	XO..0903	C02506-T08P	T08P-3

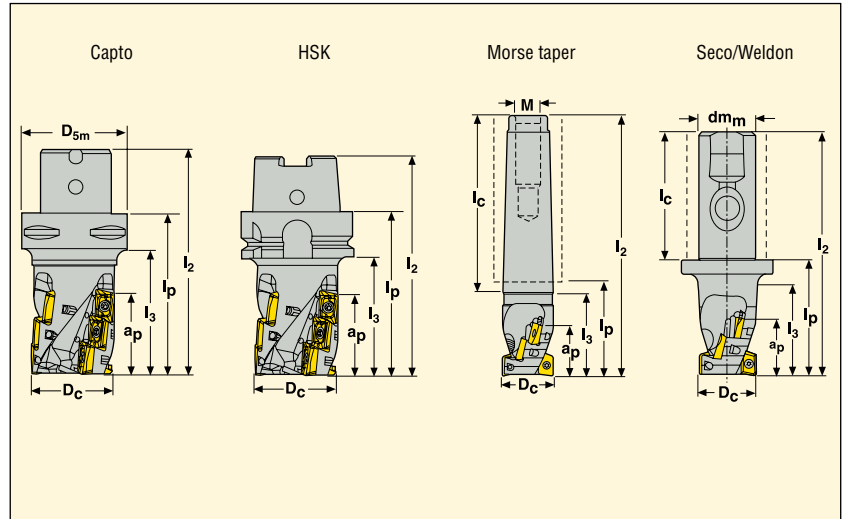
Please check availability in current price and stock-list.

\*For shanks and dimensions, see the Combimaster chapter in MN Milling part 2  
 \*\* zc = 2 when ap > 24 mm

## Helical Super Turbo 217.69-12



- For complete insert program see page 25
- For max RPM and torque values see page 22



Part No.	Dimensions in mm										No of flute	KG	Type of mounting	Insert	Spare parts		
	Dc	dmm / D5m	l1	l2	lp	l3	lc	M	ap	zc					Locking screw	Key	
<b>Slotting &amp; contouring</b>																	
R217.69 -2025.3S-022-12.2A	25	20	-	99,5	50	38	50	-	22	2	2	4	0,3	Seco/Weldon	XO..1204**	C03507-T10P	T10P-3
-2532.3S-033-12.2A	32	25	-	115,5	60	47	56	-	33	2	2	6	0,5	Seco/Weldon	XO..1204**	C03507-T10P	T10P-3
-3240.3S-033-12.3A	40	32	-	119,5	60	47	60	-	33	3	3	9	0,8	Seco/Weldon	XO..1204**	C03509-T10P	T10P-3
-3240.3S-055-12.3A	40	32	-	139,5	80	67	60	-	55	3	3	15	0,7	Seco/Weldon	XO..1204**	C03509-T10P	T10P-3
<b>For contouring only</b>																	
R217.69 -2532.3S-044-12.3A	32	25	-	125,5	70	58	56	-	44	3	3	12	0,5	Seco/Weldon	XO..1204***	C03507-T10P	T10P-3
-3240.3S-044-12.4A	40	32	-	129,5	70	57	60	-	44	4	4	16	0,8	Seco/Weldon	XO..1204***	C03507-T10P	T10P-3
-3250.3S-055-12.4A	50	32	-	139,5	80	67	60	-	55	4	4	20	0,9	Seco/Weldon	XO..1204***	C03509-T10P	T10P-3
R217.69 -0432.2-044-12.2A	32	-	-	167,5	65	58,5	109	M16	44	2	2	8	0,6	Morse No.4	XO..1204***	C03507-T10P	T10P-3
-0440.2-044-12.3A	40	-	-	167,5	65	58,5	109	M16	44	3	3	12	0,5	Morse No.4	XO..1204***	C03507-T10P	T10P-3
-0450.2-055-12.4A	50	-	-	177,5	75	68,5	109	M16	55	4	4	20	1,0	Morse No.4	XO..1204***	C03509-T10P	T10P-3
R217.69 -1225.RE-022-12.2A	25	-	35	-	-	-	-	M12	22	2	2	4	0,12	Combimaster****	XO..1204***	C03507-T10P	T10P-3
<b>For contouring only</b>																	
R217.69 -HSK63A.32-044-12.3A*	32	-	-	117	85	59	32	-	44	3	3	12	0,6	HSK	XO..1204***	C03507-T10P	T10P-3
<b>For contouring only</b>																	
R217.69-C5032-044-12.3A*	32	50	-	109	79	59	-	-	44	3	3	12	0,5	Capto	XO..1204***	C03507-T10P	T10P-3
R217.69-C6040-055-12.3A*	40	63	-	130	92	70	-	-	55	3	3	15	0,8	Capto	XO..1204***	C03509-T10P	T10P-3
R217.69-C6050-055-12.4A*	50	63	-	130	92	70	-	-	55	4	4	20	0,7	Capto	XO..1204***	C03509-T10P	T10P-3
R217.69-C6050-066-12.4SA*	50	63	-	141	103	81	-	-	66	4	4	24	0,7	Capto	XO..1204***	C03509-T10P	T10P-3
R217.69-C5054-044-12.4A*	54	50	-	109	79	59	-	-	44	4	4	16	0,8	Capto	XO..1204***	C03509-T10P	T10P-3
R217.69-C6066-044-12.5A*	66	63	-	119	81	59	-	-	44	5	5	20	1,0	Capto	XO..1204***	C03509-T10P	T10P-3

\* In stock first quarter 2007

### Assembly alternatives/Standard parts

Assembled milling cutter Part No.	Standard parts		
	Cutter body Part No.	Replacable end Part No.	Retaining screw
R217.69 -C6050-066-12.4SA	R217.69 -C6050044-12.4BA	R220.69 -RE050022-12.4	220.17-692

Please check availability in current price and stock-list.

