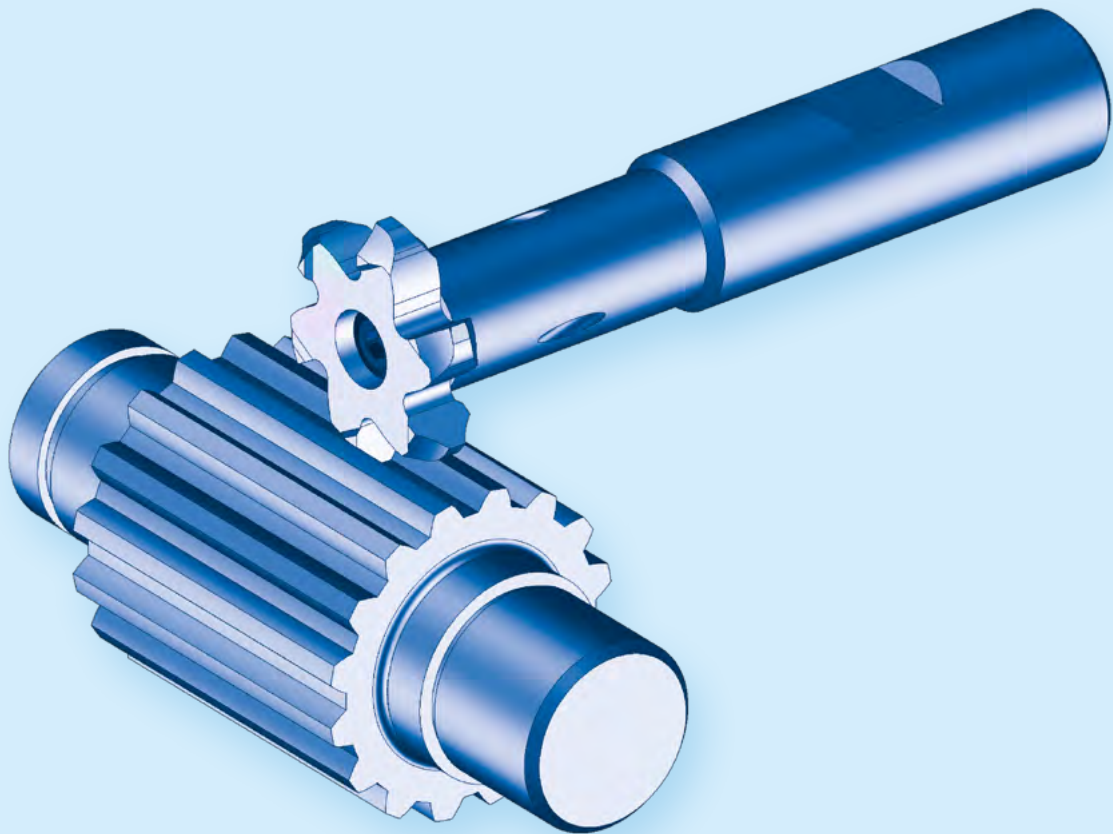


Gear Milling



Milling

Thread Milling

Extended
program

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Face Finish Milling

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2

Notch Impact Test

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3

Gear Milling

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Slot Milling
Keyway MillingExtended
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Contour and Radius Milling
Chamfering, Deburring,
undercut, dovetailExtended
program110-
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6

Sawing, Slitting

Sawing, Cutting, Slitting

Extended
program126-
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7

Bore Machining

Reaming

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8

Axial Grooving

Axial Grooving, adjustable

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Special Tools

Special- and Combination Tools

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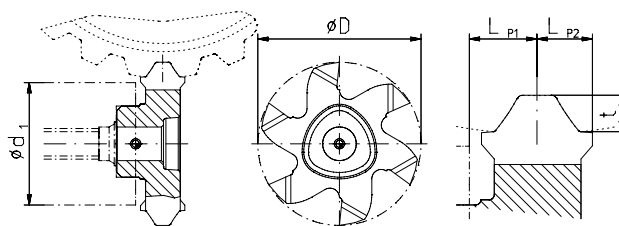
Cutting Data and Technical Information

