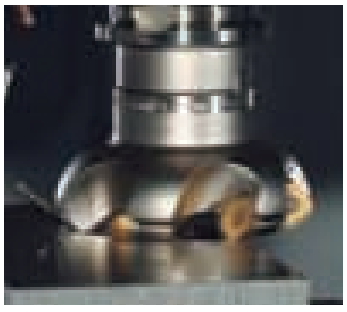
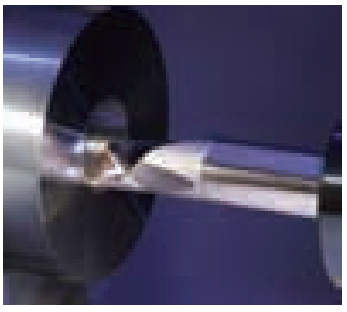
Keeping the Customer First

Tungaloy Catalogue TE0707-E2

2007

Cutting Tools





www.tungaloy-eu.com

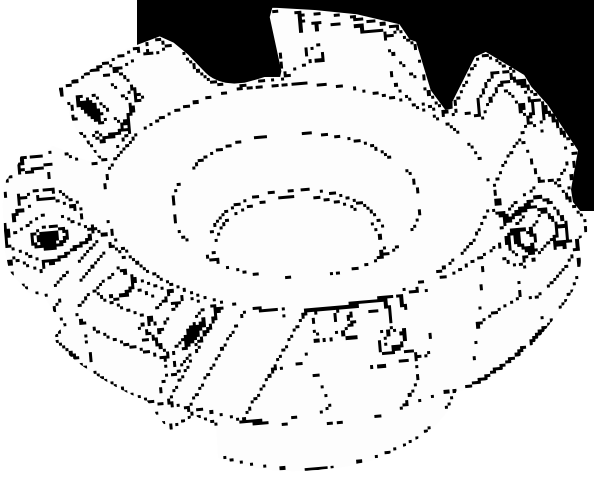
TAC Mills

Selection Guides

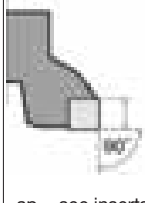
- List of S Series TAC Mills 290
- List of LS Series TAC Mills 292
- List of TAC Milling Inserts 295
- Selection Guides for TAC Mills 298
- Nomenclature for TAC Mills 303
- Nomenclature for TAC Milling Inserts 306
- Mounting Details for TAC Mills 339

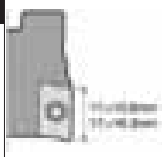
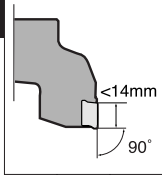
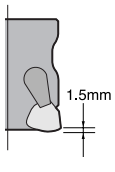
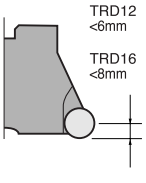
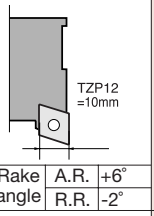
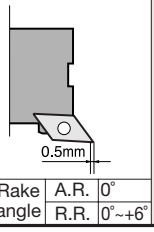
Specifications

- For Face Milling 308
  (TXP08, TAW, TME, TMD, TGP, TGN)
- For Square Shoulder Milling 322
  (TPW, TPP16, TSE, TPN)
- For Difficult-to-cut Materials (TRF) 328
- For Die engraving (TRD, TZP, TZF) 329
- For Finishing (SFP, MS) 333
- For High-speed (DAD, DPD, QPP) 335
- For Parting (SVN) 338

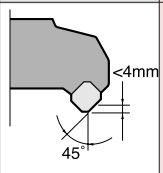
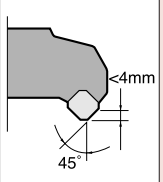
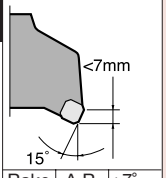
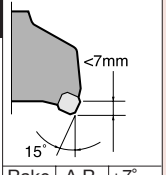
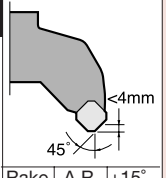
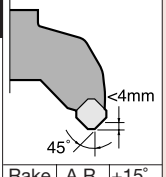
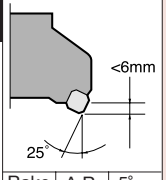
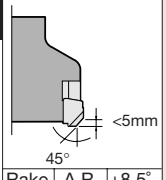


List of S Series TAC Mills (Screw-on clamping)

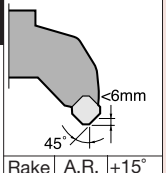
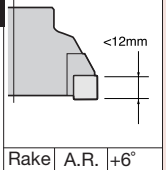
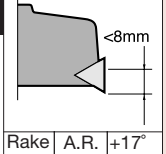
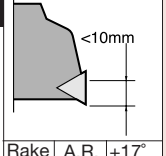
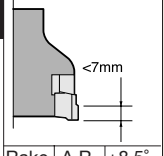
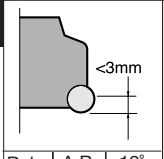
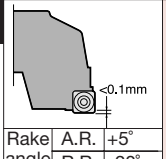
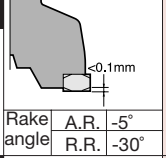
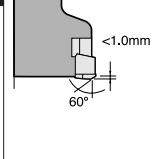
Operation	Work materials	Application	Type and shape	Cutting depth Corner angle Rake angle	Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) Effective dia.	Dimensions (mm) Outer dia.	Weight (kg)	Inserts	Page
Face milling	General steels, stainless steels, aluminium and cast irons	New! •Best suitable for low powered machines	TAW13	 ap = see inserts Rake angle A.R. 17°~20° R.R. -16°~-11°	TAW13R050M22.0E04	●		4	50	63	0.4	SW**13T3AF** WWCW13T3**	310
					TAW13R063M22.0E05	●		5	63	76	0.6		
					TAW13R080M27.0E06	●		6	80	93	0.9		
					TAW13R100M32.0E07	●		7	100	113	1.3		
					TAW13R125M40.0E08	●		8	125	138	2.4		
					TAW13R160M40.0E10	●		10	160	173	4.5		
					TAW13R050M22.0E05	●		5	50	63	0.4		
					TAW13R063M22.0E06	●		6	63	76	0.6		
					TAW13R080M27.0E08	●		8	80	93	1.0		
					TAW13R100M32.0E10	●		10	100	113	1.4		
					TAW13R125M40.0E12	●		12	125	138	2.6		
					TAW13R160M40.0E16	●		16	160	173	4.6		
Square shoulder milling		•Best suitable for low powered machines	TPW13	 ap = see inserts Rake angle A.R. 11.5° R.R. -13°~-10.5°	TPW13R050M22.0E04	●		4	50	50	0.3	SW*T1304PD**	320
					TPW13R063M22.0E05	●		5	63	63	0.4		
					TPW13R080M27.0E06	●		6	80	80	0.8		
					TPW13R100M32.0E07	●		7	100	100	1.1		
					TPW13R125M40.0E08	●		8	125	125	2.4		
					TPW13R050M22.0E05	●		5	50	50	0.3		
					TPW13R063M22.0E06	●		6	63	63	0.4		
					TPW13R080M27.0E08	●		8	80	80	0.8		
					TPW13R100M32.0E10	●		10	100	100	1.2		
					TPW13R125M40.0E12	●		12	125	125	2.2		

Operation	Work materials	Application	Type and shape	Cutting depth / Corner angle / Rake angle	Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) Effective dia.	Dimensions (mm) Outer dia.	Weight (kg)	Inserts	Page
Square shoulder milling	General steels and cast irons	•For high precision square shoulder milling	TPS11 • 17	 Rake angle 11: A.R. +15.5°~+18° R.R. -10°~-6.5°; 17: A.R. +14°~+17.5° R.R. -10°~-4°	TPS11040RB-E	●		6	40	40	0.2	ASMT11T3**PDPR-** ASMT1705**PDPR-**	325
					TPS11050RB-E	●		7	50	50	0.4		
					TPS11063RB-E	●		8	63	63	0.6		
					TPS17040RB-E	●		4	40	40	0.2		
					TPS17050RB-E	●		5	50	50	0.3		
					TPS17063RB-E	●		6	63	63	0.6		
		•For high-feed milling	TPN14	 Rake angle A.R. +11°~+16° R.R. +9°~+14°	TPN14040R-E	●		4	40	40	0.2	ANMT1404PPPR-MJ ANMT1404PPPR-ML	327
					TPN14050R-E	●		5	50	50	0.3		
					TPN14063R-E	●		5	63	63	0.6		
					TPN14080R-E	●		6	80	80	1.1		
					TPN14100R-E	●		7	100	100	1.5		
					TPN14125R-E	●		8	125	125	2.9		
High-feed		•For super-high feed milling •Feed per tooth up to 3mm/t	TXP 05•06•08	 Rake angle A.R. +5° R.R. -4°~-6°	TXP05063RB-E	●		6	63	63	0.8	WPM*O5H315ZPR-**	308 NEW
					TXP05080RB-E	●		7	80	80	1.8		NEW
					TXP06063RB-E	●		4	63	63	0.72	WPM*O6X415ZPR-**	NEW
					TXP06080RB-E	●		6	80	80	1.7		NEW
					TXP08050R-E	●		3	50	50	0.48	WPMTO80615Z*R-**	
					TXP08052R-E	●		3	52	52	0.49		
					TXP08063R-E	●		4	63	63	0.74		
					TXP08066R-E	●		4	66	66	0.89		
					TXP08080R-E	●		5	80	80	1.78		
Universal		•For die engraving (Radius mill)	TRD12•16	 Rake angle A.R. +10° R.R. -6°~0°	TRD12050R-E	●		4	50	50	0.4	RDMT1204ZDPN-MJ RDMW1204ZDSN	329
					TRD12052R-E	●		4	52	52	0.4		
					TRD12063R-E	●		4	63	63	0.59		
					TRD12066R-E	●		5	66	66	0.6		
					TRD12080R-E	●		5	80	80	1.1		
					TRD12100R-E	●		6	100	100	1.62		
					TRD16063R-E	●		3	63	63	0.48	RDMT1606ZDPN-MJ RDMW1606ZDSN	
					TRD16066R-E	●		4	66	66	0.68		
					TRD16080R-E	●		4	80	80	1.18		
					TRD16100R-E	●		5	100	100	1.38		
Flash Z-feed		•For die engraving (Z-feed cutter)	TZP12	 Rake angle A.R. +6° R.R. -2°	TZP12050R-E	●		3	50		0.38	APMT120416PR-MJ	331
					TZP12063R-E	●		3	63		0.72		
					TZP12080R-E	●		4	80		1.51		
		•Precision finishing of vertical wall face	TZF11	 Rake angle A.R. 0° R.R. 0°~+6°	TZF11050R-E	●		4	50		0.38	DPCW11T3ZFR	332
					TZF11063R-E	●		6	63		0.72		
					TZF11080R-E	●		7	80		1.51		

List of LS Series TAC Mills (Wedge-on clamping)

Operation	Work materials	Application	Type and shape	Cutting depth / Corner angle / Rake angle	Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) Effective dia.	Dimensions (mm) Outer dia.	Weight (kg)	Inserts	Page
Face milling (light to medium cutting)	General steels and cast irons	•Low cutting-force and vibration-free milling •Usable for various work materials	**TME4400I**	 Rake angle A.R. +24° R.R. -8°~-6°	TME4403R/LIE	●		4	80	102	1.4	SE□N1203AG□N SE□N1203AG□N-T SEKR1203AGSR-MJ	312
					TME4404R/LIE	●		5	100	120	2.7		
					TME4405R/LIE	●		6	125	145	4.0		
					TME4406R/LIE	●		8	160	181	5.8		
					TME4408R/LIE			10	200	221	9.2		
					TME4410R/LIE			12	250	270	16.6		
					TME4412R/LIE			14	315	334	25.7		
		•Close pitch version of TME4400I •Low cutting-force and vibration-free milling •For high-feed milling of casings	**TME4400B**	 Rake angle A.R. +24° R.R. -8°~-6°	TME4463R/LBE	●		5	63	87	1.0		
					TME4403R/LBE	●		6	80	102	1.4		
					TME4404R/LBE	●		7	100	120	2.8		
					TME4405R/LBE	●		9	120	145	4.1		
					TME4406R/LBE	●		12	160	181	5.9		
					TME4408R/LBE			15	200	221	9.2		
					TME4410R/LBE			19	250	270	16.6		
					TME4412R/LBE			23	315	334	25.7		
		•General purpose face mills •Best suitable for milling cast iron	**TGP4100IA**	 Rake angle A.R. +7° R.R. +1°	TGP4103R/LIAE			5	80	89	1.3	SP□N42S□R/L SPKR42SSR-MJ WPAN42S□R/L□ (Wiper)	317
					TGP4104R/LIAE			6	100	108	2.4		
					TGP4105R/LIAE			8	125	132	3.6		
					TGP4106R/LIAE			8	160	167	5.9		
					TGP4108R/LIAE			10	200	206	8.7		
					TGP4110R/LIAE			12	250	256	15.2		
					TGP4112R/LIAE			14	315	321	24.1		
		•Close pitch version of TGP4100IA •Suitable for high-feed milling of cast-iron casings	**TGP4100BA**	 Rake angle A.R. +7° R.R. +1°	TGP4104R/LBAE	●		8	100	108	2.4		
					TGP4105R/LBAE	●		10	125	132	3.6		
					TGP4106R/LBAE	●		12	160	167	5.8		
					TGP4108R/LBAE			16	200	206	8.6		
					TGP4110R/LBAE			20	250	256	15.1		
					TGP4112R/LBAE			24	315	321	24.0		
					TGP4114R/LBAE			28	355	361	37.7		
					TGP4116R/LBAE			32	400	406	49.1		
		•General purpose face mills •Usable for various work materials	**TMD4400I**	 Rake angle A.R. +15° R.R. -3°	TMD4403R/LIE	●		4	80	96	1.4	SD□42Z□N SDKR42ZSR-MJ SDMR42ZTN-MJ	314
					TMD4404R/LIE	●		5	100	115	2.5		
					TMD4405R/LIE	●		6	125	137	3.6		
					TMD4406R/LIE	●		8	160	173	5.6		
					TMD4408R/LIE			10	200	213	8.7		
					TMD4410R/LIE			12	250	263	16.3		
					TMD4412R/LIE			14	315	327	25.2		
		•Close pitch version of TMD4400I •Low cutting-force and vibration-free milling	**TMD4400B**	 Rake angle A.R. +15° R.R. -3°	TMD4403R/L-BE	●		6	80	95	1.4		
					TMD4404R/L-BE	●		6	100	115	2.5		
					TMD4405R/L-BE	●		8	125	139	3.6		
		•The insert allows eight indexes •Most suitable for rough milling of cast irons	**TGN4200-A**	 Rake angle A.R. -5° R.R. -5°	TGN4203R/L-AE	●		5	80	92	1.5	SN□N43Z□N SNMN1204□□TN	319
					TGN4204R/L-AE	●		6	100	112	2.4		
					TGN4205R/L-AE	●		8	125	136	3.9		
					TGN4206R/L-AE	●		10	160	171	6.1		
					TGN4208R/L-AE			12	200	211	9.0		
					TGN4210R/L-AE			14	250	261	15.6		
					TGN4212R/L-AE			14	315	326	24.7		
	Light alloys	•For very high-speed and high-precision milling of aluminium alloys	**DAD15**	 Rake angle A.R. +8.5° R.R. +5.0°	DAD15080R/L-E			4	80	90	1.4	YDEN1505ADFR/L-D YDEN1505ADFR/L-WD	335
					DAD15100R/L-E			4	100	110	2.4		
					DAD15125R/L-E			6	125	135	3.6		
					DAD15160R/L-E			6	160	170	5.5		
					DAD15200R/L-E			8	200	210	8.9		
					DAD15250R/L-E			10	250	260	14.6		
					DAD15315R/L-E			12	315	325	24.0		

List of LS Series TAC Mills (Wedge-on clamping)

Operation	Work materials	Application	Type and shape	Cutting depth / Corner angle / Rake angle	Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) Effective dia.	Dimensions (mm) Outer dia.	Weight (kg)	Inserts	Page
Face milling (medium to heavy cutting) / Square shoulder milling (light to medium cutting)	General steels and cast irons	•Features low cutting forces and less vibration •Most suitable for large depth of cut	TMD5400I	 Rake angle A.R. +15° R.R. -3°	TMD5404R/LIE	●		4	100	118	2.5	SD□N53Z□N SDKR53ZSR-MJ	316
					TMD5405R/LIE	●		5	125	142	3.7		
					TMD5406R/LIE	●		6	160	176	5.8		
					TMD5408R/LIE	●		6	160	176	5.8		
					TMD5410R/LIE	●		10	250	265	16.3		
					TMD5412R/LIE	●		12	315	330	25.2		
		•For high-efficiency and economical milling •Available in various chipbreaker geometries	TPP16	 Rake angle A.R. +6° R.R. -8°	TPP16080RIE	●		4	80	80	1.0	SPMR1605PPTR-ML SPMR1605PPTR-MJ SPMR1605PPTR-MH	322
					TPP16100RIE	●		5	100	100	1.8		
					TPP16125RIE	●		6	125	125	2.8		
					TPP16160RIE	●		8	160	160	4.6		
					TPP16200RIE	●		10	200	200	6.9		
					TPP16250RIE	●		12	250	250	13.2		
					TPP16315RIE	●		14	315	315	22.2		
	Various steels and light alloys	•Used for light alloys and difficult-to-cut materials	TSE3000IA	 Rake angle A.R. +17° R.R. +5°	TSE3050R/LE	●		3	50	50	0.3	TE□N32Z□R/L TECN32ZFR-DIA	323
					TSE3063R/LE	●		3	63	63	0.5		
					TSE3003R/LIAE	●		4	80	80	1.0		
					TSE3004R/LIAE	●		6	100	100	2.0		
					TSE3005R/LIAE			6	125	125	3.1		
					TSE3006R/LIAE			8	160	160	5.2		
		•For large-depth milling of difficult-to-cut materials and light alloys	TSE4000IA	 Rake angle A.R. +17° R.R. +5°	TSE4003R/LIAE	●		4	80	80	1.0	TE□N43Z□R/L TECN43ZFR-DIA	324
					TSE4004R/LIAE	●		6	100	100	1.9		
					TSE4005R/LIAE	●		6	125	125	2.9		
					TSE4006R/LIAE	●		8	160	160	4.9		
					TSE4008R/LIAE			10	200	200	7.4		
					TSE4010R/LIAE			12	250	250	13.8		
					TSE4012R/LIAE			14	315	315	22.1		
	Light alloys	•For very high-speed and high-precision milling of aluminium alloys	DPD15	 Rake angle A.R. +8.5° R.R. +5.0°	DPD15080R/L-E			4	80	80	1.2	YDEN1505PDFR/L-D YDEN1505PDFR/L-WD	336
					DPD15100R/L-E			4	100	100	2.2		
					DPD15125R/L-E			6	125	125	3.6		
					DPD15160R/L-E			6	160	160	5.2		
					DPD15200R/L-E			8	200	200	8.2		
					DPD15250R/L-E			10	250	250	13.4		
					DPD15315R/L-E			14	315	315	22.5		
High-feed, small depth milling with round inserts	General steels・cast irons and difficult-to-cut materials	•Used for difficult-to-cut materials	TRF6000I	 Rake angle A.R. +19° R.R. +3°	TRF6003R/LIE	●		4	80	100	1.4	RFEN2004ZF□N RFEN2004M0□N	328
					TRF6004R/LIE	●		5	100	120	2.5		
					TRF6005R/LIE	●		6	125	145	3.9		
					TRF6006R/LIE	●		8	160	180	5.8		
					TRF6008R/LIE			10	200	220	9.8		
					TRF6010R/LIE			12	250	270	17.3		
					TRF6012R/LIE			14	315	335	27.8		
Precision finishing	General steels and cast irons	•Precision finishing with adjusting mechanism	SFP4000	 Rake angle A.R. +5° R.R. -20°	SFP4004R/LE	●		2	100	100	2.3	SPHA435FNW	333
					SFP4005R/LE	●		2	125	125	3.5		
					SFP4006R/LE	●		4	160	160	5.8		
					SFP4008R/LE			4	200	200	9.0		
					SFP4010R/LE			6	250	250			
					SFP4012R/LE			8	315	315			
			MS	 Rake angle A.R. -5° R.R. -30°	MS04R/LE			2	100	105	3	SN□□56FTR/L	334
					MS05R/LE			2	125	130	4		
					MS06R/LE			4	160	165	5		
					MS08R/LE			4	200	205	8.5		
					MS10R/LE			4	250	255	14		
					MS12R/LE			4	315	305	23		
	Cast irons	•Used for high-speed, precision finishing of grey cast irons	QPP15	 Rake angle A.R. -5.5° R.R. -3°	QPP15080R/L-E			4	80	80	1.1	YPEN1505PPTR/L-Q	337
					QPP15100R/L-E			6	100	100	2.1		
					QPP15125R/L-E			6	125	125	3.7		
					QPP15160R/L-E			8	160	160	5.3		
					QPP15200R/L-E			10	200	200	8.3		
					QPP15250R/L-E			12	250	250	13.5		
					QPP15315R/L-E			14	315	315	22.6		
					QPP15355R/L-E			16	355	355	33.4		
					QPP15400R/L-E			18	400	400	43.3		