\*\*Inserts with max. corner radius 6,0 mm can be used. For radius > 3,1 the cutter must be modified.

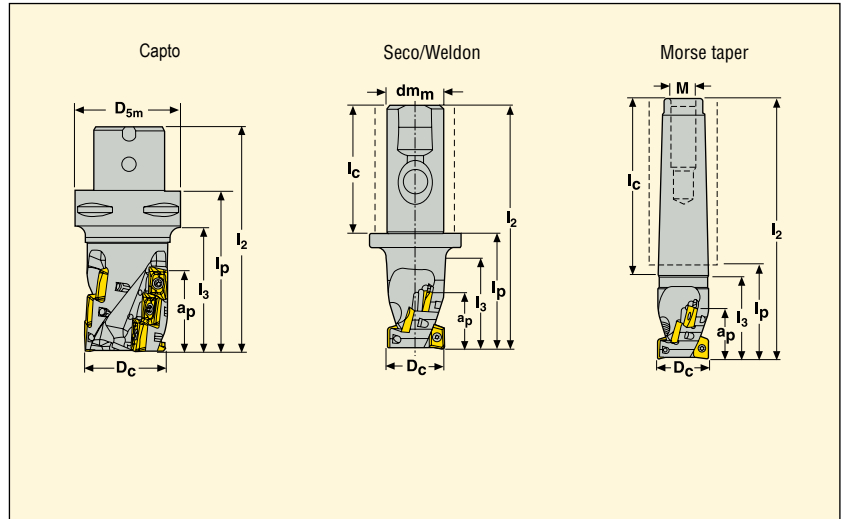
\*\*\*Inserts with max. corner radius 1,2 mm can be used.

\*\*\*\*For shanks and dimensions, see the Combimaster chapter in MN Milling part 2.

## Helical Power Turbo 217.69-18



- For complete insert program see page 26
- For max RPM and torque values see page 22



Part No.	Dimensions in mm											No of flute		KG	Type of mounting		Spare parts	
	Dc	dmm D5m	l1	l2	lp	l3	lc	M	ap	Zc	Locking screw						Key	
<b>Slotting &amp; contouring</b>																		
R217.69 -3240.3S-047-18.2A	40	32	-	134.5	75	62	60	-	46.5	2	2	6	0.8	Seco/Weldon	XO..1806	C04510-T20P	T20P-3	
-3250.3S-047-18.3A	50	32	-	134.5	75	64	60	-	46.5	3	3	9	1.0	Seco/Weldon	XO..1806	C04510-T20P	T20P-3	
R217.69 -0440.2-047-18.2A	40	-	-	172	70	70	109	M16	46.5	2	2	6	0.8	Morse No.4	XO..1806	C04510-T20P	T20P-3	
-0450.2-047-18.3A	50	-	-	172	70	70	109	M16	46.5	3	3	9	1.0	Morse No.4	XO..1806	C04510-T20P	T20P-3	
R217.69 -C5040-047-18.2A*	40	50	-	112	82	62	-	-	47	2	2	6	0.8	Capto	XO..1806	C04510-T20P	T20P-3	
-C5054-047-18.3A*	54	50	-	112	82	62	-	-	47	3	3	9	1.0	Capto	XO..1806	C04510-T20P	T20P-3	
-C6050-062-18.3A*	50	63	-	137	99	77	-	-	62	3	3	12	1.1	Capto	XO..1806	C04510-T20P	T20P-3	
-C6050-077-18.2SA*	50	63	-	152	114	92	-	-	77	2	2	10	1.3	Capto	XO..1806	C04510-T20P	T20P-3	
-C6066-047-18.4A*	66	63	-	122	84	62	-	-	47	4	4	12	1.0	Capto	XO..1806	C04510-T20P	T20P-3	

\* In stock first quarter 2007

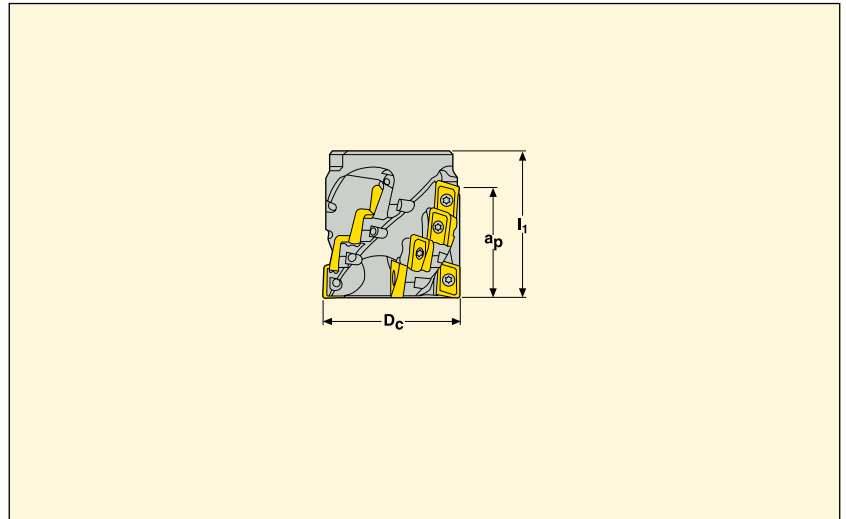
### Assembly alternatives/Standard parts

Assembled milling cutter Part No.	Standard parts		
	Cutter body Part No.	Replacable end Part No.	Retaining screw
R217.69 -C6050-077-18.2SA	R217.69 -C6050046-18.2BA	R220.69 -RE050031-18.2	220.17-692

Please check availability in current price and stock-list.