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Gear Milling Inserts

- Insert holder see page 94
- Cutting data see page 166



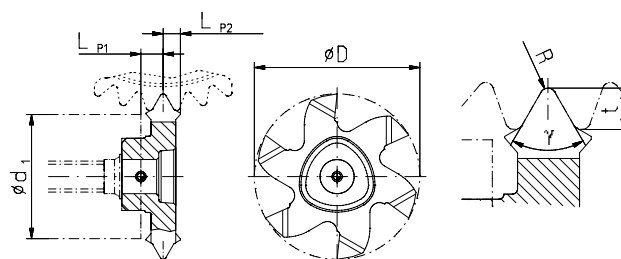
Splined Shaft Connection



Type	Arbor	Module	Angle of action	N. of teeth Arbor	D $\pm 0,05$ mm	Chip angle	LP1 mm	LP2 mm	t mm	N. of teeth Insert	Order No. TINAMATIC	
P16	P1616	W8	x 0,75	x 30°	x 9	16	6°	2,15	1,675	0,63	6	193023 NEW
	P1616	W9	x 0,8	x 30°	x 10	15,85	6°	2,05	1,775	0,71	6	184142
	P1616	W11	x 0,8	x 30°	x 12	15,85	6°	2,05	1,775	0,8	6	174569
	P1616	W14	x 0,8	x 30°	x 16	16	6°	2,05	1,775	0,8	6	169336
	P1616	W16	x 0,8	x 30°	x 18	16	6°	2,05	1,775	0,8	6	169090
	P1616	W18	x 1,0	x 30°	x 16	16	6°	2,15	1,675	0,93	6	192612 NEW
	P1616	W19	x 0,8	x 30°	x 22	16	6°	2,15	1,675	0,75	6	192691 NEW
	P1616	W20	x 0,8	x 30°	x 24	16	6°	2,05	1,775	0,8	6	168668
	P1616	W20	x 1,25	x 30°	x 14	16	6°	2,65	2,175	1,45	6	182361
	P1616	W20	x 1,5	x 30°	x 12	16	6°	2,65	2,175	1,36	6	190601 NEW
	P1616	W21	x 1,5	x 30°	x 12	16	6°	2,65	2,175	1,33	6	192610 NEW
	P1616	W22	x 0,8	x 30°	x 26	16	6°	2,15	1,675	0,77	6	191365 NEW
	P1616	W24	x 1,25	x 30°	x 18	16	6°	2,55	2,275	1,25	6	169340
	P1616	W25	x 1,0	x 30°	x 24	16	6°	2,15	1,675	0,95	6	185309
	P1616	W25	x 2,0	x 30°	x 11	16	8°	4,15	3,30	2,0	3	149415
	P1616	W28	x 1,25	x 30°	x 21	16	6°	2,15	1,675	1,18	6	192905 NEW
	P1616	W30	x 1,25	x 30°	x 22	16	6°	2,55	2,275	1,25	6	176246
	P1616	W31	x 0,8	x 30°	x 37	16	6°	2,15	1,675	0,78	6	189534 NEW
	P1616	W32	x 1,25	x 30°	x 24	16	6°	2,65	2,175	1,19	6	185305
	P1616	W35	x 0,8	x 30°	x 42	16	6°	2,15	1,675	0,78	6	188287
	P1616	W35	x 1,5	x 30°	x 22	16	6°	2,65	2,175	1,43	6	186028
	P1616	W35	x 2,0	x 30°	x 16	16	6°	3,05	2,775	2,0	6	179140
	P1616	W40	x 1,0	x 30°	x 38	16	6°	2,08	1,75	0,96	6	187909
