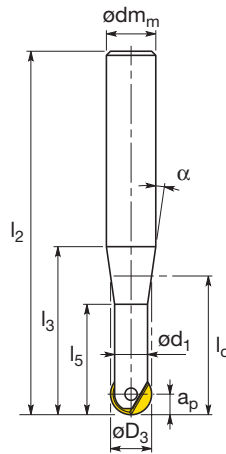
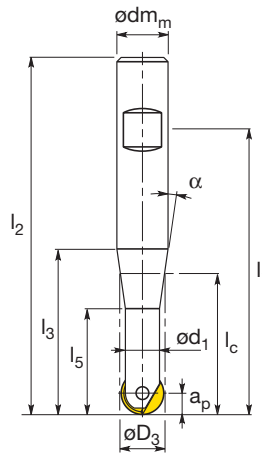


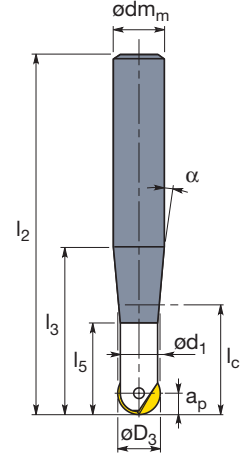
Cutter program, PR1 06-10



Cylindrical shank



Weldon shank



Carbide shank

Reference	Dimensions (mm)														Z	Insert style	Nb of inserts	Coolant channels	Max. RPM	kg
	D _c	D ₃	d ₁	Max. a _p	dm _m	d _{th}	l ₁	l ₂	l ₃	l _c	l ₅	α	A ¹⁾							
Cylindrical shank with dm_m > D₃																				
PR1-06/02-QC10-070	-	6.00	5.50	1.00	10.00	-	-	70.00	30.00	14.60	12.50	6°40	-	2	PR1..06..	1	No	30000	0.032	
PR1-06/02-QC10-085	-	6.00	5.50	1.00	10.00	-	-	85.00	45.00	17.00	12.50	3°10	-	2	PR1..06..	1	No	21000	0.038	
PR1-06/02-QC10-110	-	6.00	5.50	1.00	10.00	-	-	110.00	60.00	18.20	12.50	2°30	-	2	PR1..06..	1	No	13500	0.050	
PR1-08/02-QC10-130	-	8.00	6.50	1.20	10.00	-	-	130.00	30.00	28.10	14.00	3°00	-	2	PR1..08..	1	No	-	0.069	
PR1-08/02-QC12-092	-	8.00	6.50	1.20	12.00	-	-	92.00	35.00	23.10	19.00	9°30	-	2	PR1..08..	1	No	40000	0.062	
PR1-08/02-QC12-110	-	8.00	6.50	1.20	12.00	-	-	110.00	53.00	41.50	33.50	5°00	-	2	PR1..08..	1	No	33600	0.066	
PR1-08/02-QC12-132	-	8.00	6.50	1.20	12.00	-	-	132.00	75.00	41.80	19.00	1°45	-	2	PR1..08..	1	No	16800	0.077	
PR1-08/02-QCR12-160	-	8.00	7.00	-	12.00	-	-	160.00	25.00	11.00	7.50	7°20	-	2	PR1..08..	1	No	16800	0.130	
PR1-10/02-QC12-092	-	10.00	8.00	1.50	12.00	-	-	95.00	38.00	30.00	22.40	7°00	-	2	PR1..10..	1	No	40000	0.066	
PR1-10/02-QC12-110	-	10.00	8.00	1.50	12.00	-	-	110.00	53.00	51.90	38.70	3°45	-	2	PR1..10..	1	No	40000	0.070	
PR1-10/02-QC12-132	-	10.00	8.00	1.50	12.00	-	-	132.00	75.00	73.60	21.80	1°00	-	2	PR1..10..	1	No	20300	0.083	
PR1-10/02-QC12-160	-	10.00	9.00	-	12.00	-	-	160.00	25.00	11.00	9.30	4°30	-	2	PR1..10..	1	No	20300	0.140	
Cylindrical shank with dm_m > D₃																				
PR1-10/02-QC10-145	-	10.00	8.00	1.50	10.00	-	-	145.00	38.00	-	-	-	-	2	PR1..10..	1	No	-	0.078	
Weldon shank																				
PR1-08/02-QW12-035	-	8.00	6.50	1.20	12.00	-	70.00	92.00	35.00	23.10	19.00	9°30	-	2	PR1..08..	1	No	40000	0.061	
PR1-08/02-QW12-053	-	8.00	6.50	1.20	12.00	-	88.00	110.00	53.00	41.50	33.50	5°00	-	2	PR1..08..	1	No	33600	0.065	
PR1-08/02-QW12-075	-	8.00	6.50	1.20	12.00	-	110.00	132.00	75.00	41.80	19.00	1°45	-	2	PR1..08..	1	No	16800	0.077	
PR1-10/02-QW12-035	-	10.00	8.00	1.50	12.00	-	73.00	95.00	38.00	30.00	22.40	7°00	-	2	PR1..10..	1	No	40000	0.065	
PR1-10/02-QW12-053	-	10.00	8.00	1.50	12.00	-	88.00	110.00	53.00	51.90	38.70	3°45	-	2	PR1..10..	1	No	40000	0.069	
PR1-10/02-QW12-075	-	10.00	8.00	-	12.00	-	-	21.00	75.00	73.00	19.00	1°30	-	2	PR1..08..	1	No	20300	0.082	
Carbide shank with dm_m > D₃																				
PR1-06/02-QC10-132HSCW	-	6.00	5.50	1.00	10.00	-	-	132.00	19.10	18.00	-	-	-	2	PR1..06..	2	No	-	0.147	
PR1-08/02-QC12-092HSCW	-	8.00	6.50	1.20	12.00	-	-	92.00	35.00	24.00	19.15	9°00	-	2	PR1..08..	2	No	40000	0.124	
PR1-08/02-QC12-110HSCW	-	8.00	6.50	1.20	12.00	-	-	110.00	53.00	30.10	19.00	4°00	-	2	PR1..08..	2	No	40000	0.143	
PR1-08/02-QC12-132HSCW	-	8.00	6.50	1.20	12.00	-	-	132.00	75.00	37.10	19.00	2°30	-	2	PR1..08..	2	No	23400	0.166	
PR1-10/02-QC12-092HSCW	-	10.00	8.00	1.50	12.00	-	-	95.00	38.10	30.90	21.90	6°30	-	2	PR1..10..	2	No	40000	0.132	
PR1-10/02-QC12-110HSCW	-	10.00	8.00	1.50	12.00	-	-	110.00	53.10	41.40	21.80	3°00	-	2	PR1..10..	2	No	40000	0.151	
PR1-10/02-QC12-132HSCW	-	10.00	8.00	1.50	12.00	-	-	132.00	75.10	51.10	21.80	2°00	-	2	PR1..10..	2	No	23400	0.178	
Carbide shank with dm_m > D₃																				
PR1-06/02-QC06-110HSCW	-	6.00	5.50	1.00	6.00	-	-	110.00	16.00	-	-	-	-	2	PR1..06..	1	No	-	0.147	
PR1-08/02-QC08-130HSCW	-	8.00	6.50	1.20	8.00	-	-	130.00	20.00	-	-	-	-	2	PR1..08..	1	No	-	0.095	
PR1-10/02-QC10-140HSCW	-	10.00	8.00	1.50	10.00	-	-	140.00	25.00	-	-	-	-	2	PR1..10..	1	No	-	0.158	

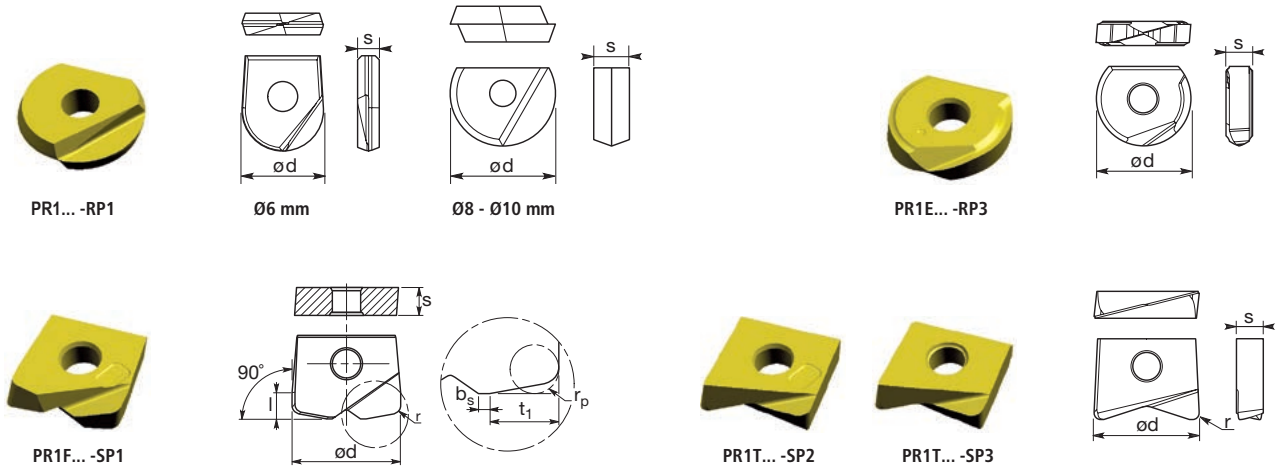
¹⁾ Size of the wrench to be used for modular heads is given by dimension A

²⁾ Max. RPM values are not given for modular heads as they are always used with long extensions

Spare parts

Insert style	Diameter D ₃	Insert screw			Screw driver		Torque wrench		
		Reference	Size	⤵	Reference	⬠	Reference	⬠	Nm
PR1..06..	6 mm	SPM0111	M 2.2	0.6 N.m	SPM0140	6 IP	SPM0147	6 IP	0.6
PR1..08..	8 mm	SPM0121	M 2.5	1.0 N.m	SPM0141	7 IP	SPM0148	7 IP	0.9
PR1..10..	10 mm	SPM0112	M 3.0	1.2 N.m	SPM0142	8 IP	SPM0149	8 IP	1.2

Insert program



Reference	Dimensions (mm)							Grades							
	d	s	r	l	b _s	r _p ¹⁾	t ₁	SP95	SP51	SP52	SP55	SP13	SP14	SP15	
PR1 inserts															
PR1 0600-RP1	6.00	1.60	-	-	-	-	-	✓	-	-	-	-	-	-	-
PR1 0800-RP1	8.00	2.40	-	-	-	-	-	✓	-	-	-	-	-	-	-
PR1 1000-RP1	10.00	2.60	-	-	-	-	-	✓	-	-	-	-	-	-	-
PR1 0800-RP2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-
PR1 1000-RP2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-
PR1E inserts															
PR1E 1000-RP3	10.00	2.60	-	-	-	-	-	-	✓	-	✓	-	✓	-	-
PR1F inserts															
PR1F 0800 04-SP1	8.00	2.40	0.60	2.00	0.40	1.00	2.60	✓	-	✓	✓	-	-	-	✓
PR1F 1000 05-SP1	10.00	2.60	0.80	2.60	0.50	1.20	3.20	✓	-	✓	✓	-	-	-	✓
PR1T... - SP2 inserts															
PR1T 0800 05-SP2	8.00	2.40	0.50	-	-	-	-	-	✓	-	-	-	-	-	-
PR1T 1000 08-SP2	10.00	2.60	0.80	-	-	-	-	-	✓	-	-	-	-	-	-
PR1T... - SP3 inserts															
PR1T 0800 03-SP3	8.00	2.40	0.30	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 0800 04-SP3	8.00	2.40	0.40	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 0800 05-SP3	8.00	2.40	0.50	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 0800 08-SP3	8.00	2.40	0.80	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 0800 10-SP3	8.00	2.40	1.00	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1000 05-SP3	10.00	2.60	0.50	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1000 08-SP3	10.00	2.60	0.80	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1000 10-SP3	10.00	2.60	1.00	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1000 15-SP3	10.00	2.60	1.50	-	-	-	-	✓	-	-	-	-	-	-	-

¹⁾r_p = Radius programming

✓ Article which can be ordered

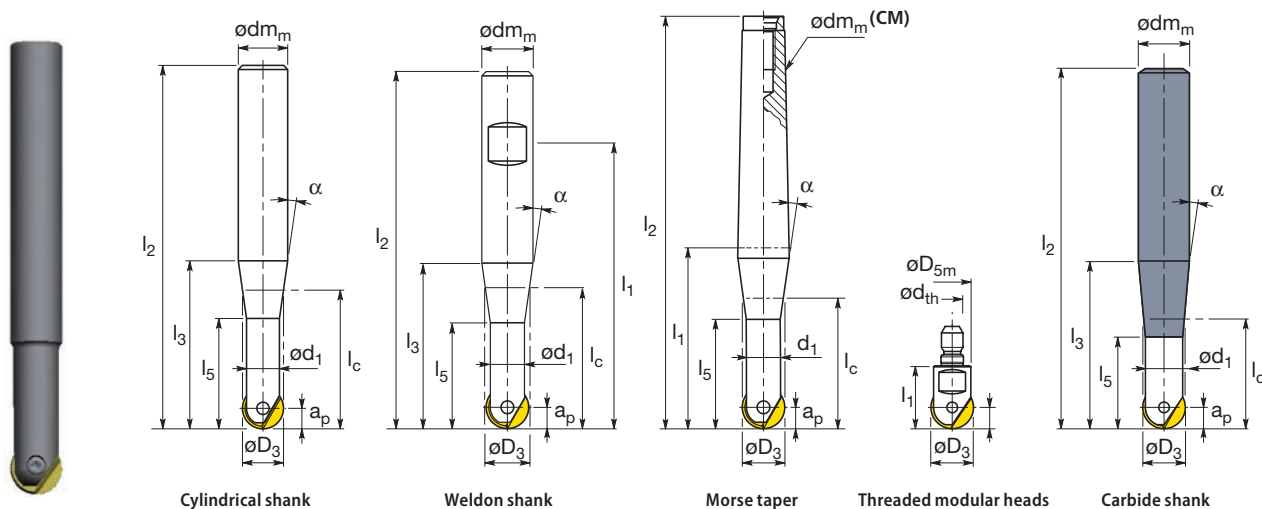
Ordering example: PR1 1000-RP1 SP95

Cutting conditions

Grade	Feed per tooth (mm)	P Steel				M Stainless steel			K Cast iron				N Non-ferrous aluminum				S Super alloys			H Hardened materials			
		Free machining and low (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, inconel, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50Rc - 62Rc)	Case hardened alloy steels (40Rc - 50Rc)	Hardened tool steels (45Rc - 62Rc)	Hardened irons (400 BHN)
SP95	v _{c1}	-	-	-	250	279	240	179	277	257	227	207	-	-	-	-	100	90	65	99	119	99	99
	f _{z1}	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	v _{c2}	-	-	-	220	259	210	159	239	219	189	169	-	-	-	-	90	80	60	79	99	79	79
	f _{z2}	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	0.10	0.10	0.10	0.20	0.20	0.20	0.20
SP51	v _{c1}	416	374	291	211	247	216	169	-	-	-	-	1164	779	531	656	85	75	60	50	55	50	50
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	v _{c2}	313	279	221	160	209	188	149	-	-	-	-	937	489	428	526	55	45	45	35	40	35	35
	f _{z2}	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
SP55	v _{c1}	259	229	161	95	136	88	74	-	-	-	-	-	-	-	-	53	43	35	-	-	-	-
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	-	0.05	0.05	0.05	-	-	-	-
	v _{c2}	186	163	107	55	99	69	61	-	-	-	-	-	-	-	-	34	24	25	-	-	-	-
	f _{z2}	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	-	-	-	-	-	0.25	0.25	0.15	-	-	-	-
SP13	v _{c1}	416	374	291	211	247	216	169	-	-	-	-	1164	779	531	656	85	75	60	50	55	50	50
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	v _{c2}	313	279	221	160	209	188	149	-	-	-	-	937	489	428	526	55	45	45	35	40	35	35
	f _{z2}	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20

The cutting speed (vc) and the feed per tooth values have to be optimized depending on specific machined material.