## Helical Micro, Super, Power Turbo



- For complete insert program see page 24-26
- For max RPM and torque values see page 22

Part No.	Dimensions in mm				No of flute		KG		Spare parts		
	Dc	l1	ap	zc							
<b>Micro Turbo</b>											
<b>For contouring only</b>											
R220.69 -00040-031-09.4	40	43	31	4	4	16	0.3	XO..0903	C02506-T08P	T08P-3	MC6S 8x30
<b>Super Turbo</b>											
<b>Slotting &amp; contouring</b>											
R220.69 -00050-033-12.4A	50	55	33	4	4	12	0.8	XO..1204**	C03509-T10P	T10P-3	MC6S12x40
-00063-033-12.5A	63	63	33	5	5	15	0.9	XO..1204**	C03509-T10P	T10P-3	MC6S12x50
<b>For contouring only</b>											
R220.69 -00050-044-12.4A	50	65	44	4	4	16	0.6	XO..1204***	C03509-T10P	T10P-3	MC6S12x50
-00050-044-12.5A	50	65	44	5	5	20	0.6	XO..1204***	C03509-T10P	T10P-3	MC6S12x50
-00063-055-12.5A	63	75	55	5	5	25	1.0	XO..1204***	C03509-T10P	T10P-3	MC6S12x60
-00063-077-12.4SA*	63	100	77	4	4	28	1.2	XO..1204***	C03509-T10P	T10P-3	-
<b>Power Turbo</b>											
<b>Slotting &amp; contouring</b>											
R220.69 -00063-047-18.4A	63	70	46.5	4	4	12	0.8	XO..1806	C04510-T20P	T20P-3	MC6S12x60
-00063-062-18.3A*	63	85	62	3	3	12	1.2	XO..1806	C04510-T20P	T20P-3	-
-00063-062-18.4A*	63	85	62	4	4	16	1.0	XO..1806	C04510-T20P	T20P-3	-
-00063-077-18.4SA*	63	100	77	4	4	20	1.2	XO..1806	C04510-T20P	T20P-3	-
-00080-047-18.5A*	80	70	47	5	5	15	0.9	XO..1806	C04510-T20P	T20P-3	-
-00080-062-18.5A	80	85	62	5	5	20	1.8	XO..1806	C04510-T20P	T20P-3	MC6S16x70
-00080-077-18.4SA*	80	100	77	4	4	20	1.3	XO..1806	C04510-T20P	T20P-3	-
-00100-062-18.6A	100	85	62	6	6	24	3.0	XO..1806	C04510-T20P	T20P-3	MC6S20x70
-00100-077-18.5SA*	100	100	77	5	5	25	1.4	XO..1806	C04510-T20P	T20P-3	-

\* In stock first quarter 2007

### Dimensions of mounting

Dc	Dimensions in mm		
	dmm	Bkw	c
40	16	8,4	5,6
50	27	12,4	7
63	27	12,4	7
80	32	14,4	8
100	40	16,4	9

### Assembly alternatives/Standard parts

Assembled milling cutter Part No.	Standard parts		
	Cutter body Part No.	Replacable end Part No.	Retaining screw
R220.69 -00063-077-12.4SA	R220.69 -00063055-12.4BA	R220.69 -RE063022-12.4	MP6S12X80
-00063-077-18.4SA	-00063046-18.4BA	-RE063031-18.4	MP6S12x80
-00080-077-18.4SA	-00080046-18.4BA	-RE080031-18.4	MP6S16x80
-00100-077-18.5SA	-00100046-18.5BA	-RE100031-18.5	MP6S20x80

\*\* Inserts with max. corner radius 6,0 mm can be used. For radius > 3,1 the cutter must be modified.

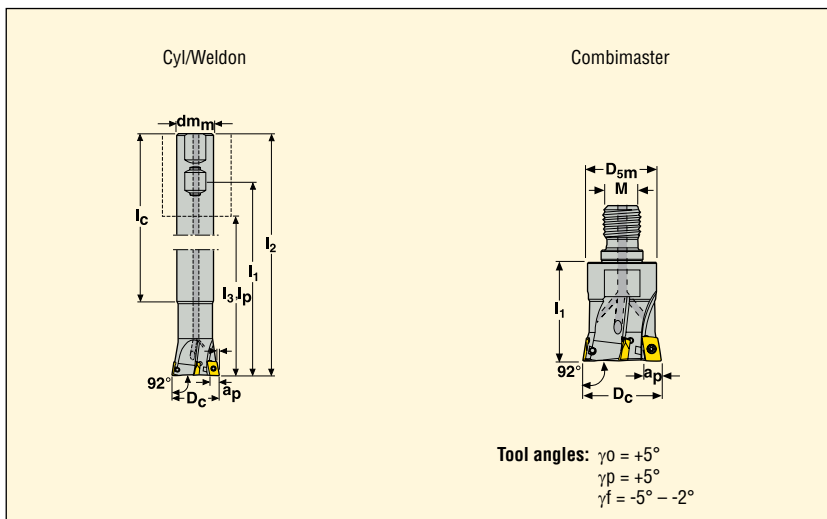
\*\*\* Inserts with max. corner radius 1,2 mm can be used.  
Please check availability in current price and stock-list.