TAC Side Cutter Series

Operations	Work materials	Application	Type and shape	Specifications: Effective dia. (mm)	Tool width W (mm)			No. of inserts	Stock	Inserts	Page
For parting and grooving	Various steels, cast irons and aluminium alloys	•For grooving and parting (Grooving width: < 8 mm)	SVN4000	100	5	6		10	●	SNEN12T2ZTN SNEN12T2ZFN SNEN1233ZTN SNEN1233ZFN	338
					8			8	●		
				125	5	6	8	12	●		
				160	5	6	8	16	●		
				200	5	6	8	20	●		

List of TAC Milling Inserts — LS and S Series

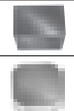
Shape	Cat. No. (Inch)	ISO Cat. No. (Metric)	Accuracy	Honing	Stocked grades: Co.CVD T3030	Co.CVD T1015	Coated PVD GH330	GH340	AH120	AH140	AH330	AH740	Cermet NS530	NS540	NS740	C.C. GT540	Uncoated TH10	UX30	KS05F	KS20	Applicable TAC mills (pages)
	ANMT1404PPPR-MJ	ANMT1404PPPR-MJ	M	with	●	●	●		●		●		●								TPN14 (P. 327)
	ANMT1404PPPR-ML	ANMT1404PPPR-ML	M	with				●	●												
	APMT120416PR-MJ	APMT120416PR-MJ	M	with					●												TZP12 (P. 331)
	ASGT11T304PDFR-AJ	ASGT11T304PDFR-AJ	G	without															●		TPS11, 17 (P. 325)
	ASGT11T308PDFR-AJ	ASGT11T308PDFR-AJ																	●		
	ASGT170504PDFR-AJ	ASGT170504PDFR-AJ																	●		
	ASGT170508PDFR-AJ	ASGT170508PDFR-AJ																	●		
	ASMT11T304PDPR-MJ	ASMT11T304PDPR-MJ	M	with	●	●			●						●						TPS11, 17 (P. 325)
	ASMT11T308PDPR-MJ	ASMT11T308PDPR-MJ			●	●			●						●						
	ASMT11T312PDPR-MJ	ASMT11T312PDPR-MJ			●				●												
	ASMT11T316PDPR-MJ	ASMT11T316PDPR-MJ			●	●			●						●						
	ASMT11T320PDPR-MJ	ASMT11T320PDPR-MJ							●												
	ASMT11T330PDPR-MJ	ASMT11T330PDPR-MJ							●												
	ASMT170504PDPR-MJ	ASMT170504PDPR-MJ	M	with	●	●			●						●						
	ASMT170508PDPR-MJ	ASMT170508PDPR-MJ			●	●			●						●						
	ASMT170512PDPR-MJ	ASMT170512PDPR-MJ			●				●												
	ASMT170516PDPR-MJ	ASMT170516PDPR-MJ			●	●			●						●						
	ASMT170520PDPR-MJ	ASMT170520PDPR-MJ							●												
	ASMT170530PDPR-MJ	ASMT170530PDPR-MJ							●												
	ASMT170532PDPR-MJ	ASMT170532PDPR-MJ			●	●			●						●						
	ASMT11T304PDPR-MS	ASMT11T304PDPR-MS	M	with						●											
	ASMT170508PDPR-MS	ASMT170508PDPR-MS								●											

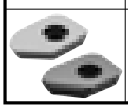
TAC Mills

List of TAC Milling Inserts — LS and S Series

Shape	Cat. No. (Inch)	ISO Cat. No. (Metric)	Accuracy	Honing	Stocked grades																Applicable TAC mills (pages)
					Co.CVD		Coated PVD						Cermet			C.C.	Uncoated				
					T3030	T1015	GH330	GH340	AH120	AH140	AH330	AH740	NS530	NS540	NS740	GT540	TH10	UX30	KS05F	KS20	
	DPCW11T3ZFR	DPCW11T3ZFR	C	without					●			●	●								TZF11 (P. 332)
	SWMT13T3AFPR-MJ	SWMT13T3AFPR-MJ	M	with	●	●			●	●					●						TAW13 (P. 310)
	SWMT13T3AFER-ML	SWMT13T3AFER-ML	M	with					●												
	SWMW13T3AFTR	SWMW13T3AFTR	M	with	●	●			●						●						
	SWMT13T3AFPR-HJ	SWMT13T3AFPR-HJ	M	with	●	●			●	●											
	SWMT13T3AFPR-MS	SWMT13T3AFPR-MS	M	with						●											
	SWGT13T3AFPR-MJ	SWGT13T3AFPR-MJ	G	with					●						●						
	SWGT13T3AFFR-AJ	SWGT13T3AFFR-AJ	G	without															●		
	SWMT1304PDPR-MJ	SWMT1304PDPR-MJ	M	with	●	●			●	●					●						TPW13 (P. 320)
	SWMT1304PDER-ML	SWMT1304PDER-ML	M	with					●												
	SWMT1304PDPR-MS	SWMT1304PDPR-MS	M	with						●											
	SWGT1304PDPR-MJ	SWGT1304PDPR-MJ	G	with					●						●						
	SWGT1304PDFR-AJ	SWGT1304PDFR-AJ	G	without															●		
	SDMT1204AFPN-MJ	SDMT1204AFPN-MJ	M	with	●	●	●		●	●	●										TAD
	SDMT1204AFPNE-MJ	SDMT1204AFPNE-MJ							●		●		●								
	SDMT1204AFTN-MJ	SDMT1204AFTN-MJ											●		○						
	SDGT1204AFTN-MJ	SDGT1204AFTN-MJ	G						●		●		●		○						
	SDMT1204AFPN-MS	SDMT1204AFPN-MS	M	with						●											
	SDMT1204AFPN-ML	SDMT1204AFPN-ML	M	with					●		●										
	SDGT1204AFFN-AJ	SDGT1204AFFN-AJ	G	without													●				
	SDMT1204PDSR-MJ	SDMT1204PDSR-MJ	M	with	●	●	●		●	●	●										TPD
	SDMT1204PDTR-MJ	SDMT1204PDTR-MJ											●		○						
	SDGT1204PDTR-MJ	SDGT1204PDTR-MJ	G						●		●		●		○						
	SDMT1204PDPR-MS	SDMT1204PDPR-MS	M	with						●											
	SDMT1204PDPR-ML	SDMT1204PDPR-ML	M	with					●		●										
	SDGT1204PDFR-AJ	SDGT1204PDFR-AJ	G	without													●				
	SDKN42ZTN	SDKN1203AETN-12	K	with		●	●		○	●	●			△	●	△		●			TMD (P. 314) (TGD4400-A) (TFD4400-A)
	SDKN42ZFN	SDKN1203AEFN-12		without													●			●	
	SDKN42ZTNCR	SDKN1203AETN-CR		with										△	○						
	SDKN42ZTN16	SDKN1203AETN-16	K	with	●																TMD (P. 314) (TGD4400-A)

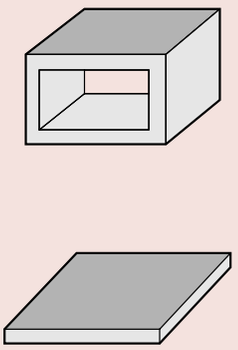
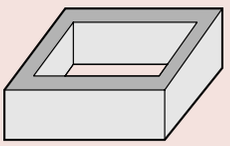
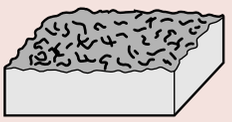
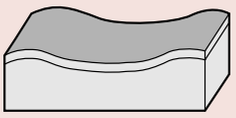
List of TAC Milling Inserts — LS and S Series

Shape	Cat. No. (Inch)	ISO Cat. No. (Metric)	Accuracy	Honing	Stocked grades																	Applicable TAC mills (pages)
					CVD co.		PVD coated					Cermet				c. Cer.	Uncoated			Cera.	DIA	
					T3030	T1015	GH330	GH340	AH120	AH140	AH330	NS530	NS540	NS740	X407	GT540	TH10	TU10	UX30	FX105	DX140	
	SDMR1203AETN-MJ	SDMR1203AETN-MJ	M	with								△	△	●								TMD4400 (P. 314) TGD4400-A
	SDKR42ZSR-MJ	SDKR1203AESR-MJ	K	with	●	○	●		○		●											
	SDKR42ZPN-MS	SDKR1203AEPN-MS								●												
	SDCN42ZFN-DIA	SDCN1203AEFN-D	C	without																	○	——
	SDKN53ZTN SDKN53ZTNCR SDKN53ZFN SDKN53ZTN-16	SDKN1504AETN SDKN1504AETNCR SDKN1504AEFN SDKN1504AETN-16	K	with with without with	● ●		●		○	●	●		△	○ ○			●		●			TMD5400I (P. 316)
	SDKR53ZSR-MJ	SDKR1504AESR-MJ	K	with	●		○				●											
	SECN1203AGFN	SECN1203AGFN	C	without													●					TME (P. 312)
	SEEN1203AGTN SEEN1203AGFN SEEN1203AGTNCR	SEEN1203AGTN SEEN1203AGFN SEEN1203AGTNCR	E	with without with	○	○	○		○ ○	○ ○	○		△	○			○		○			
	SEKN1203AGTN SEKN1203AGFN	SEKN1203AGTN SEKN1203AGFN	K	with without	●		●		○	●	●		△	●		△	●		○			
	SEKN1203AGTN-T SEKN1203AGFN-T	SEKN1203AGTN-T SEKN1203AGFN-T	K	with without	○	●	○				○		△	○			●		○			
	SEKR1203AGSR-MJ	SEKR1203AGSR-MJ	K	with	●		●		○		●											
	SEMR1203AFTN-MJ	SEMR1203AFTN-MJ	M	with								○	△	●								
	SEKN42AFTN SEKN42AFFN SEKN42AFTN16	SEKN1203AFTN SEKN1203AFFN SEKN1203AFTN-16	K	with without with	●	●	●		○	●	●		△ △	●		△	●		●			——
	SEKR1203AFSR-MJ	SEKR1203AFSR-MJ	K	with	●	●	●				●											——
	SPKN42STR SPKN42STL SPKN42SFR SPKN42SFL	SPKN1203EDTR SPKN1203EDTL SPKN1203EDFR SPKN1203EDFL	K	with with without without	●	●	○		●	●	●		△ △	● ○			● ○		● ●	●		TGP (P. 317)
	SPKR42SSR-MJ	SPKR1203EDSR-MJ	K	with	●	●	○				●											
	SPMR1605PPTR-MJ	SPMR1605PPTR-MJ	M	with	○	●	●												○			TPP16 (P. 322)
	SPMR1605PPTR-MH	SPMR1605PPTR-MH	M	with	●	●	●												○			
	SPMR1605PPPR-ML	SPMR1605PPPR-ML	M	with			●	●														
	SPGN120312TN	SPGN120312TN	G	with																●		TGP (P. 317)
	SPGN120412TN	SPGN120412TN	G	with																●		——
	SNKN43ZTN	SNKN1204ZNTN	K	with	○	○							△	○					○	●		TGN4200-A (P. 319)

Shape	Cat. No. (Inch)	ISO Cat. No. (Metric)	Accuracy	Honing	Stocked grades																				Applicable TAC mills (pages)
					C. CVD		Coated PVD					Cermet				Uncoated					Cer.	DIA		PCBN	
					T3030	T1015	GH110	GH330	AH120	AH140	AH330	NS540	NS740	N308	X407	TH10	TU10	KS05F	KS20	UX30	FX105	DX140	DX160	BX950	
	SNMN120408TN SNMN120412TN SNMN120416TN SNMN120420TN SNMN120424TN	SNMN120408TN SNMN120412TN SNMN120416TN SNMN120420TN SNMN120424TN	M	with																	● ● ● ● ●				TGN4200-A (P. 319)
	SNMN190412TN SNMN190416TN	SNMN190412TN SNMN190416TN	M	with																	● ●				——
	SNAA56FTR SNAG56FTR	SNAC1509PNTR SNAJ1509PNTR	A	with											●		●								MS (P. 334)
	SNEN12T2ZTN SNEN12T2ZFN	SNEN12T2ZTN SNEN12T2ZFN	E	with without							●					● ●				●					SVN4000 (P. 338)
	SNEN1233ZTN SNEN1233ZFN	SNEN1233ZTN SNEN1233ZFN	E	with without							●					● ●				●					
	TECN32ZFR	TECN1603PEFR	C	without												○			○						TSE3000IA (P. 323)
	TEEN32ZTR TEEN32ZFR	TEEN1603PETR TEEN1603PEFR	E	with without	● ●	●		●			●	△	●			● ●				●					
	TECN32ZFR-DIA	TECN1603PEFR-D	C	without																		○	○		
	TEKR1603PEPR-MS	TEKR1603PEPR-MS	K	with						●															
	TECN43ZFR	TECN2204PEFR	C	without											○										TSE4000IA (P. 324)
	TEEN43ZTR TEEN43ZFR	TEEN2204PETR TEEN2204PEFR	E	with without	● ●	●		●	○	●	●	△	●		●					●					
	TECN43ZFR-DIA	TECN2204PEFR-D	C	without																		○	○		
	TEKR2204PEPR-MS	TEKR2204PEPR-MS	K	with						●															
	TPKN32ZTR TPKN43ZTR	TPKN1603PPTR TPKN2204PPTR	K	with	● ●	○		○	○	●	● ●	△ △	● ●	○						● ●					——
	RFEN2004M0TN	RFEN2004M0TN	E	with					●									○		●					TRF6000I (P. 328)
	RFEN2004ZFTN	RFEN2004ZFTN	E	with					●									●		●					
	RDMT1204ZDPN-MJ RDMT1606ZDPN-MJ	RDMT1204ZDPN-MJ RDMT1606ZDPN-MJ	M	with	● ●				● ●	● ●	● ●														TRD (P. 329)
	RDMW1204ZDSN RDMW1606ZDSN	RDMW1204ZDSN RDMW1606ZDSN	M	with	● ●				● ●	● ●	● ●														
	SPHA435FNW	SPHB120420FN-W	H	without										●		●									SFP4000 (P. 333)
	YDEN1505ADFR-D YDEN1505ADFR-WD	YDEN1505ADFR-D YDEN1505ADFR-WD	E	without																		○ ○			DAD15 (P. 335)
	YDEN1505PDFR-D YDEN1505PDFR-WD	YDEN1505PDFR-D YDEN1505PDFR-WD	E	without																		● ●			DPD15 (P. 336)
	YPEN1505PPTR-Q	YPEN1505PPTR-Q	E	with																			●		QPP15 (P. 337)
	WFCN42ZFR-DIA	SFCX1203AFFR-WD	C	without																		○			Wiper THF4400IA
	WFCN53ZFR-DIA	SFCX1504AZFR-WD	C	without																		○			Wiper THF5400IA
	WDCN42ZFR-DIA	SDCX1203AEFR-WD	C	without																		○			Wiper TMD4400I (P. 314)
	WPAN42STR WPAN42SFR	SPAX1203EDTR-W SPAX1203EDFR-W	A	with without												●									Wiper TGD4100IA
	WPAN42STRS WPAN42SFRS	SPAX1203EDTR-WS SPAX1203EDFR-WS	A	with without												○									Wiper TGP4100BA (P. 317)
	WPMW05H315ZPR WPMT05H315ZPR-MH WPMT05H315ZPR-ML	WPMW05H315ZPR WPMT05H315ZPR-MH WPMT05H315ZPR-ML	M	with	● ● ●	●			● ● ●	● ● ●															TXP05-06-08 (P. 308)
	WPMW06X415ZPR WPMT06X415ZPR-MH WPMT06X415ZPR-ML	WPMW06X415ZPR WPMT06X415ZPR-MH WPMT06X415ZPR-ML	M	with	● ● ●	●			● ● ●	● ● ●															
	WPMT080615ZSR WPMT080615ZSR-MH WPMT080615ZPR-ML	WPMT080615ZSR WPMT080615ZSR-MH WPMT080615ZPR-ML	M	with	● ● ●	●			● ● ●	● ● ●															
	WWCW13T3AFER-WS WWCW13T3AFFR-WS WWCW13T3AFFR-WD	WWCW13T3AFER-WS WWCW13T3AFFR-WS WWCW13T3AFFR-WD	C	with without			●						●					●					●			TAW13 (P. 310)

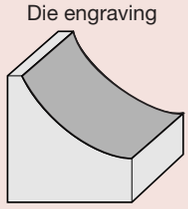
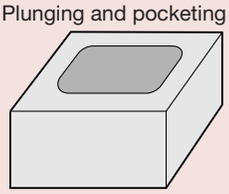
Selection Guides for TAC Mills

■ Selecting from workpiece condition

Work condition	Applicable TAC MILLS	
Having a tendency to cause chatter or warp 	**TAW13** Corner angle: 45° (P. 310)	**TME4400I** Corner angle: 45° (P. 314)
	TPW13 Corner angle: 90° (P. 322)	**TPP16** Corner angle: 90° (P. 326)
	TSE4000IA Corner angle: 90° (P. 328)	**TPS11•17** Corner angle: 90° (P. 329)
Thin-walled workpiece 	**TAW13**	**TME4400B** Corner angle : 45° (P. 314)
Rough outer skin where cutting depth varies violently 	**TMD5400I** Corner angle: 45° (P. 318)	**TPP16** Corner angle: 90° (P. 326)
Flame-cut surface 	**TMD5400I** Corner angle: 45° (P. 318)	**TPP16** Corner angle: 90° (P. 326)

For difficult-to-cut materials

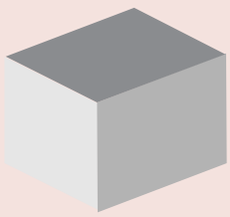
TRF6000I Round insert type (P. 332)

Work condition	Applicable TAC MILLS		
Die engraving 	**TXP08** (P. 308)	**TZP12** (P. 335)	**TRD12•16** Round insert type (P. 333)
Plunging and pocketing 	**TXP08** (P. 308)	**TRD12** (P. 333)	

Selection Guides for TAC Mills

■ Selecting from operation and work material

Face milling



Steel

Cutting depth:
ap = ~ 1.5 mm

TXP08

Corner angle: 45°
Cutting depth:
ap = ~ 5 mm

TAW

Corner angle: 45°
Cutting depth:
ap = ~ 4 mm

TME4400I

Corner angle: 45°
Cutting depth:
ap = ~ 6 mm

TMD5400I
(For large depth cutting)

Corner angle: 45°
Cutting depth:
ap = ~ 4 mm

TMD4400I

Stainless steel

Cutting depth:
ap = ~ 1.5 mm

TXP08

Corner angle: 45°
Cutting depth:
ap = ~ 4 mm

TAW

Corner angle: 45°
Cutting depth:
ap = ~ 4 mm

TME4400I

Corner angle: 45°
Cutting depth:
ap = ~ 6 mm

TMD5400I
(For large depth cutting)

Corner angle: 45°
Cutting depth:
ap = ~ 4 mm

TMD4400I

Cast irons

Corner angle: 45°
Cutting depth:
ap = ~ 5 mm

TAW

Corner angle: 15°
Cutting depth:
ap = ~ 7 mm

TGP4100IA

Corner angle: 45°
Cutting depth:
ap <= ~ 4 mm

TME4400I

Corner angle: 60°
Cutting depth:
ap = ~ 1.5 mm

QPP15
(High-speed and high-precision finishing of grey cast irons)