Cutter program, PR1 12-16



Reference	Dimensions (mm)													Z	Insert style	Nb of inserts	Coolant channels	Max. RPM	kg
	Dc	D3	d1	Max. ap	dm_m	D5m	dth	l1	l2	l3	lc	l5	alpha						
Cylindrical shank with dm_m > D₃																			
PR1-12/02-QC16-145	-	12.00	10.00	1.80	16.00	-	-	145.00	85.00	63.30	22.50	1°20	-	2	PR1..12..	1	No	19800	0.154
PR1-12/02-QCR16-160	-	16.00	10.00	-	16.00	-	-	160.00	25.00	17.00	13.00	11°46	-	2	PR1..12..	1	No	19800	0.230
PR1-14/02-QC16-092	-	14.00	12.00	2.20	16.00	-	-	92.00	32.00	-	-	-	-	2	PR1..14..	1	No	36000	0.142
PR1-14/02-QC16-123	-	14.00	12.00	2.20	16.00	-	-	123.00	63.00	-	-	-	-	2	PR1..14..	1	No	36000	0.115
PR1-16/02-QC20-166	-	16.00	14.00	2.40	20.00	-	-	166.00	100.00	75.50	29.50	1°10	-	2	PR1..16..	1	No	20000	0.291
PR1-16/02-QCR20-200	-	16.00	14.00	-	20.00	-	-	200.00	40.00	22.00	12.50	5°30	-	2	PR1..16..	1	No	20000	0.444
Cylindrical shank with dm_m > D₃																			
PR1-12/02-QC12-083	-	12.00	10.00	1.80	12.00	-	-	83.00	26.00	-	-	-	-	2	PR1..12..	1	No	40000	0.062
PR1-12/02-QC12-110	-	12.00	10.00	1.80	12.00	-	-	110.00	53.00	-	-	-	-	2	PR1..12..	1	No	40000	0.078
PR1-12/02-QC12-145	-	12.00	10.00	1.80	12.00	-	-	145.00	45.00	-	-	-	-	2	PR1..12..	1	No	40000	0.111
PR1-16/02-QC16-092	-	16.00	14.00	2.40	16.00	-	-	92.00	32.00	-	-	-	-	2	PR1..16..	1	No	36000	0.122
PR1-16/02-QC16-123	-	16.00	14.00	2.40	16.00	-	-	123.00	63.00	-	-	-	-	2	PR1..16..	1	No	36000	0.159
PR1-16/02-QC16-166	-	16.00	14.00	2.40	16.00	-	-	166.00	55.00	-	-	-	-	2	PR1..16..	1	No	20000	0.229
Weldon shank																			
PR1-12/02-QW12-026	-	12.00	10.00	1.80	12.00	-	61.00	83.00	26.00	-	-	-	-	2	PR1..12..	1	No	40000	0.061
PR1-12/02-QW12-053	-	12.00	10.00	1.80	12.00	-	88.00	110.00	53.00	-	-	-	-	2	PR1..12..	1	No	40000	0.078
PR1-12/02-QW16-085	-	12.00	10.00	1.80	16.00	-	121.50	145.00	85.00	63.30	22.50	1°20	-	2	PR1..12..	1	No	19800	0.153
PR1-16/02-QW16-063	-	16.00	14.00	2.40	16.00	-	99.50	123.00	63.00	-	-	-	-	2	PR1..16..	1	No	36000	0.158
PR1-16/02-QW20-100	-	16.00	14.00	2.40	20.00	-	141.50	166.00	100.00	75.50	29.50	1°10	-	2	PR1..16..	1	No	20000	0.289
Morse taper																			
PR1-12/02-CM2-026	-	12.00	10.00	-	CM2	-	26.00	-	-	23.00	-	-	-	2	PR1..12..	1	No	40000	0.099
PR1-12/02-CM2-053	-	12.00	10.00	1.80	CM2	-	58.00	121.70	-	51.00	-	-	-	2	PR1..12..	1	No	40000	0.114
PR1-12/02-CM2-085	-	12.00	10.00	-	CM2	-	85.00	-	-	63.00	-	1°30	-	2	PR1..12..	1	No	19800	0.163
PR1-16/02-CM2-063	-	16.00	14.00	2.40	CM2	-	68.00	131.70	-	62.70	-	-	-	2	PR1..16..	1	No	36000	0.161
PR1-16/02-CM2-100	-	16.00	14.00	2.40	CM2	-	105.00	168.70	-	85.16	28.50	1°00	-	2	PR1..16..	1	No	20000	0.211
Threaded modular heads																			
PR1-12/02-025-P08	-	12.00	10.00	1.80	11.00	M8	25.00	-	-	-	-	-	10	2	PR1..12..	1	No	- ²⁾	0.016
PR1-16/02-025-P08	-	16.00	14.00	2.40	14.00	M8	25.00	-	-	-	-	-	10	2	PR1..16..	1	No	- ²⁾	0.034
PR1-16/02-025-P10	-	16.00	14.00	2.40	14.00	M10	30.00	-	-	-	-	-	14	2	PR1..16..	1	No	- ²⁾	0.034
Carbide shank with dm_m > D₃																			
PR1-12/02-QC16-145HSCW	-	12.00	10.00	1.80	16.00	-	-	145.00	85.00	65.60	21.50	1°20	-	2	PR1..12..	1	No	21000	0.306
PR1-16/02-QC20-166HSCW	-	16.00	14.00	2.40	20.00	-	-	166.00	100.00	87.20	28.50	1°00	-	2	PR1..16..	1	No	25500	0.570
Carbide shank with dm_m > D₃																			
PR1-12/02-QC12-083HSCW	-	12.00	10.00	1.80	12.00	-	-	83.00	26.00	-	-	-	-	2	PR1..12..	1	No	40000	0.123
PR1-12/02-QC12-110HSCW	-	12.00	10.00	1.80	12.00	-	-	110.00	53.00	-	-	-	-	2	PR1..12..	1	No	40000	0.153
PR1-16/02-QC16-092HSCW	-	16.00	14.00	2.40	16.00	-	-	92.00	32.00	-	-	-	-	2	PR1..16..	1	No	43000	0.234
PR1-16/02-QC16-123HSCW	-	16.00	14.00	2.40	16.00	-	-	123.00	63.00	-	-	-	-	2	PR1..16..	1	No	43000	0.306

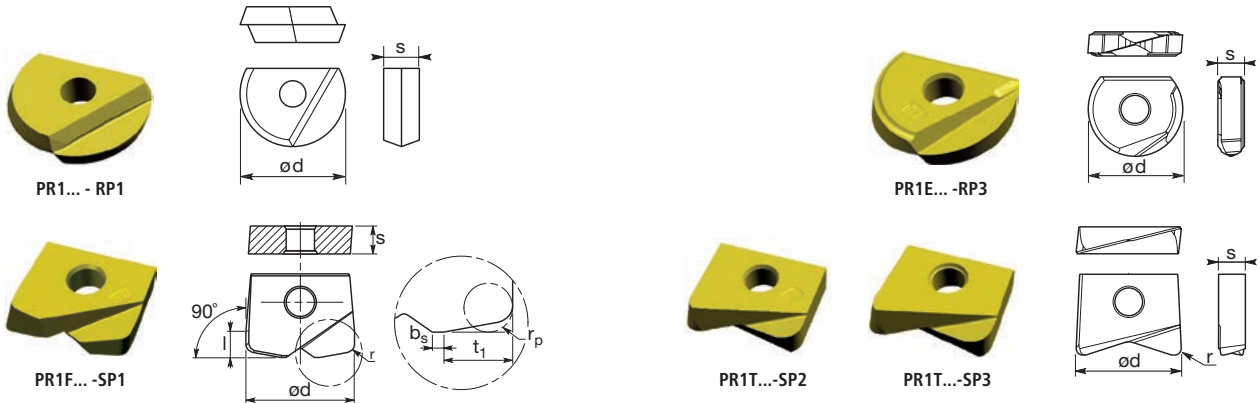
¹⁾ Size of the wrench to be used for modular heads is given by dimension A

²⁾ Max. RPM values are not given for modular heads as they are always used with long extensions

Spare parts

Insert style	Diameter D ₃	Insert screw			Screw driver		Torque wrench		
		Reference	Size	Nm	Reference	Size	Reference	Size	Nm
PR1..12..	12 mm	SPM0113	M 3.5	2.0 N.m	SPM0143	10 IP	SPM0151	10 IP	2.0
PR1..14..	14 mm	SPM0122	M 4.0	3.0 N.m	SPM0144	T15	-	-	-
PR1..16..	16 mm	SPM0114	M 4.0	3.0 N.m	SPM0145	15 IP	SPM0152	15 IP	3.0

Insert program



Reference	Dimensions (mm)							Grades							
	d	s	r	l	b _s	r _p ¹⁾	t ₁	SP95	SP51	SP52	SP55	SP13	SP14	SP15	
PR1 inserts															
PR1 1200-RP2	12.00	3.00	-	-	-	-	-	✓	-	-	-	-	-	-	-
PR1 1400-RP2	14.00	3.50	-	-	-	-	-	✓	-	-	-	-	-	-	-
PR1 1600-RP2	16.00	4.00	-	-	-	-	-	✓	-	-	-	-	-	-	-
PR1 1200-RP2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-
PR1 1400-RP2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-
PR1 1600-RP2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-
PR1E inserts															
PR1E 1200-RP3	12.00	3.00	-	-	-	-	-	-	✓	-	✓	-	-	-	-
PPR1E 1600-RP3	16.00	4.00	-	-	-	-	-	-	✓	-	✓	-	✓	-	-
PR1F inserts															
PR1F 1200 06-SP1	12.00	3.00	1.00	3.00	0.60	1.50	3.90	✓	-	✓	✓	-	-	-	✓
PR1F 1600 08-SP1	16.00	4.00	1.30	3.80	0.80	2.00	5.20	✓	-	✓	✓	-	-	-	✓
PR1T... - SP2 inserts															
PR1T 1200 10-SP2	12.00	3.00	1.00	-	-	-	-	-	✓	-	-	-	-	-	-
PR1T 1200 20-SP2	12.00	3.00	2.00	-	-	-	-	-	✓	-	-	-	-	-	-
PR1T 1600 10-SP2	16.00	4.00	1.00	-	-	-	-	-	✓	-	-	-	-	-	-
PR1T 1600 13-SP2	16.00	4.00	1.30	-	-	-	-	-	✓	-	-	-	-	-	-
PR1T 1600 20-SP2	16.00	4.00	2.00	-	-	-	-	-	✓	-	-	-	-	-	-
PR1T 1600 30-SP2	16.00	4.00	3.00	-	-	-	-	-	✓	-	-	-	-	-	-
PR1T... - SP3 inserts															
PR1T 1200 05-SP3	12.00	3.00	0.50	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1200 10-SP3	12.00	3.00	1.00	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1200 15-SP3	12.00	3.00	1.50	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1200 20-SP3	12.00	3.00	2.00	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1600 10-SP3	16.00	4.00	1.00	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1600 13-SP3	16.00	4.00	1.30	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1600 20-SP3	16.00	4.00	2.00	-	-	-	-	✓	-	-	-	-	-	-	-
PR1T 1600 30-SP3	16.00	4.00	3.00	-	-	-	-	✓	-	-	-	-	-	-	-

¹⁾ r_p = Radius programming

✓ Article which can be ordered

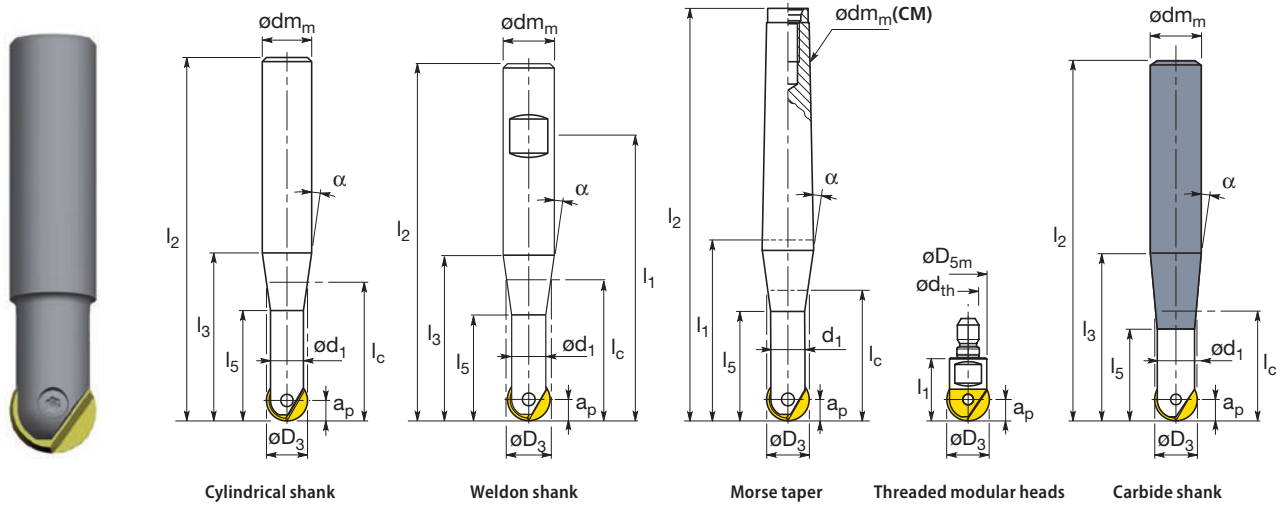
Ordering example: PR1 1600-RP1 SP95

Cutting conditions

Grade	Feed per tooth (mm)	P Steel				M Stainless steel			K Cast iron				N Non-ferrous aluminum				S Super alloys			H Hardened materials			
		Free machining and low (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, Inconel, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50Rc - 62Rc)	Case hardened alloy steels (40Rc - 50Rc)	Hardened tool steels (45Rc - 62Rc)	Hardened irons (400BHN)
SP95	v _{c1}	-	-	-	250	279	240	179	277	257	227	207	-	-	-	-	100	90	65	99	119	99	99
	f _{z1}	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	v _{c2}	-	-	-	220	259	210	159	239	219	189	169	-	-	-	-	90	80	60	79	99	79	79
SP51	f _{z2}	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	0.10	0.10	0.10	0.20	0.20	0.20	0.20
	v _{c1}	416	374	291	211	247	216	169	-	-	-	-	1164	779	531	656	85	75	60	50	55	50	50
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
SP55	v _{c2}	313	279	221	160	209	188	149	-	-	-	-	937	489	428	526	55	45	45	35	40	35	35
	f _{z2}	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
	v _{c1}	259	229	161	95	136	88	74	-	-	-	-	-	-	-	-	53	43	35	-	-	-	-
SP13	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	-	0.05	0.05	0.05	-	-	-	-
	v _{c2}	186	163	107	55	99	69	61	-	-	-	-	-	-	-	-	34	24	25	-	-	-	-
	f _{z2}	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	-	-	-	-	-	0.25	0.25	0.15	-	-	-	-
SP13	v _{c1}	416	374	291	211	247	216	169	-	-	-	-	1164	779	531	656	85	75	60	50	55	50	50
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	v _{c2}	313	279	221	160	209	188	149	-	-	-	-	937	489	428	526	55	45	45	35	40	35	35
SP13	f _{z2}	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20

The cutting speed (vc) and the feed per tooth values have to be optimized depending on specific machined material.