## 217.79-09A



- For complete insert program see page 24
- For max RPM and torque values see page 22



Part No.	Dimensions in mm									Ø	KG	Type of mounting	Insert	Spare parts	
	Dc	dmm	l <sub>1</sub>	l <sub>2</sub>	l <sub>p</sub>	l <sub>3</sub>	l <sub>c</sub>	M	ap*					Locking screw	Key
<b>R217.79 -1620.3-09A</b>	20	16	126	150	102	102	120	-	6(1)	2	0,2	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
<b>-2025.3-09A</b>	25	20	175	200	150	150	150	-	6(1)	3	0,4	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
<b>-2532.3-09A</b>	32	25	168	200	144	144	150	-	6(1)	4	0,7	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
<b>-3240.3-09A</b>	40	32	164	200	140	140	150	-	6(1)	5	1,2	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
<b>-3250.3-09A</b>	50	32	164	200	140	140	150	-	6(1)	6	1,3	Cyl/Weldon	XO..0903	C02505-T08P	T08P-3
<b>R217.79 -1020.RE-09.2A</b>	20	-	35	-	-	-	-	M10	6(1)	2	0,1	Combimaster**	XO..0903	C02505-T08P	T08P-3
<b>-1225.RE-09.3A</b>	25	-	40	-	-	-	-	M12	6(1)	3	0,2	Combimaster**	XO..0903	C02505-T08P	T08P-3
<b>-1632.RE-09.4A</b>	32	-	40	-	-	-	-	M16	6(1)	4	0,2	Combimaster**	XO..0903	C02505-T08P	T08P-3
<b>-1640.RE-09.5A</b>	40	-	40	-	-	-	-	M16	6(1)	5	0,3	Combimaster**	XO..0903	C02505-T08P	T08P-3
<b>-1650.RE-09.6A</b>	50	-	40	-	-	-	-	M16	6(1)	6	0,4	Combimaster**	XO..0903	C02505-T08P	T08P-3

Please check availability in current price and stock-list.  
 \*ap a maximum of 1 mm on up-copying.  
 \*\*For shanks and dimensions, see the Combimaster chapter in MN Milling part 2.

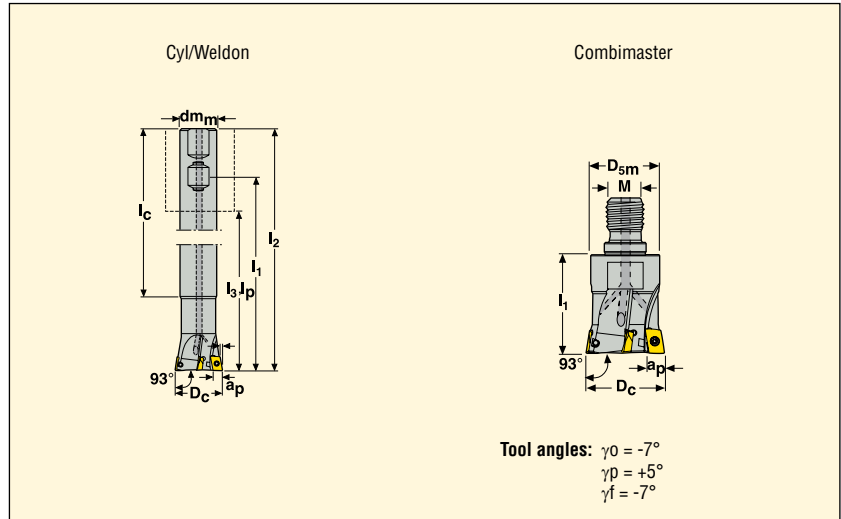
# Plunge milling cutters



## 217.79-12A



- For complete insert program see page 25
- For max RPM and torque values see page 22