Aluminium alloys

Corner angle: 45°
Cutting depth:
ap = ~ 4 mm

TAW

Corner angle: 45°
Cutting depth:
ap = ~ 5 mm

DAD15

Square shoulder milling

Steel

Corner angle: 90°
Cutting depth: ap = ~ 10 mm

TPW

Corner angle: 90°
TPS11: Cutting depth: ap = ~ 11 mm
TPS17: Cutting depth: ap = ~ 16.3 mm

TPS11•17

Corner angle: 90°
Cutting depth: ap = ~ 12 mm

TPP16

Stainless steel

Corner angle: 90°
Cutting depth: ap = ~ 10 mm

TPW

Corner angle: 90°
TPS11: Cutting depth: ap = ~ 11 mm
TPS17: Cutting depth: ap = ~ 16.3 mm

TPS11•17

Corner angle: 90°
Cutting depth: ap = ~ 12 mm

TPP16

Cast irons

Corner angle: 90°
Cutting depth: ap = ~ 10 mm

TPW

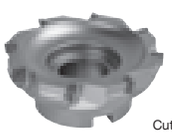
Corner angle: 90°
TPS11: Cutting depth: ap = ~ 11 mm
TPS17: Cutting depth: ap = ~ 16.3 mm

TPS11•17

Corner angle: 90°
Cutting depth: ap = ~12 mm

TPP16

Aluminium alloys



Corner angle: 90°
Cutting depth: ap = ~ 10 mm

TPW

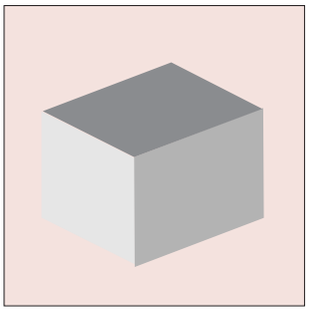
Corner angle: 90°
Cutting depth: ap = ~ 7 mm

DPD15

Selection Guides for TAC Mills

■ Selecting from operation and work material

Finish milling



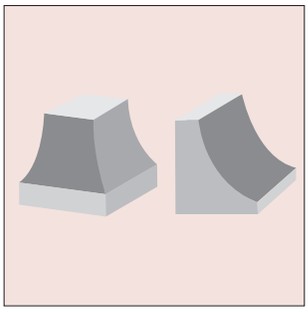
Cutting depth:
ap = ~ 0.1 mm

MS

Cutting depth:
ap = ~ 0.1 mm

SFP4000

Die engraving



Cutting depth:
ap = ~ 1.5 mm

TXPO8

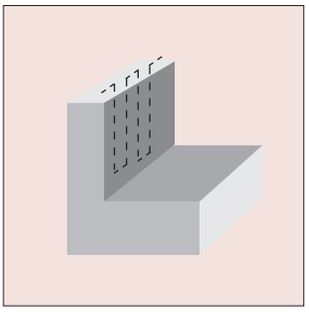
Cutting depth:
ap = ~ 10 mm

TZP12

Cutting depth:
TRD12
ap = ~ 6 mm
TRD16
ap = ~ 8 mm

TRD12•16

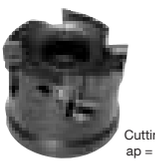
Finishing of vertical walls



Cutting depth:
ap = ~ 0.5 mm

TZF11

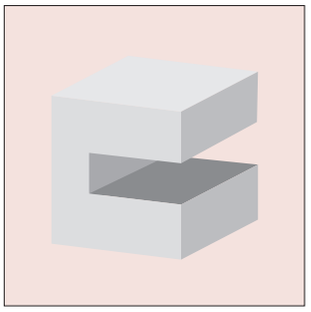
Finishing of vertical wall face



Cutting depth:
ap = ~ 10 mm

TZP12

Slotting



SVN4000

Nomenclature for TAC Mills

NEW

Code	Description
T	Shell type
E	Endmill
H	TMS type

① Milling cutter type

Code	Description
P	0° (90°) ~ 10°
E	10° ~ 20°
D	30° ~ 40°
A	40° ~ 50°
R	for round insert
B	Ball endmill
X	for high feed
L	Long cutting edge
V	for difficult-to-cut materials
F	for finishing
C	for chamfering
Z	for Z-feed
G	for counterbore

② Relief angle / Applications

Code	Description
C	7°
P	11°
D	15°
E	20°
F	25°
N	90°
(W)	Special

③ Relief angle of insert

④ Cutting edge length (mm)

Code	Description
R	Right
L	Left

⑤ Cutting direction

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
T	P	W	13	R	050	M	22.0	E	04

for example

⑥ Effective cutter ø

Code	Description
050	ø50 mm
063	ø63 mm
080	ø80 mm
100	ø100 mm
125	ø125 mm
160	ø160 mm

⑦ System of unit

Code	Description
M	mm
U	inch

⑧ Mounting hole

Code	Description
22.0	ø22 mm
27.0	ø27 mm
32.0	ø32 mm
40.0	ø40 mm

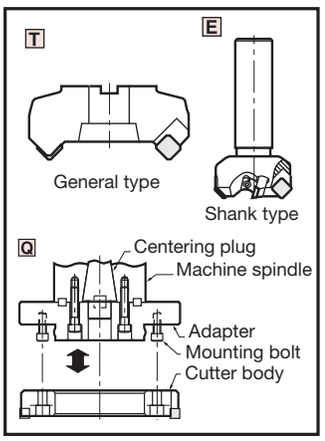
⑨ Mounting type

Code	Description
-	JIS
E	DIN
A	ANSI
-	Shank (cylinder)
W	Shank (weldon)
C	Shank (combination)

⑩ No. of inserts

Code	Description
04	4
05	5
06	6
07	7
08	8
10	10
12	12
16	16

Nomenclature for LS Series TAC Mills

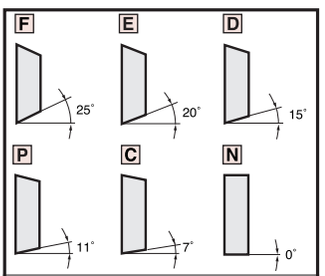


Symbol	Type
V	Vertical insert type
Q	Quick change type
E	Shank type
T	General type
S	Special type

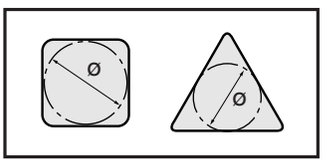
① Type

Symbol	Application, geometry etc.
M	For machining centers
F	For finishing
G	General purpose
S	For square shoulder milling
H	High-rake geometry
P	Negative axial, positive radial rake geometry
R	Use round inserts
U	For difficult-to-cut materials
C	For chamfering
L	Long edge type
T	For threading

② Application etc.



③ Relief angle of applicable insert



Symbol	I.C.(mm)
3	9.525
4	12.700
5	15.875
6	19.050
7	22.225
8	25.400
9	31.750

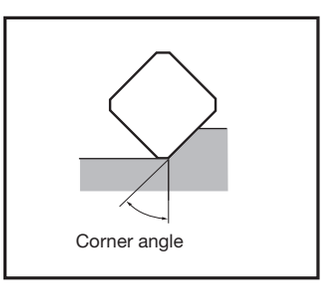
④ Size of applicable insert

Example

①	②	③	④	⑤	⑥	⑦	⑧
T	M	D	4	4	06	R	I

⑤ Corner angle

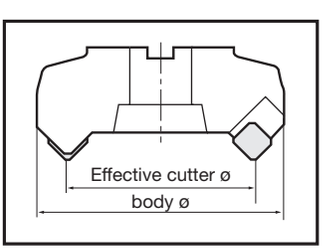
Symbol	Corner angle
0	0° ~ 10°
1	10° ~ 20°
2	20° ~ 30°
3	30° ~ 40°
4	40° ~ 50°
5	50° ~ 60°
6	60° ~ 70°
7	70° ~ 80°



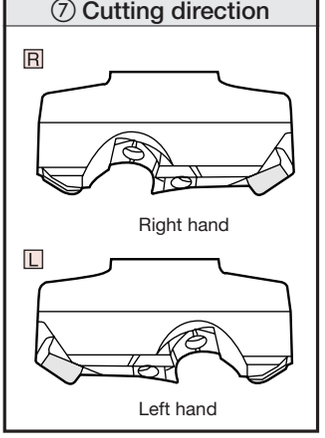
⑥ Effective cutter diameter

Symbol	Effective diameter (mm)
50	50
63	63
03	80
04	100
05	125
06	160
08	200
10	250
12	315
14	355
16	400

Note: For diameter of less than 80 mm, nominal dimensions (mm) of effective diameter are shown

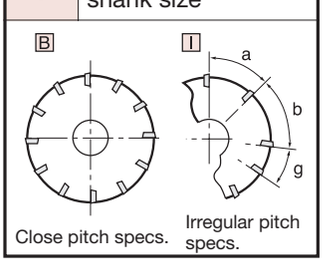


⑦ Cutting direction



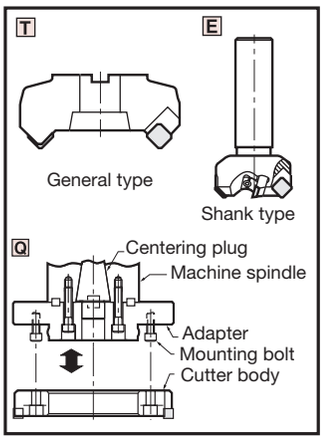
⑧ Additional feature

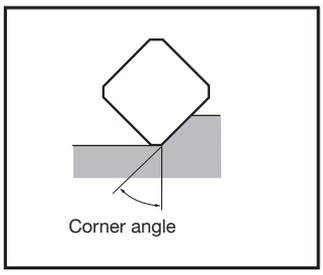
B	Close pitch specs.
I	Irregular pitch specs.
A (-A)	Modified specs.
S	For distinguishing shank size



Note: The nomenclature system shown above is not applied to the following TAC mills.
S-series, DAD, DPD, QPP, MS cutter, TCB, TBN, TBF etc.

Nomenclature for S Series TAC Mills



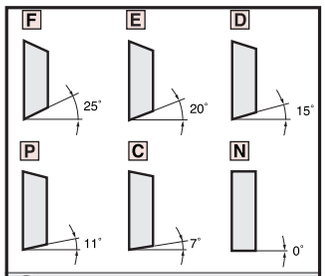


Symbol	Type
V	Vertical insert type
Q	Quick change type
E	Shank type
T	General type
S	Special type
D	PCD insert type
Q	PCBN insert type

① Type

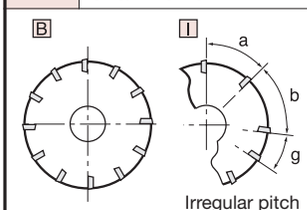
Symbol	Corner angle
P	0° ~ 10°
E	10° ~ 20°
D	30° ~ 40°
A	40° ~ 50°

② Corner angle



③ Relief angle of applicable insert

B	Close pitch specs.
I	Irregular pitch specs.
A (-A)	Modified specs.
S	For distinguishing shank size



④ Additional feature

① ② ③ ④ ⑤ ⑥ ⑦

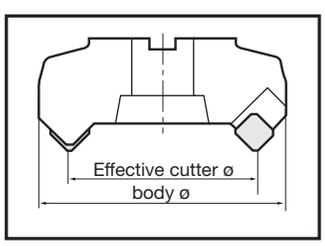
T P S 11 063 R B

④ Cutting edge length (mm)

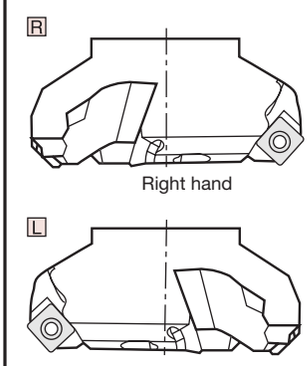
R Symbol	R Size	S Symbol	S Size	C Symbol	C Size	T Symbol	T Size	Inscribed circle dia.
		06	6.35	06	6.5	11	11.0	6.35
		07	7.94	08	8.1	13	13.8	7.94
09	9.525	09	9.525	09	9.7	16	16.5	9.525
10	10.0	–	–	–	–	–	–	10.0
12	12.0	–	–	–	–	–	–	12.0
12	12.7	12	12.7	12	12.9	22	22.0	12.70
15	15.875	15	15.875	16	16.1	27	27.5	15.875
16	16.0	–	–	–	–	–	–	16.0
19	19.05	19	19.05	19	19.3	33	33.0	19.05
20	20.0	–	–	–	–	–	–	20.0
25	25.0	–	–	–	–	–	–	25.0
25	25.4	25	25.4	25	25.8	44	44.0	25.40
31	31.75	31	31.75	32	32.2	55	55.0	31.75

⑤ Effective cutter diameter

Symbol	Effective diameter (mm)
050	50
063	63
080	80
100	100
125	125
160	160
200	200
250	250
315	315
355	355
400	400



⑥ Cutting direction



Nomenclature for TAC Milling Inserts

Symbol	Shape	Included angle	Outlined figure
H	Hexagonal	120°	
S	Square	90°	
T	Triangular	60°	
C	Rhombic	80°	
E		75°	
L	Rectangular	90°	
A	Parallelogram	85°	
R	Round	–	
Y	Special	35°	
W	Wiper	–	

① Shape

Symbol	Relief angle
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Others
W	Special

② Relief angle

Inscribed circle dia.	Tolerance on inscribed circle (d)		Tolerance on corner height (m)	
	J, K, L, M, N (class)	U (class)	J, K, L, M, N (class)	U (class)
6.35	±0.05	±0.08	±0.08	±0.13
9.525				
12.70	±0.08	±0.13	±0.13	±0.20
15.875	±0.10	±0.18	±0.15	±0.27
19.05				
25.40	±0.13	±0.25	±0.18	±0.38

Symbol	Tolerance on Corner height	Tolerance on Thickness	Tolerance on Inscribed circle
A	±0.005	±0.025	±0.025
C	±0.013	±0.025	±0.025
E	±0.025	±0.025	±0.025
H	±0.013	±0.025	±0.013
K	±0.013	±0.025	±0.05 ~ ±0.13
M	±0.08 ~ ±0.18	±0.13	±0.05 ~ ±0.13

③ Tolerance class (mm)

Example

	①	②	③	④	⑤
Inch	S	D	K	N	4
Metric	S	E	E	N	12

④ Insert type

Symbol	Hole	Hole shape	Chip groove	Section shape
N	Without	–	Without	
R			On one side	
F			On both sides	
W	With	Partially cylindrical hole with 40° - 60° mouth on one side	Without	
T			On one side	
Q		Partially cylindrical hole with 40° - 60° mouth on both sides	Without	
U			On both sides	
B		Partially cylindrical hole with 70° - 90° mouth on one side	Without	
H			On one side	
C		Partially cylindrical hole with 70° - 90° mouth on both sides	Without	
J			On both sides	
X	–	–	–	

⑤ Cutting edge length (mm)

R Symbol	R Size	S Symbol	S Size	C Symbol	C Size	T Symbol	T Size	Inscribed circle ø
		06	6.35	06	6.5	11	11.0	6.35
		07	7.94	08	8.1	13	13.8	7.94
09	9.525	09	9.525	09	9.7	16	16.5	9.525
10	10.0	–	–	–	–	–	–	10.0
12	12.0	–	–	–	–	–	–	12.0
12	12.7	12	12.7	12	12.9	22	22.0	12.70
15	15.875	15	15.875	16	16.1	27	27.5	15.875
16	16.0	–	–	–	–	–	–	16.0
19	19.05	19	19.05	19	19.3	33	33.0	19.05
20	20.0	–	–	–	–	–	–	20.0
25	25.0	–	–	–	–	–	–	25.0
25	25.4	25	25.4	25	25.8	44	44.0	25.40
31	31.75	31	31.75	32	32.2	55	55.0	31.75

⑥ Thickness

Symbol	(mm)
03	3.18
T3	3.97
04	4.76
06	6.35
07	7.94
09	9.52

Note on nomenclature for wiper inserts:
In inch system, symbol "W" is used for the insert shape. On the other hand, in metric system, the shape symbol is the same as for conventional inserts. And, the meaning of wiper is distinguished by placing a symbol such as W, WS, and WD in position 10.

Symbol	Geometry (mm)
1	0.4 (0.397)
2	0.8 (0.794)
3	1.2 (1.191)
4	1.6 (1.588)
5	2.0 (1.984)
6	2.4 (2.381)
Symbol	**Explanation**
F	Special finishing edge (Example: MS cutter's insert)
H	Flat chamfer with 60° corner angle
S	Flat chamfer with 15° corner angle
Z	Flat chamfer with various corner angle.

⑦ Corner geometry

Symbol	Chip groove	Hole
A	Without	With
F	On both sides	Without
G	On both sides	With
M	On one side	With
N	Without	Without
W	Without	Without

④ Insert type

	Symbol	(mm)
Inch	3	9.525
	4	12.70
	5	15.875
	6	19.050

⑤ Inscribed circle

	Symbol	(mm)
Inch	2	3.18
	3	4.76
	4	6.35
	6	9.52

⑥ Thickness

⑥	⑦	⑧	⑨
2	Z	T	N
03	AG	T	N	T
⑥	⑦	⑧	⑨	⑩

⑦ Corner geometry

Symbol	Corner radius R (mm)	Symbol	Corner angle	Approach angle	Symbol	Chamfer flat relief angle
04	0.4	A	45°	45°	A	3°
08	0.8	D	30°	60°	B	5°
12	1.2	E	15°	75°	C	7°
16	1.6	F	5°	85°	D	15°
20	2.0	P	0°	90°	E	20°
24	2.4	Z	Other angles		F	25°
					G	30°
					N	0°
					P	11°
					Z	Other angles

⑧ Cutting edge condition

Symbol	Condition	Shape
F	Sharp edge	
E	Round honing	
T	Chamfer honing	
S	Combination honing	
P	Combination round honing	

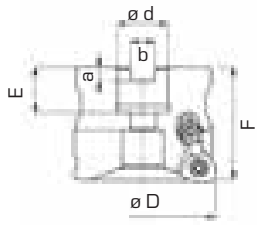
⑨ Hand of insert

Symbol	Hand
R	Right
L	Left
N	Neutral

⑩ Special feature

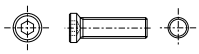
Symbol	Description
12	Chamfer flat width: 1.2 mm
16	Chamfer flat width: 1.6 mm
20	Chamfer flat width: 2.0 mm
24	Chamfer flat width: 2.4 mm
AC	Roughing insert with chip splitters
D	Sintered diamond tipped insert
T	Double-rake edge insert
W	Wiper insert (Multiple corner type)
WS	Wiper insert (Single corner type)
WD	Sintered diamond tipped wiper insert
MJ	Chipbreaker insert for general purpose
MH	Chipbreaker insert for high feed
ML	Chipbreaker insert for reduced cutting forces

TXP05/06/08 For super high feed (with small cutting depth)



Rake angle: A.R. +5° R.R. -4° ~ -6°
Max. cutting depth: 1.5 mm

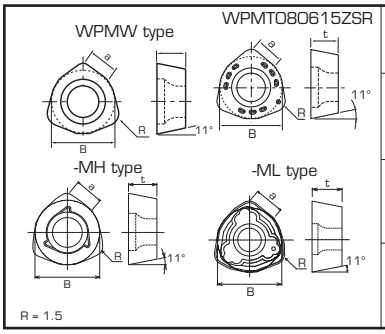
Centre bolt



Cat. No.	Stock	No. of inserts	Dimensions (mm) ø D	ø d	F	E	a	b	Inserts	Replacement parts: Clamping screw	Clamp-set	Wrench	Centre bolt	Mounting details
NEW TXP05063RB-E	●	6	63	22	50	20	6.3	10.4	WPM*05H315ZPR-**	CSPB-3.5S	–	IP-150	CM10x30H	P. 339 Ⓐ
NEW TXP05080RB-E	●	7	80	27	63	22	7	12.4					CM12x30H	
NEW TXP06063RB-E	●	5	63	22	50	20	6.3	10.4	WPM*06X415ZPR-**	CSPB-4S	CSY-15		CM10x30H	
NEW TXP06080RB-E	●	6	80	27	63	22	7	12.4					CM12x30H	
TXP08050R-E	●	3	50	22	50	20	6.3	10.4	WPMT080615Z*R-**	CSTB-5	CSX20	T-20T	FSHM10-40	
TXP08052R-E	●		52											
TXP08063R-E	●	4	63										–	
TXP08066R-E	●		66	27		22	7.0	12.4						
TXP08080R-E	●	5	80		63									