Cutter program, PR120-32



Reference	Dimensions (mm)													Z	Insert style	Nb of inserts	Coolant channels	Max. RPM	kg
	D _c	D ₃	d ₁	Max. a _p	dm _m D _{5m}	d _{th}	l ₁	l ₂	l ₃	l _c	l ₅	α	A ¹⁾						
Cylindrical shank with dm_m > D₃																			
PR1-20/02-QC25-191	-	20.00	17.00	3.00	25.00	-	-	191.00	115.00	82.20	35.00	1°45	-	2	PR1..20..	1	No	18400	0.521
PR1-20/02-QCR25-250	-	20.00	17.00	-	25.00	-	-	250.00	50.00	30.00	15.50	5°48	-	2	PR1..20..	1	No	18400	0.860
PR1-25/02-QC32-215	-	25.00	21.00	3.70	32.00	-	-	215.00	135.00	97.00	42.50	2°00	-	2	PR1..25..	1	No	16500	0.918
Cylindrical shank with dm_m > D₃																			
PR1-20/02-QC20-104	-	20.00	17.00	3.00	20.00	-	-	104.00	38.00	-	-	-	-	2	PR1..20..	1	No	40000	0.209
PR1-20/02-QC20-141	-	20.00	17.00	3.00	20.00	-	-	141.00	75.00	-	-	-	-	2	PR1..20..	1	No	40000	0.276
PR1-20/02-QC20-191	-	20.00	17.00	3.00	20.00	-	-	191.00	65.00	-	-	-	-	2	PR1..20..	1	No	40000	0.405
PR1-25/02-QC25-121	-	25.00	21.00	3.70	25.00	-	-	121.00	45.00	-	-	-	-	2	PR1..25..	1	No	40000	0.376
PR1-25/02-QC25-166	-	25.00	21.00	3.70	25.00	-	-	166.00	90.00	-	-	-	-	2	PR1..25..	1	No	37100	0.497
PR1-32/02-QC32-133	-	32.00	26.00	4.50	32.00	-	-	134.00	54.00	-	-	-	-	2	PR1..32..	1	No	32500	0.654
PR1-32/02-QC32-186	-	32.00	26.00	4.50	32.00	-	-	187.00	107.00	-	-	-	-	2	PR1..32..	1	No	32500	0.873
PR1-32/02-QC32-240	-	32.00	26.00	4.50	32.00	-	-	240.00	160.00	-	54.00	1°00	-	2	PR1..32..	1	No	14500	1.170
Weldon shank																			
PR1-20/02-QW20-075	-	20.00	17.00	3.00	20.00	-	116.50	141.00	75.00	-	-	-	-	2	PR1..20..	1	No	40000	0.273
PR1-25/02-QW25-090	-	25.00	21.00	-	25.00	-	-	166.00	90.00	-	-	-	-	2	PR1..25..	1	No	37100	0.492
Morse taper																			
PR1-20/02-CM2-075	-	20.00	17.00	-	CM2	-	75.00	-	-	-	-	-	-	2	PR1..20..	1	No	40000	0.198
PR1-20/02-CM3-115	-	20.00	17.00	3.00	CM3	-	120.00	200.70	-	75.00	34.00	2°00	-	2	PR1..20..	1	No	18400	0.442
PR1-25/02-CM3-090	-	25.00	21.00	-	CM3	-	90.00	-	-	-	-	-	-	2	PR1..20..	1	No	37100	0.414
PR1-25/02-CM4-135	-	25.00	21.00	-	CM4	-	135.00	-	-	82.00	-	2°10	-	2	PR1..20..	1	No	16500	0.942
PR1-32/02-CM4-106	-	32.00	26.00	-	CM4	-	106.00	-	-	-	-	-	-	2	PR1..20..	1	No	32500	0.833
PR1-32/02-CM4-160	-	30.00	26.00	-	CM4	-	160.00	-	-	-	-	1°10	-	2	PR1..20..	1	No	14500	1.123
Threaded modular heads																			
PR1-20/02-030-P10	-	20.00	17.00	3.00	18.00	M10	30.00	-	-	-	-	-	14	2	PR1..20..	1	No	- ²⁾	0.040
PR1-25/02-035-P12	-	25.00	21.00	3.70	23.00	M12	35.00	-	-	-	-	-	17	2	PR1..25..	1	No	- ²⁾	0.100
Carbide shank with dm_m > D₃																			
PR1-20/02-QC25-191HSCW	-	20.00	17.00	3.00	25.00	-	-	191.00	115.00	75.60	35.00	2°00	-	2	PR1..20..	1	No	18500	1.035
Carbide shank with dm_m > D₃																			
PR1-20/02-QC20-104HSCW	-	20.00	17.00	3.00	20.00	-	-	104.00	38.00	-	-	-	-	2	PR1..20..	1	No	40000	0.390
PR1-20/02-QC20-141HSCW	-	20.00	17.00	3.00	20.00	-	-	141.00	75.00	-	-	-	-	2	PR1..20..	1	No	40000	0.523

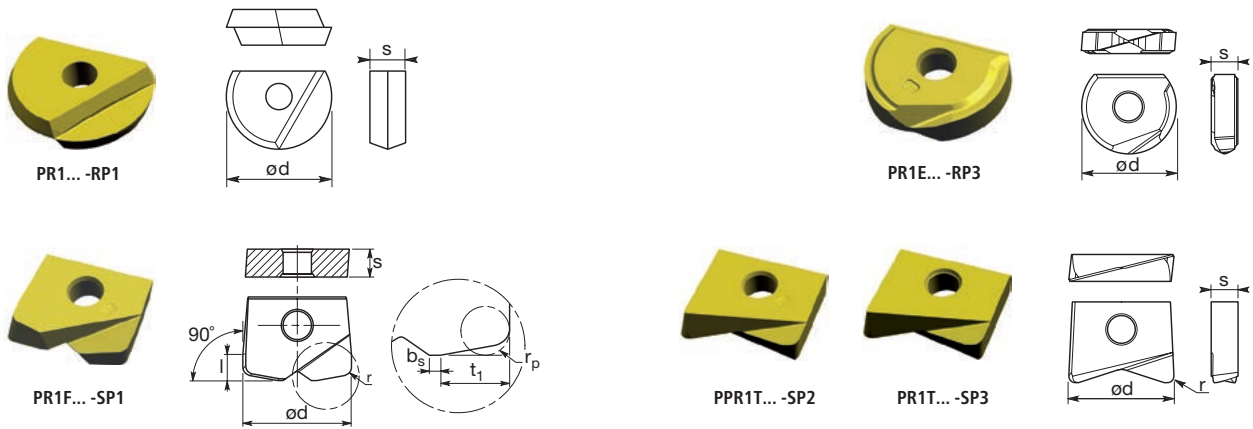
¹⁾ Size of the wrench to be used for modular heads is given by dimension A

²⁾ Max. RPM values are not given for modular heads as they are always used with long extensions

Spare parts

Insert style	Diameter D ₃	Insert screw			Screw driver	
		Reference	Size	⤵	Reference	☆
PR1..20..	20 mm	SPM0115	M 5.0	5.0 N.m	SPM0146	20 IP
PR1..25..	25 mm	SPM0116	M 6.0	7.5 N.m	SPM0137	25 IP
PR1..32..	32 mm	SPM0117	M 8.0	26.0 N.m	SPM0138	40 IP

Insert program



Reference	Dimensions (mm)							Grades						
	d	s	r	l	bs	rp ¹⁾	t ₁	SP95	SP51	SP52	SP55	SP13	SP14	SP15
PR1 inserts														
PR1 2000-RP1	20.00	5.00	-	-	-	-	-	✓	-	-	-	-	-	-
PR1 2500-RP1	25.00	6.00	-	-	-	-	-	✓	-	-	-	-	-	-
PR1 3000-RP1	30.00	7.00	-	-	-	-	-	✓	-	-	-	-	-	-
PR1 3200-RP1	32.00	7.00	-	-	-	-	-	✓	-	-	-	-	-	-
PR1 4000-RP1	40.00	8.00	-	-	-	-	-	✓	-	-	-	-	-	-
PR1 2000-RP2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
PR1 2500-RP2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
PR1 3000-RP2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
PR1 3200-RP2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
PR1 4000-RP2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
PR1E inserts														
PR1E 2000-RP3	20.00	5.00	-	-	-	-	-	-	✓	-	✓	-	✓	-
PR1E 2500-RP3	25.00	6.00	-	-	-	-	-	-	✓	-	✓	-	✓	-
PR1F inserts														
PR1F 2000 10-SP1	20.00	5.00	1.60	4.70	1.00	2.50	6.40	✓	-	✓	✓	-	-	-
PR1F 2500 12-SP1	25.00	6.00	1.90	6.20	1.20	3.00	7.90	✓	-	✓	✓	-	-	-
PR1T... - SP2 inserts														
PR1T 2000 10-SP2	20.00	5.00	1.00	-	-	-	-	-	✓	-	-	-	-	-
PR1T 2000 16-SP2	20.00	5.00	1.60	-	-	-	-	-	✓	-	-	-	-	✓
PR1T... - SP3 inserts														
PR1T 2000 10-SP3	20.00	5.00	1.00	-	-	-	-	✓	-	-	-	-	-	-
PR1T 2000 16-SP3	20.00	5.00	1.60	-	-	-	-	✓	-	-	-	-	-	-
PR1T 2000 30-SP3	20.00	5.00	3.00	-	-	-	-	✓	-	-	-	-	-	-
PR1T 2000 40-SP3	20.00	5.00	4.00	-	-	-	-	✓	-	-	-	-	-	-
PR1T 2500 20-SP3	25.00	6.00	2.00	-	-	-	-	✓	-	-	-	-	-	-

¹⁾ r_p = Radius programming

✓ Article which can be ordered

Ordering example: PR1 2000-RP1 SP95

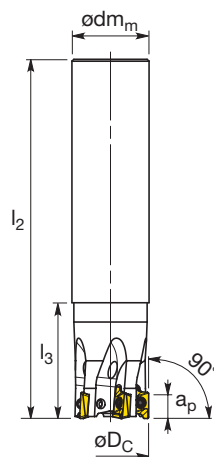
Cutting conditions

Grade	Feed per tooth (mm)	P Steel				M Stainless steel				K Cast iron				N Non-ferrous aluminum				S Super alloys			H Hardened materials			
		Free machining and low (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, Inconel, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50RC - 62RC)	Case hardened alloy steels (40RC - 50RC)	Hardened tool steels (45RC - 62RC)	Hardened irons (400BHN)	
SP95	v _{c1}	-	-	-	250	279	240	179	277	257	227	207	-	-	-	-	100	90	65	99	119	99	99	
	f _{z1}	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	v _{c2}	-	-	-	220	259	210	159	239	219	189	169	-	-	-	-	90	80	60	79	99	79	79	
	f _{z2}	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	0.10	0.10	0.10	0.20	0.20	0.20	0.20	
SP51	v _{c1}	416	374	291	211	247	216	169	-	-	-	-	1164	779	531	656	85	75	60	50	55	50	50	
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	v _{c2}	313	279	221	160	209	188	149	-	-	-	-	937	489	428	526	55	45	45	35	40	35	35	
	f _{z2}	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	
SP55	v _{c1}	259	229	161	95	136	88	74	-	-	-	-	-	-	-	-	53	43	35	-	-	-	-	
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	-	0.05	0.05	0.05	-	-	-	-	
	v _{c2}	186	163	107	55	99	69	61	-	-	-	-	-	-	-	-	34	24	25	-	-	-	-	
	f _{z2}	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	-	-	-	-	-	0.25	0.25	0.15	-	-	-	-	
SP13	v _{c1}	416	374	291	211	247	216	169	-	-	-	-	1164	779	531	656	85	75	60	50	55	50	50	
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	v _{c2}	313	279	221	160	209	188	149	-	-	-	-	937	489	428	526	55	45	45	35	40	35	35	
	f _{z2}	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	




The cutting speed (vc) and the feed per tooth values have to be optimized depending on specific machined material.

SHOULDER MILLING CUTTER WITH POSITIVE RECTANGULAR INSERTS


Cutter program, ZT 07



Short cylindrical shank

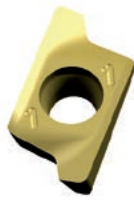
Reference	Dimensions (mm)							Z	 Insert style	Nb of inserts	 Coolant channels	Max. RPM	 kg
	D_c	D_3	Max. a_p	dm_m	l_1	l_2	l_3						
Short cylindrical shank													
ZT-07/010-02-QCC10-070-R	10.00	-	6.00	10.00	-	70.00	30.00	2	ZT 07 02..	2	Yes	62400	0.030
ZT-07/010-02-QCC10-100-R	10.00	-	6.00	10.00	-	100.00	30.00	2	ZT 07 02..	2	Yes	48000	0.045
ZT-07/012-02-QCC12-075-R	12.00	-	6.00	12.00	-	75.00	30.00	2	ZT 07 02..	2	Yes	62400	0.048
ZT-07/012-02-QCC12-100-R	12.00	-	6.00	12.00	-	100.00	30.00	2	ZT 07 02..	2	Yes	48000	0.066
ZT-07/014-02-QCC12-075-R	14.00	-	6.00	12.00	-	75.00	30.00	2	ZT 07 02..	2	Yes	54600	0.053
ZT-07/014-02-QCC12-100-R	14.00	-	6.00	12.00	-	100.00	30.00	2	ZT 07 02..	2	Yes	42000	0.071
ZT-07/016-03-QCC16-100-R	16.00	-	6.00	16.00	-	100.00	30.00	3	ZT 07 02..	3	Yes	42000	0.123
ZT-07/018-04-QCC16-100-R	18.00	-	6.00	16.00	-	100.00	30.00	4	ZT 07 02..	4	Yes	40000	0.127
ZT-07/020-05-QCC20-110-R	20.00	-	6.00	20.00	-	110.00	30.00	5	ZT 07 02..	5	Yes	36700	0.223

Spare parts

Insert style	Diameter D_c	 Insert screw			 Screw driver		 Torque wrench		
		Reference	Size		Reference		Reference		Nm
ZT 07 02..	10 - 20 mm	SPM0132	M 2.0	0.6 N.m	SPM0153	6 IP	SPM0140	6 IP	0.6

SHOULDER MILLING CUTTER WITH POSITIVE RECTANGULAR INSERTS

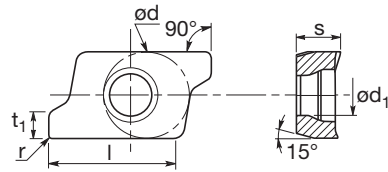
Insert program



ZT 07... ZT1



ZT 07... ZT4



Reference	Dimensions (mm)							Grades														
	d	s	d ₁	l	r	b _s	t ₁	PP20	PP12	PP21	SP95	SP51	SP52	SP54	SP55	SP83	SP53	SP13	SP17	SP11	SP16	
Inserts for general machining																						
ZT 07 02 02 ZT1	4.30	2.38	2.2	6.40	0.2	-	1.10	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-
ZT 07 02 04 ZT1	4.30	2.38	2.2	6.40	0.4	-	1.10	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-
ZT 07 02 04 ZT4	4.30	2.38	2.2	6.40	0.4	-	1.10	-	-	-	✓	✓	-	✓	-	-	✓	-	-	-	-	-
ZT 07 02 08 ZT1	4.30	2.38	2.2	6.40	0.8	-	1.10	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-

✓ Article which can be ordered

Ordering example: ZT 07 02 04 ZT1 SP52

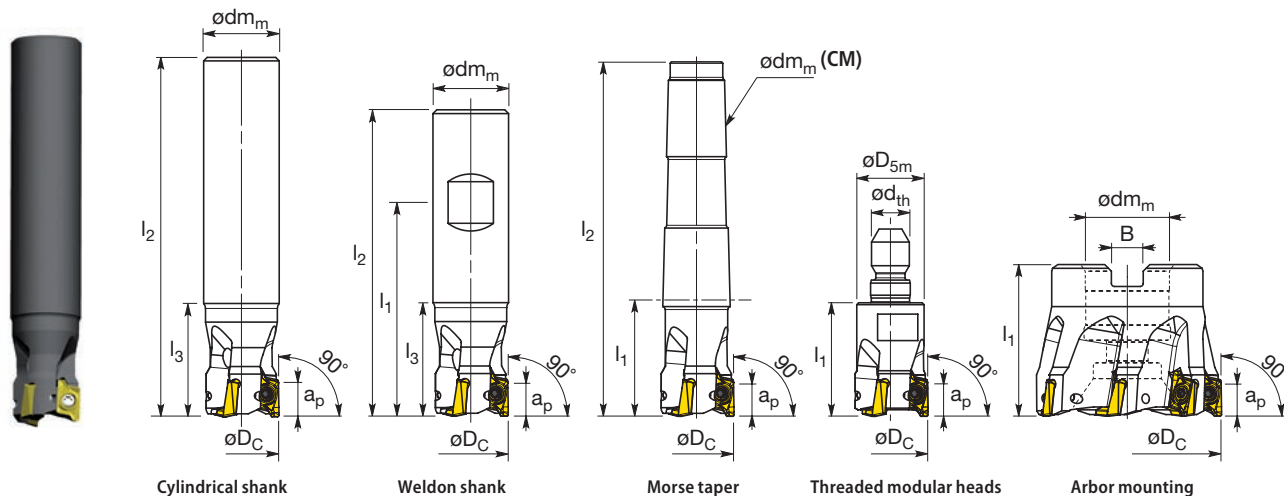
Cutting conditions

Grade	Feed per tooth (mm)	P Steel				M Stainless steel			K Cast iron				N Non-ferrous aluminum				S Super alloys			H Hardened materials			
		Free machining and low (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, incoel, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50RC - 62RC)	Case hardened alloy steels (40RC - 50RC)	Hardened tool steels (45RC - 62RC)	Hardened irons (400 BHN)
SP95	v _{c1}	-	-	-	254	281	244	181	282	262	232	212	-	-	-	-	104	94	67	101	121	101	101
	f _{z1}	-	-	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-	-	-	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	v _{c2}	-	-	-	248	277	238	177	275	255	255	205	-	-	-	-	100	90	65	97	117	97	97
	f _{z2}	-	-	-	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-	-	-	-	0.05	0.05	0.05	0.06	0.06	0.06	0.06
SP52	v _{c1}	365	327	251	152	218	199	141	262	244	217	190	1082	698	500	624	74	64	52	42	47	42	37
	f _{z1}	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	v _{c2}	345	310	237	145	210	193	137	255	235	206	178	1050	650	480	600	70	60	50	40	45	40	35
	f _{z2}	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
SP55	v _{c1}	267	235	167	99	139	90	76	-	-	-	-	-	-	-	-	55	45	37	-	-	-	-
	f _{z1}	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-	-	-	-	-	-	-	-	0.03	0.03	0.03	-	-	-	-
	v _{c2}	256	225	159	93	134	87	74	-	-	-	-	-	-	-	-	52	42	35	-	-	-	-
	f _{z2}	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-	-	-	-	-	-	-	-	0.06	0.06	0.05	-	-	-	-
SP53	v _{c1}	286	258	177	103	172	156	94	-	-	-	-	-	-	-	-	60	50	42	-	-	-	-
	f _{z1}	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-	-	-	-	-	-	-	-	0.03	0.03	0.03	-	-	-	-
	v _{c2}	273	246	169	98	160	140	90	-	-	-	-	-	-	-	-	57	47	40	-	-	-	-
	f _{z2}	0.06	0.06	0.06	0.06	0.05	0.05	0.05	-	-	-	-	-	-	-	-	0.06	0.06	0.05	-	-	-	-

The cutting speed (vc) and the feed per tooth values have to be optimized depending on specific machined material.