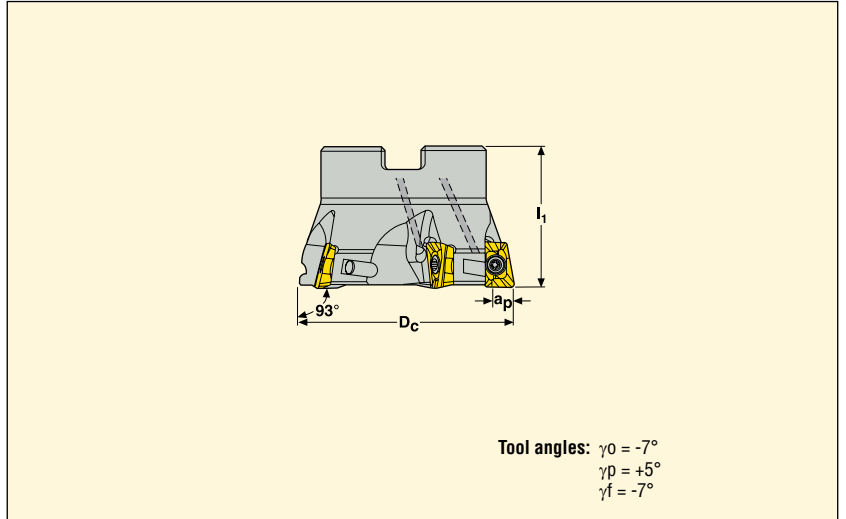
Part No.	Dimensions in mm										Type of mounting	Spare parts			
	$D_c$	$d_{mm}$	$l_1$	$l_2$	$l_p$	$l_3$	$l_c$	$M$	$a_p^*$	$KG$			Locking screw	Key	
R217.79 -2025.3-X012-2A	25	25	175	200	150	150	170	-	7(1,5)	2	0,4	Cyl/Weldon	XO..1204	C03507-T10P	T10P-3
-2532.3-X012-3A	32	25	168	200	144	144	170	-	7(1,5)	3	0,7	Cyl/Weldon	XO..1204	C03507-T10P	T10P-3
-3240.3-X012-4A	40	32	164	200	140	140	170	-	7(1,5)	4	1,2	Cyl/Weldon	XO..1204	C03507-T10P	T10P-3
R217.79 -1025.RE-X012-2A	25	-	40	-	-	-	-	M10	7(1,5)	2	0,2	Combimaster**	XO..1204	C03507-T10P	T10P-3
-1232.RE-X012-3A	32	-	40	-	-	-	-	M12	7(1,5)	3	0,2	Combimaster**	XO..1204	C03507-T10P	T10P-3
-1640.RE-X012-3A	40	-	40	-	-	-	-	M16	7(1,5)	3	0,3	Combimaster**	XO..1204	C03507-T10P	T10P-3

Please check availability in current price and stock-list.  
 $a_p$  a maximum of 1,5 mm on up-copying.  
 \*\*For shanks and dimensions, see the Combimaster chapter in MN Milling part 2.

## 220.79-12A

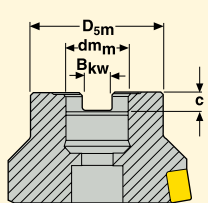


- For complete insert program see page 25
- For max RPM and torque values see page 22



Part No.	Dimensions in mm			Inserts	KG	Insert	Spare parts		
	Dc	l <sub>1</sub>	ap*				Locking screw	Key	Arbor screw
R220.79 -0050-X012-4A	50	40	7(1,5)	4	0,4	XO..1204	C03507-T10P	T10P-3	TCEI0825
-0063-X012-5A	63	40	7(1,5)	5	0,6	XO..1204	C03507-T10P	T10P-3	220.17-692

### Dimensions of mounting



For cutter	Dimensions in mm			For arbor
	dmm	Bkw	c	
R220.79 -0050-12	16	8,4	5,6	16
-0063-12	22	10,4	6,3	22

Please check availability in current price and stock-list.

Recommended max RPM for all Turbo cutters are stated in the table below. Normally there is no need for balancing tools for RPM up to 10 000. However in some cases balancing is necessary, for instance when using heavy tools and toolholders in small machines.

**Over 10 000 RPM:**

We recommend balancing of tool and toolholder at least separately.

**Over 20 000 RPM:**

Both tool and toolholder must be balanced at least separately.

**Over 30 000 RPM:**

Tool and toolholder must be balanced as a unit.

The max RPM in the tables should never be exceeded.

**Square shoulder milling cutters**

Cutter	D <sub>c</sub> mm	Torque values (Nm)	Max RPM
<b>Nano Turbo</b>			
R217.69 -06	10	0,5	60000
-06	12	0,5	54400
-06	16	0,5	48000
-06	18	0,5	45600
-06	20	0,5	44000
-06	25	0,5	37600
-06	32	0,5	33600
-06	40	0,5	28000
<b>R220.69 -06</b>			
-06	32	0,5	33600
-06	40	0,5	28000
<b>Micro Turbo</b>			
R217.69 -09	12	1,2	37500
-09	16	1,2	32400
-09	20	1,2	29000
-09	25	1,2	26000
-09	32	1,2	22900
<b>R217/220.69 -09</b>			
-09	40	1,2	20500
-09	50	1,2	18300
-09	54	1,2	17700
-09	63	1,2	16300
-09	80	1,2	14400
-09	100	1,2	12300
<b>Super Turbo</b>			
R217.69 -12	20	2,0	23200
-12	25	2,0	20800
-12	32	2,0	18400
<b>R217/220.69 -12</b>			
-12	40	2,0	16400
-12	50	2,0	14800
-12	54	2,0	14200
-12	63	2,0	13200
-12	66	2,0	12900
-12	80	2,0	11600
-12	100	2,0	10400
-12	125	2,0	9200
<b>R220.69 -12C</b>			
-12C	125	2,0	9200
-12C	160	2,0	8200
-12C	200	2,0	7300
-12C	250	2,0	6500
<b>Power Turbo</b>			
R217.69 -18	32	2,0	11100
-18	40	2,0	9900
<b>R217/220.69 -18</b>			
-18	50	5,0	8900
-18	63	5,0	7900
-18	66	5,0	7700
-18	80	5,0	7000
-18	100	5,0	6300
-18	125	5,0	5600
-18	160	5,0	5000
<b>R220.69 -18C</b>			
-18C	125	5,0	5600
-18C	160	5,0	5000
-18C	200	5,0	4400
-18C	250	5,0	3900