Specifications: Inserts

● Standard stock in Europe



Cat. No.	Tolerance	Honing	Dimensions (mm) a	t	B	Grade: PVD coated AH120	AH140	CVD coated T3030	T1015
WPMW05H315ZPR	M	with	5	3.50	7.94	●	●	●	●
WPMT05H315ZPR-MH						●	●		
WPMT05H315ZPR-ML						●	●	●	
WPMW06X415ZPR	M		6	4.20	9.525	●	●	●	●
WPMT06X415ZPR-MH						●	●		
WPMT06X415ZPR-ML						●	●	●	
WPMT080615ZSR	M		8	6.35	12.7	●	●	●	●
WPMT080615ZSR-MH						●	●		
WPMT080615ZPR-ML						●	●	●	

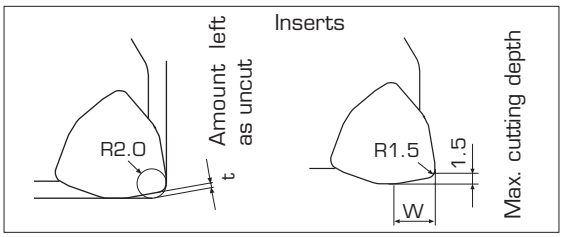
Cutting data

Work materials	Grade	Cutting speed Vc (m/min)	Feed per tooth ft (mm/t)	Recommended cutting conditions: ø 50, ø 52 t = 3	ø 63, ø 66 t = 4/5/6	ø 80 t = 5/6/7
Carbon steels Ck45 etc. < 300HB	T3030 (AH120)	150 - 250	0.5 - 2.0	Vc = 200 m/min, ft = 1.5 mm/t ap = 1.0 mm, ae = 1.0 x D mm Z-axis plunging: ft = 0.2 mm/t		
Alloy steels 42CrMo4, 16MnCr5 etc. < 300HB	T3030 (AH120)	100 - 200	0.5 - 2.0	Vc = 150 m/min, ft = 1.5 mm/t ap = 1.0 mm, ae = 1.0 x D mm Z-axis plunging: ft = 0.2 mm/t		
Die steels X96CrMoV12 etc. < 300HB	AH120 (T3030)	80 - 150	0.5 - 1.0	Vc = 120 m/min, ft = 0.8 mm/t ap = 1.0 mm, ae = 1.0 x D mm Z-axis plunging: ft = 0.1 mm/t		
Stainless steels X5CrNi1810 etc. < 250HB	AH140	100 - 200	0.5 - 2.0	Vc = 150 m/min, ft = 1.5 mm/t ap = 1.0 mm, ae = 1.0 x D mm Z-axis plunging: ft = 0.2 mm/t		
Cast irons GG25 etc.	T1015	150 - 250	0.8 - 2.5	Vc = 200 m/min, ft = 2.0 mm/t ap = 1.0 mm, ae = 1.0 x D mm Z-axis plunging: ft = 0.2 mm/t		

*The recommended cutting parameter are merely a starting guideline and should be optimised according to individual machining requirements

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

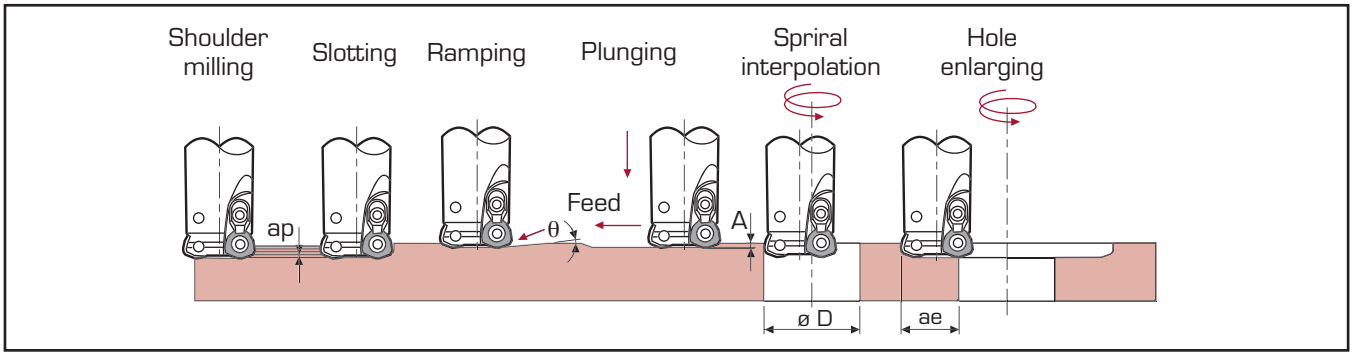
Tool geometry on programming



Milling type	W (mm)	t (mm)	R (mm)
TXP	5.7	0.7	2.0

When programming the machine path, a theoretical radius (R) and the residual amount (t) should be calculated.

Application

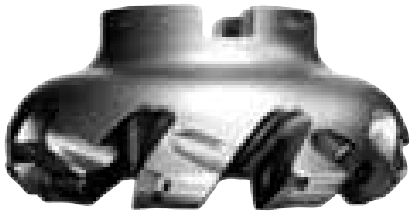


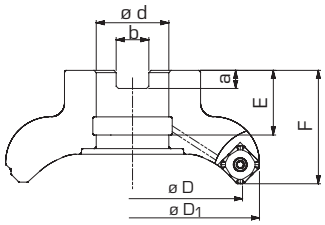
Cat. No.	Tool ø (mm)	Max. cutting depth ap (mm)	Max. ramping angle (θ)	Max. plunging A (mm)	Min. machining ø D (mm)	Max. machining ø D (mm)	Max. cutting width for enlarging ae (mm)
NEW TXP05063RB-E	63	1.5	1°	0.5	116	123	59
NEW TXP05080RB-E	80		0° 30'		150	157	76
NEW TXP06063RB-E	63		1°	1.0	109	123	58
NEW TXP06080RB-E	80		0° 30'		143	157	75
TXP08050R-E	50		4°		72	97	44
TXP08052R-E	52				76	101	46
TXP08063R-E	63		2° 30'		98	123	57
TXP08066R-E	66				104	129	60
TXP08080R-E	80		1° 30'		132	157	74

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TAW13

45° face milling cutter



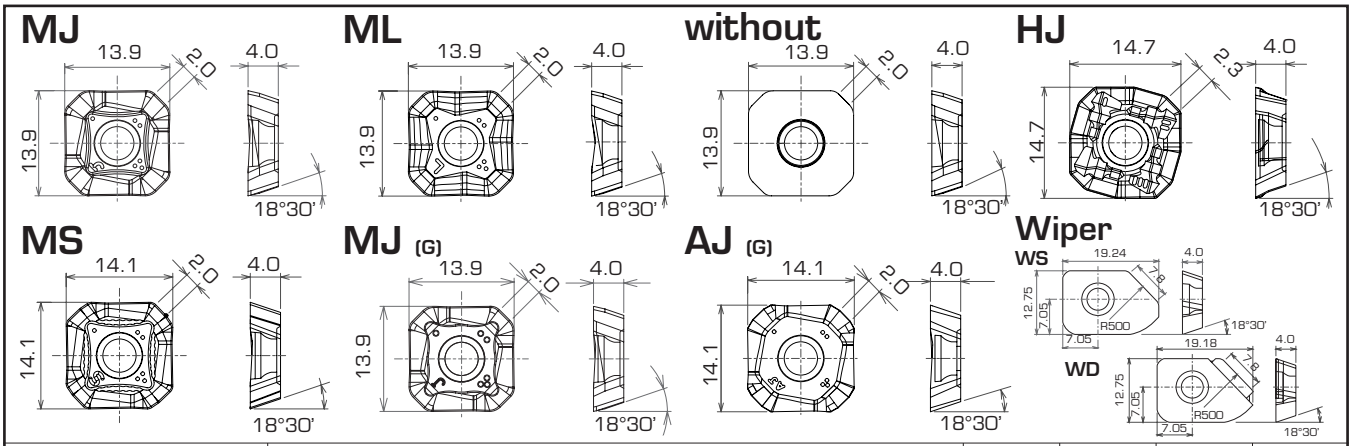


Rake angle: A.R. 17° ~ 20°
R.R. -16° ~ -11°

	Item code	Stock	No. of inserts	Dimensions (mm) ø D	ø D_1	ø d	F	E	a	b	Air hole	Centre bolt Item code	Fig.	Mounting details
Standard	TAW13R050M22.0E04	●	4	**50**	63	22	40	20	6.3	10.4	with	CM10X30H	1	P. 339 Ⓐ
	TAW13R063M22.0E05	●	5	**63**	76									
	TAW13R080M27.0E06	●	6	**80**	94	27	50	22	7	12.4	with	CM12X30H		
	TAW13R100M32.0E07	●	7	**100**	114	32		28.5	8	14.4	with	TMBA-M16H	2	P. 339 Ⓑ
	TAW13R125M40.0E08	●	8	**125**	139	40	63	32	9	16.4	with	TMBA-M20H		
	TAW13R160M40.0E10	●	10	**160**	174			29			without	-	-	P. 339 Ⓒ
Close	TAW13R050M22.0E05	●	5	**50**	63	22	40	20	6.3	10.4	with	CM10X30H	1	P. 339 Ⓐ
	TAW13R063M22.0E06	●	6	**63**	76									
	TAW13R080M27.0E08	●	8	**80**	94	27	50	22	7	12.4	with	CM12X30H		
	TAW13R100M32.0E10	●	10	**100**	114	32		28.5	8	14.4	with	TMBA-M16H	2	P. 339 Ⓑ
	TAW13R125M40.0E12	●	12	**125**	139	40	63	32	9	16.4	with	TMBA-M20H		
	TAW13R160M40.0E16	●	16	**160**	174			29			without	-	-	P. 339 Ⓒ

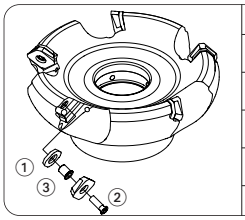
Specification: inserts for TAW milling cutter (45°)

● Standard stock in Europe



Item code	Grades PVD coated AH120	AH140	GH110	CVD coated T3030	T1015	Cermet NS740	Carbide KS05F	PCD DX140	Accuracy	Honing	Wiping flat	Max. ap
SWMT13T3AFPR-MJ	●	●		●	●	●			M	with	2.0	4.0
SWMT13T3AFER-ML	●											3.0
SWMW13T3AFTR	●			●	●	●						5.0
SWMT13T3AFPR-HJ	●	●		●	●						2.3	2.0
SWMT13T3AFPR-MS		●									2.0	4.0
SWGT13T3AFPR-MJ	●					●			G			
SWGT13T3AFFR-AJ							●			without		
NEW WWCW13T3AFER-WS			●			●			C	with	7.8	-
NEW WWCW13T3AFFR-WS							●			without		
NEW WWCW13T3AFFR-WD								●				

Replacement parts



Description	Item code
① Shim	FSSA1102
② Clamping screw for insert	CSPB-3.5
③ Clamping screw for shim	DTS5-3.5SS
Wrench	P-3.5
Wrench	IP-15D

Centre bolt

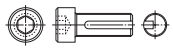


Fig. 1

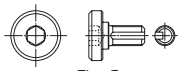


Fig. 2

Cutting conditions TAW (45°)

Roughing (Cutting depth: ap > 1.0 mm)

Work materals	Grade	Choice*	Cutting speed Vc (m/min)	Feed per tooth ft (mm/t)					
				MJ	ML	without	HJ	MS	AJ
Mild steel Low alloyed steel St37, etc. (< 180HB)	AH120	I	100 ~ 270	0.05 ~ 0.3	0.05 ~ 0.25	0.05 ~ 0.3	0.2 ~ 0.6	-	-
	T3030	II	150 ~ 300	0.05 ~ 0.3	-	0.05 ~ 0.3	0.2 ~ 0.6	-	-
	AH140	III	80 ~ 180	0.05 ~ 0.3	-	-	-	0.1 ~ 0.25	-
	NS740	IV	100 ~ 300	0.05 ~ 0.23	-	0.05 ~ 0.23	-	-	-
Carbon steel Alloy steel Ck45, 42CrMo4, etc. (< 300HB)	AH120	I	100 ~ 230	0.05 ~ 0.25	0.05 ~ 0.2	0.05 ~ 0.25	0.2 ~ 0.5	-	-
	T3030	II	150 ~ 280	0.05 ~ 0.25	-	0.05 ~ 0.25	0.2 ~ 0.5	-	-
	AH140	III	80 ~ 150	0.05 ~ 0.25	-	-	0.2 ~ 0.5	-	-
	NS740	IV	100 ~ 230	0.05 ~ 0.2	-	0.05 ~ 0.2	-	-	-
Die & Prehardened steel X96CrMoV12, etc. (< 30HRC)	AH120	I	100 ~ 180	0.05 ~ 0.2	0.05 ~ 0.15	0.05 ~ 0.2	0.2 ~ 0.4	-	-
	T3030	II	100 ~ 180	0.05 ~ 0.2	-	0.05 ~ 0.2	0.2 ~ 0.4	-	-
Stainless steel (< 250HB)	AH140	I	80 ~ 200	0.1 ~ 0.25	-	-	0.2 ~ 0.5	0.1 ~ 0.2	-
	AH120	II	150 ~ 250	0.1 ~ 0.25	0.1 ~ 0.2	0.1 ~ 0.25	0.2 ~ 0.5	-	-
Grey cast iron Ductile cast iron	T1015	I	100 ~ 250	0.05 ~ 0.25	-	0.05 ~ 0.25	0.2 ~ 0.6	-	-
	AH120	III	100 ~ 250	0.05 ~ 0.25	0.05 ~ 0.2	0.05 ~ 0.25	0.2 ~ 0.6	-	-
Aluminium alloys (Si: < 12 %)	KS05F	I	300 ~ 1000	-	-	-	-	-	0.05 ~ 0.2
Aluminium alloys (Si: > 13 %)	KS05F	I	80 ~ 300	-	-	-	-	-	0.05 ~ 0.2
Copper alloys	KS05F	I	200 ~ 500	-	-	-	-	-	0.05 ~ 0.2

Finishing (Cutting depth: ap < 1.0 mm)

Work materals	Grade	Choice*	Cutting speed Vc (m/min)	Feed per tooth ft (mm/t)					
				MJ	ML	without	HJ	MS	AJ
Mild steel Low alloyed steel St37, etc. (< 180HB)	AH120	I	100 ~ 270	0.05 ~ 0.25	0.05 ~ 0.2	0.05 ~ 0.25	0.2 ~ 0.6	-	-
	T3030	II	150 ~ 300	0.05 ~ 0.25	-	0.05 ~ 0.25	0.2 ~ 0.6	-	-
	AH140	III	80 ~ 180	0.05 ~ 0.25	-	-	-	0.05 ~ 0.2	-
	NS740	IV	100 ~ 300	0.05 ~ 0.2	-	0.05 ~ 0.2	-	-	-
Carbon steel Alloy steel Ck45, 42CrMo4, etc. (< 300HB)	AH120	I	100 ~ 230	0.05 ~ 0.2	0.05 ~ 0.15	0.05 ~ 0.2	0.2 ~ 0.5	-	-
	T3030	II	150 ~ 280	0.05 ~ 0.2	-	0.05 ~ 0.2	0.2 ~ 0.5	-	-
	AH140	III	80 ~ 150	0.05 ~ 0.2	-	-	0.2 ~ 0.5	-	-
	NS740	IV	100 ~ 230	0.05 ~ 0.18	-	0.05 ~ 0.18	-	-	-
Die & Prehardened steel X96CrMoV12, etc. (< 30HRC)	AH120	I	100 ~ 180	0.05 ~ 0.18	0.05 ~ 0.12	0.05 ~ 0.18	0.2 ~ 0.4	-	-
	T3030	II	100 ~ 180	0.05 ~ 0.18	-	0.05 ~ 0.18	0.2 ~ 0.4	-	-
Stainless steel (< 250HB)	AH140	I	80 ~ 200	0.1 ~ 0.2	-	-	0.2 ~ 0.5	0.1 ~ 0.18	-
	AH120	II	150 ~ 250	0.1 ~ 0.2	0.1 ~ 0.18	0.1 ~ 0.2	0.2 ~ 0.5	-	-
Grey cast iron Ductile cast iron	T1015	I	100 ~ 250	0.1 ~ 0.2	-	0.1 ~ 0.2	0.2 ~ 0.6	-	-
	AH120	III	100 ~ 250	0.1 ~ 0.2	0.05 ~ 0.18	0.1 ~ 0.2	0.2 ~ 0.6	-	-
Aluminium alloys (Si: < 12 %)	KS05F	I	300 ~ 1000	-	-	-	-	-	0.05 ~ 0.2
Aluminium alloys (Si: > 13 %)	KS05F	I	80 ~ 300	-	-	-	-	-	0.05 ~ 0.2
Copper alloys	KS05F	I	200 ~ 500	-	-	-	-	-	0.05 ~ 0.2

Choice* – I First – II Wear-resistance – III Toughness – IV Surface quality

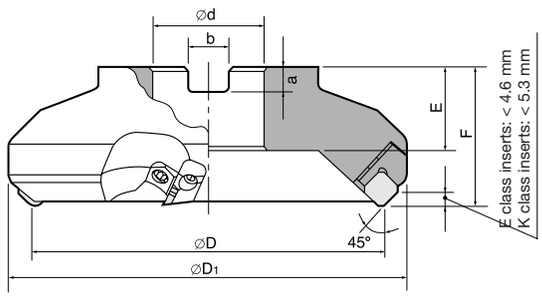
Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

"Lightning Mill"

TME4400I

High-rake geometry for low cutting force
Irregular pitch design for chatter-free milling

Rake angle: A.R. +24° R.R. -8° ~ -6°



Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
TME4403R/LIE	●		4	80	101.5	27	26	50	7	12.4	1.43	
TME4404R/LIE	●		5	100	120.2	32	32	63	8	14.4	2.74	P. 339Ⓑ
TME4405R/LIE	●		6	125	145.2	40	32	63	9	16.4	4.04	
TME4406R/LIE	●		8	160	181.2	40	29	63	9	16.4	5.82	
TME4408R/LIE			10	200	220.5	60	38	63	14	25.7	9.18	P. 339Ⓒ
TME4410R/LIE			12	250	269.8	60	38	63	14	25.7	16.64	
TME4412R/LIE			14	315	334.4	60	38	63	14	25.7	25.72	P. 339Ⓓ

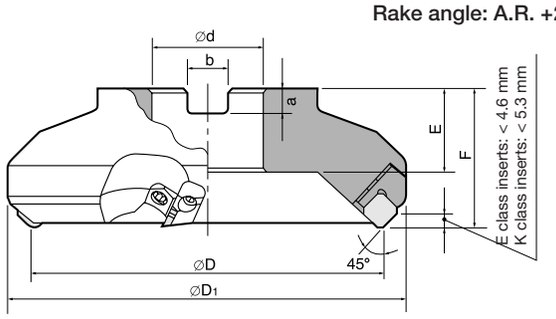
Note: Cutting edge height (F) is for when SEEN1203AG□N type inserts are used.

"Lightning Mill"

TME4400B

High-rake geometry for low cutting force
Close pitch design for high-feed milling

Rake angle: A.R. +24° R.R. -8° ~ -6°



Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
TME4463R/LBE	●		5	63	87.2	22	20	40	6.3	10.4	1.00	P. 339Ⓐ
TME4403R/LBE	●		6	80	101.5	27	26	50	7	12.4	1.43	
TME4404R/LBE	●		7	100	120.2	32	32	63	8	14.4	2.77	P. 339Ⓑ
TME4405R/LBE	●		9	125	145.2	40	32	63	9	16.4	4.06	
TME4406R/LBE	●		12	160	181.2	40	29	63	9	16.4	5.86	
TME4408R/LBE			15	200	220.5	60	38	63	14	25.7	9.24	P. 339Ⓒ
TME4410R/LBE			19	250	269.8	60	38	63	14	25.7	16.68	
TME4412R/LBE			23	315	334.4	60	38	63	14	25.7	25.71	P. 339Ⓓ

Note: Cutting edge height (F) is for when SEEN1203AG□N type inserts are used.