SHOULDER MILLING CUTTER WITH POSITIVE RECTANGULAR INSERTS

Cutter program, ZT 10



Reference	Dimensions (mm)										Z	Insert style	Nb of inserts	Coolant channels	Max. RPM	kg
	D _c	D ₃	Max. a _p	dm _m	d _{th}	l ₁	l ₂	l ₃	A ¹⁾	B						
Short cylindrical shank																
ZT-10/016-02-QCC16-100-R	16.00	-	9.00	16.00	-	-	100.00	30.00	-	-	2	ZT 10 03/T3..	2	Yes	40000	0.120
ZT-10/020-02-QCC16-100-R	20.00	-	9.00	16.00	-	-	100.00	30.00	-	-	2	ZT 10 03/T3..	2	Yes	35000	0.130
ZT-10/020-03-QCC20-110-R	20.00	-	9.00	20.00	-	-	110.00	30.00	-	-	3	ZT 10 03/T3..	3	Yes	35000	0.215
ZT-10/025-03-QCC20-110-R	25.00	-	9.00	20.00	-	-	110.00	40.00	-	-	3	ZT 10 03/T3..	3	Yes	33100	0.215
ZT-10/025-04-QCC25-120-R	25.00	-	9.00	25.00	-	-	120.00	40.00	-	-	4	ZT 10 03/T3..	4	Yes	33100	0.360
ZT-10/032-03-QCC25-120-R	32.00	-	9.00	25.00	-	-	120.00	50.00	-	-	3	ZT 10 03/T3..	3	Yes	29500	0.400
ZT-10/032-05-QCC32-130-R	32.00	-	9.00	32.00	-	-	130.00	50.00	-	-	5	ZT 10 03/T3..	5	Yes	29500	0.645
Long cylindrical shank																
ZT-10/016-02-QC16-160-R	16.00	-	9.00	16.00	-	-	160.00	30.00	-	-	2	ZT 10 03/T3..	2	No	11500	0.230
ZT-10/020-03-QC20-200-R	20.00	-	9.00	20.00	-	-	200.00	30.00	-	-	3	ZT 10 03/T3..	3	No	10300	0.455
ZT-10/025-04-QC25-250-R	25.00	-	9.00	25.00	-	-	250.00	40.00	-	-	4	ZT 10 03/T3..	4	No	9700	0.895
Undersized cylindrical shank																
ZT-10/016-02-QC15-160-R	16.00	-	9.00	15.00	-	-	160.00	25.00	-	-	2	ZT 10 03/T3..	2	No	11500	0.204
ZT-10/020-03-QC19-200-R	20.00	-	9.00	19.00	-	-	200.00	25.00	-	-	3	ZT 10 03/T3..	3	No	10300	0.416
ZT-10/025-03-QC24-250-R	25.00	-	9.00	24.00	-	-	250.00	34.50	-	-	3	ZT 10 03/T3..	3	No	9700	0.831
Weldon shank																
ZT-10/016-02-QWC16-030-R	16.00	-	9.00	16.00	-	55.50	79.00	30.00	-	-	2	ZT 10 03/T3..	2	Yes	40000	0.090
ZT-10/020-03-QWC20-030-R	20.00	-	9.00	20.00	-	56.50	81.00	30.00	-	-	3	ZT 10 03/T3..	3	Yes	35000	0.150
ZT-10/025-04-QWC25-040-R	25.00	-	9.00	25.00	-	65.50	97.00	40.00	-	-	4	ZT 10 03/T3..	4	Yes	33100	0.275
ZT-10/032-05-QWC32-050-R	32.00	-	9.00	32.00	-	75.50	111.00	50.00	-	-	5	ZT 10 03/T3..	5	Yes	29500	0.535
Morse taper																
ZT-10/016-02-CMC2-030-R	16.00	-	9.00	CM2	-	30.00	93.70	-	-	-	2	ZT 10 03/T3..	2	No	40000	0.100
ZT-10/020-03-CMC2-030-R	20.00	-	9.00	CM2	-	30.00	93.70	-	-	-	3	ZT 10 03/T3..	3	No	35000	0.105
ZT-10/025-04-CMC3-040-R	25.00	-	9.00	CM3	-	40.00	120.70	-	-	-	4	ZT 10 03/T3..	4	No	33100	0.260
ZT-10/032-05-CMC3-040-R	32.00	-	9.00	CM3	-	40.00	120.70	-	-	-	5	ZT 10 03/T3..	5	No	29500	0.300
Threaded modular heads																
ZT-10/016-02-025DP08	16.00	-	9.00	12.80	M8	25.00	-	-	10	-	2	ZT 10 03/T3..	2	No	- ³⁾	0.025
ZT-10/020-03-030DP10	20.00	-	9.00	17.80	M10	30.00	-	-	14	-	3	ZT 10 03/T3..	3	No	- ³⁾	0.050
ZT-10/025-04-035DP12	25.00	-	9.00	20.80	M12	35.00	-	-	17	-	4	ZT 10 03/T3..	4	No	- ³⁾	0.090
ZT-10/032-05-043DP16	32.00	-	9.00	28.80	M16	43.00	-	-	24	-	5	ZT 10 03/T3..	5	No	- ³⁾	0.210
Arbor Mounting																
ZT-10/040-06-ALC16-R	40.00	-	9.00	16.00	-	40.00	-	-	-	8.40	6	ZT 10 03/T3..	6	No ²⁾	25500	0.185
ZT-10/050-07-ALC22-R	50.00	-	9.00	22.00	-	40.00	-	-	-	10.40	7	ZT 10 03/T3..	7	No ²⁾	23000	0.290

¹⁾ Size of the wrench to be used for modular heads is given by dimension A

²⁾ Optional coolant screw can be ordered separately

³⁾ Max. RPM values are not given for modular heads as they are always used with long extensions

Spare parts

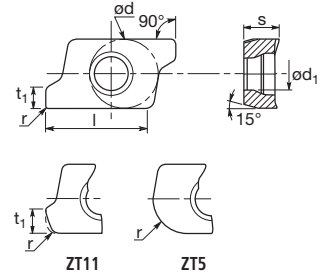
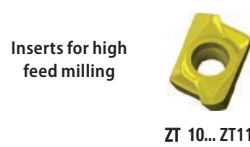
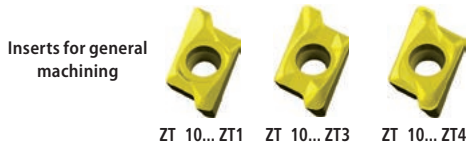
Insert style	Diameter D _c	Insert screw		Screw driver		Torque wrench			
		Reference	Size	Reference	Size	Reference	Nm		
ZT 10 03/T3..	16 - 50 mm	SPM0133	M 2.5	1.2 N.m	SPM0156	8 IP	SPM0149	8 IP	1.2

Optional spare parts

Insert style	Diameter D _c	Coolant screw
		Reference
ZT 10 03/T3..	40 mm	SPM0128
ZT 10 03/T3..	50 mm	SPM0124

SHOULDER MILLING CUTTER WITH POSITIVE RECTANGULAR INSERTS

Insert program



Reference	Dimensions (mm)							Grades														
	d	s	d ₁	l	r	b _s	t ₁	PP20	PP12	PP21	SP95	SP51	SP52	SP54	SP55	SP83	SP53	SP13	SP17	SP11	SP16	
Inserts for general machining																						
ZT 10 03 04 ZT1	6.35	3.40	2.9	9.10	0.4	-	1.80	-	-	-	✓	-	✓	-	✓	-	-	-	-	-	✓	✓
ZT 10 03 04 ZT3	6.35	3.40	2.9	9.10	0.4	-	1.60	-	-	-	✓	-	✓	-	✓	-	-	-	-	-	-	-
ZT 10 03 04 ZT4	6.35	3.40	2.9	9.10	0.4	-	1.60	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 08 ZT3	6.35	3.40	2.9	9.10	0.8	-	1.60	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 08 ZT4	6.35	3.40	2.9	9.10	0.8	-	1.60	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 T3 C5 ZT9	6.35	3.77	3.1	8.50	0.5x45°	-	1.90	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
Inserts with radius																						
ZT 10 03 02 ZT2	6.35	3.40	2.9	9.10	0.2	-	1.80	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 04 ZT2	6.35	3.40	2.9	9.10	0.4	-	1.80	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 05 ZT2	6.35	3.40	2.9	9.10	0.5	-	1.80	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 08 ZT2	6.35	3.40	2.9	9.10	0.8	-	1.80	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 10 ZT2	6.35	3.40	2.9	9.10	1.0	-	1.80	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 12 ZT2	6.35	3.40	2.9	9.10	1.2	-	1.80	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 16 ZT5 ³⁾	6.35	3.32	2.9	7.80	1.6	-	-	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 20 ZT5 ³⁾	6.35	3.28	2.9	7.70	2.0	-	-	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 24 ZT5 ³⁾	6.35	3.25	2.9	7.60	2.4	-	-	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 30 ZT5 ³⁾	6.35	3.19	2.9	7.50	3.0	-	-	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 40 ZT5 ³⁾	6.35	3.09	2.9	7.30	4.0	-	-	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
Inserts for high feed milling																						
ZT 10 03 10 ZT11	6.35	3.38	2.9	8.30	1.0 ¹⁾	-	2.2 ²⁾	-	-	-	✓	-	✓	-	✓	-	-	-	-	-	-	-
Inserts for precision shoulder																						
ZT 10 03 04 ZT12	6.35	3.40	2.9	7.00	0.4	-	1.80	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-
ZT 10 03 08 ZT13	6.35	3.40	2.9	6.70	0.8	-	1.80	-	-	-	✓	-	✓	-	✓	-	✓	-	-	-	-	-

¹⁾ Article which can be ordered ²⁾ High feed corner width ³⁾ Cutter bodies will need to be modified ✓ Article which can be ordered Ordering example: ZT 10 03 04 ZT1 SP52

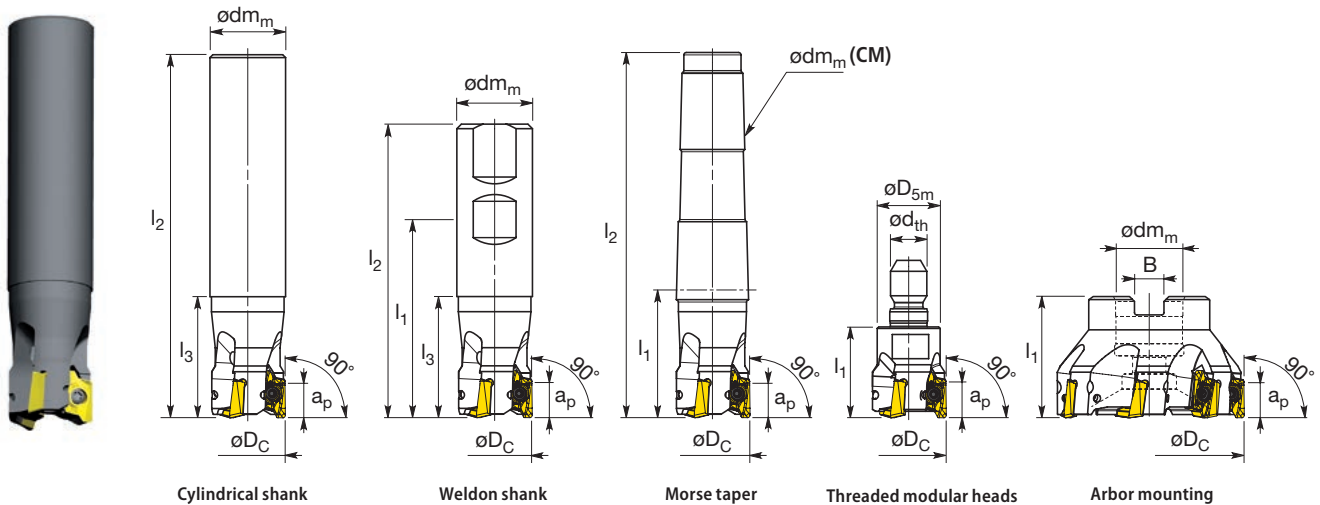
Cutting conditions

Grade	Feed per tooth (mm)	P Steel				M Stainless steel			K Cast iron				N Non-ferrous aluminum				S Super alloys			H Hardened materials			
		Free machining and low (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, incoloy, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50Rc - 62Rc)	Case hardened alloy steels (40Rc - 50Rc)	Hardened tool steels (45Rc - 62Rc)	Hardened irons (400 BHN)
SP95	v _{c1}	-	-	-	254	281	244	181	282	262	232	212	-	-	-	-	104	94	67	101	121	101	101
	f _{z1}	-	-	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-	-	-	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	v _{c2}	-	-	-	230	266	220	166	251	231	201	181	-	-	-	-	90	80	60	86	106	86	86
SP52	f _{z2}	-	-	-	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-	-	-	-	0.10	0.10	0.10	0.15	0.15	0.15	0.15
	v _{c1}	365	327	251	152	218	199	141	262	244	217	190	1082	698	500	624	74	64	52	42	47	42	37
	f _{z1}	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
SP55	v _{c2}	284	257	194	121	189	175	126	231	209	173	141	970	530	430	540	60	50	45	35	40	35	30
	f _{z2}	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	v _{c1}	248	219	153	89	130	85	72	-	-	-	-	-	-	-	-	50	40	32	-	-	-	-
SP83	f _{z1}	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	-	-	-	-	-	-	0.08	0.08	0.08	-	-	-	-
	v _{c2}	186	163	107	55	99	69	61	-	-	-	-	-	-	-	-	34	24	20	-	-	-	-
	f _{z2}	0.25	0.25	0.25	0.25	0.20	0.20	0.20	-	-	-	-	-	-	-	-	0.20	0.20	0.20	-	-	-	-
SP53	v _{c1}	-	-	-	-	174	141	106	-	-	-	-	-	-	-	-	62	52	42	-	-	-	-
	f _{z1}	-	-	-	-	0.05	0.05	0.05	-	-	-	-	-	-	-	-	0.05	0.05	0.05	-	-	-	-
	v _{c2}	-	-	-	-	142	120	102	-	-	-	-	-	-	-	-	50	40	37	-	-	-	-
SP11	f _{z2}	-	-	-	-	0.20	0.20	0.20	-	-	-	-	-	-	-	-	0.20	0.20	0.20	-	-	-	-
	v _{c1}	263	238	163	94	142	116	84	-	-	-	-	-	-	-	-	55	45	37	-	-	-	-
	f _{z1}	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	-	-	-	-	-	-	0.08	0.08	0.08	-	-	-	-
SP16	v _{c2}	186	170	117	66	70	20	60	-	-	-	-	-	-	-	-	39	29	25	-	-	-	-
	f _{z2}	0.25	0.25	0.25	0.25	0.20	0.20	0.20	-	-	-	-	-	-	-	-	0.20	0.20	0.20	-	-	-	-
	v _{c1}	-	-	-	-	-	-	-	-	-	-	-	850	480	430	370	45	40	35	-	-	-	-
SP16	f _{z1}	-	-	-	-	-	-	-	-	-	-	-	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	v _{c2}	-	-	-	-	-	-	-	-	-	-	-	700	380	280	370	40	35	30	-	-	-	-
	f _{z2}	-	-	-	-	-	-	-	-	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
SP16	v _{c1}	-	-	-	-	-	-	-	147	121	92	82	940	520	505	530	46	40	35	-	-	-	-
	f _{z1}	-	-	-	-	-	-	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	v _{c2}	-	-	-	-	-	-	-	131	107	82	75	840	470	430	480	43	37	33	-	-	-	-
f _{z2}	-	-	-	-	-	-	-	0.10	0.10	0.10	0.10	0.08	0.08	0.08	0.08	0.10	0.10	0.10	-	-	-	-	

The cutting speed (vc) and the feed per tooth values have to be optimized depending on specific machined material.