	P1616	W42	x 1,25	x 30°	x 32	16	6°	2,55	2,275	1,25	6	179651
	P1616	W45	x 1,25	x 30°	x 34	16	6°	2,65	2,175	1,21	6	160731 NEW
	P1616	W50	x 1,0	x 30°	x 48	16	6°	2,65	2,175	0,88	6	160993 NEW
	P1616	W50	x 2,0	x 30°	x 24	16	6°	3,05	2,775	2,0	6	169687
	P1616	W52	x 1,25	x 30°	x 40	16	6°	2,65	2,175	1,21	6	185304
	P1616	W55	x 1,0	x 30°	x 54	16	6°	2,08	1,75	0,97	6	187910
P25	P2526	W18	x 1,0	x 30°	x 16	26	6°	2,15	1,675	0,93	6	161670 NEW
	P2526	W21	x 1,5	x 30°	x 12	26	6°	2,65	2,175	1,33	6	161669 NEW
	P2526	W22	x 2,0	x 30°	x 9	26	6°	3,90	3,425	1,69	6	190309 NEW
	P2526	W25	x 1,25	x 30°	x 18	26	6°	2,65	2,175	1,28	6	189691 NEW
	P2526	W30	x 2,0	x 30°	x 13	26	6°	3,90	3,425	1,76	6	187574
	P2526	W32	x 2,0	x 30°	x 14	26	6°	3,90	3,425	1,8	6	192784 NEW
	P2526	W38	x 2,0	x 30°	x 18	26	6°	3,90	3,425	2,21	6	189692 NEW
	P2526	W40	x 2,0	x 30°	x 18	26	6°	3,90	3,425	1,86	6	187575
	P2526	W45	x 2,0	x 30°	x 21	26	6°	3,90	3,425	1,9	6	187576
	P2526	W50	x 2,0	x 30°	x 24	26	6°	3,85	3,475	2,0	6	169786
	P2526	W55	x 2,0	x 30°	x 26	26	6°	4,40	2,675	1,92	6	189521 NEW
	P2526	W65	x 2,0	x 30°	x 31	26	6°	4,40	2,675	1,93	6	193313 NEW
	P2526	W70	x 1,5	x 30°	x 45	26	6°	2,65	2,175	1,46	6	191807 NEW
	P2526	W70	x 2,5	x 30°	x 26	26	6°	3,90	3,425	2,39	6	192220 NEW
	P2526	W72	x 2,0	x 30°	x 34	26	6°	3,85	3,475	1,92	6	160321
	P2526	W80	x 2,5	x 30°	x 30	26	6°	3,85	3,475	2,39	6	160323
	P2526	W90	x 2,0	x 30°	x 44	26	6°	3,85	3,475	1,94	6	160322
	P2526	W90	x 2,5	x 30°	x 34	26	6°	3,90	3,425	2,42	6	191806 NEW
	P2525	W90	x 3,0	x 30°	x 28	25	8°	4,60	4,10	2,89	3	189851 NEW
	P2525	W95	x 3,0	x 30°	x 30	25	8°	4,60	4,10	2,90	3	189852 NEW
P2526	W100	x 3,0	x 30°	x 32	26	6°	3,90	3,425	2,91	6	192039 NEW	
P2526	W130	x 3,0	x 30°	x 42	26	6°	3,90	3,425	2,93	6	188629 NEW	