■ Inserts (Used for TME4400I/TME4400B)

SE□N1203AG□N (-T)

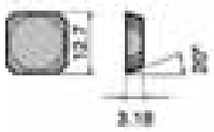


Fig. 1

Corner details **SEKN1203AG□N**

SEE/CN 1203AG□N

Fig. 3

SEE/CN 1203AGTNCR SEKN1203AG□N-T

Fig. 4 A-A section

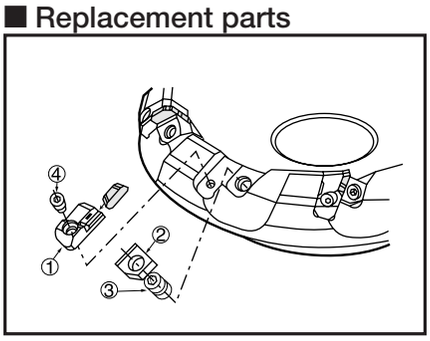
SEKR1203AGSR-MJ
(With 3-dimensional chipbreaker)

Fig. 5 Right hand (R) shown

Cat. No.	Accuracy	Honing	Grades												Figure
			CVD Coated		PVD Coated				Cermet			C. C.	Uncoated		
			T3030	T1015	AH120	AH140	AH330	GH330	NS740	NS530	NS540	GT540	TH10	UX30	
SECN1203AGFN	C	Without											●		2
SEEN1203AGTN	E	With		○	○	○		○	○		△			○	2
SEEN1203AGFN		Without											○		
SEEN1203AGTNCR		With	○		○	○	○								3
SEKN1203AGTN	K	With	●		○	●	●	●	●		△	●		○	1
SEKN1203AGFN		Without											●		
SEKN1203AGTNCR		With							○						
SEKN1203AGTN-T	K	With	○	●			○	○	○		△			○	4
SEKN1203AGFN-T		Without											●		
SEKR1203AGSR-MJ	K	With	●		○		●	●							5
SEMR1203AFTN-MJ	M	With							●	●	△				-

Note: • SE□N1230AG□N(conventional type) and SE□N1203AG□N1203AGN-T(strengthened type) inserts should not be used together with each other in the same cutter body.
• SE□N1230(42)AF□N type inserts should not be used in the TME4400 type body.
• SECN1230AGFN type is exclusively used for milling aluminium alloys and other non-ferrous light alloys. Its top flat face is ground to mirror-like finish.
• The strengthened type inserts have greater edge strength to prevent edge chipping.

■ Replacement parts



No.	Description	Parts Cat. No.		
		TME4463R/LBE	TME4403R/LI~4405R/LI TME4403R/LB~4405R/LB	TME4406R/LI~4412R/LI TME4406R/LB~4412R/LB
①	Locator	LE444R/L	LE444R/L	LE446R/L
②	Insert locking wedge	WT402R/L	WF444R/L	WF444R/L
③	Wedge fixing screw	DS-8	FDS-8S	FDS-8S
④	Locator fixing screw	M4 × 0.7 × 14	CM4 × 0.7 × 14	CM4 × 0.7 × 14
—	T-handle wrench	TP-4	TP-4	TP-4

■ Standard cutting conditions

Work materials	Insert grades	Roughing (Cutting depth: 1.5 ~ 4 mm)		Finishing (Cutting depth: 0.3 ~ 0.7 mm)	
		Vc (m/min)	ft (mm/t)	Vc (m/min)	ft (mm/t)
Mild steels (< 180 HB) St37 etc.	NS540 · NS740	150 ~ 250	0.10 ~ 0.20	150 ~ 250	0.10 ~ 0.25
	GH330 · AH120	150 ~ 200	0.10 ~ 0.25	150 ~ 250	0.10 ~ 0.28
	T3030	150 ~ 280	0.10 ~ 0.28	180 ~ 300	0.10 ~ 0.30
	AH330	150 ~ 300	0.10 ~ 0.25	150 ~ 350	0.10 ~ 0.25
	UX30 · AH140	100 ~ 180	0.10 ~ 0.28	130 ~ 200	0.10 ~ 0.30
Carbon steels Alloy steels (< 300 HB) Ck45, 42CrMo4 etc.	T3030	150 ~ 230	0.10 ~ 0.25	200 ~ 300	0.10 ~ 0.28
	NS540 · NS740	100 ~ 180	0.10 ~ 0.18	150 ~ 200	0.10 ~ 0.23
	GH330 · AH120	100 ~ 200	0.10 ~ 0.23	150 ~ 200	0.10 ~ 0.25
	AH330	150 ~ 250	0.10 ~ 0.25	200 ~ 320	0.10 ~ 0.25
	UX30	80 ~ 130	0.10 ~ 0.25	100 ~ 150	0.10 ~0.28
Stainless steels (< 250 HB)	AH140	80 ~ 180	0.15 ~ 0.25	100 ~ 200	0.15 ~ 0.28
	AH120	150 ~ 230	0.15 ~ 0.23	200 ~ 250	0.15 ~ 0.25
	UX30	150 ~ 180	0.15 ~ 0.23	180 ~ 200	0.15 ~ 0.25
Die steels (< 30 HRC) X96CrMoV12 etc.	AH120 · GH330	100 ~ 150	0.10 ~ 0.15	100 ~ 150	0.10 ~ 0.20
	AH330	100 ~ 200	0.10 ~ 0.15	100 ~ 250	0.10 ~ 0.20
	UX30	80 ~ 130	0.10 ~ 0.15	80 ~ 130	0.10 ~ 0.20
Cast irons Ductile cast irons	T1015	100 ~ 200	0.10 ~ 0.20	100 ~ 200	0.10 ~ 0.25
	TH10 · UX30	80 ~ 130	0.10 ~ 0.20	80 ~ 130	0.10 ~ 0.25
Aluminium alloys (Si: < 12%)	TH10	200 ~ 1000	0.10 ~ 0.20	350 ~ 1000	0.10 ~ 0.30
Copper alloys	TH10	200 ~ 500	0.10 ~ 0.20	200 ~ 500	0.10 ~ 0.25

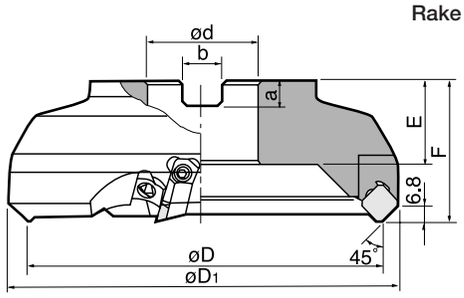
Note: Dry cutting is recommended for all materials except for aluminium alloys.
• No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
• Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TMD4400I High-performance and general purpose

Irregular pitch design for chatter-free milling

Rake angle: A.R. +15° R.R. -3°



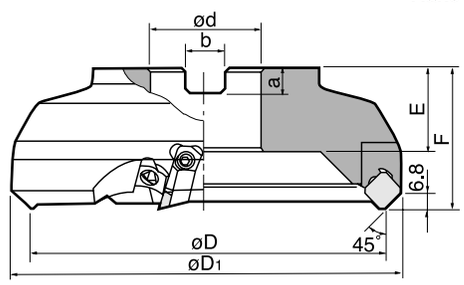
Max. cutting depth: 4 mm
Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
TMD4403R/LIE	●		4	80	96	27	26	50	7	12.4	1.4	P. 339Ⓑ
TMD4404R/LIE	●		5	100	115	32	32	63	8	14.4	2.5	
TMD4405R/LIE	●		6	125	139	40	32	63	9	16.4	3.6	
TMD4406R/LIE	●		8	160	173	40	29	63	9	16.4	5.6	P. 339Ⓒ
TMD4408R/LIE			10	200	213	60	38	63	14	25.7	8.7	
TMD4410R/LIE			12	250	263	60	38	63	14	25.7	16.3	
TMD4412R/LIE			14	315	327	60	38	63	14	25.7	25.2	P. 339Ⓓ

Note: Cutting edge height (F) is for when SEEN1203AG□N type inserts are used.

TMD4400B High Feed Milling at Low Cutting Force with Less Vibration (Close pitch design)

Rake angle: A.R. +15° R.R. -3°



Max. cutting depth: 4 mm
Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
TMD4403R/LBE	●		6	80	96	27	26	50	7	12.4	1.4	P. 339Ⓑ
TMD4404R/LBE	●		6	100	115	32	32	63	8	14.4	2.5	
TMD4405R/LBE	●		8	125	139	40	32	63	9	16.4	3.6	

Note: Cutting edge height (F) is for when SEEN1203AG□N type inserts are used.

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

■ Inserts

SDKN1203AE□N-12

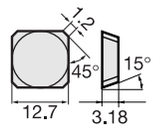


Fig. 1

SDKN1203AETN-16

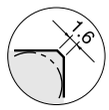


Fig. 2

SDKN1203AETN-CR

Fig. 3

SDKR1203AESR-MJ

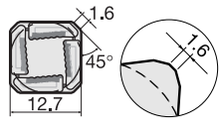


Fig. 4

SDKR1203AEPN-MS

Fig. 5

SDMR1203AETN-MJ

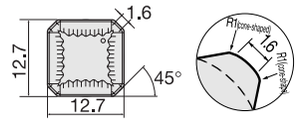
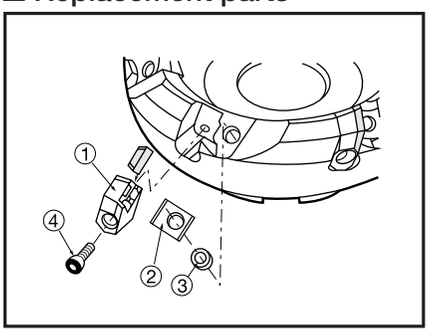


Fig. 6

Right hand (R) shown

Cat. No. (Inch)	ISO Cat. No. (Metric)	Accuracy	Honing	Grades													Fig.
				CVD Coated		PVD Coated				Cermet		C. C.	Uncoated				
				T3030	T1015	AH120	AH140	AH330	GH330	NS740	NS540	GT540	TH10	UX30	KS20	TX30	
SDKN42ZTN	**SDKN1203AETN-12**	K	With		●	○	●	●	●	●	△	●		●		○	1
SDKN42ZFN	**SDKN1203AEFN-12**	K	Without										●		●		1
SDKN42ZTNCR	**SDKN1203AETN-CR**	K	With							○	△						3
SDKN42ZTN16	**SDKN1203AETN-16**	K	With	●													2
SDKR42ZSR-MJ	**SDKR1203AESR-MJ**	K	With	●	○	○		●	●								4
SDKR42ZPN-MS	**SDKR1203AEPN-MS**	K	With				●										5
SDMR1203AETN-MJ	**SDMR1203AETN-MJ**	M	With							●	△						6

■ Replacement parts



No.	Description	Parts Cat. No.
①	Locator	LD440R/L
②	Insert locking wedge	WP440R/L
③	Wedge fixing screw	FDS-8S
④	Locator fixing screw	CM4×0.7×14
—	T-handle wrench	TP-4

■ Standard cutting conditions

Work materials	Insert grades	Roughing (Cutting depth: 1.5~4 mm)		Finishing (Cutting depth: 0.3~0.7 mm)	
		Vc (m/min)	ft (mm/t)	Vc (m/min)	ft (mm/t)
Mild steels (< HB180) St37 etc.	NS540 · NS740	150 ~ 250	0.1 ~ 0.20	150 ~ 250	0.1 ~ 0.25
	AH330	150 ~ 400	0.1 ~ 0.25	150 ~ 400	0.1 ~ 0.28
	GH330 · AH120	150 ~ 250	0.1 ~ 0.25	150 ~ 250	0.1 ~ 0.28
	T3030	150 ~ 280	0.1 ~ 0.28	180 ~ 300	0.1 ~ 0.3
	UX30 · AH140	100 ~ 180	0.1 ~ 0.28	130 ~ 200	0.1 ~ 0.3
Carbon steels Alloy steels (< HB300) Ck45, 42CrM04 etc.	T3030	150 ~ 230	0.1 ~ 0.25	180 ~ 280	0.1 ~ 0.28
	NS540 · NS740	100 ~ 180	0.1 ~ 0.18	150 ~ 200	0.1 ~ 0.23
	AH330	100 ~ 320	0.1 ~ 0.23	150 ~ 320	0.1 ~ 0.25
	GH330 · AH120	100 ~ 200	0.1 ~ 0.23	150 ~ 200	0.1 ~ 0.25
	UX30	80 ~ 130	0.1 ~ 0.25	100 ~ 150	0.1 ~ 0.28
Stainless steels (< 250 HB)	AH140	80 ~ 180	0.15 ~ 0.25	100 ~ 200	0.15 ~ 0.28
	UX30	150 ~ 180	0.15 ~ 0.23	180 ~ 200	0.15 ~ 0.25
Die steels (< HRC30) X96CrMoV12 etc.	T3030 · GH330	100 ~ 150	0.1 ~ 0.15	100 ~ 150	0.1 ~ 0.2
	AH330	100 ~ 250	0.1 ~ 0.15	100 ~ 250	0.1 ~ 0.2
	UX30	80 ~ 130	0.1 ~ 0.15	80 ~ 130	0.1 ~ 0.2
Cast irons Ductile cast irons	T1015	100 ~ 200	0.1 ~ 0.2	100 ~ 200	0.1 ~ 0.25
	TH10 · UX30	80 ~ 130	0.1 ~ 0.2	80 ~ 130	0.1 ~ 0.25
Aluminium alloys (Si: < 12%)	TH10	200 ~ 1000	0.05 ~ 0.2	350 ~ 1000	0.1 ~ 0.3
Copper alloys	TH10	200 ~ 500	0.1 ~ 0.2	200 ~ 500	0.1 ~ 0.25

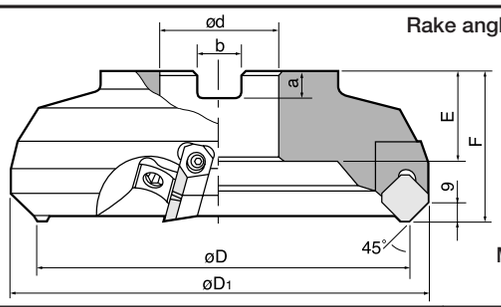
Note: Dry cutting is recommended for all materials expect for aluminium alloys.

- No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
- Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TMD5400I

For face milling of steels and difficult-to-cut materials
Irregular pitch design for chatter-free milling



Rake angle: A.R. +15° R.R. -3°

Max. cutting depth: 6 mm

Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
TMD5404R/LIE	●		4	100	118	32	32	63	8	14.4	2.5	P. 339Ⓑ
TMD5405R/LIE	●		6	125	142	40	32	63	9	16.4	3.7	
TMD5406R/LIE	●		6	160	176	40	29	63	9	16.4	5.8	P. 339Ⓒ
TMD5408R/LIE	●		8	200	216	60	38	63	14	25.7	9.0	
TMD5410R/LIE	●		10	250	265	60	38	63	14	25.7	16.3	
TMD5412R/LIE	●		12	315	330	60	38	63	14	25.7	25.2	P. 339Ⓓ

■ Inserts

SDKN1504AE□N

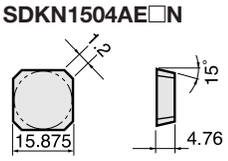


Fig. 1

Corner details
SDKN1504AETN-16

Fig. 2

SDKR1504AESR-MJ
(With 3-dimensional chipbreaker)

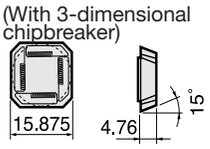
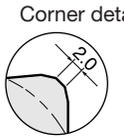


Fig. 3

Corner details



Right hand (R) shown

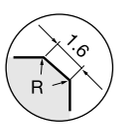
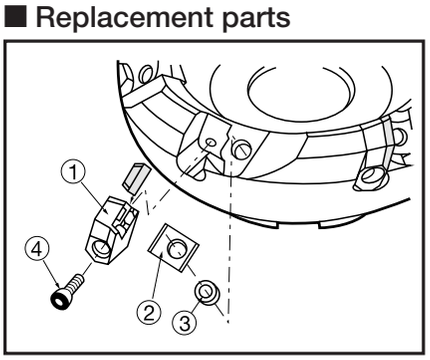


Fig. 4

Cat. No. (Inch system)	ISO Cat. No. (Metric system)	Accuracy	Honing	Grades: CVD Coated T3030	T1015	PVD Coated AH120	AH140	AH330	GH330	Cermet NS740	NS540	N308	Uncoated TH10	UX30	TX25	Figure
SDKN53ZTN	SDKN1504AETN	K	With		●	○	●	●	●	○	△			●	○	1
SDKN53ZTNCR	SDKN1504AETNCR		With							○						4
SDKN53ZTN16	SDKN1504AETN-16		With	●												2
SDKN53ZFN	SDKN1504AEFN		Without										●			1
SDKR53ZSR-MJ	SDKR1504AESR-MJ	K	With	●				●	○							3

■ Replacement parts



No.	Description	Parts Cat. No.
①	Locator	LD540R/L
②	Insert locking wedge	WF500R/L
③	Wedge fixing screw	FDS-8S
④	Locator fixing screw	CM4×0.7×20
—	T-handle wrench	TP-4

■ Standard cutting conditions

Work materials	Insert grades	Roughing (Cutting depth: 1.5~6 mm) Vc (m/min)	ft (mm/t)	Finishing (Cutting depth: 0.3~0.7 mm) Vc (m/min)	ft (mm/t)
Mild steels (< 180 HB)	NS540 · NS740	150 ~ 250	0.1 ~ 0.25	150 ~ 250	0.1 ~ 0.3
	GH330 · AH120	150 ~ 250	0.1 ~ 0.35	150 ~ 250	0.1 ~ 0.35
	T3030	150 ~ 280	0.1 ~ 0.35	180 ~ 300	0.1 ~ 0.35
	UX30	100 ~ 180	0.1 ~ 0.35	130 ~ 200	0.1 ~ 0.35
Carbon steels Alloy steels (< 300 HB)	T3030	150 ~ 230	0.1 ~ 0.35	180 ~ 280	0.1 ~ 0.35
	NS540 · NS740	100 ~ 180	0.1 ~ 0.25	150 ~ 200	0.1 ~ 0.3
	GH330 · AH120	100 ~ 200	0.1 ~ 0.3	150 ~ 200	0.1 ~ 0.35
	UX30	80 ~ 130	0.1 ~ 0.3	100 ~ 150	0.1 ~ 0.35
Stainless steels (< 250 HB)	AH140	80 ~ 180	0.15 ~ 0.3	100 ~ 200	0.15 ~ 0.33
	UX30	150 ~ 180	0.15 ~ 0.3	180 ~ 200	0.15 ~ 0.3
Die steels (< 30 HRC)	T3030 · GH330	100 ~ 150	0.1 ~ 0.2	100 ~ 150	0.1 ~ 0.2
	UX30	80 ~ 130	0.1 ~ 0.2	80 ~ 130	0.1 ~ 0.2
Cast irons	T1015	100 ~ 200	0.1 ~ 0.3	100 ~ 200	0.1 ~ 0.3
Ductile cast irons	TH10 · UX30	80 ~ 130	0.1 ~ 0.3	80 ~ 130	0.1 ~ 0.3
Aluminium alloys (Si: < 12%)	TH10	200 ~ 1000	0.05 ~ 0.3	350 ~ 1000	0.1 ~ 0.3
Copper alloys	TH10	200 ~ 500	0.1 ~ 0.2	200 ~ 500	0.1 ~ 0.25

Note: Dry cutting is recommended for all materials except for aluminium alloys.