SHOULDER MILLING CUTTER WITH POSITIVE RECTANGULAR INSERTS

Cutter program, ZT 13



Reference	Dimensions (mm)										Z	Insert style	Nb of inserts	Coolant channels	Max. RPM	kg
	D _c	D ₃	Max. a _p	d _m D _{5m}	d _{th}	l ₁	l ₂	l ₃	A ¹⁾	B						
Short cylindrical shank																
ZT-13/020-02-QCC20-110-R	20.00	-	12.00	20.00	-	-	110.00	30.00	-	-	2	ZT 13 04..	2	Yes	32100	0.215
ZT-13/025-03-QCC25-120-R	25.00	-	12.00	25.00	-	-	120.00	40.00	-	-	3	ZT 13 04..	3	Yes	30300	0.355
ZT-13/032-04-QCC32-130-R	32.00	-	12.00	32.00	-	-	130.00	50.00	-	-	4	ZT 13 04..	4	Yes	27000	0.650
Long cylindrical shank																
ZT-13/020-02-QC20-200-R	20.00	-	12.00	20.00	-	-	200.00	30.00	-	-	2	ZT 13 04..	2	No	9400	0.455
ZT-13/025-03-QC25-250-R	25.00	-	12.00	25.00	-	-	250.00	40.00	-	-	3	ZT 13 04..	3	No	8900	0.890
ZT-13/032-04-QC32-250-R	32.00	-	12.00	32.00	-	-	250.00	50.00	-	-	4	ZT 13 04..	4	No	7900	1.465
Undersized cylindrical shank																
ZT-13/020-02-QC19-200-R	20.00	-	12.00	19.00	-	-	200.00	30.00	-	-	2	ZT 13 04..	2	No	9400	0.455
ZT-13/025-03-QC24-250-R	25.00	-	12.00	24.00	-	-	250.00	40.00	-	-	3	ZT 13 04..	3	No	8900	0.870
Weldon shank																
ZT-13/020-02-QWC20-030-R	20.00	-	12.00	20.00	-	56.50	81.00	30.00	-	-	2	ZT 13 04..	2	Yes	32100	0.150
ZT-13/025-03-QWC25-040-R	25.00	-	12.00	25.00	-	65.50	97.00	40.00	-	-	3	ZT 13 04..	3	Yes	30300	0.275
ZT-13/032-04-QWC32-050-R	32.00	-	12.00	32.00	-	75.50	111.00	50.00	-	-	4	ZT 13 04..	4	Yes	27000	0.535
Morse taper																
ZT-13/020-02-CMC2-030-R	20.00	-	12.00	CM2	-	30.00	94.00	-	-	-	2	ZT 13 04..	2	No	32100	0.100
ZT-13/025-03-CMC3-040-R	25.00	-	12.00	CM3	-	40.00	120.70	-	-	-	3	ZT 13 04..	3	No	30300	0.255
ZT-13/032-04-CMC3-040-R	32.00	-	12.00	CM3	-	40.00	120.70	-	-	-	4	ZT 13 04..	4	No	27000	0.295
ZT-13/040-04-CMC3-040-R	40.00	-	12.00	CM3	-	40.00	120.70	-	-	-	4	ZT 13 04..	4	No	23400	0.365
Threaded modular heads																
ZT-13/020-02-025DP10	20.00	-	12.00	17.80	M10	25.00	-	-	14	-	2	ZT 13 04..	2	No	- ³⁾	0.040
ZT-13/025-03-030DP12	25.00	-	12.00	20.80	M12	30.00	-	-	17	-	3	ZT 13 04..	3	No	- ³⁾	0.070
ZT-13/032-04-040DP16	32.00	-	12.00	28.80	M16	40.00	-	-	24	-	4	ZT 13 04..	4	No	- ³⁾	0.185
Arbor Mounting																
ZT-13/040-05-ALC16-R	40.00	-	12.00	16.00	-	40.00	-	-	-	8.40	5	ZT 13 04..	5	No ²⁾	23400	0.175
ZT-13/050-04-ALC22-R	50.00	-	12.00	22.00	-	40.00	-	-	-	10.40	4	ZT 13 04..	4	No ²⁾	21100	0.275
ZT-13/050-06-ALC22-R	50.00	-	12.00	22.00	-	40.00	-	-	-	10.40	6	ZT 13 04..	6	No ²⁾	21100	0.265
ZT-13/063-07-ALC22-R	63.00	-	12.00	22.00	-	40.00	-	-	-	10.40	7	ZT 13 04..	7	No ²⁾	18300	0.375
ZT-13/080-09-ALC27-R	80.00	-	12.00	27.00	-	50.00	-	-	-	12.40	9	ZT 13 04..	9	No ²⁾	16000	0.930

¹⁾ Size of the wrench to be used for modular heads is given by dimension A

²⁾ Optional coolant screw can be ordered separately

³⁾ Max. RPM values are not given for modular heads as they are always used with long extensions

Spare parts

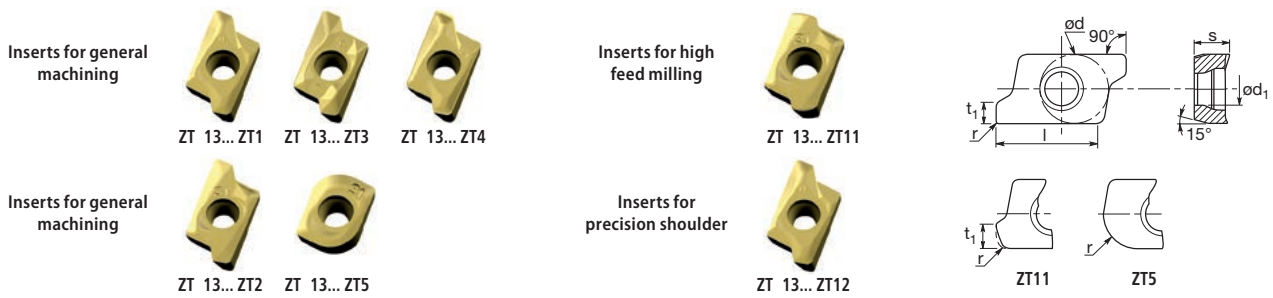
Insert style	Diameter D _c	Insert screw			Screw driver		Torque wrench		
		Reference	Size	⌚	Reference	☆	Reference	☆	Nm
ZT 13 04..	20 - 80 mm	SPM0108	M 3.0	1.4 N.m	SPM0155	9 IP	SPM0150	9 IP	1.4

Optional spare parts

Insert style	Diameter	Coolant screw	
		Reference	kg
ZT 13 04..	40 mm	SPM0128	
ZT 13 04..	50 mm	SPM0124	
ZT 13 04..	63 mm	SPM0124	
ZT 13 04..	80 mm	SPM0125	
ZT 13 04..	100 mm	SPM0126	

SHOULDER MILLING CUTTER WITH POSITIVE RECTANGULAR INSERTS

Insert program



Reference	Dimensions (mm)							Grades														
	d	s	d ₁	l	r	b _s	t ₁	PP20	PP12	PP21	SP95	SP51	SP52	SP54	SP55	SP83	SP53	SP13	SP17	SP11	SP16	
Inserts for general machining																						
ZT 13 04 04 ZT3	7.94	4.50	3.4	12.10	0.4	-	2.60	-	✓	-	✓	-	✓	-	✓	✓	-	-	-	-	-	-
ZT 13 04 08 ZT1	7.94	4.50	3.4	12.10	0.8	-	2.60	-	-	-	✓	-	✓	-	✓	-	-	-	-	-	✓	✓
ZT 13 04 08 ZT3	7.94	4.50	3.4	12.10	0.8	-	2.60	-	✓	-	✓	-	✓	-	✓	✓	-	-	-	-	-	-
ZT 13 04 08 ZT4	7.94	4.50	3.4	12.10	0.8	-	2.40	-	-	✓	-	-	✓	-	✓	-	✓	-	-	-	-	-
Inserts with radius																						
ZT 13 04 04 ZT2	7.94	4.50	3.4	12.10	0.4	-	2.60	-	-	-	✓	-	✓	-	✓	✓	-	-	-	-	-	-
ZT 13 04 08 ZT2	7.94	4.50	3.4	12.10	0.8	-	2.60	-	-	-	✓	-	✓	-	✓	✓	-	-	-	-	-	-
ZT 13 04 10 ZT2	7.94	4.50	3.4	12.10	1.0	-	2.60	-	-	-	✓	-	✓	-	✓	✓	-	-	-	-	-	-
ZT 13 04 12 ZT2	7.94	4.50	3.4	12.10	1.2	-	2.60	-	-	-	✓	-	✓	-	✓	✓	-	-	-	-	-	-
ZT 13 04 16 ZT2	7.94	4.50	3.4	12.10	1.6	-	2.60	-	-	-	✓	-	✓	-	✓	✓	-	-	-	-	-	-
ZT 13 04 20 ZT2	7.94	4.50	3.4	12.10	2.0	-	2.60	-	-	-	✓	-	✓	-	✓	✓	-	-	-	-	-	-
ZT 13 04 24 ZT5 ³⁾	7.94	4.37	3.4	10.20	2.4	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-
ZT 13 04 30 ZT5 ³⁾	7.94	4.31	3.4	10.10	3.0	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-
ZT 13 04 40 ZT5 ³⁾	7.94	4.22	3.4	9.90	4.0	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-
Inserts for high feed milling																						
ZT 13 04 14 ZT11	7.94	4.50	3.4	11.10	1.4 ¹⁾	-	2.7 ²⁾	-	-	-	✓	-	✓	-	✓	-	-	-	-	-	-	-
Inserts for precision shoulder																						
ZT 13 04 08 ZT12	7.94	4.50	3.4	9.90	0.8	-	2.60	-	-	-	✓	-	-	-	✓	-	-	-	-	-	-	-

¹⁾ Article which can be ordered ²⁾ High feed corner width ³⁾ Cutter bodies will need to be modified ✓ Article which can be ordered Ordering example: ZT 13 04 08 ZT3 SP52

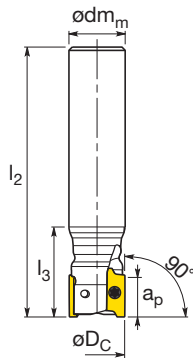
Cutting conditions

Grade	Feed per tooth (mm)	P Steel				M Stainless steel			K Cast iron				N Non-ferrous aluminum				S Super alloys			H Hardened materials				
		Free machining and low (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, inconel, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50RC - 62RC)	Case hardened alloy steels (40RC - 50RC)	Hardened tool steels (45RC - 62RC)	Hardened irons (400 BHN)	
PP12	v _{c1}	351	318	247	159	-	-	-	264	244	213	185	-	-	-	-	-	-	-	-	-	-	-	-
	f _{z1}	0.08	0.08	0.08	0.08	-	-	-	0.08	0.08	0.08	0.08	-	-	-	-	-	-	-	-	-	-	-	-
	v _{c2}	237	219	167	116	-	-	-	221	194	151	116	-	-	-	-	-	-	-	-	-	-	-	-
	f _{z2}	0.25	0.25	0.25	0.25	-	-	-	0.25	0.25	0.25	0.25	-	-	-	-	-	-	-	-	-	-	-	-
SP95	v _{c1}	-	-	-	250	279	240	179	277	257	227	207	-	-	-	100	90	65	99	119	99	99	99	
	f _{z1}	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	v _{c2}	-	-	-	210	253	200	153	226	206	176	156	-	-	-	80	70	55	73	93	73	73	73	
	f _{z2}	-	-	-	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	0.15	0.15	0.15	0.25	0.25	0.25	0.25	0.25	
SP52	v _{c1}	351	316	241	147	213	195	139	257	238	209	182	1050	650	480	600	70	60	50	40	45	40	35	
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	v _{c2}	217	199	147	96	164	155	113	206	179	136	101	890	410	380	480	50	40	40	30	35	30	25	
	f _{z2}	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	
SP55	v _{c1}	248	219	153	89	130	85	72	-	-	-	-	-	-	-	50	40	32	-	-	-	-	-	
	f _{z1}	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	-	-	-	-	-	0.08	0.08	0.08	-	-	-	-	-	
	v _{c2}	186	163	107	55	99	69	61	-	-	-	-	-	-	-	34	24	25	-	-	-	-	-	
	f _{z2}	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	-	-	-	-	0.25	0.25	0.15	-	-	-	-	-	
SP83	v _{c1}	-	-	-	-	174	141	106	-	-	-	-	-	-	-	62	52	42	-	-	-	-	-	
	f _{z1}	-	-	-	-	0.05	0.05	0.05	-	-	-	-	-	-	-	0.05	0.05	0.05	-	-	-	-	-	
	v _{c2}	-	-	-	-	131	112	87	-	-	-	-	-	-	-	42	32	31	-	-	-	-	-	
	f _{z2}	-	-	-	-	0.25	0.25	0.25	-	-	-	-	-	-	-	0.25	0.25	0.15	-	-	-	-	-	
SP53	v _{c1}	263	238	163	94	142	116	84	-	-	-	-	-	-	-	55	45	37	-	-	-	-	-	
	f _{z1}	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	-	-	-	-	-	0.08	0.08	0.08	-	-	-	-	-	
	v _{c2}	189	170	117	66	100	60	70	-	-	-	-	-	-	-	39	29	30	-	-	-	-	-	
	f _{z2}	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	-	-	-	-	0.25	0.25	0.15	-	-	-	-	-	
SP11	v _{c1}	-	-	-	-	-	-	-	-	-	-	-	925	530	505	480	48	43	38	-	-	-	-	
	f _{z1}	-	-	-	-	-	-	-	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-		
	v _{c2}	-	-	-	-	-	-	-	-	-	-	-	865	490	445	480	46	41	36	-	-	-	-	
	f _{z2}	-	-	-	-	-	-	-	-	-	-	-	0.09	0.09	0.09	0.09	0.09	0.09	-	-	-	-		
SP16	v _{c1}	-	-	-	-	-	-	-	142	117	89	80	900	500	475	510	45	39	34	-	-	-	-	
	f _{z1}	-	-	-	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-		
	v _{c2}	-	-	-	-	-	-	-	126	103	79	73	820	460	415	470	43	37	32	-	-	-	-	
	f _{z2}	-	-	-	-	-	-	-	0.12	0.12	0.12	0.12	0.09	0.09	0.09	0.09	0.09	0.09	-	-	-	-		

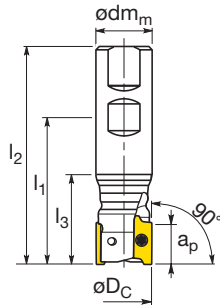
The cutting speed (vc) and the feed per tooth values have to be optimized depending on specific machined material.

SHOULDER MILLING CUTTER WITH POSITIVE RECTANGULAR INSERTS

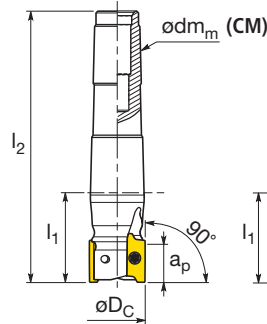
Cutter program, ZT 16



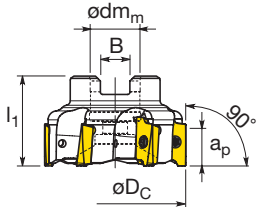
Cylindrical shank



Weldon shank



Morse taper



Arbor mounting

Reference	Dimensions (mm)										Z	Insert style	Nb of inserts	Coolant channels	Max. RPM	kg
	D _c	D ₃	Max. a _p	dm _m	d _{th}	l ₁	l ₂	l ₃	B	F						
Short cylindrical shank																
ZT16 025 02 QCC25 120 RM	25.00	-	17.50	25.00	-	-	120.00	40.00	-	-	2	ZT 16 06..	2	Yes	27000	0.345
ZT16 032 02 QCC25 120 RM	32.00	-	17.50	25.00	-	-	120.00	50.00	-	-	2	ZT 16 06..	2	Yes	23000	0.420
ZT16 032 03 QCC32 130 RM	32.00	-	17.50	32.00	-	-	130.00	50.00	-	-	3	ZT 16 06..	3	Yes	23000	0.623
ZT16 040 03 QCC25 120 RM	40.00	-	17.50	25.00	-	-	120.00	50.00	-	-	3	ZT 16 06..	3	Yes	20000	0.710
ZT16 040 04 QCC32 130 RM	40.00	-	17.50	32.00	-	-	130.00	50.00	-	-	4	ZT 16 06..	4	Yes	20000	0.735
Long cylindrical shank																
ZT16 025 02 QC25 250 RM	25.00	-	17.50	25.00	-	-	250.00	40.00	-	-	2	ZT 16 06..	2	No	7900	0.879
ZT16 032 03 QC32 250 RM	32.00	-	17.50	32.00	-	-	250.00	50.00	-	-	3	ZT 16 06..	3	No	6700	1.437
ZT16 040 04 QC32 250 RM	40.00	-	17.50	32.00	-	-	250.00	50.00	-	-	4	ZT 16 06..	4	No	5800	1.527
Weldon shank																
ZT16 025 02 QWC25 040 RM	25.00	-	17.50	25.00	-	65.50	97.00	40.00	-	-	2	ZT 16 06..	2	Yes	27000	0.287
ZT16 032 03 QWC32 050 RM	32.00	-	17.50	32.00	-	75.50	111.00	50.00	-	-	3	ZT 16 06..	3	Yes	23000	0.510
ZT16 040 04 QWC32 050 RM	40.00	-	17.50	32.00	-	75.50	111.00	50.00	-	-	4	ZT 16 06..	4	Yes	20000	0.602
Morse taper																
ZT16 025 02 CMC3 040 RM	25.00	-	17.50	CM3	-	40.00	120.70	-	-	-	2	ZT 16 06..	2	No	27000	0.248
ZT16 032 03 CMC3 050 RM	32.00	-	17.50	CM3	-	50.00	130.70	-	-	-	3	ZT 16 06..	3	No	23000	0.318
ZT16 040 04 CMC3 050 RM	40.00	-	17.50	CM3	-	50.00	130.70	-	-	-	4	ZT 16 06..	4	No	20000	0.398
Arbor Mounting																
ZT16 040 04 AL16 040 RM	40.00	-	17.50	16.00	-	40.00	-	-	8.40	-	4	ZT 16 06..	4	No ¹⁾	20000	0.151
ZT16 050 05 AL22 040 RM	50.00	-	17.50	22.00	-	40.00	-	-	10.40	-	5	ZT 16 06..	5	No ¹⁾	16000	0.239
ZT16 063 06 AL22 040 RM	63.00	-	17.50	22.00	-	40.00	-	-	10.40	-	6	ZT 16 06..	6	No ¹⁾	14000	0.356
ZT16 080 07 AL27 050 RM	80.00	-	17.50	27.00	-	50.00	-	-	12.40	-	7	ZT 16 06..	7	No ¹⁾	13000	0.776
ZT16 100 08 AL32 050 RM	100.00	-	17.50	32.00	-	50.00	-	-	14.40	-	8	ZT 16 06..	8	No ¹⁾	11000	1.220
ZT16 125 09 AL40 063 RM	125.00	-	17.50	40.00	-	63.00	-	-	16.40	-	9	ZT 16 06..	9	No ¹⁾	10000	2.381
ZT16 160 10 AL40 063 RM	160.00	-	17.50	40.00	-	63.00	-	-	16.40	66.70	10	ZT 16 06..	10	No	9000	4.681