Gear Milling Inserts

- Insert holder see page 94
- Cutting data see page 166

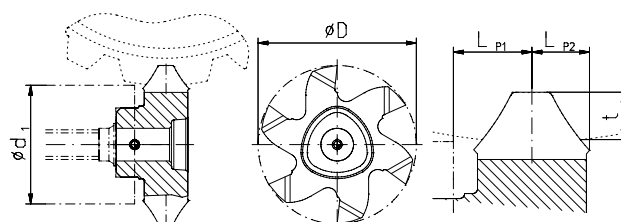


Spline



Type	Arbor	R mm	Grp angle γ	N. of teeth Arbor	D ^{±0,05} mm	Chip angle	LP1 mm	LP2 mm	t mm	N. of teeth Insert	Order No. TINAMATIC
P16	P1616 12 x 14	0,09	60°	31	16	6°	2,15	1,675	0,892	6	191837 NEW
P25	P2526 26 x 30	0,3	60°	35	26	6°	2,15	1,675	1,638	6	171358
	P2526 40 x 44	0,4	60°	38	26	6°	2,15	1,675	1,94	6	171359

4



Splined Shaft Profile

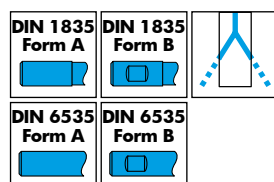
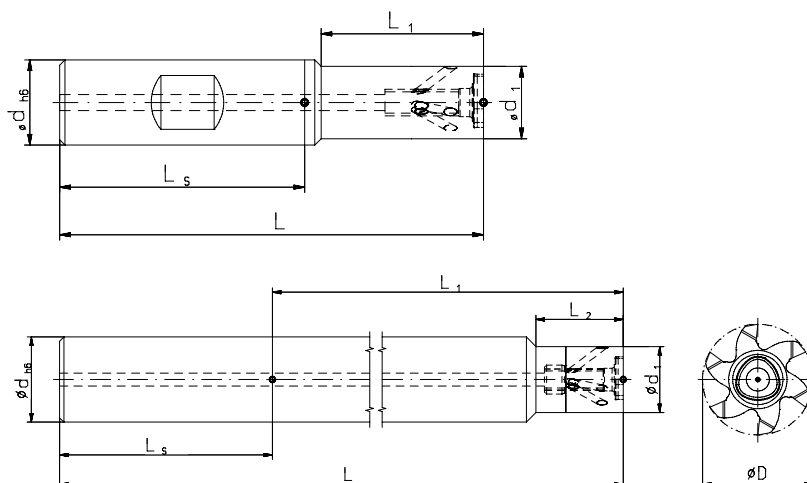


Type	Nominal profile width	Module	Angle of action	N. of teeth Arbor	D ^{±0,05} mm	Chip angle	LP1 mm	LP2 mm	t mm	N. of teeth Insert	Order No. TINAMATIC
P16	P1616 B15 x 12	1,6	30°	8	16	6°	3,15	2,675	1,32	6	169337
	P1616 B17 x 14	1,6	30°	9	16	6°	3,15	2,675	1,33	6	169111
	P1616 B20 x 17	1,6	30°	12	16	6°	3,15	2,50	1,42	6	169101
	P1616 B25 x 22	1,6	30°	14	16	6°	3,15	2,53	1,54	6	169107
	P1616 B40 x 36	1,9	30°	20	16	6°	3,175	2,65	1,91	6	186842
P25	P2526 B35 x 31	1,75	30°	18	26	6°	3,85	3,475	2,0	6	178172
	P2526 B38 x 34	1,9	30°	19	26	6°	4,4	2,675	1,91	6	186398
	P2526 B45 x 41	2,0	30°	22	26	6°	3,85	3,475	1,91	6	179212
	P2526 B50 x 45	2,0	30°	24	26	6°	3,90	3,425	2,35	6	192242 NEW
	P2526 B55 x 50	2,0	30°	26	26	6°	3,85	3,475	2,75	6	173903
	P2526 B58 x 53	2,0	30°	27	26	6°	3,90	3,425	2,64	6	189652 NEW
	P2526 B68 x 62	2,1	30°	31	26	6°	4,40	2,675	2,81	6	192093 NEW
	P2526 B70 x 64	2,1	30°	32	26	6°	3,90	3,425	2,81	6	189848 NEW
	P2526 B80 x 74	2,1	30°	36	26	6°	3,90	3,425	2,82	6	189005 NEW

i Further gear standards on request

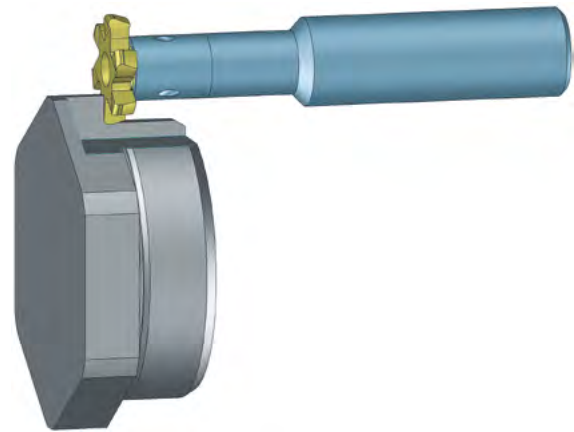
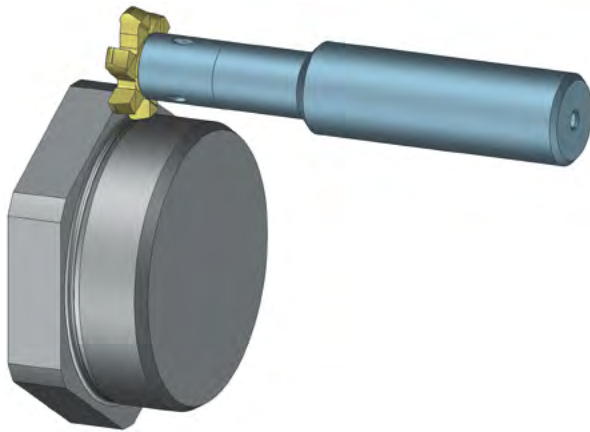
Circular Milling Tools with Polygonal Insert Seat