- No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
- Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

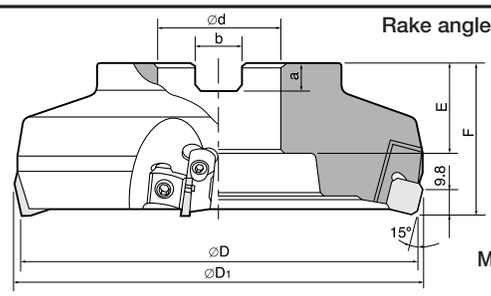
Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

"Ceramic Milling"

TGP4100IA

For face milling of steels and cast irons

Irregular pitch design for chatter-free milling

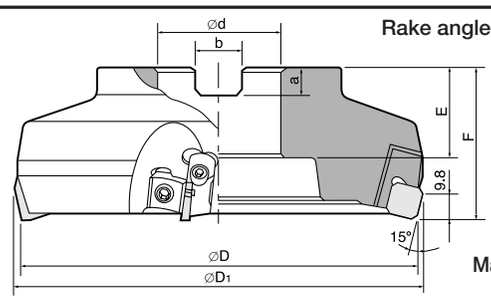


Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
TGP4103R/LIAE			5	80	89	27	22	50	7	12.4	1.3	P. 339Ⓐ
TGP4104R/LIAE			6	100	108	32	25	63	8	14.4	2.4	
TGP4105R/LIAE			8	125	132	40	32	63	9	16.4	3.6	P. 339Ⓑ
TGP4106R/LIAE			8	160	167	40	29	63	9	16.4	5.9	P. 339Ⓒ
TGP4108R/LIAE			10	200	206	60	38	63	14	25.7	8.7	
TGP4110R/LIAE			12	250	256	60	38	63	14	25.7	15.2	
TGP4112R/LIAE			14	315	321	60	38	63	14	25.7	24.1	P. 339Ⓓ

TGP4100BA

For high-feed milling of cast irons

Close pitch design for high-feed milling of cast irons



Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
TGP4104R/LBAE	●		8	100	108	32	25	63	8	14.4	2.4	P. 339Ⓐ
TGP4105R/LBAE	●		10	125	132	40	32	63	9	16.4	3.6	P. 339Ⓑ
TGP4106R/LBAE	●		12	160	167	40	29	63	9	16.4	5.8	P. 339Ⓒ
TGP4108R/LBAE			16	200	206	60	38	63	14	25.7	8.6	
TGP4110R/LBAE			20	250	256	60	38	63	14	25.7	15.1	
TGP4112R/LBAE			24	315	321	60	38	63	14	25.7	24.0	P. 339Ⓓ
TGP4114R/LBAE			28	355	361	60	38	80	14	25.7	37.7	
TGP4116R/LBAE			32	400	406	60	38	80	14	25.7	49.1	

■ Inserts (for TGP4100IA / TGP4100BA)

SP□N1203ED□R/L

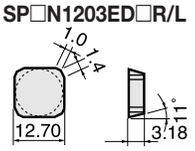


Fig. 1

SPGN120312TN
Corner details

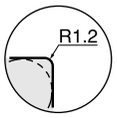
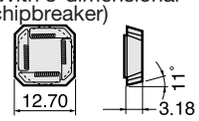


Fig. 2

SPKR1203EDSR-MJ
(With 3-dimensional chipbreaker)



Corner details

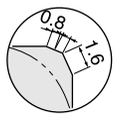


Fig. 3

Wiper inserts
One-corner type

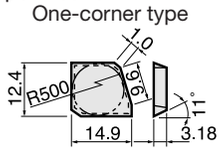


Fig. 4

Two-corner type

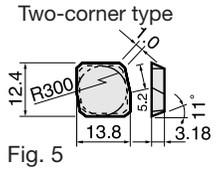
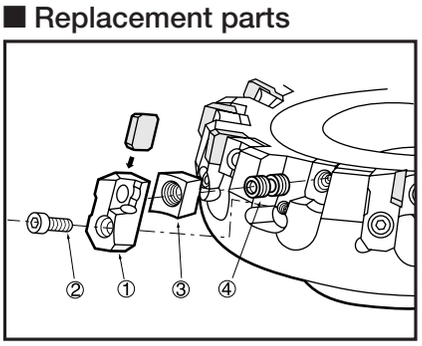


Fig. 5
Right hand (R) shown

Type		Cat. No. (Inch)	ISO Cat. No. (Metric)	Accuracy	Honing	Grades: CVD Coated T3030	CVD Coated T1015	PVD Coated GH330	PVD Coated AH120	PVD Coated AH140	PVD Coated AH330	Cermet NS740	Cermet NS540	Cermet N308	Uncoated TH10	Uncoated UX30	Ceramics FX105	Figure
Normal insert		SPKN42STR	SPKN1203EDTR	K	With	●	●	○	●	●	●	●	△	○		●	●	1
		SPKN42STL	SPKN1203EDTL		With							○	△			●		
		SPKN42SFR	SPKN1203EDFR		Without										●			
		SPKN42SFL	SPKN1203EDFL		Without										○			
		SPKR42SSR-MJ	SPKR1203EDSR-MJ	K	With	●	●	○			●							3
		SPGN120312TN	SPGN120312TN	G	With												●	2
Wiper	two-corner	WPAN42SFR	SPAX1203EDFR-W	A	Without										●			5
	one-corner	WPAN42SFRS	SPAX1203EDFR-WS		Without										○			4

■ Replacement parts



No.	Description	Parts Cat. No. TGP4103R/LIA·TGP4100BA	Parts Cat. No. TGP4104R/LIA~4112R/LIA
①	Locator	LP413R/L	LP413R/L
②	Locator fixing screw	CM4×0.7×14	CM4×0.7×14
③	Insert locking wedge	WF310R/L	WP440R/L
④	Wedge fixing screw	FDS-8S	FDS-8S
—	T-handle wrench	TP-4	TP-4

■ Standard cutting conditions

Work materials	Insert grades	Roughing (Cutting depth: 1.5~6 mm) Vc (m/min)	Roughing ft (mm/t)	Finishing (Cutting depth: 0.3~0.7 mm) Vc (m/min)	Finishing ft (mm/t)
Mild steels (< 180 HB)	NS540 · NS740	150 ~ 250	0.1 ~ 0.18	150 ~ 250	0.1 ~ 0.23
	GH330	150 ~ 250	0.1 ~ 0.23	150 ~ 250	0.1 ~ 0.25
	T3030	150 ~ 280	0.1 ~ 0.25	180 ~ 300	0.1 ~ 0.28
	UX30	100 ~ 180	0.1 ~ 0.25	130 ~ 200	0.1 ~ 0.28
Carbon steels Alloy steels (< 300 HB)	T3030	150 ~ 230	0.1 ~ 0.23	180 ~ 280	0.1 ~ 0.25
	NS540 · NS740	100 ~ 180	0.1 ~ 0.18	150 ~ 200	0.1 ~ 0.23
	GH330	100 ~ 200	0.1 ~ 0.2	150 ~ 200	0.1 ~ 0.23
	UX30	80 ~ 130	0.1 ~ 0.23	100 ~ 150	0.1 ~ 0.25
Carbon steels Alloy steels (< 300 HB)	T3030 · GH330	150 ~ 230	0.1 ~ 0.23	180 ~ 280	0.1 ~ 0.25
	NS540 · NS740	100 ~ 180	0.1 ~ 0.18	150 ~ 200	0.1 ~ 0.23
	UX30	80 ~ 130	0.1 ~ 0.23	100 ~ 150	0.1 ~ 0.25
Stainless steels (< 250 HB)	AH140	150 ~ 230	0.15 ~ 0.2	200 ~ 250	0.15 ~ 0.23
	UX30	150 ~ 180	0.15 ~ 0.2	180 ~ 200	0.15 ~ 0.23
Die steels (< 30 HRC)	T3030	100 ~ 150	0.1 ~ 0.15	100 ~ 150	0.1 ~ 0.2
	UX30	80 ~ 130	0.1 ~ 0.15	80 ~ 130	0.1 ~ 0.2
Cast irons	FX105	200 ~ 500	0.1 ~ 0.35	200 ~ 600	0.1 ~ 0.4
Cast irons Ductile cast irons	T1015	100 ~ 200	0.1 ~ 0.2	100 ~ 200	0.1 ~ 0.23
	TH10 · UX30	80 ~ 130	0.1 ~ 0.2	80 ~ 130	0.1 ~ 0.23

Note: Dry cutting is recommended for all materials.

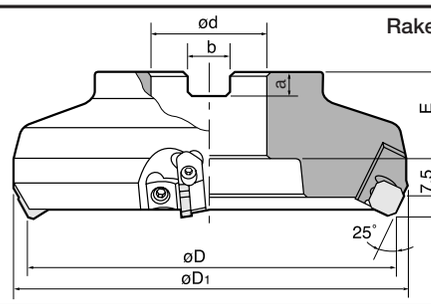
- No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
- Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

"Ceramic Milling"

TGN4200-A

Shock resistant and economical double-negative geometry
(Especially for cast iron)



Rake angle: A.R. -5° R.R. -5°

Max. cutting depth: 6 mm
Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
TGN4203R/L-AE	●		5	80	92	27	22	50	7	12.4	1.5	P. 339Ⓐ
TGN4204R/L-AE	●		6	100	112	32	32	63	8	14.4	2.4	P. 339Ⓑ
TGN4205R/L-AE	●		8	125	136	40	32	63	9	16.4	3.9	
TGN4206R/L-AE	●		10	160	171	40	29	63	9	16.4	6.1	P. 339Ⓒ
TGN4208R/L-AE			12	200	211	60	38	63	14	25.7	9.0	
TGN4210R/L-AE			14	250	261	60	38	63	14	25.7	15.6	
TGN4212R/L-AE			14	315	326	60	38	63	14	25.7	24.7	P. 339Ⓓ

■ Inserts

SNKN1204ZNTN

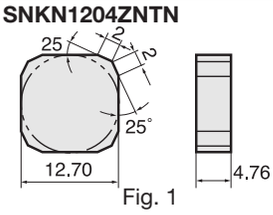


Fig. 1

SNMN1204□□TN
Corner details

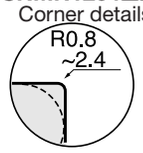
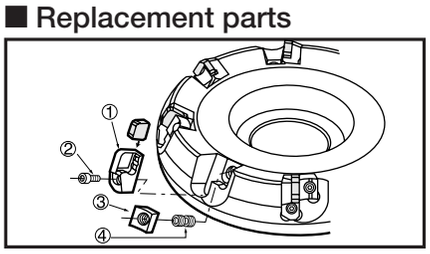


Fig. 2

Cat. No. (Inch)	ISO Cat. No. (Metric)	Accuracy	Honing	Grades: CVD Coated T3030	T1015	Cermet NS740	NS540	Uncoated TH10	UX30	TX20	TX25	Ceramics FX105	Figure
SNKN43ZTN	SNKN1204ZNTN	K	With	○	○	○	△		○			●	1
SNMN120408TN	SNMN120408TN	M	With						○			●	2
SNMN120412TN	SNMN120412TN											●	
SNMN120416TN	SNMN120416TN											●	
SNMN120420TN	SNMN120420TN											●	
SNMN120424TN	SNMN120424TN											●	

■ Replacement parts



No.	Description	Parts Cat. No.
①	Locator	LN423R/L
②	Locator fixing screw	CM4×0.7×14
③	Insert locking wedge	WP440R/L
④	Wedge fixing screw	FDS-8S
—	T-handle wrench	TP-4

■ Standard cutting conditions

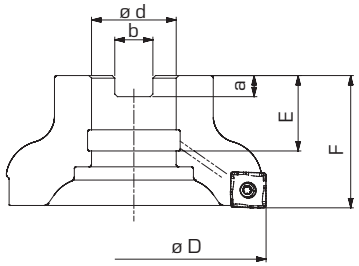
Work materials	Insert grades	Roughing (Cutting depth ap: 1.5~4 mm) Vc (m/min)	ft (mm/t)	Finishing (Cutting depth ap: 0.3~0.7 mm) Vc (m/min)	ft (mm/t)
Cast irons Ductile cast irons	TH10 · UX30	80 ~ 130	0.1 ~ 0.25	80 ~ 130	0.1 ~ 0.3
	T1015	100 ~ 200	0.1 ~ 0.2	100 ~ 200	0.1 ~ 0.25
	FX105	200 ~ 500	0.1 ~ 0.35	200 ~ 600	0.1 ~ 0.4
Mild steels Unhardened steels (< 180 HB)	T3030	150 ~ 230	0.1 ~ 0.3	180 ~ 250	0.1 ~ 0.3
	NS540 · NS740	100 ~ 200	0.1 ~ 0.2	150 ~ 250	0.1 ~ 0.25
	UX30	100 ~ 180	0.1 ~ 0.3	130 ~ 200	0.1 ~ 0.3
Carbon steels Alloy steels (< 300 HB)	T3030	130 ~ 200	0.1 ~ 0.3	150 ~ 250	0.1 ~ 0.3
	NS540 · NS740	100 ~ 180	0.1 ~ 0.2	150 ~ 200	0.1 ~ 0.25
	UX30	80 ~ 130	0.1 ~ 0.3	100 ~ 150	0.1 ~ 0.3

- No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
- Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TPW13

90° face milling cutter



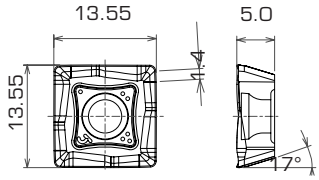
Rake angle: A.R. 11.5°
R.R. -13° ~ -10.5°

	Item code	Stock	No. of inserts	Dimensions (mm) ø D	ø d	F	E	a	b	Air hole	Centre bolt Item code	Fig.	Mounting details
Standard	TPW13R050M22.0E04	●	4	**50**	22	40	20	6.3	10.4	with	CM10X30H	1	P. 339 Ⓐ
	TPW13R063M22.0E05	●	5	**63**									
	TPW13R080M27.0E06	●	6	**80**	27	50	22	7	12.4	with	CM12X30H		
	TPW13R100M32.0E07	●	7	**100**	32		28.5	8	14.4	with	TMBA-M16H	2	P. 339 Ⓑ
	TPW13R125M40.0E08	●	8	**125**	40	63	32	9	16.4	with	TMBA-M20H		
Close	TPW13R050M22.0E05	●	5	**50**	22	40	20	6.3	10.4	with	CM10X30H	1	P. 339 Ⓐ
	TPW13R063M22.0E06	●	6	**63**									
	TPW13R080M27.0E08	●	8	**80**	27	50	22	7	12.4	with	CM12X30H		
	TPW13R100M32.0E10	●	10	**100**	32		28.5	8	14.4	with	TMBA-M16H	2	P. 339 Ⓑ
	TPW13R125M40.0E12	●	12	**125**	40	63	32	9	16.4	with	TMBA-M20H		

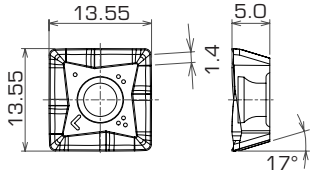
Specification: inserts for TPW milling cutter (90°)

● Standard stock in Europe

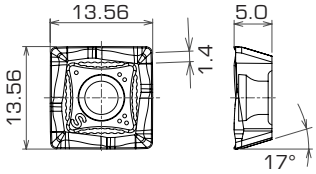
MJ



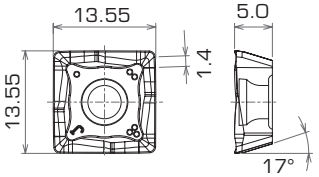
ML



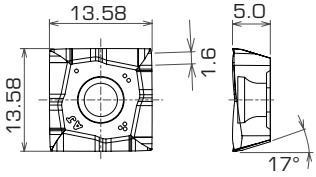
MS



MJ (G)



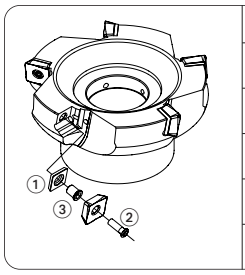
AJ (G)



Item code	Grades PVD coated AH120	PVD coated AH140	CVD coated T3030	CVD coated T1015	Cermet NS740	Carbide KS05F	Accuracy	Honing	Wiping flat	Corner radius	Max. ap
SWMT1304PDPR-MJ	●	●	●	●	●		M	with	1.4	0.8	10.00
SWMT1304PDER-ML	●										
SWMT1304PDPR-MS		●									
SWGT1304PDPR-MJ	●				●		G				
SWGT1304PDFR-AJ						●		without	1.6	-	

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

Replacement parts



Description	Item code
① Shim	FSSP1102
② Clamping screw for insert	CSPB-3.5
③ Clamping screw for shim	DTS5-3.5SS
Wrench	P-3.5
Wrench	IP-15D

Centre bolt

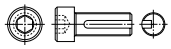


Fig. 1

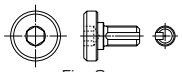


Fig. 2

Cutting conditions TPW (90°)

Roughing (Cutting depth: ap > 1.0 mm)

Work materals	Grade	Choice*	Cutting speed Vc (m/min)	Feed per tooth ft (mm/t)			
				MJ	ML	MS	AJ
Mild steel Low alloyed steel St37, etc. (< 180HB)	AH120	I	100 ~ 270	0.05 ~ 0.25	0.05 ~ 0.2	-	-
	T3030	II	150 ~ 300	0.05 ~ 0.25	-	-	-
	AH140	III	80 ~ 180	0.05 ~ 0.25	-	0.05 ~ 0.2	-
	NS740	IV	100 ~ 300	0.05 ~ 0.15	-	-	-
Carbon steel Alloy steel Ck45, 42CrMo4, etc. (< 300HB)	AH120	I	100 ~ 230	0.05 ~ 0.2	0.05 ~ 0.15	-	-
	T3030	II	150 ~ 280	0.05 ~ 0.2	-	-	-
	AH140	III	80 ~ 150	0.05 ~ 0.2	-	-	-
	NS740	IV	100 ~ 230	0.05 ~ 0.15	-	-	-
Die & Prehardened steel X96CrMoV12, etc. (< 30HRC)	AH120	I	100 ~ 180	0.05 ~ 0.15	0.05 ~ 0.12	-	-
	T3030	II	100 ~ 180	0.05 ~ 0.15	-	-	-
Stainless steel (< 250HB)	AH140	I	80 ~ 200	0.05 ~ 0.2	-	0.05 ~ 0.18	-
	AH120	II	150 ~ 250	0.05 ~ 0.2	0.05 ~ 0.15	-	-
Grey cast iron Ductile cast iron	T1015	I	100 ~ 250	0.05 ~ 0.2	-	-	-
	AH120	III	100 ~ 250	0.05 ~ 0.2	0.05 ~ 0.15	-	-
Aluminium alloys (Si: < 12 %)	KS05F	I	300 ~ 1000	-	-	-	0.05 ~ 0.2
Aluminium alloys (Si: > 13 %)	KS05F	I	80 ~ 300	-	-	-	0.05 ~ 0.2
Copper alloys	KS05F	I	200 ~ 500	-	-	-	0.05 ~ 0.2

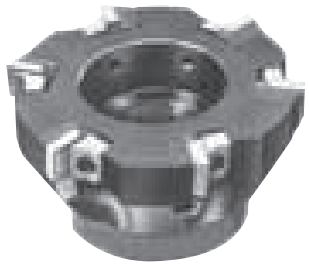
Finishing (Cutting depth: ap < 1.0 mm)

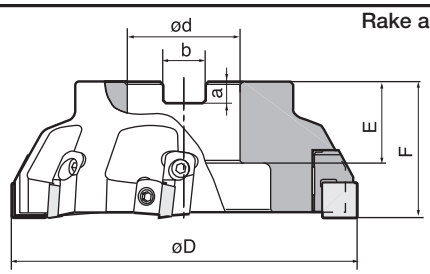
Work materals	Grade	Choice*	Cutting speed Vc (m/min)	Feed per tooth ft (mm/t)			
				MJ	ML	MS	AJ
Mild steel Low alloyed steel St37, etc. (< 180HB)	AH120	I	100 ~ 270	0.05 ~ 0.2	0.05 ~ 0.18	-	-
	T3030	II	150 ~ 300	0.05 ~ 0.2	-	-	-
	AH140	III	80 ~ 180	0.05 ~ 0.2	-	0.05 ~ 0.18	-
	NS740	IV	100 ~ 300	0.05 ~ 0.12	-	-	-
Carbon steel Alloy steel Ck45, 42CrMo4, etc. (< 300HB)	AH120	I	100 ~ 230	0.05 ~ 0.18	0.05 ~ 0.12	-	-
	T3030	II	150 ~ 280	0.05 ~ 0.18	-	-	-
	AH140	III	80 ~ 150	0.05 ~ 0.18	-	-	-
	NS740	IV	100 ~ 230	0.05 ~ 0.12	-	-	-
Die & Prehardened steel X96CrMoV12, etc. (< 30HRC)	AH120	I	100 ~ 180	0.05 ~ 0.12	0.05 ~ 0.1	-	-
	T3030	II	100 ~ 180	0.05 ~ 0.12	-	-	-
Stainless steel (< 250HB)	AH140	I	80 ~ 200	0.05 ~ 0.18	-	0.05 ~ 0.15	-
	AH120	II	150 ~ 250	0.05 ~ 0.18	0.05 ~ 0.12	-	-
Grey cast iron Ductile cast iron	T1015	I	100 ~ 250	0.05 ~ 0.18	-	-	-
	AH120	III	100 ~ 250	0.05 ~ 0.18	0.05 ~ 0.12	-	-
Aluminium alloys (Si: < 12 %)	KS05F	I	300 ~ 1000	-	-	-	0.05 ~ 0.2
Aluminium alloys (Si: > 13 %)	KS05F	I	80 ~ 300	-	-	-	0.05 ~ 0.2
Copper alloys	KS05F	I	200 ~ 500	-	-	-	0.05 ~ 0.2