¹⁾ Optional coolant screw can be ordered separately

Spare parts

Insert style	Diameter D _c	Insert screw		Screw driver		Torque wrench			
		Reference	Size	Reference	Reference	Reference	Nm		
		ZT 16 06..	25 - 160 mm	SPM0131	M 4.0	3.0 N.m	SPM0136	15 IP	SPM0145

Optional spare parts

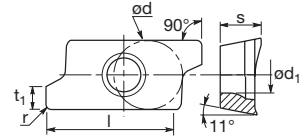
Insert style	Diameter D _c	Coolant screw
		Reference
ZT 16 06..	40 mm	SPM0128
ZT 16 06..	50 mm	SPM0124
ZT 16 06..	63 mm	SPM0124
ZT 16 06..	80 mm	SPM0125
ZT 16 06..	100 mm	SPM0126
ZT 16 06..	125 mm	SPM0127
ZT 16 06..	160 mm	-

SHOULDER MILLING CUTTER WITH POSITIVE RECTANGULAR INSERTS

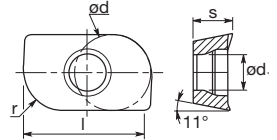
Insert program



Inserts for general machining



Inserts for general machining



ZT10

Reference	Dimensions (mm)							Grades						
	d	s	d ₁	l	r	b _s	t ₁	PP12	SP95	SP52	SP55	SP53	SP17	SP16
Inserts for general machining														
ZT 16 06 08 ZT6	9.30	6.42	4.7	18.00	0.8	-	3.30	-	✓	✓	-	-	-	✓
ZT 16 06 08 ZT9	9.30	6.40	4.7	18.00	0.8	-	2.90	✓	✓	✓	✓	✓	-	-
ZT 16 06 08 ZT14	9.30	6.42	4.7	18.00	0.8	-	3.30	-	-	-	-	-	✓	-
ZT 16 06 08 ZT15	9.30	6.40	4.7	18.00	0.8	-	2.90	-	-	✓	✓	✓	-	-
ZT 16 06 16 ZT9	9.30	6.40	4.7	18.00	1.6	-	3.00	-	-	-	✓	-	-	-
Inserts with radius														
ZT 16 06 04 ZT7	9.30	6.48	4.7	18.00	0.4	-	3.00	-	✓	✓	-	-	-	-
ZT 16 06 08 ZT7	9.30	6.44	4.7	18.00	0.8	-	3.00	-	✓	✓	-	-	-	-
ZT 16 06 12 ZT7	9.30	6.40	4.7	18.00	1.2	-	3.00	-	✓	✓	✓	-	-	-
ZT 16 06 16 ZT7	9.30	6.36	4.7	18.00	1.6	-	3.00	-	✓	✓	✓	-	-	-
ZT 16 06 20 ZT7	9.30	6.35	4.7	18.00	2.0	-	3.30	-	-	✓	✓	-	-	-
ZT 16 06 24 ZT7	9.30	6.30	4.7	18.00	2.4	-	3.30	-	-	✓	✓	-	-	-
ZT 16 06 30 ZT10 ¹⁾	9.30	6.10	4.7	15.90	3.0	-	-	-	-	✓	✓	-	-	-
ZT 16 06 32 ZT10 ¹⁾	9.30	6.09	4.7	15.90	3.2	-	-	-	-	✓	✓	-	-	-
ZT 16 06 40 ZT10 ¹⁾	9.30	6.03	4.7	15.80	4.0	-	-	-	-	✓	✓	-	-	-
ZT 16 06 48 ZT10 ¹⁾	9.30	5.97	4.7	15.70	4.8	-	-	-	-	✓	✓	-	-	-
ZT 16 06 50 ZT10 ¹⁾	9.30	5.96	4.7	15.70	5.0	-	-	-	-	✓	✓	-	-	-
ZT 16 06 60 ZT10 ¹⁾	9.30	5.89	4.7	15.60	6.0	-	-	-	-	✓	✓	-	-	-
ZT 16 06 64 ZT10 ¹⁾	9.30	5.86	4.7	15.60	6.4	-	-	-	-	✓	✓	-	-	-

¹⁾ Cutter bodies will need to be modified

✓ Article which can be ordered

Ordering example: ZT 16 06 08 ZT9 SP52

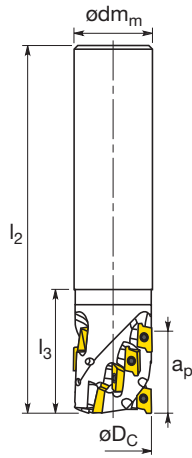
Cutting conditions

Grade	Feed per tooth (mm)	P Steel				M Stainless steel			K Cast iron				N Non-ferrous aluminum				S Super alloys			H Hardened materials					
		Free machining and low (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, incoloy, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50Rc - 62Rc)	Case hardened alloy steels (40Rc - 50Rc)	Hardened tool steels (45Rc - 62Rc)	Hardened irons (400BHN)		
PP12	v _{c1}	371	336	261	167	-	-	-	272	253	224	197	-	-	-	-	-	-	-	-	-	-	-	-	-
	f _{z1}	0.05	0.05	0.05	0.05	-	-	-	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
	v _{c2}	204	189	144	103	-	-	-	208	180	133	95	-	-	-	-	-	-	-	-	-	-	-	-	-
	f _{z2}	0.30	0.30	0.30	0.30	-	-	-	0.30	0.30	0.30	0.30	-	-	-	-	-	-	-	-	-	-	-	-	-
SP95	v _{c1}	-	-	-	250	279	240	179	277	257	227	207	-	-	-	100	90	65	99	119	99	99	99	99	99
	f _{z1}	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	v _{c2}	-	-	-	200	246	190	146	213	193	163	143	-	-	-	70	60	50	66	86	66	66	66	66	
	f _{z2}	-	-	-	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-	-	-	0.20	0.20	0.20	0.30	0.30	0.30	0.30	0.30	0.30	
SP52	v _{c1}	351	316	241	147	213	195	139	257	238	209	182	1050	650	480	600	70	60	50	40	45	40	35	35	
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	v _{c2}	184	169	124	83	152	145	106	193	165	118	80	810	290	330	420	40	30	35	25	30	25	20	20	
	f _{z2}	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	
SP55	v _{c1}	259	229	161	95	136	88	74	-	-	-	-	-	-	-	53	43	35	-	-	-	-	-	-	
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	0.05	0.05	0.05	-	-	-	-	-	-	
	v _{c2}	168	146	94	45	89	65	58	-	-	-	-	-	-	-	30	20	20	-	-	-	-	-	-	
	f _{z2}	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-	-	-	-	-	-	-	0.30	0.30	0.20	-	-	-	-	-	-	
SP53	v _{c1}	277	250	171	99	160	140	90	-	-	-	-	-	-	-	58	48	40	-	-	-	-	-	-	
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	0.05	0.05	0.05	-	-	-	-	-	-	
	v _{c2}	163	150	104	58	70	20	60	-	-	-	-	-	-	-	35	25	25	-	-	-	-	-	-	
	f _{z2}	0.30	0.30	0.30	0.30	0.20	0.20	0.20	-	-	-	-	-	-	-	0.30	0.30	0.20	-	-	-	-	-	-	
SP16	v _{c1}	-	-	-	-	-	-	-	142	117	89	80	900	500	475	510	45	39	34	-	-	-	-	-	
	f _{z1}	-	-	-	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-		
	v _{c2}	-	-	-	-	-	-	-	86	67	52	55	600	350	250	360	37	30	28	-	-	-	-		
	f _{z2}	-	-	-	-	-	-	-	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	-		

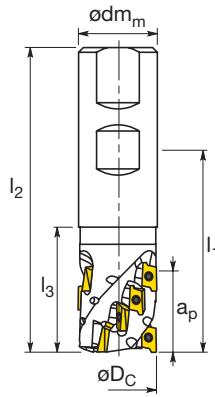
The cutting speed (vc) and the feed per tooth values have to be optimized depending on specific machined material.

CONTOURING MILLING CUTTER WITH POSITIVE RECTANGULAR INSERTS

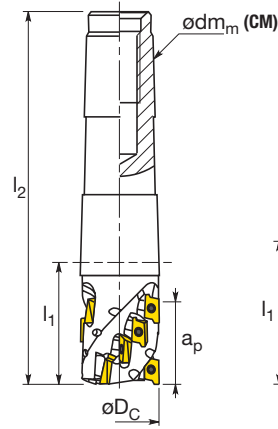
Cutter program, MPC 10, MPC 13, MPC 16



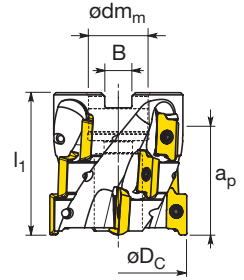
Cylindrical shank



Weldon shank



Morse taper



Arbor mounting

Reference	Dimensions (mm)								Z	Insert style	Nb of inserts	Coolant channels	Max. RPM	kg
	D _c	D ₃	Max. a _p	d _m	l ₁	l ₂	l ₃	B						
Cylindrical shank														
MPC-13/032-02-35-QC32-130	32.00	-	35.00	32.00	-	130.00	45.00	-	2	ZT 13 04..	6	No	15000	0.700
Weldon shank														
MPC-13/025-02-35-QW32-045	25.00	-	35.00	32.00	70.50	106.00	45.00	-	2	ZT 13 04..	6	No	20000	0.460
MPC-13/032-02-35-QW32-045	32.00	-	35.00	32.00	70.50	106.00	45.00	-	2	ZT 13 04..	6	No	15000	0.540
MPC-13/040-03-46-QW32-058	40.00	-	46.00	32.00	83.50	120.00	58.00	-	3	ZT 13 04..	12	No	8000	0.700
Morse taper														
MPC-13/032-02-46-CM4-060	32.00	-	46.00	M4	60.00	162.50	-	-	2	ZT 13 04..	8	No	15000	0.640
MPC-13/040-03-46-CM4-060	40.00	-	46.00	M4	60.00	162.50	-	-	3	ZT 13 04..	12	No	8000	0.760
Arbor Mounting														
MPC-16/050-04-52-AL22-065	50.00	-	52.00	22.00	65.00	-	-	10.40	4	ZT 16 04..	12	No	6300	0.410
MPC-16/063-04-52-AL27-065	63.00	-	52.00	27.00	65.00	-	-	10.40	4	ZT 16 04..	12	No	5000	0.670

Spare parts

Insert style	Diameter D _c	Insert screw			Screw driver		Torque wrench		
		Reference	Size	⤵	Reference	☆	Reference	☆	Nm
ZT 13 04..	25 - 40 mm	SPM0108	M 3.0	1.2 N.m	SPM0155	9 IP	SPM0150	9 IP	1.4
ZT 16 04..	50 - 63 mm	SPM0130	M 4.0	3.0 N.m	SPM0136	15 IP	SPM0152	15 IP	3.0

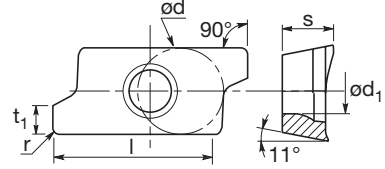
CONTOURING MILLING CUTTER WITH POSITIVE RECTANGULAR INSERTS

Insert program



Inserts for general machining

Inserts with radius



Reference	Dimensions (mm)							Grades														
	d	s	d ₁	l	r	b _s	t ₁	PP20	PP12	PP21	SP95	SP51	SP52	SP54	SP55	SP83	SP53	SP13	SP17	SP11	SP16	
Inserts for general machining																						
ZT 16 04 08 ZT6	9.52	4.76	4.7	16.00	0.8	-	3.20	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-
ZT 16 04 08 ZT14	9.52	4.76	4.7	16.00	0.8	-	3.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓
ZT 16 04 08 ZT8	9.52	4.76	4.7	16.00	0.8	-	3.10	-	-	-	-	✓	✓	-	-	-	✓	-	-	-	-	-
ZT 16 04 08 ZT15	9.52	4.76	4.7	16.00	0.8	-	3.10	-	-	-	-	✓	✓	-	-	-	✓	-	-	-	-	-
Inserts with radius																						
ZT 16 04 04 ZT7	9.52	4.76	4.7	16.00	0.4	-	3.20	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-
ZT 16 04 08 ZT7	9.52	4.76	4.7	16.00	0.8	-	3.20	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-
ZT 16 04 12 ZT7	9.52	4.76	4.7	16.00	1.2	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-
ZT 16 04 16 ZT7	9.52	4.76	4.7	16.00	1.6	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-
ZT 16 04 20 ZT7	9.52	4.76	4.7	16.00	2.0	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-
ZT 16 04 24 ZT7	9.52	4.76	4.7	16.00	2.4	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-