**Helical milling cutters**

Cutter	D <sub>c</sub> mm	Torque values (Nm)	Max RPM
<b>Nano Turbo</b>			
R217.69 -06	12	0,5	54400
-06	14	0,5	51200
-06	16	0,5	48000
-06	20	0,5	44000
<b>Micro Turbo</b>			
R217.69 -09	20	1,2	29000
-09	25	1,2	26000
-09	32	1,2	22900
<b>R220.69 -09</b>			
-09	40	1,2	20500
<b>Super Turbo</b>			
R217.69 -12	25	2,0	20800
-12	32	2,0	18400
-12	40	2,0	16400
-12	50	2,0	14800
<b>R220.69 -12</b>			
-12	50	2,0	14800
-12	63	2,0	13200
<b>Power Turbo</b>			
R217.69 -18	40	5,0	9900
-18	50	5,0	8900
-18	54	5,0	8600
<b>R217/220.69 -18</b>			
-18	63	5,0	7900
-18	66	5,0	7700
-18	80	5,0	7000
-18	100	5,0	6300

**Plunge milling cutters**

Cutter	D <sub>c</sub> mm	Torque values (Nm)	Max RPM
<b>R217.79 -09</b>			
-09	20	1,2	29000
-09	25	1,2	26000
-09	32	1,2	22900
-09	40	1,2	20500
-09	50	1,2	18300
<b>R217.79 -12</b>			
-12	25	2,0	20800
-12	32	2,0	18400
-12	40	2,0	16400
<b>R220.79 -12</b>			
-12	50	2,0	14800
-12	63	2,0	13200

## XOEX/XOMX06

Tolerances: (± mm)

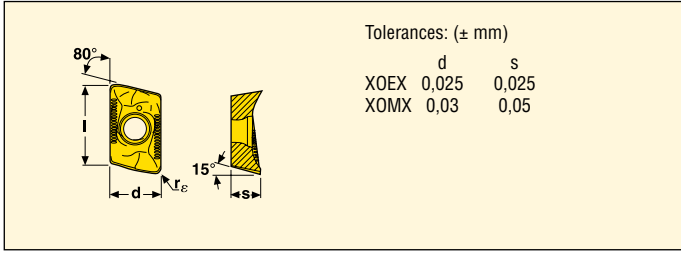
	d	s
XOEX	0,025	0,025
XOMX	0,03	0,05

Size	Dimensions in mm		
	l	d	s
XOEX0602	6,94	4,09	2,45
XOMX0602	6,91-6,94	4,09	2,45

Inserts	Part No.	r	Cutting rake	Prot. chamfer		Grades																				
				Width mm	Angle	Coated										Uncoated			Cermet							
						T150M	T200M	T25M	T250M	T350M	F15M	F17M	F20M	F25M	F30M	F40M	S10M	S25M	S60M	HX	H15	H25	C15M			
E03 	XOEX 060202R-E03	0,2	30°	-	-																					
	060204R-E03*	0,4	30°	-	-											☒										
	060208R-E03*	0,8	30°	-	-																					
	060212R-E03*	1,2	30°	-	-																					
	060216R-E03*	1,6	30°	-	-																					
M05 	XOMX 060202R-M05	0,2	24°	-	-																					
	060204R-M05	0,4	24°	-	-																					
	060208R-M05	0,8	24°	-	-																					
	060212R-M05*	1,2	24°	-	-																					
	060216R-M05	1,6	24°	-	-																					

☒ Stock standard  
 Subject to change, please refer to current price and stock-list  
 When using inserts with corner radius > 0,8 mm, the cutter must be modified.  
 \* In stock first quarter 2007.

## XOEX/XOMX09



Size	Dimensions in mm		
	l	d	s
XOMX0903	9,9-10,8	6,35	3,21-3,65
XOEX0903	10,8	6,35	3,65

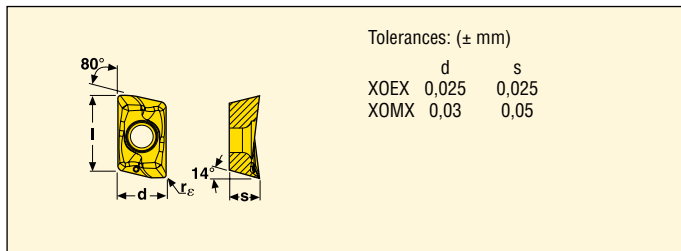
Inserts	Part No.	rε	Cutting rake	Prot. chamfer		Grades																					
				Width mm	Angle	Coated								Uncoated			Cermets										
						T150M	T200M	T25M	T250M	T350M	MP1500*	MP2500*	MK1500*	MK2000*	F15M	F25M	F30M	F40M	S60M	HX	H15	H25	C15M				
	XOEX 090304FR-E05	0.4	31°	-	-																						
	090308FR-E05	0.8	31°	-	-																						
	090316FR-E05	1.6	31°	-	-																						
	090320FR-E05	2.0	31°	-	-																						
	090331FR-E05	3.1	31°	-	-																						
	XOMX 090304TR-ME06	0.4	24°	0.06	4°	■	■	■	■	■	■	■	■	■	■		■	■									
	090308TR-ME06	0.8	24°	0.06	4°	■	■	■	■	■	■	■	■	■	■		■	■									
	090312TR-ME06	1.2	24°	0.06	4°																					■	
	090316TR-ME06	1.6	24°	0.06	4°	■			■	■	■	■	■	■	■		■	■									
	090320TR-ME06	2.0	24°	0.06	4°				■	■	■	■	■	■	■		■	■									
	090324TR-ME06	2.4	24°	0.06	4°				■	■	■	■	■	■	■		■	■									
	090331TR-ME06	3.1	24°	0.06	4°				■	■	■	■	■	■	■		■	■									
XOMX 090308TL-ME06	0.8	24°	0.06	4°				■																			
	XOMX 090308TR-M08	0.8	16°	0.09	3°	■	■	■	■	■	■	■	■	■	■		■	■									
	090312TR-M08	1.2	16°	0.09	3°																						
	090316TR-M08	1.6	16°	0.09	3°																						
	090320TR-M08	2.0	16°	0.09	3°																						
	090324TR-M08	2.4	16°	0.09	3°																						
	090331TR-M08	3.1	16°	0.09	3°																						