Choice*
I First
II Wear-resistance
III Toughness
IV Surface quality

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TPP16 Highly reliable square shoulder mills



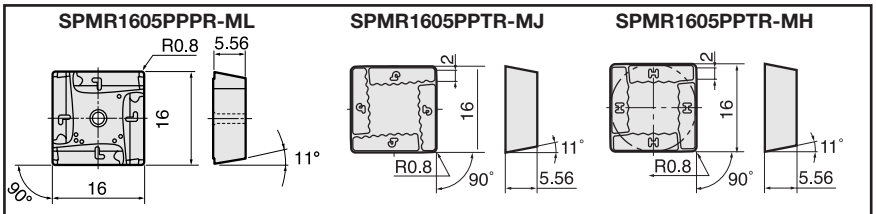


Rake angle: A.R. +6° R.R. -8°

Max. cutting depth: 12 mm
Right hand (R) shown

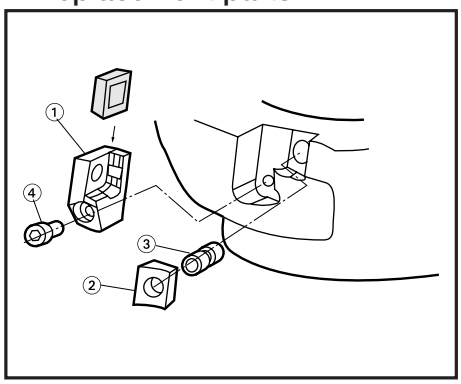
Cat. No.	Stock	No. of inserts	Dimensions (mm) øD	ød	E	F	a	b	Weight (kg)	Mounting details
TPP16080RIE	●	4	80	27	26	50	7	12.4	1.0	P. 339Ⓑ
TPP16100RIE	●	5	100	32	32	63	8	14.4	1.8	
TPP16125RIE	●	6	125	40	32	63	9	16.4	2.8	
TPP16160RIE	●	8	160	40	29	63	9	16.4	4.6	
TPP16200RIE	●	10	200	60	38	63	14	25.7	6.9	P. 339Ⓒ
TPP16250RIE	●	12	250	60	38	63	14	25.7	13.0	
TPP16315RIE	●	14	315	60	38	63	14	25.7	22.2	P. 339Ⓓ

■ Inserts



Cat. No.	Accuracy	Honing	Grades PVD Coated GH330	PVD Coated GH340	CVD Coated T3030	CVD Coated T1015	Uncoated UX30
SPMR1605PPPR-ML	M	with	●	●			
SPMR1605PPTR-MJ			●		○	●	○
SPMR1605PPTR-MH			●		●	●	○

■ Replacement parts



No.	Description	Parts Cat. No.
①	Locator	LPP16R/L
②	Insert locking wedge	WPP16R/L
③	Wedge fixing screw	FDS-8S(FDS-8SS)
④	Locator fixing screw	CM5×0.8×12
—	T-handle wrench	TP-4

■ Standard cutting conditions

• For ML-chipbreaker inserts (Sharpness-priority)

Work materials	Insert grades	Roughing Cutting speed Vc (m/min)	Roughing Feed per tooth ft (mm/t)	Finishing Cutting speed Vc (m/min)	Finishing Feed per tooth ft (mm/t)
Mild steels (< 180 HB)	GH340	100 ~ 200	0.05 ~ 0.17	100 ~ 230	0.05 ~ 0.20
	GH330	130 ~ 230	0.05 ~ 0.17	150 ~ 250	0.05 ~ 0.20
	AH330	130 ~ 370	0.05 ~ 0.17	150 ~ 400	0.05 ~ 0.20
Stainless steels (< 250 HB)	GH340	100 ~ 170	0.05 ~ 0.12	100 ~ 200	0.05 ~ 0.15
	GH330	150 ~ 200	0.05 ~ 0.12	200 ~ 250	0.05 ~ 0.15
Carbon steels Alloy steels (< 250 HB)	GH340	100 ~ 170	0.05 ~ 0.12	100 ~ 200	0.05 ~ 0.15
	GH330	100 ~ 180	0.05 ~ 0.12	150 ~ 200	0.05 ~ 0.15
	AH330	100 ~ 300	0.05 ~ 0.12	150 ~ 320	0.05 ~ 0.15

• For MJ-chipbreaker inserts (General purpose)

Work materials	Insert grades	Roughing (Cutting depth ap > 1.5 mm) Vc (m/min)	Roughing ft (mm/t)	Finishing (Cutting depth ap 0.3 ~ 0.7 mm) Vc (m/min)	Finishing ft (mm/t)
Mild steels (< 180 HB)	GH330	100 ~ 230	0.10 ~ 0.25	130 ~ 250	0.10 ~ 0.30
	T3030	130 ~ 230	0.10 ~ 0.28	180 ~ 300	0.10 ~ 0.30
	UX30	100 ~ 180	0.10 ~ 0.25	130 ~ 200	0.10 ~ 0.30
Carbon steels Alloy steels (< 300 HB)	GH330	100 ~ 180	0.10 ~ 0.20	130 ~ 200	0.10 ~ 0.28
	T3030	130 ~ 180	0.10 ~ 0.25	180 ~ 280	0.10 ~ 0.28
	UX30	80 ~ 130	0.10 ~ 0.20	100 ~ 150	0.10 ~ 0.28
Die steels (< 30 HRC)	GH330	100 ~ 150	0.10 ~ 0.18	100 ~ 150	0.10 ~ 0.20
	T3030	100 ~ 150	0.10 ~ 0.18	100 ~ 150	0.10 ~ 0.20
	UX30	80 ~ 130	0.10 ~ 0.18	80 ~ 130	0.10 ~ 0.20
Cast irons Ductile cast irons	T1015	100 ~ 200	0.10 ~ 0.20	100 ~ 200	0.10 ~ 0.25
	UX30	80 ~ 130	0.10 ~ 0.20	80 ~ 130	0.10 ~ 0.25
Stainless steels (< 250 HB)	GH330	150 ~ 200	0.15 ~ 0.23	200 ~ 250	0.15 ~ 0.25
	T3030	150 ~ 200	0.15 ~ 0.23	200 ~ 250	0.15 ~ 0.25

• No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
• Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

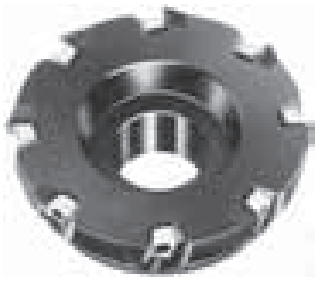
• For MH-chipbreaker inserts (Toughness-priority)

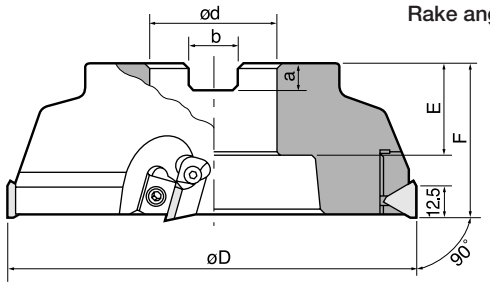
Work materials	Insert grades	Roughing (Cutting depth ap > 1.5 mm) Vc (m/min)	Roughing ft (mm/t)	Finishing (Cutting depth ap 0.3 ~ 0.7 mm) Vc (m/min)	Finishing ft (mm/t)
Mild steels (< 180 HB)	GH330	100 ~ 230	0.15 ~ 0.30	130 ~ 250	0.15 ~ 0.35
	T3030	130 ~ 230	0.15 ~ 0.33	180 ~ 300	0.15 ~ 0.38
	UX30	100 ~ 180	0.15 ~ 0.30	130 ~ 200	0.15 ~ 0.35
Carbon steels Alloy steels (< 300 HB)	GH330	100 ~ 180	0.15 ~ 0.24	130 ~ 200	0.15 ~ 0.35
	T3030	130 ~ 180	0.15 ~ 0.30	180 ~ 280	0.15 ~ 0.35
	UX30	80 ~ 130	0.15 ~ 0.24	100 ~ 150	0.15 ~ 0.35
Die steels (< 30 HRC)	GH330	100 ~ 150	0.15 ~ 0.22	100 ~ 150	0.15 ~ 0.28
	T3030	100 ~ 150	0.15 ~ 0.22	100 ~ 150	0.15 ~ 0.28
	UX30	80 ~ 130	0.15 ~ 0.22	80 ~ 130	0.15 ~ 0.28
Cast irons Ductile cast irons	T1015	100 ~ 200	0.15 ~ 0.24	100 ~ 200	0.15 ~ 0.30
	UX30	80 ~ 130	0.15 ~ 0.24	80 ~ 130	0.15 ~ 0.30

Notes:
• As a rule, dry cutting (including air-blowing) is generally recommended.
• If a cutting fluid is used, the cutting speed should be set to the lower side of the values shown in the above table.
• When being used in square shoulder milling, climb milling is recommended.
• In square shoulder milling of stainless steel, when chips tend to be recut during cutting, change to up-milling mode.

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TSE3000IA Square shoulder milling of steels, stainless steels and aluminium alloys (Irregular pitch design)





Rake angle: A.R. +17° R.R. +5°

Max. cutting depth: 8 mm
Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	ød	E	F	a	b	Weight (kg)	Mounting details
TSE3050R/LE	●		3	50	22	20	40	6.3	10.4	0.3	P. 339Ⓐ
TSE3063R/LE	●		3	63	22	20	40	6.3	10.4	0.5	
TSE3003R/LIAE	●		4	80	27	26	50	7	12.4	1.0	
TSE3004R/LIAE	●		6	100	32	32	63	8	14.4	2.0	
TSE3005R/LIAE			6	125	40	32	63	9	16.4	3.1	P. 339Ⓑ
TSE3006R/LIAE			8	160	40	29	63	9	16.4	5.2	P. 339Ⓒ

■ Inserts (TSE3000IA)

TE□N1603PE□R/L

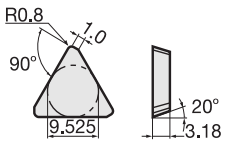


Fig. 1

TECN1603PEFR-D

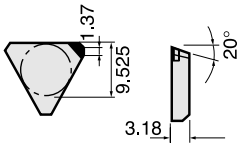


Fig. 2

TEKR1603PEPR-MS

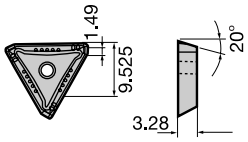
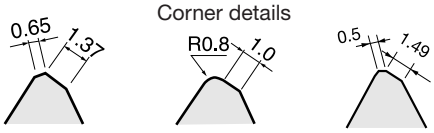


Fig. 3

Corner details



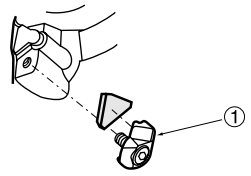
A B C

Right hand (R) shown

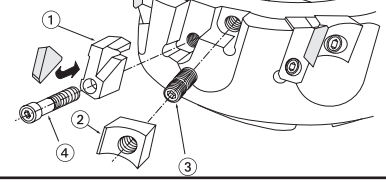
Cat. No. (Inch)	ISO Cat. No. (Metric)	Corner details	Accuracy	Honing	Grades: CVD Coated T3030	CVD Coated T1015	PVD Coated AH140	PVD Coated GH330	PVD Coated AH330	Cermet NS740	Cermet NS540	Uncoated TH10	Uncoated UX30	PCD DX140	PCD DX160	Fig.
TECN32ZFR	TECN1603PEFR	A	C	Without								○	○			1
TECN32ZFR-DIA	TECN1603PEFR-D													○	○	2
TEEN32ZTR	TEEN1603PETR	B	E	With	●	●	●	●	●	●	△		●			1
TEEN32ZFR	TEEN1603PEFR	A		Without							●					
TEKR1603PEPR-MS	TEKR1603PEPR-MS	C	K	With			●									3

■ Replacement parts (Used for TSE3000IA · TSE4000IA)

TSE3050 ~ 0063R/L



TSE3003 ~ 3006R/LIA
TSE4003 ~ 4012R/LIA



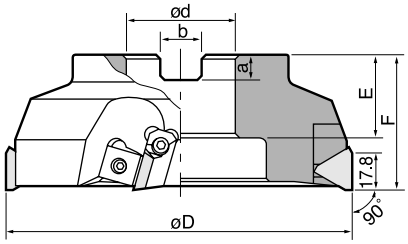
No.	Description	Parts Cat. No. TSE3050R/L~3063R/L
①	Clamp-set	CSL-4
–	Wrench	P-3

No.	Description	Parts Cat. No. TSE3003R/LIA~3006R/LIA	TSE4003R/LIA	TSE4004R/LIA	TSE4005R/LIA~4012R/LIA
①	Locator	LE303R/L	LE403R/L	LE403R/L	LE405R/L
②	Insert locking wedge	WF330R/L	WF330N	WF330N	WF500R
③	Wedge fixing screw	FDS-8S	FDS-8S	FDS-8S	FDS-8S
④	Locator fixing screw	CM4×0.7×12	CM4×0.7×14	CM4×0.7×14	CM4×0.7×14
—	T-handle wrench	TP-4	TP-4	TP-4	TP-4

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TSE4000IA Square shoulder milling of steels, stainless steels and aluminium alloys (Irregular pitch design)

Rake angle: A.R. +17° R.R. +5°



Max. cutting depth: 10 mm
Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	ød	E	F	a	b	Weight (kg)	Mounting details
TSE4003R/LIAE	●		4	80	27	26	50	7	12.4	1.0	P. 339Ⓐ
TSE4004R/LIAE	●		6	100	32	32	63	8	14.4	1.9	
TSE4005R/LIAE	●		6	125	40	32	63	9	16.4	2.9	P. 339Ⓑ
TSE4006R/LIAE	●		8	160	40	29	63	9	16.4	4.9	P. 339Ⓒ
TSE4008R/LIAE			10	200	60	38	63	14	25.7	7.4	
TSE4010R/LIAE			12	250	60	38	63	14	25.7	13.8	
TSE4012R/LIAE			14	315	60	38	63	14	25.7	22.1	P. 339Ⓓ

■ Inserts (TSE4000IA)

TE□N2204PE□R/L **TECN2204PEFR-D** **TEKR2204PEPR-MS**

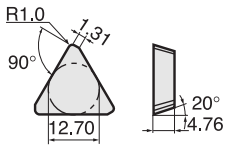


Fig. 1

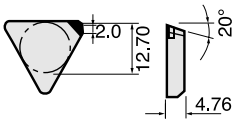


Fig. 2

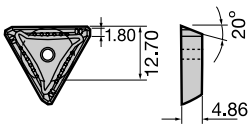
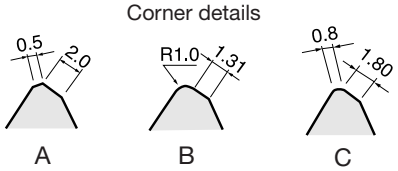


Fig. 3

Corner details



Right hand (R) shown

Cat. No. (Inch)	ISO Cat. No. (Metric)	Corner details	Accuracy	Honing	Grades: CVD Coated T3030	CVD Coated T1015	PVD Coated AH120	PVD Coated AH140	PVD Coated GH330	PVD Coated AH330	Cermet NS740	Cermet NS540	Uncoated TH10	Uncoated TU40	Uncoated UX30	T-DIA DX140	T-DIA DX160	Fig.
TECN43ZFR	TECN2204PEFR	A	C	Without									○					1
TECN43ZFR-DIA	TECN2204PEFR-D															○	○	2
TEEN43ZTR	TEEN2204PETR	B	E	With	●	●	○	●	●	●	●	△			●			1
TEEN43ZFR	TEEN2204PEFR	A		Without									●					
TEKR2204PEPR-MS	TEKR2204PEPR-MS	C	K	With				●										3

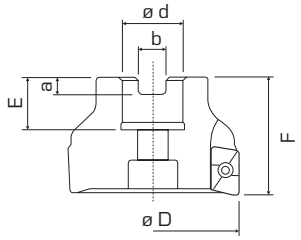
■ Standard cutting conditions (TSE300IA · TSE4000IA)

Work materials	Insert grades	Roughing (Cutting depth ap > 1.5 mm) Vc (m/min)	Roughing ft (mm/t)	Finishing (Cutting depth ap: 0.3~0.7 mm) Vc (m/min)	Finishing ft (mm/t)
Mild steels Unhardened steels (< 180 HB)	**AH330**	130 ~ 370	0.1 ~ 0.2	150 ~ 400	0.1 ~ 0.23
	GH330	130 ~ 230	0.1 ~ 0.2	150 ~ 250	0.1 ~ 0.23
	T3030	130 ~ 230	0.1 ~ 0.23	180 ~ 300	0.1 ~ 0.25
	NS740 · NS540	130 ~ 200	0.1 ~ 0.23	150 ~ 250	0.1 ~ 0.2
	UX30 · AH140	100 ~ 180	0.1 ~ 0.2	130 ~ 200	0.1 ~ 0.23
Carbon steels Alloy steels (< 300 HB)	**AH330**	100 ~ 300	0.1 ~ 0.18	150 ~ 320	0.1 ~ 0.2
	GH330 · AH120	100 ~ 180	0.1 ~ 0.18	150 ~ 200	0.1 ~ 0.2
	T3030	130 ~ 180	0.1 ~ 0.2	180 ~ 280	0.1 ~ 0.23
	NS740 · NS540	100 ~ 150	0.1 ~ 0.15	150 ~ 200	0.1 ~ 0.18
	UX30	80 ~ 130	0.1 ~ 0.18	100 ~ 150	0.1 ~ 0.2
Stainless steels (< 250 HB)	**AH140**	80 ~ 180	0.1 ~ 0.2	100 ~ 200	0.1 ~ 0.25
Die steels (< 30 HRC)	**AH330**	100 ~ 250	0.1 ~ 0.15	100 ~ 250	0.1 ~ 0.2
	T3030 · GH330	100 ~ 150	0.1 ~ 0.15	100 ~ 150	0.1 ~ 0.2
	UX30	80 ~ 130	0.1 ~ 0.15	80 ~ 130	0.1 ~ 0.2
Cast irons Ductile cast irons	**T1015**	100 ~ 200	0.1 ~ 0.2	100 ~ 200	0.1 ~ 0.25
	TH10	80 ~ 130	0.1 ~ 0.2	80 ~ 130	0.1 ~ 0.25
Aluminium alloys (Si < 12%)	**TH10**	200 ~ 1000	0.05 ~ 0.25	350 ~ 1000	0.1 ~ 0.25
	DX140	200 ~ 1000	0.05 ~ 0.15	350 ~ 1000	0.1 ~ 0.2
Copper alloys	**TH10**	200 ~ 500	0.1 ~ 0.15	200 ~ 500	0.1 ~ 0.2

Note: Dry cutting is recommended for all materials except for aluminium alloys.
- No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
- Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TPS11•17 High precision 90° milling cutter



Rake angle
TPS11: A.R. +15.5° ~ +18° R.R. -10° ~ -6.5°
TPS17: A.R. +14° ~ +17.5° R.R. -10° ~ -4°