✓Article which can be ordered

Ordering example: ZT 16 04 08 ZT15 SP52

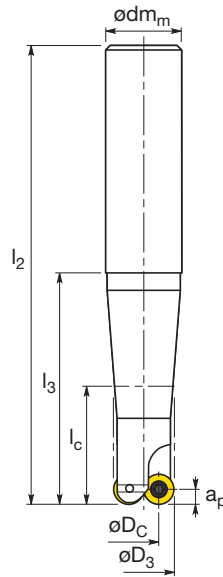
Cutting conditions

Grade		P Steel				M Stainless steel			K Cast iron				N Aluminum - Non-ferrous				S Super alloys			H Hardened materials			
		Free machining and low carbon (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, incoloy, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50Rc - 62Rc)	Case hardened alloy steels (40Rc - 50Rc)	Hardened tool steels (45Rc - 62Rc)	Hardened irons (400 BHN)
PP12	v ₁	351	318	247	159	-	-	-	264	244	213	185	-	-	-	-	-	-	-	-	-	-	-
	f ₁	0.08	0.08	0.08	0.08	-	-	-	0.08	0.08	0.08	0.08	-	-	-	-	-	-	-	-	-	-	-
SP95	v ₁	237	219	167	116	-	-	-	221	194	151	116	-	-	-	-	-	-	-	-	-	-	-
	f ₁	0.25	0.25	0.25	0.25	-	-	-	0.25	0.25	0.25	0.25	-	-	-	-	-	-	-	-	-	-	-
SP52	v ₁	-	-	-	254	281	244	181	282	262	232	212	-	-	-	104	94	67	101	121	101	101	101
	f ₁	-	-	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-	-	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
SP54	v ₁	-	-	-	210	253	200	153	226	206	176	156	-	-	-	80	70	55	73	93	73	73	73
	f ₁	-	-	-	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	0.15	0.15	0.15	0.25	0.25	0.25	0.25	0.25
SP55	v ₁	318	286	218	134	201	185	132	224	223	191	162	970	530	430	540	60	50	45	35	40	35	30
	f ₁	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
SP53	v ₁	217	199	147	96	164	155	113	206	179	136	101	890	410	380	480	50	40	40	30	35	30	25
	f ₁	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
SP11	v ₁	288	256	188	104	160	140	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	f ₁	0.10	0.10	0.10	0.10	0.10	0.10	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP16	v ₁	187	169	117	66	130	105	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	f ₁	0.25	0.25	0.25	0.25	0.15	0.15	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP17	v ₁	248	219	153	89	130	85	72	-	-	-	-	-	-	-	50	40	32	-	-	-	-	-
	f ₁	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	-	-	-	-	-	0.08	0.08	0.08	-	-	-	-	-
SP13	v ₁	186	163	107	55	99	69	61	-	-	-	-	-	-	-	34	24	25	-	-	-	-	-
	f ₁	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	-	-	-	-	0.25	0.25	0.15	-	-	-	-	-
SP12	v ₁	254	230	158	91	130	100	80	-	-	-	-	-	-	-	53	43	35	-	-	-	-	-
	f ₁	0.10	0.10	0.10	0.10	0.10	0.10	0.10	-	-	-	-	-	-	-	0.10	0.10	0.10	-	-	-	-	-
SP16	v ₁	186	170	117	66	100	60	70	-	-	-	-	-	-	-	39	29	30	-	-	-	-	-
	f ₁	0.25	0.25	0.25	0.25	0.15	0.15	0.15	-	-	-	-	-	-	-	0.25	0.25	0.15	-	-	-	-	-
SP11	v ₁	-	-	-	-	-	-	-	-	-	-	-	880	500	450	510	48	45	40	-	-	-	-
	f ₁	-	-	-	-	-	-	-	-	-	-	-	0.10	0.10	0.10	0.10	0.10	0.10	0.10	-	-	-	-
SP16	v ₁	-	-	-	-	-	-	-	-	-	-	-	805	450	375	460	46	42	38	-	-	-	-
	f ₁	-	-	-	-	-	-	-	-	-	-	-	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-	-	-	-
SP16	v ₁	-	-	-	-	-	-	-	131	107	82	75	800	450	400	460	42	36	32	-	-	-	-
	f ₁	-	-	-	-	-	-	-	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	-	-	-	-
SP16	v ₁	-	-	-	-	-	-	-	97	77	59	60	700	400	325	410	40	33	30	-	-	-	-
	f ₁	-	-	-	-	-	-	-	0.25	0.25	0.25	0.25	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-	-	-	-

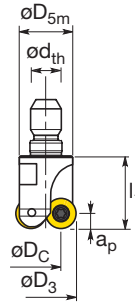
The cutting speed (v_c) and the feed per tooth values have to be optimized depending on specific machined material.

FACE MILLING AND PROFILING CUTTER WITH POSITIVE ROUND INSERTS

Cutter program, PR2 05, PR2 07, PR2 08



Cylindrical shank



Threaded modular heads

Reference	Dimensions (mm)											Z	Insert style	Nb of inserts	Coolant channels	Max. RPM	kg
	D_c	D_3	Max. a_p	d_{5m}	d_{th}	l_1	l_2	l_3	l_c	A ¹⁾	B						
Long cylindrical shank																	
PR2-05/010-02-QC16-160	5.00	10.00	2.50	16.00	-	-	160.00	60.00	23.00	-	-	2	RD.. 05 01..	2	No	24700	0.203
PR2-07/012-02-QC16-160	5.00	12.00	3.50	16.00	-	-	160.00	60.00	27.00	-	-	2	RD.. 07 T1..	2	No	24700	0.210
PR2-07/015-02-QC20-200	8.00	15.00	3.50	20.00	-	-	200.00	80.00	34.00	-	-	2	RD.. 07 02..	2	No	24700	0.430
PR2-07/020-03-QC25-250	13.00	20.00	3.50	25.00	-	-	250.00	80.00	44.00	-	-	3	RD.. 07 02..	3	No	24700	0.835
PR2-08/016-02-QC20-200	8.00	16.00	4.00	20.00	-	-	200.00	60.00	36.00	-	-	2	RD.. 08 T2..	2	No	24700	0.413
Undersized cylindrical shank																	
PR2-07/015-02-QC14-160	8.00	15.00	3.50	14.00	-	-	160.00	19.00	-	-	-	2	RD.. 07 02..	2	No	24700	0.185
Threaded modular heads																	
PR207 012R02 P08X025	5.00	12.00	3.50	12.80	M8	25.00	-	-	-	10 ¹⁾	-	2	RD.. 07 T1..	2	No	- ³⁾	0.009
PR207 015R03 P08X025	8.00	15.00	3.50	12.80	M8	25.00	-	-	-	10 ¹⁾	-	3	RD.. 07 T1..	3	No	- ³⁾	0.047
PR207 016R03 P08X025	9.00	16.00	3.50	12.80	M8	25.00	-	-	-	10 ¹⁾	-	3	RD.. 07 T1..	3	No	- ³⁾	0.098
PR207 020R04 P10X025	13.00	20.00	3.50	17.80	M10	25.00	-	-	-	14 ¹⁾²⁾	-	4	RD.. 07 T1..	4	No	- ³⁾	0.045
PR208 020R03 P10A030	12.00	20.00	4.00	17.80	M10	30.00	-	-	-	14 ¹⁾²⁾	-	3	RD.. 08 T2..	3	No	- ³⁾	0.019

¹⁾ Size of the wrench to be used for modular heads is given by dimension A

²⁾ Use a narrow flat wrench

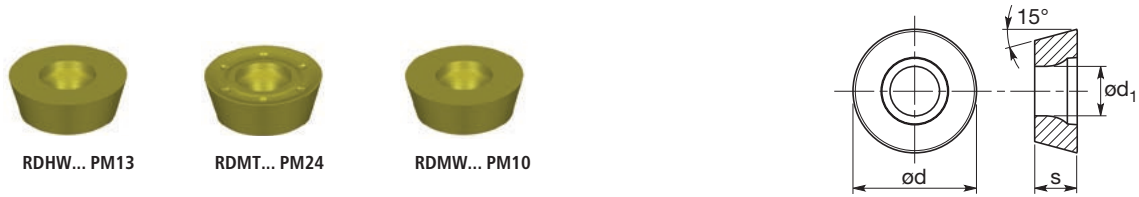
³⁾ Max. RPM values are not given for modular heads as they are always used with long extensions

Spare parts

Insert style	Diameter D_3	Insert screw			Screw driver		Torque wrench		
		Reference	Size	⤵	Reference	⬠	Reference	⬠	Nm
RD.. 05 01..	10 mm	SPM0134	M 2.0	0.6 N.m	SPM0153	6 IP	SPM0147	6 IP	0.6
RD.. 07 T1..	12 - 25 mm	SPM0135	M 2.2	0.9 N.m	SPM0154	7 IP	SPM0148	7 IP	0.9
RD.. 07 02..	15 mm	SPM0120	M 2.5	1.2 N.m	SPM0156	8 IP	SPM0149	8 IP	1.2
RD.. 08 T2..	16 mm	SPM0109	M 2.5	1.2 N.m	SPM0156	8 IP	SPM0149	8 IP	1.2

FACE MILLING AND PROFILING CUTTER WITH POSITIVE ROUND INSERTS

Insert program



Reference	Dimensions (mm)							Grades			
	d	s	d ₁	l	r	b _s	t ₁	SP95	SP55	SP55	SP83
RD.. 0501.. inserts											
RDHW 05 01 M0 PM11	5.00	1.50	2.2	-	-	-	-	✓	✓	✓	✓
RD.. 07T1.. inserts											
RDHW 07 T1 M0 PM11	7.00	1.99	2.8	-	-	-	-	✓	-	✓	✓
RDMT 07 T1 M0 PM24	7.00	1.99	2.8	-	-	-	-	-	-	✓	-
RDMW 07 T1 M0 PM10	7.00	1.99	2.8	-	-	-	-	✓	✓	✓	-
RD.. 0702.. inserts											
RDHW 07 02 M0 PM11	7.00	2.38	2.5	-	-	-	-	✓	✓	✓	✓
RDMT 07 02 M0 PM24	7.00	2.38	2.5	-	-	-	-	-	-	✓	-
RDMW 07 02 M0 PM10	7.00	2.38	2.5	-	-	-	-	✓	✓	✓	-
RD.. 08T2.. inserts											
RDHW 08 T2 M0 PM11	8.00	2.78	2.8	-	-	-	-	✓	-	✓	✓
RDMT 08 T2 M0 PM24	8.00	2.78	2.8	-	-	-	-	-	-	✓	-
RDMW 08 T2 M0 PM10	8.00	2.78	2.8	-	-	-	-	-	✓	✓	-

✓ Article which can be ordered

Ordering example: RDHW 05 01 M0 PM11 SP52

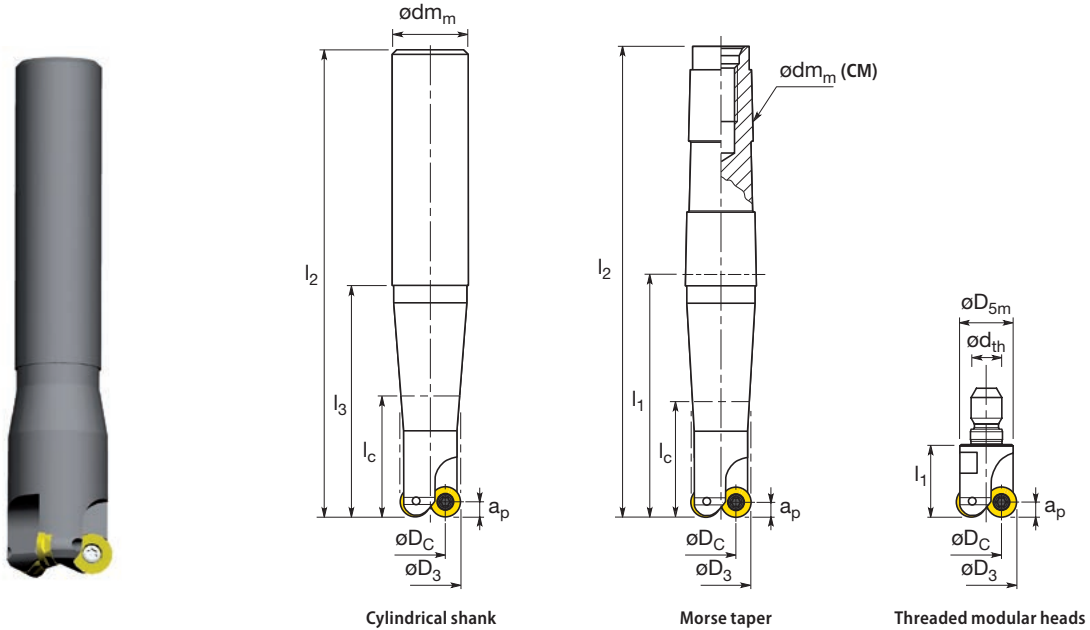
Cutting conditions

Grade	Feed per tooth (mm)	P Steel				M Stainless steel			K Cast iron				N Non-ferrous aluminum				S Super alloys			H Hardened materials			
		Free machining and low (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, incoloy, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50Rc - 62Rc)	Case hardened alloy steels (40Rc - 50Rc)	Hardened tool steels (45Rc - 62Rc)	Hardened irons (400 BHN)
SP95	v _{c1}	-	-	-	250	279	240	179	277	257	227	207	-	-	-	-	100	90	65	99	119	99	99
	f _{z1}	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	v _{c2}	-	-	-	220	259	210	159	239	219	189	169	-	-	-	-	90	80	60	79	99	79	79
	f _{z2}	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	0.10	0.10	0.10	0.20	0.20	0.20	0.20
SP55	v _{c1}	351	316	241	147	213	195	139	257	238	209	182	1050	650	480	600	70	60	50	40	45	40	35
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	v _{c2}	251	228	171	109	176	165	119	219	194	155	121	970	530	430	540	60	50	45	35	40	35	30
	f _{z2}	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
SP55	v _{c1}	259	229	161	95	136	88	74	-	-	-	-	-	-	-	-	53	43	35	-	-	-	-
	f _{z1}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	-	0.05	0.05	0.05	-	-	-	-
	v _{c2}	205	179	121	65	108	74	65	-	-	-	-	-	-	-	-	39	29	30	-	-	-	-
	f _{z2}	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	-	-	-	-	0.20	0.20	0.10	-	-	-	-
SP83	v _{c1}	-	-	-	-	174	141	106	-	-	-	-	-	-	-	-	62	52	42	-	-	-	-
	f _{z1}	-	-	-	-	0.05	0.05	0.05	-	-	-	-	-	-	-	-	0.05	0.05	0.05	-	-	-	-
	v _{c2}	-	-	-	-	142	120	102	-	-	-	-	-	-	-	-	50	40	37	-	-	-	-
	f _{z2}	-	-	-	-	0.2	0.2	0.2	-	-	-	-	-	-	-	-	0.2	0.2	0.2	-	-	-	-

The cutting speed (vc) and the feed per tooth values have to be optimized depending on specific machined material.

FACE MILLING AND PROFILING CUTTER WITH POSITIVE ROUND INSERTS

Cutter program, PR2 10



Reference	Dimensions (mm)											Z	Insert style	Nb of inserts	Coolant channels	Max. RPM	kg
	D_c	D_3	Max. a_p	dm_m	d_{5m}	d_{th}	l_1	l_2	l_3	l_c	A ¹⁾						
Long cylindrical shank																	
PR2-10/020-02-QC20-200	10.00	20.00	5.00	20.00	-	-	200.00	40.00	-	-	-	2	RD.. 10 03..	2	No	24700	0.450
PR2-10/020-02-QC25-250	10.00	20.00	5.00	25.00	-	-	250.00	80.00	44.00	-	-	2	RD.. 10 03..	2	No	20000	0.850
PR2-10/025-02-QC32-250	15.00	25.00	5.00	32.00	-	-	250.00	80.00	40.00	-	-	2	RD.. 10 03..	2	No	20000	1.360
PR2-10/025-03-QC25-200	15.00	25.00	5.00	25.00	-	-	200.00	60.00	-	-	-	3	RD.. 10 03..	3	No	20000	0.700
PR2-10/032-03-QC32-250	22.00	32.00	5.00	32.00	-	-	250.00	60.00	-	-	-	3	RD.. 10 03..	3	No	20000	1.460
Undersized cylindrical shank																	
PR2-10/020-02-QC19-200	10.00	20.00	5.00	19.00	-	-	200.00	34.00	-	-	-	2	RD.. 10 03..	2	No	24700	0.415
Morse taper																	
PR2-10/020-02-CM3-080	10.00	20.00	5.00	CM3	-	80.00	161.00	-	48.00	-	-	2	RD.. 10 03..	2	No	25000	0.360
PR2-10/025-02-CM3-080	15.00	25.00	5.00	CM3	-	80.00	161.00	-	79.00	-	-	2	RD.. 10 03..	2	No	25000	0.420
Threaded modular heads																	
PR210 020R02 P10A030	10.00	20.00	5.00	17.80	M10	30.00	-	-	-	14 ¹⁾	-	2	RD.. 10 03..	2	No	- ³⁾	0.040
PR210 025R03 P12A035	15.00	25.00	5.00	20.80	M12	35.00	-	-	-	17 ^{1) 2)}	-	3	RD.. 10 03..	3	No	- ³⁾	0.084
PR210 032R04 P16A045	22.00	32.00	5.00	28.80	M16	45.00	-	-	-	17 ¹⁾	-	4	RD.. 10 03..	4	No	- ³⁾	0.208
PR210 040R05 P16A045	32.00	40.00	5.00	28.80	M16	45.00	-	-	-	24 ¹⁾	-	5	RD.. 10 03..	5	No	- ³⁾	0.295

¹⁾ Size of the wrench to be used for modular heads is given by dimension A

²⁾ Use a narrow flat wrench

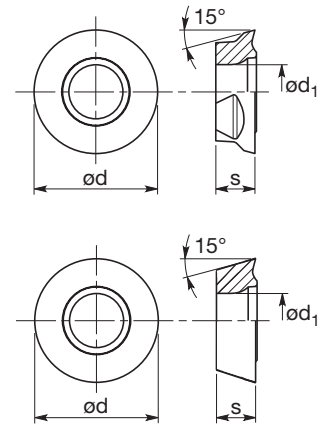
³⁾ Max. RPM values are not given for modular heads as they are always used with long extensions

Spare parts

Insert style	Diameter D_3	Insert screw			Screw driver		Torque wrench			
		Reference	Size		Reference		Reference		Nm	
RD.. 10 03..	20 - 42 mm	SPM0118	M 3.5		3.0 N.m	SPM0136	15 IP	SPM0152	15 IP	3.0