■ Stock standard  
 Subject to change, please refer to current price and stock-list  
 When using inserts with corner radius > 0.8 mm, the cutter must be modified.

\* Duratomic



## XOEX/XOMX12



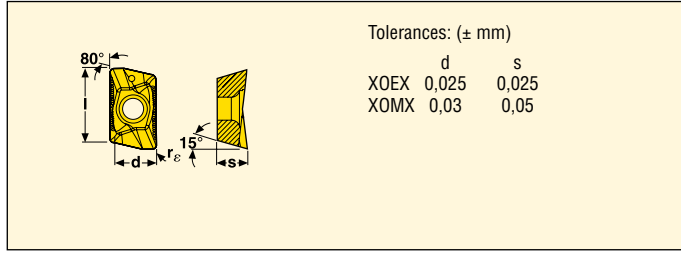
Size	Dimensions in mm		
	l	d	s
XOEX1204	11,73-12,16	8,18	5,06
XOMX1204	11,41-12,16	8,18	3,93-4,15

Inserts	Part No.	$r_\epsilon$	Cutting rake	Prot. chamfer		Grades																					
				Width mm	Angle	Coated								Uncoated			Cermets										
						T150M	T200M	T25M	T250M	T350M	MP1500*	MP2500*	MK1500*	MK2000*	F15M	F25M	F30M	F40M	S60M	HX	H15	H25	C15M				
E06 	XOEX 120404FR-E06	0,4	27°	-	-																						
	120408FR-E06	0,8	27°	-	-																						
	120416FR-E06	1,6	27°	-	-																						
	120420FR-E06	2,0	27°	-	-																						
	120424FR-E06	2,4	27°	-	-																						
M07 	120431FR-E06	3,1	27°	-	-																						
	120440FR-E06	4,0	27°	-	-																						
	120431FR-E10	3,1	27°	-	-																						
	XOEX 120402R-M07	0,2	20°	-	-																						
	120404R-M07	0,4	20°	-	-																						
ME08 	120408R-M07	0,8	20°	-	-																						
	120416R-M07	1,6	20°	-	-																						
	120420R-M07	2	20°	-	-																						
	120424R-M07	2,4	20°	-	-																						
	120431R-M07	3,1	20°	-	-																						
	120440R-M07	4,0	20°	-	-																						
ME12 	120450R-M07**	5,0	20°	-	-																						
	120463R-M07**	6,3	20°	-	-																						
	XOEX 120408ZZR-M07***	0,8	20°	-	-																						
D14 	XOMX 120404TR-ME08	0,4	25°	0,08	4°	■																					
	120408TR-ME08	0,8	25°	0,08	4°	■																					
	120412TR-ME08	1,2	25°	0,08	4°	■																					
	120416TR-ME08	1,6	25°	0,08	4°	■																					
	120420TR-ME08	2	25°	0,08	4°	■																					
	120424TR-ME08	2,4	25°	0,08	4°	■																					
	120431TR-ME08	3,1	25°	0,08	4°	■																					
	120440TR-ME08	4	25°	0,08	4°	■																					
	XOMX 120408TL-ME08	0,8	25°	0,08	4°	■																					
	120416TL-ME08	1,6	25°	1,08	4°	■																					
XOMX 120408TR-M12	120408TR-M12	0,8	13°	0,12	9°	■	■																				
	120416TR-M12	1,6	13°	0,12	9°	■	■																				
XOMX 120404TR-MD13	120404TR-MD13	0,4	15°	0,09	8°	■	■																				
	120408TR-MD13	0,8	15°	0,09	8°	■	■																				
	120412TR-MD13	1,2	15°	0,09	8°	■	■																				
	120416TR-MD13	1,6	15°	0,09	8°	■	■																				
XOMX 120408TR-D14	120408TR-D14	0,8	7°	0,14	14°	■	■																				
	120431TR-D14	3,1	7°	0,14	14°	■	■																				

■ Stock standard  
 Subject to change, please refer to current price and stock-list  
 When using inserts with corner radius > 2,4 mm, the cutter must be modified.