- Inserts see page 78-79
- Cutting data see page 166
- More cutters see page 28-29



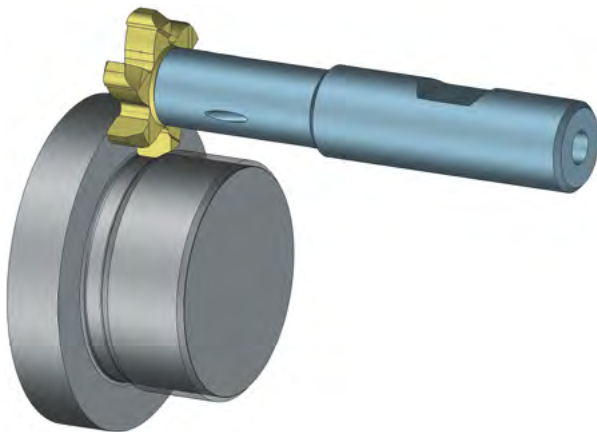
											Spare part No.		
Type	Order No.	Form	d h6 mm	d1 mm	D max. mm	S max. (D-d1)/2 mm	L mm	L1 mm	L2 mm	Shaft	Screw- driver *	Screw *	
P20	177178	A	12	11,5	21,7	5,1	62,4	14,4	-	Steel	T15 IP 111671	M4x13 107597	
	123615	B	16	11,5	21,7	5,1	80	30	-	Steel			
	123616	B	16	11,5	21,7	5,1	80	30	-	Carbide			
	171794	A	16	11,5	21,7	5,1	80	30	-	Carbide			
	123617	B	16	11,5	21,7	5,1	100	50	-	Carbide			
	171796	A	16	11,5	21,7	5,1	100	50	-	Carbide			
	174314	A	16	15,5	21,7	3,1	105,5	57,5	20	Carbide			
P25	177182	A	16	13,6	27,7	7,05	69,6	20,4	-	Steel	T20 IP 111594	M5x13,5 107529	
	123592	B	16	13,6	27,7	7,05	79,6	30,5	-	Steel			
	123598	B	16	13,6	27,7	7,05	79,6	30,5	-	Carbide			
	171855	A	16	13,6	27,7	7,05	79,6	30,5	-	Carbide			
	123600	B	16	13,6	27,7	7,05	94,6	45,5	-	Carbide			
	171857	A	16	13,6	27,7	7,05	94,6	45,5	-	Carbide			
	123603	B	16	13,6	27,7	7,05	109,6	60,5	-	Carbide			
	171859	A	16	13,6	27,7	7,05	109,6	60,5	-	Carbide			
	123609	A	16	15,5	27,7	6,1	105	57	21,5	Carbide			
	123611	A	16	15,5	27,7	6,1	149,5	101,5	21,5	Carbide			
	161205	NEW	A	20	15,5	27,7	6,1	100	52	21,5			Carbide
	123613	A	20	15,5	27,7	6,1	174,45	128,5	21,5	Carbide			
											Screw torques max.		
											107597	T15 IP 3,8 Nm	
											107529	T20 IP 5,5 Nm	

Milling of Special Contours with PolyMILL Inserts

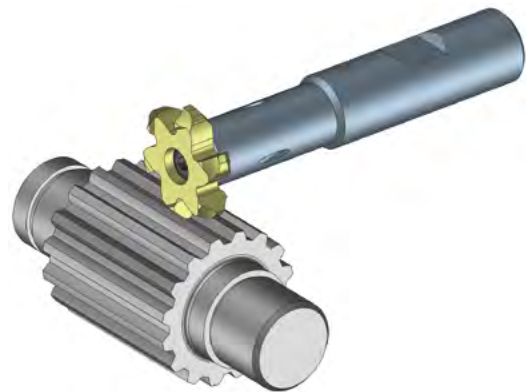


4

Milling an undercut according to DIN 509 Form E



Milling a thread undercut according to DIN 76



Milling a spindle with splines according to DIN 5480