FACE MILLING AND PROFILING CUTTER WITH POSITIVE ROUND INSERTS

Insert program



Reference	Dimensions (mm)							Grades				
	d	s	d ₁	l	r	b _s	t ₁	SP95	SP52	SP55	SP83	
RD.. 1003.. inserts with facets												
RDGT 10 03 M0 PM12	10.00	3.18	4.4	-	-	-	-	-	✓	-	-	
RDHW 10 03 M0 PM13	10.00	3.18	4.4	-	-	-	-	✓	✓	✓	✓	
RDMT 10 03 M0 PM23	10.00	3.18	4.4	-	-	-	-	-	✓	✓	-	
RDMW 10 03 M0 PM22	10.00	3.18	4.4	-	-	-	-	✓	✓	✓	-	
RD.. inserts without facets												
RDMW 10 03 M0 PM20	10.00	3.18	4.4	-	-	-	-	✓	✓	✓	-	

✓ Article which can be ordered

Ordering example: RDHW 10 03 M0 PM13 SP52

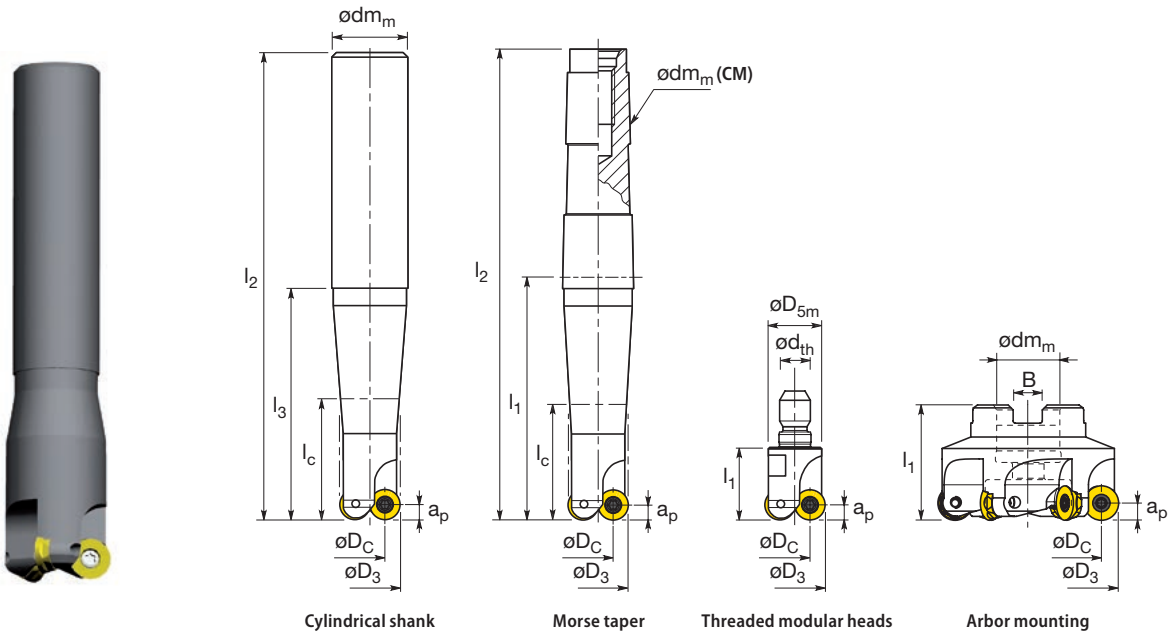
Cutting conditions

Grade	Feed per tooth (mm)	P Steel				M Stainless steel			K Cast iron				N Non-ferrous aluminum				S Super alloys			H Hardened materials			
		Free machining and low (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, incoloy, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50RC - 62RC)	Case hardened alloy steels (40RC - 50RC)	Hardened tool steels (45RC - 62RC)	Hardened irons (400 BHN)
SP95	v _{c1}	-	-	-	244	275	234	175	269	249	219	199	-	-	-	-	94	84	62	95	115	95	95
	f _{z1}	-	-	-	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	-	-	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	v _{c2}	-	-	-	210	253	200	153	226	206	176	156	-	-	-	-	80	70	55	73	93	73	73
	f _{z2}	-	-	-	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	-	0.15	0.15	0.15	0.25	0.25	0.25	0.25
SP52	v _{c1}	331	298	227	139	206	189	135	249	229	198	170	1002	578	450	564	64	54	47	37	42	37	42
	f _{z1}	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	v _{c2}	217	199	147	96	164	155	113	206	179	136	101	890	410	380	480	50	40	40	30	35	30	25
	f _{z2}	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
SP55	v _{c1}	248	219	153	89	130	85	72	-	-	-	-	-	-	-	-	50	40	32	-	-	-	-
	f _{z1}	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	-	-	-	-	-	-	0.08	0.08	0.08	-	-	-	-
	v _{c2}	186	163	107	55	99	69	61	-	-	-	-	-	-	-	-	34	24	25	-	-	-	-
	f _{z2}	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	-	-	-	-	-	0.25	0.25	0.15	-	-	-	-
SP83	v _{c1}	-	-	-	-	174	141	106	-	-	-	-	-	-	-	-	62	52	42	-	-	-	-
	f _{z1}	-	-	-	-	0.05	0.05	0.05	-	-	-	-	-	-	-	-	0.05	0.05	0.05	-	-	-	-
	v _{c2}	-	-	-	-	131	112	87	-	-	-	-	-	-	-	-	42	32	31	-	-	-	-
	f _{z2}	-	-	-	-	0.25	0.25	0.25	-	-	-	-	-	-	-	-	0.25	0.25	0.15	-	-	-	-

The cutting speed (vc) and the feed per tooth values have to be optimized depending on specific machined material.

FACE MILLING AND PROFILING CUTTER WITH POSITIVE ROUND INSERTS

Cutter program, PR2 12, PR2 16



Reference	Dimensions (mm)											Z	Insert style	Nb of inserts	Coolant channels	Max. RPM	kg
	D _c	D ₃	Max. a _p	dm _m	d _{th}	l ₁	l ₂	l ₃	l _c	A ²⁾	B						
Long cylindrical shank																	
PR2-12/025-02-QC25-250	13.00	25.00	6.00	25.00	-	-	250.00	60.00	-	-	-	2	RD.. 12 T3..	2	No	24000	0.890
PR2-12/025-02-QC32-250	13.00	25.00	6.00	32.00	-	-	250.00	80.00	40.00	-	-	2	RD.. 12 T3..	2	No	24000	1.358
PR2-12/032-03-QC25-250	20.00	32.00	6.00	25.00	-	-	250.00	60.00	-	-	-	3	RD.. 12 T3..	3	No	24000	0.950
PR2-12/032-03-QC32-250	20.00	32.00	6.00	32.00	-	-	250.00	60.00	-	-	-	3	RD.. 12 T3..	3	No	18000	1.430
Undersized cylindrical shank																	
PR2-12/025-02-QC24-250	13.00	25.00	6.00	24.00	-	-	250.00	54.00	-	-	-	2	RD.. 12 T3..	2	No	24000	0.830
Morse taper																	
PR2-12/032-03-CM4-080	20.00	32.00	6.00	CM4	-	80.00	182.00	-	79.00	-	-	3	RD.. 12 T3..	3	No	18000	0.785
Threaded modular heads																	
PR212 032R03 P16A045	20.00	32.00	6.00	28.80	M16	45.00	-	-	-	24 ²⁾	-	3	RD.. 12 T3..	3	No	- ³⁾	0.210
PR212 040R04 P16A045	28.00	40.00	6.00	28.80	M16	45.00	-	-	-	24 ²⁾	-	4	RD.. 12 T3..	4	No	- ³⁾	0.195
Arbor mounting																	
PR2-12/040-04-AL16-040	28.00	40.00	6.00	16.00	-	40.00	-	-	-	-	8.40	4	RD.. 12 T3..	4	No	21400	0.173
PR2-12/050-04-AL22-040	38.00	50.00	6.00	22.00	-	40.00	-	-	-	-	10.40	4	RD.. 12 T3..	4	No ¹⁾	18900	0.271
PR2-12/050-05-AL22-040	38.00	50.00	6.00	22.00	-	40.00	-	-	-	-	10.40	5	RD.. 12 T3..	5	No ¹⁾	18900	0.255
PR2-12/052-04-AL22-040	40.00	52.00	6.00	22.00	-	40.00	-	-	-	-	10.40	4	RD.. 12 T3..	4	No ¹⁾	18500	0.296
PR2-12/052-05-AL22-040	40.00	52.00	6.00	22.00	-	40.00	-	-	-	-	10.40	5	RD.. 12 T3..	5	No ¹⁾	18500	0.280
PR2-12/052-05ALC22-040	40.00	52.00	6.00	22.00	-	40.00	-	-	-	-	10.40	5	RD.. 12 T3..	5	Yes	18500	0.250
PR2-12/063-06-AL22-040	51.00	63.00	6.00	22.00	-	40.00	-	-	-	-	10.40	6	RD.. 12 T3..	6	No ¹⁾	16300	0.390
PR2-12/066-06-AL27-050	54.00	66.00	6.00	27.00	-	50.00	-	-	-	-	12.40	6	RD.. 12 T3..	6	No ¹⁾	15700	0.530
PR2-16/052-04-AL22-050	36.00	52.00	8.00	22.00	-	50.00	-	-	-	-	10.40	4	RD.. 16 04..	4	No ¹⁾	18500	0.323
PR2-16/063-05-AL27-050	47.00	63.00	8.00	27.00	-	50.00	-	-	-	-	12.40	5	RD.. 16 04..	5	No ¹⁾	16300	0.593
PR2-16/066-05-AL27-050	50.00	66.00	8.00	27.00	-	50.00	-	-	-	-	12.40	5	RD.. 16 04..	5	No ¹⁾	16300	0.610
PR2-16/080-06-AL27-050	64.00	80.00	8.00	27.00	-	50.00	-	-	-	-	12.40	6	RD.. 16 04..	6	No ¹⁾	13700	0.835
PR2-16/100-07-AL32-050	84.00	100.00	8.00	32.00	-	50.00	-	-	-	-	14.40	7	RD.. 16 04..	7	No ¹⁾	12100	1.516

¹⁾ Optional coolant screw can be ordered separately
²⁾ Size of the wrench to be used for modular heads is given by dimension A
³⁾ Max. RPM values are not given for modular heads as they are always used with long extensions

Spare parts

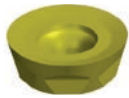
Insert style	Diameter D ₃	Insert screw		Screw driver		Torque wrench			Special mounting screw
		Reference	Size	Reference	Size	Reference	Size	Nm	
RD.. 12 T3..	25 - 32 mm	SPM0119	M 3.5 3.0 N.m	SPM0136	15 IP	SPM0145	15 IP	3.0	-
RD.. 12 T3..	40 mm	SPM0119	M 3.5 3.0 N.m	SPM0136	15 IP	SPM0145	15 IP	3.0	SPM0123
RD.. 12 T3..	50 - 66 mm	SPM0119	M 3.5 3.0 N.m	SPM0136	15 IP	SPM0145	15 IP	3.0	SPM0129
RD.. 16 04..	52 - 100 mm	SPM0110	M 5.0 5.0 N.m	SPM0139	20 IP	-	-	-	-

Optional spare parts

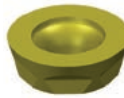
Insert style	Diameter D ₃	Coolant screw
		Reference
RD.. 12 T3..	40 mm	-
RD.. 12 T3..	50 - 66 mm	SPM0124
RD.. 16 04..	52 - 63 mm	SPM0124
RD.. 16 04..	80 mm	SPM0125
RD.. 16 04..	100 mm	SPM0126

FACE MILLING AND PROFILING CUTTER WITH POSITIVE ROUND INSERTS

Insert program



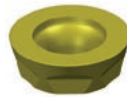
RDGT... PM12



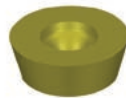
RDHW... PM13



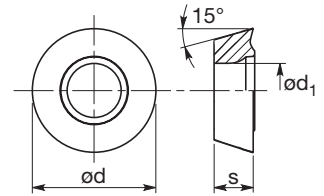
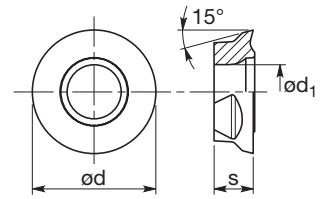
RDMT... PM23



RDMW... PM22



RDMW... PM20



Reference	Dimensions (mm)							Grades						
	d	s	d ₁	l	r	b _s	t ₁	SP95	SP52	SP55	SP83			
RD.. 12T3.. inserts														
RDGT 12T3M0 PM12	12.00	3.97	4.4	-	-	-	-	-	✓	-	-	-	-	-
RDHW 12T3M0 PM13	12.00	3.97	4.4	-	-	-	-	✓	✓	✓	✓	-	✓	-
RDMT 12T3M0 PM23	12.00	3.97	4.4	-	-	-	-	-	✓	✓	✓	-	-	-
RDMW 12T3M0 PM22	12.00	3.97	4.4	-	-	-	-	✓	✓	✓	✓	-	-	-
RDMW 12T3M0 PM20	12.00	3.97	4.4	-	-	-	-	✓	✓	✓	✓	-	-	-
RD.. 1604.. inserts														
RDMT 1604 M0 PM23	16.00	4.76	5.7	-	-	-	-	-	-	✓	-	-	-	-
RDMW 1604M0 PM22	16.00	4.76	5.7	-	-	-	-	✓	✓	✓	✓	-	-	-
RD.. inserts without facets														
RDMW 12T3M0 PM20	12.00	3.97	4.4	-	-	-	-	✓	✓	✓	✓	-	-	-
RDMW 1604M0 PM20	16.00	4.76	5.7	-	-	-	-	-	-	✓	✓	-	-	-

✓ Article which can be ordered

Ordering example: RDHW 12 T3 M0 PM13 SP52

Cutting conditions

Grade	Feed per tooth (mm)	P Steel				M Stainless steel			K Cast iron				N Non-ferrous aluminum				S Super alloys			H Hardened materials			
		Free machining and low (120-170 HB)	Medium and high carbon (180-220 HB)	Alloy and easy to machine tool steels (200-240 HB)	Tool and die steels (220-260 HB)	Ferritic and martensitic (180-240 HB)	Austenitic (140-180 HB)	Ph and duplex (220-260 HB)	Gray cast iron (180-220 HB)	Gray cast iron (220-260 HB)	Ductile iron (180-220 HB)	Ductile iron (220-260 HB)	Aluminum < 7% Si (<100 HB)	Aluminum 7% - 12% Si (<100 HB)	Aluminum > 12% Si (<130 HB)	Non-ferrous (<100 HB)	Iron based alloys (200-300 HB)	Nickel and cobalt base alloys, hastelloy, incoloy, stellite (135-425 HB)	Titanium alloys 6AL-4V (110-450 HB)	Case hardened carbon steels (50Rc - 62Rc)	Case hardened alloy steels (40Rc - 50Rc)	Hardened tool steels (45Rc - 62Rc)	Hardened irons (400 BHN)
SP95	v _{c1}	-	-	-	244	275	234	175	269	249	219	199	-	-	-	-	94	84	62	95	115	95	95
	f _{z1}	-	-	-	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	-	-	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	v _{c2}	-	-	-	190	240	180	140	200	180	150	130	-	-	-	-	70	60	50	60	80	60	60
SP52	f _{z2}	-	-	-	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	-	-	-	-	0.20	0.20	0.20	0.35	0.35	0.35	0.35
	v _{c1}	331	298	227	139	206	189	135	249	229	198	170	1002	578	450	564	64	54	47	37	42	37	32
	f _{z1}	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
SP55	v _{c2}	150	140	100	70	140	135	100	180	150	100	60	810	290	330	420	40	30	35	25	30	25	20
	f _{z2}	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
	v _{c1}	248	219	153	89	130	85	72	-	-	-	-	-	-	-	-	50	40	32	-	-	-	-
SP83	f _{z1}	0.08	0.08	0.08	0.08	0.08	0.08	-	-	-	-	-	-	-	-	0.08	0.08	0.08	-	-	-	-	-
	v _{c2}	150	130	80	35	80	60	55	-	-	-	-	-	-	-	25	15	20	-	-	-	-	-
	f _{z2}	0.35	0.35	0.35	0.35	0.35	0.35	0.35	-	-	-	-	-	-	-	0.35	0.35	0.20	-	-	-	-	-
SP83	v _{c1}	-	-	-	-	170	139	105	-	-	-	-	-	-	-	59	49	40	-	-	-	-	-
	f _{z1}	-	-	-	-	0.1	0.1	0.1	-	-	-	-	-	-	-	0.1	0.1	0.1	-	-	-	-	-
	v _{c2}	-	-	-	-	110	97	77	-	-	-	-	-	-	-	27	18	22	-	-	-	-	-
f _{z2}	-	-	-	-	0.35	0.35	0.35	-	-	-	-	-	-	-	0.35	0.35	0.25	-	-	-	-	-	

The cutting speed (vc) and the feed per tooth values have to be optimized depending on specific machined material.