\* Duratomic  
 \*\* Inserts with one cutting edge  
 \*\*\* Wiper inserts

XOEX/XOMX18



Size	Dimensions in mm		
	l	d	s
1806	~17,5	11,2	6,35

Inserts	Part No.	r <sub>E</sub>	Cutting rake	Prot. chamfer		Grades																		
				Width mm	Angle	Coated								Uncoated			Cermets							
						T150M	T200M	T25M	T250M	T350M	MP1500*	MP2500*	MK1500*	MK2000*	F15M	F25M	F30M	F40M	S60M	HX	H15	H25	C15M	
E10	XOEX 180604FR-E10	0.4	30°	-	-																			
	180608FR-E10	0.8	30°	-	-																			
	180616FR-E10	1.6	30°	-	-																			
	180620FR-E10	2.0	30°	-	-																			
	180624FR-E10	2.4	30°	-	-																			
ME13	180631FR-E10	3.1	30°	-	-																			
	180640FR-E10	4.0	30°	-	-																			
	180650FR-E10	5.0	30°	-	-																			
	180663FR-E10	6.3	30°	-	-																			
	XOEX 180608ZZR-M10**	0.8	17°	-	-																			
M10	180616ZZR-M10**	1.6	17°	-	-																			
M10	XOMX 180604TR-ME13	0.4	25°	0.13	1°																			
	180608TR-ME13	0.8	25°	0.13	1°																			
	180616TR-ME13	1.6	25°	0.13	1°																			
	180620TR-ME13	2.0	25°	0.13	1°																			
	180624TR-ME13	2.4	25°	0.13	1°																			
M14	180631TR-ME13	3.1	25°	0.13	1°																			
	180640TR-ME13	4.0	25°	0.13	1°																			
	XOMX 180604R-M10	0.4	22°	-	-																			
	180608R-M10	0.8	22°	-	-																			
	180616R-M10	1.6	22°	-	-																			
D16	180620R-M10	2.0	22°	-	-																			
	180624R-M10	2.4	22°	-	-																			
	180631R-M10	3.1	22°	-	-																			
	180640R-M10	4.0	22°	-	-																			
	180650R-M10	5.0	22°	-	-																			
	180663R-M10	6.3	22°	-	-																			
	XOMX 180608TR-M14	0.8	15°	0.12	12°																			
180612TR-M14	1.2	15°	0.12	12°																				
180616TR-M14	1.6	15°	0.12	12°																				
180620TR-M14	2	15°	0.12	12°																				
180624TR-M14	2.4	15°	0.12	12°																				
180631TR-M14	3.1	15°	0.12	12°																				
MD15	XOMX 180608TR-MD15	0.8	15°	0.12	12°																			
	180612TR-MD15	1.2	15°	0.12	12°																			
	180616TR-MD15	1.6	15°	0.12	12°																			
XOMX	180608TR-D16	0.8	11°	0.15	9°																			
	180631TR-D16	3.1	11°	0.15	9°																			

■ Stock standard  
 Subject to change, please refer to current price and stock-list  
 When using inserts with corner radius > 4,0 mm, the cutter must be modified.

\*Duratomic  
 \*\* Wiper inserts.

## Steel

		$R_m$ (N/mm <sup>2</sup> )	$k_{c1.1}$	$m_c$
<b>1</b>	Very soft low-carbon steels. Purely ferritic steels.	<450	1350	0,21
<b>2</b>	Free-cutting steels.	400 <700	1500	0,22
<b>3</b>	Structural steels. Ordinary carbon steels with low to medium carbon content (<0,5%C).	450 <550	1500	0,25
<b>4</b>	Carbon steels with high carbon content (>0,5%C). Medium hard steels for toughening. Ordinary low-alloy steels. Ferritic and martensitic stainless steels.	550 <700	1700	0,24
<b>5</b>	Normal tool steels. Harder steels for toughening. Martensitic stainless steels.	700 <900	1900	0,24
<b>6</b>	Difficult tool steels. High-alloy steels with high hardness. Martensitic stainless steels.	900 <1200	2000	0,24
<b>7</b>	Difficult high-strength steels with high hardness. Hardened steels from material group 3–6. Martensitic stainless steels.	>1200	2900	0,22

## Stainless steels

<b>8</b>	Easy austenitic stainless steels. Free-cutting stainless steels. Calcium-treated stainless steels.		1750	0,22
<b>9</b>	Moderately difficult stainless steels. Austenitic and duplex stainless steels.		1900	0,20
<b>10</b>	Difficult stainless steels. Austenitic and duplex stainless steels.		2050	0,20
<b>11</b>	Very difficult stainless steels. Austenitic and duplex stainless steels.		2150	0,20

## Cast iron

<b>12</b>	Medium hard cast iron. Grey iron.		1150	0,22
<b>13</b>	Low-alloy cast iron. Malleable cast iron. Nodular cast iron.		1225	0,25
<b>14</b>	Moderately difficult alloy cast iron. Moderately difficult malleable cast iron. Nodular cast iron.		1350	0,28
<b>15</b>	Difficult high-alloy cast iron. Difficult malleable cast iron. Nodular cast iron.		1470	0,30

## Other materials

<b>16</b>	Free-cutting non-ferrous materials. Aluminium with <16% Si. Brass, Zinc, Magnesium.		700	0,25
<b>17</b>	Non-ferrous materials. Aluminium with >16% Si. Bronze, Cupro-nickel.		700	0,27
<b>20</b>	Nickel-, Cobalt- and Iron-based superalloys with hardness <30 HRc. Incoloy 800, Inconel 601, 617, 625. Monel 400.		2600	0,24
<b>21</b>	Nickel-, Cobalt- and Iron-based superalloys with hardness >30 HRc. Incoloy 925, Inconel 718, 750-X, Monel K-500.		3300	0,24
<b>22</b>	Titanium based alloys, Ti-6Al-4V.		1450	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.  $m_c$  is the exponent used for calculating power demand. Bear in mind that the  $R_m$ -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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