Max. cutting depth ap
TPS11: 10.6 mm
TPS17: 16.3 mm

Centre bolt

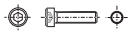
Fig.1 

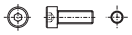
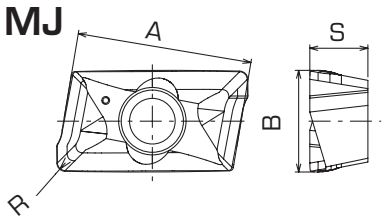
Fig.2 

Fig.3

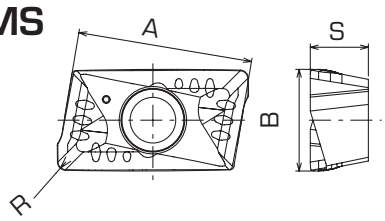
Cat. No.	Stock	No. of inserts	Dimensions (mm)						Inserts	Replacement parts				Mounting details
			ø D	ø d	F	E	a	b		Clamping screw	Wrench	Centre bolt		
TPS11040RB-E	●	6	40	16	40	19	5.6	8.4	AS*T11T3**PDPR-**	CSPB-2.5	IP-8D	CM8X30	Fig.1	-
TPS11050RB-E	●	7	50	22		20	6.3	10.4				CM10X30	Fig.2	P. 339 Ⓐ
TPS11063RB-E	●	8	63		45									
TPS17040RB-E	●	4	40	16	40	19	5.6	8.4	AS*T1705**PDPR-**	CSPB-4S	IP-15D	FSHM8-30	Fig.3	-
TPS17050RB-E	●	5	50	22		20	6.3	10.4				CM10X30	Fig.2	P. 339 Ⓐ
TPS17063RB-E	●	6	63		45									

Specifications: Inserts

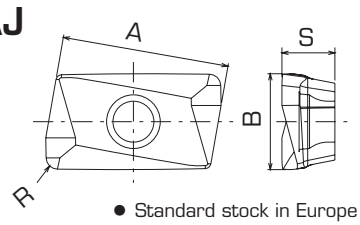
-MJ



-MS



-AJ



● Standard stock in Europe

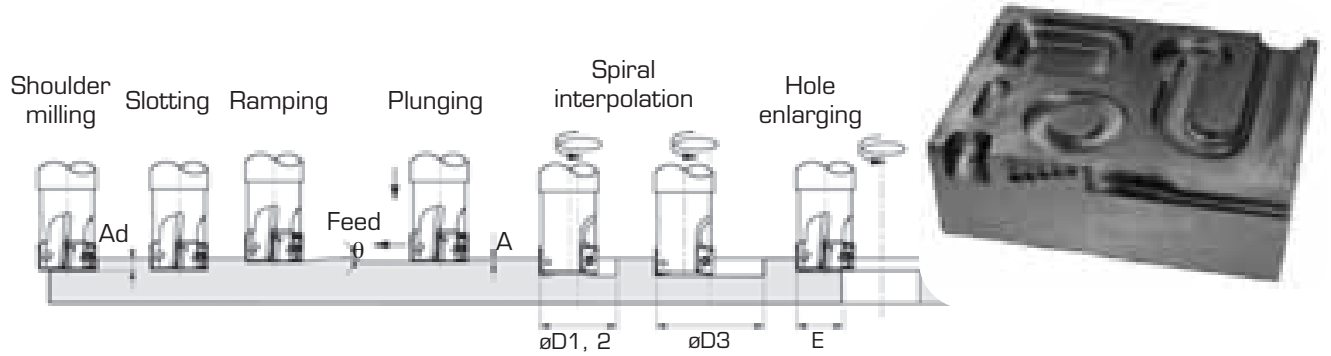
Item code	Grade						Accuracy	Honing	Dimensions (mm)			
	PVD		CVD		Cermet	Carbide						
	AH120	AH140	T1015	T3030	NS740	KS05F			A	B	S	R
ASMT11T304PDPR-MJ	●		●	●	●		M	with	11.6	6.7	3.7	0.4
ASMT11T304PDPR-MS		●										
ASGT11T304PDFR-AJ						●	G	without				
ASMT11T308PDPR-MJ	●		●	●	●		M	with				0.8
ASGT11T308PDFR-AJ						●	G	without				
ASMT11T312PDPR-MJ	●			●			M	with				1.2
ASMT11T316PDPR-MJ	●		●	●	●							1.6
ASMT11T320PDPR-MJ	●											2.0
ASMT11T330PDPR-MJ	●											3.0
ASMT170504PDPR-MJ	●		●	●	●		M	with	16.9	9.8	5.6	0.4
ASGT170504PDFR-AJ						●	G	without				
ASMT170508PDPR-MJ	●		●	●	●		M	with				0.8
ASMT170508PDPR-MS		●										
ASGT170508PDFR-AJ						●	G	without				
ASMT170512PDPR-MJ	●			●			M	with				1.2
ASMT170516PDPR-MJ	●		●	●	●							1.6
ASMT170520PDPR-MJ	●											2.0
ASMT170530PDPR-MJ	●											3.0
ASMT170532PDPR-MJ*	●		●	●	●							3.2

*Note: Inserts with corner radius R 3.2 are not recommended for spiral interpolation.

Cutting conditions

Work materials	Grade	Chip-breaker	Cutting-parameter	Tool diameter (mm) ø 40 - ø 63
Low alloy steels St42, C45E etc. < 250HB	NS740	-MJ	Vc (m/min)	100 - 150
			ft (mm/t)	0.05 - 0.15
	AH120	-MJ	Vc (m/min)	100 - 150
			ft (mm/t)	0.12 - 0.20
Alloy steels 42CrMo4, 16MnCr5 etc. < 300HB	NS740	-MJ	Vc (m/min)	80 - 120
			ft (mm/t)	0.05 - 0.10
	T3030	-MJ	Vc (m/min)	100 - 200
			ft (mm/t)	0.10 - 0.20
Die steels X96CrMoV12 etc. < 300HB	T3030	-MJ	Vc (m/min)	100 - 150
			ft (mm/t)	0.12 - 0.20
Stainless steels X8CrNiS18-9 etc. < 250HB	AH140	-MS	Vc (m/min)	100 - 200
			ft (mm/t)	0.12 - 0.20
Cast irons GG25 etc.	T1015	-MJ	Vc (m/min)	100 - 200
			ft (mm/t)	0.15 - 0.25
Aluminium alloy Si < 12 %	KS05F	-AJ	Vc (m/min)	300 - 1000
			ft (mm/t)	0.05 - 0.20
Aluminium alloy Si > 12 %	KS05F	-AJ	Vc (m/min)	100 - 200
			ft (mm/t)	0.05 - 0.20
Copper alloy	KS05F	-AJ	Vc (m/min)	200 - 500
			ft (mm/t)	0.05 - 0.20

Specifications



Cat. No.	Tool ø (mm)	Max. cutting depth Ad (mm)	Max. ramping angle (θ)	Max. plunging A (mm)	Min. machining øD1 (mm)	Max. machining øD2 (mm)	*Max. machining øD3 (mm)	Max. cutting width for enlarging E (mm)
TPS11040RB-E	40	10.6	1°	0.5	68	79	77 - 79	39.5
TPS11050RB-E	50		0° 42'		88	99	97 - 99	49.5
TPS11063RB-E	63		0° 30'		114	125	123 - 125	62.5
TPS17040RB-E	40	16.2	2° 30'	1.0	62	78	76 - 78	39.0
TPS17050RB-E	50	16.1	1° 30'		82	98	96 - 98	49.0
TPS17063RB-E	63	16.0	1°		108	124	122 - 124	62.0

* Plain bore hole bottom

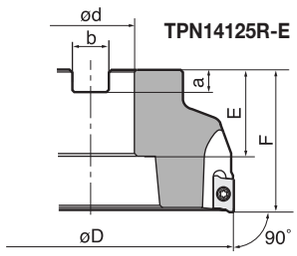
Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

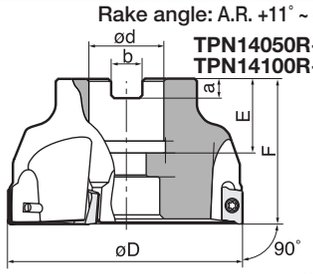
"Top-Feed Mill"

TPN14

For high-speed and high-feed square shoulder milling

Rake angle: A.R. +11° ~ +16° R.R. +9° ~ +14°

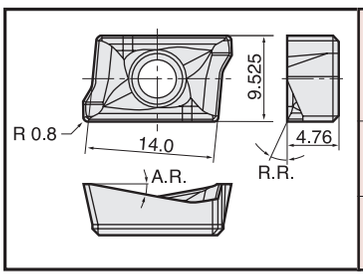




Max. cutting depth: 14 mm

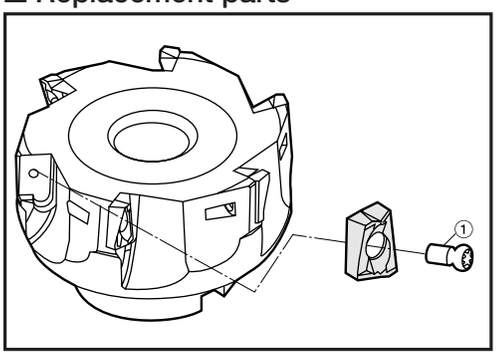
Cat. No.	Stock	No. of inserts	Dimensions (mm)						Weight (kg)	Mounting details
			øD	ød	E	F	a	b		
TPN14040R-E	●	4	40	16	18	40	5.6	8.2	0.2	P. 339Ⓐ
TPN14050R-E	●	5	50	22	20	40	6.3	10.4	0.4	
TPN14063R-E	●	5	63	22	20	40	6.3	10.4	0.7	
TPN14080R-E	●	6	80	27	22	50	7	12.4	1.2	
TPN14100R-E	●	7	100	32	32	63	8	14.4	2.1	P. 339Ⓑ
TPN14125R-E	●	8	125	40	32	63	9	16.4	3.2	

■ Inserts



Cat. No.	Accuracy	Honing	Grades							Rake angles		Application
			CVD Coated		PVD Coated				Cermet	I.A.R.	I.R.R.	
			T3030	T1015	AH120	AH330	GH330	GH340	NS530			
ANMT1404PPPR-MJ	M	With	●	●	●	●	●		●	11°	+20°	General purpose
ANMT1404PPPR-ML	M	With			●			●			+25°	Stainless steels, mild steels

■ Replacement parts



No.	Description	Parts Cat. No.
①	Insert fixing screw	CSTB-3
—	Wrench	T-9D

■ Standard cutting conditions

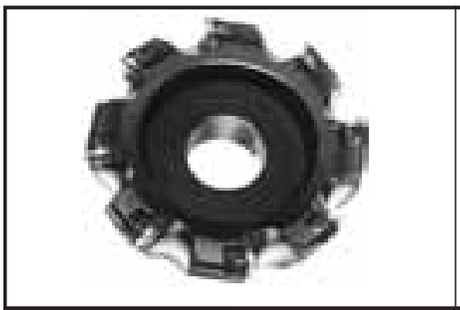
Work materials	Inserts		Cutting conditions	
	Chip-breaker	Grades	Vc (m/min)	ft (mm/tooth)
General steel (< 300HB) Ck50, 42CrMo4	MJ	T3030	100 ~ 250	0.10 ~ 0.20
Mild steel, Carbon steel USt42-2, Ck25	ML	AH120	100 ~ 200	0.12 ~ 0.20
Die steels (< 300HB) X155CrVMo12-1	MJ	T3030	80 ~ 200	0.10 ~ 0.20
Stainless steels (< 200HB) 1.4301, 1.4401	ML	AH120	100 ~ 200	0.10 ~ 0.20

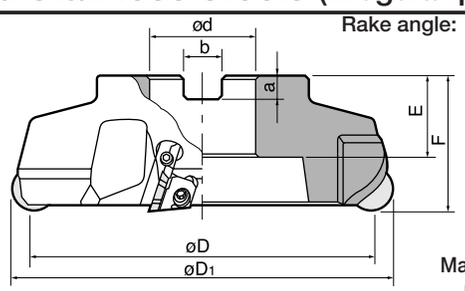
Notes:
- When using small diameter cutter (such as TPN14050R) or cutting at a large cutting depth or a large cutting width, the cutting speed and feeds should be set to the lower side of the values shown in the table.
- Dry cutting (including air-blowing) is generally recommended.
- TPN14 type TAC mills cannot be used for axial-feed cutting such as ramping, plunging and drilling.

- **No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)**
- **Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)**

TRF6000 I

For high-speed and high-feed milling of super alloys and stainless steels (Irregular pitch design)





Rake angle: A.R. +19° R.R. +3°

Max. cutting depth: 3 mm
Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
TRF6003R/LIE	●		4	80	100	27	26	50	7	12.4	1.4	P. 339Ⓑ
TRF6004R/LIE	●		5	100	120	32	32	63	8	14.4	2.5	
TRF6005R/LIE	●		6	125	145	40	32	63	9	16.4	3.9	
TRF6006R/LIE	●		8	160	180	40	29	63	9	16.4	5.8	P. 339Ⓒ
TRF6008R/LIE			10	200	220	60	38	63	14	25.7	9.8	
TRF6010R/LIE			12	250	270	60	38	63	14	25.7	17.3	
TRF6012R/LIE			14	315	335	60	38	63	14	25.7	27.8	P. 339Ⓓ

■ Inserts

RFEN2004ZFTN (With partially flattened flanks)

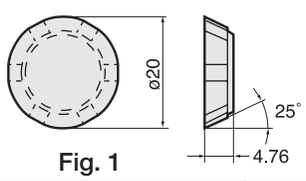


Fig. 1

RFEN2004M0TN

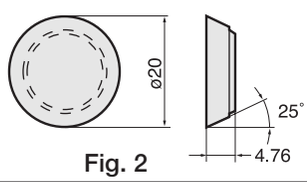
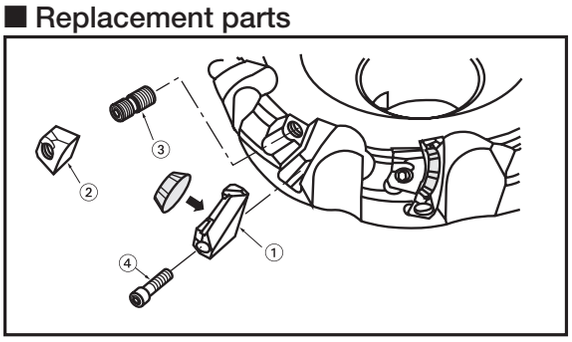


Fig. 2

Cat. No.	Type	Accuracy	Honing	Grades: PVD Coated AH120				Uncoated KS20	UX30			Figure
RFEN2004ZFTN	With flats	E	With	●				●	●			1
RFEN2004M0TN	Without flats	E	With	●				○	●			2

Note: RFEN2004M0TN type inserts should not be used for finishing requiring surface finish better than 12S.
RFEN2004ZFTN type inserts can be used for both finishing and roughing at cutting depth up to 3 mm.

■ Replacement parts



No.	Description	Parts Cat. No. TRF6003R/LI~TRF6006R/LI	TRF6008R/LI~TRF6012R/LI
①	Locator	LF602R/L	LF602R/L
②	Insert locking wedge	WF603R/L	WF608R/L
③	Wedge fixing screw	FDS-8S	FDS-8S
④	Locator fixing screw	CM4×0.7×20	CM4×0.7×20
—	T-handle wrench	TP-4	TP-4

■ Standard cutting conditions

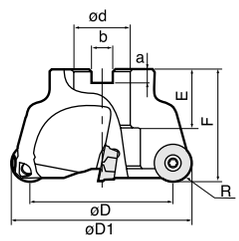
Work materials		Insert grades	Cutting depth ap: 1~3 mm Cutting speed Vc (m/min)	Feed per tooth ft (mm/t)	Cutting depth ap: 0.4~1 mm Cutting speed Vc (m/min)	Feed per tooth ft (mm/t)	Cutting fluid
Super alloys (Inconel etc)		AH120	20 ~ 40	0.1 ~ 0.15	20 ~ 60	0.2 ~ 0.4	Water insoluble type
Titanium alloys (Ti-6Al-4V etc)		AH120	40 ~ 60	0.15 ~ 0.35	40 ~ 70	0.2 ~ 0.5	Water soluble type or dry cutting
Stainless steels	Austenitic Ferritic (< HB300)	UX30	150 ~ 230	0.2 ~ 0.35	180 ~ 250	0.2 ~ 0.5	Dry cutting
Stainless steels	Precipitation hardening (< HRC35)	UX30	130 ~ 180	0.15 ~ 0.3	150 ~ 200	0.2 ~ 0.4	Dry cutting
Hard materials (HRC40-55)		AH120	20 ~ 50	0.05 ~ 0.1	20 ~ 50	0.05 ~ 0.2	Water insoluble type

Note: Cutting width should be within 60 to 70 % of effective cutter diameter.

- No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
- Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TRD12•16 Complex curvature for Copy mills



Rake angle: A.R. +10° R.R. -6° ~ 0°

TRD12 - Max. cutting depth: 6 mm
TRD16 - Max. cutting depth: 8 mm

Cat. No.	Stock	Inserts	No. of inserts	Dimensions (mm) R	ØD	ØD1	F	E	Ød	a	b	Weight (kg)	Mounting details
TRD12050R-E	●	RDMT1204ZDPN-MJ RDMW1204ZDSN	4	6	38	50	40	20	22	6.3	10.4	0.2	P. 339Ⓐ
TRD12052R-E	●		4		40	52		20		6.3	10.4	0.3	
TRD12063R-E	●		5		51	63		20		6.3	10.4	0.4	
TRD12066R-E	●		5		54	66		22		7	12.4	0.8	
TRD12080R-E	●		6		68	80	50	22	27	7	12.4	0.4	P. 339Ⓑ
TRD12100R-E	●		6		88	100		26	32	8	14.4	0.7	
TRD16063R-E	●	RDMT1606ZDPN-MJ RDMW1606ZDSN	4	8	47	63	40	20	22	6.3	10.4	1.1	P. 339Ⓐ
TRD16066R-E	●		4		50	66	50	22	27	7	12.4	2.4	
TRD16080R-E	●		5		64	80		22		7	12.4		
TRD16100R-E	●		6		84	100		26	32	8	14.4		P. 339Ⓑ

■ Inserts

Fig. 1

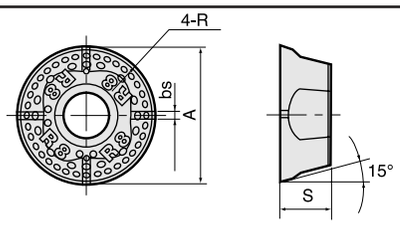
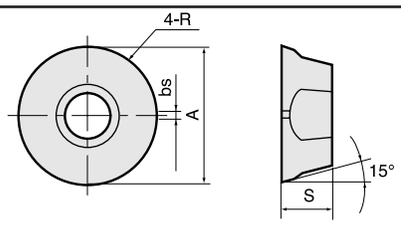


Fig. 2



Cat. No.	Accuracy	Honing	Figure	Grades PVD Coated AH120	AH140	AH330	CVD Coated T3030	Dimensions (mm) A	S	bs	R
RDMT1204ZDPN-MJ RDMW1204ZDSN	M	With	1	●	●	●	●	12.8	4.76	0.8	6
			2	●	●	●	●				
RDMT1606ZDPN-MJ RDMW1606ZDSN			1	●	●	●	●	16.8	6.35		8
			2	●	●	●	●				

■ Standard cutting conditions

Work material	Insert grade	Cutting speed Vc (m/min)	Feed per tooth ft (mm/t) TRD12	TRD16
Carbon steels < 300 HB	**T3030**	190 (140 ~ 240)	0.3 ~ 0.5	0.3 ~ 0.6
	AH120	170 (120 ~ 220)	0.3 ~ 0.5	0.3 ~ 0.6
	AH330	190 (140 ~ 240)	0.2 ~ 0.4	0.2 ~ 0.5
Alloy steels < 300 HB	**T3030**	170 (120 ~ 220)	0.2 ~ 0.45	0.2 ~ 0.5
	AH120	150 (100 ~ 200)	0.2 ~ 0.45	0.2 ~ 0.5
	AH330	170 (120 ~ 220)	0.15 ~ 0.35	0.15 ~ 0.4
Die steels < 300 HB	**T3030**	150 (100 ~ 200)	0.2 ~ 0.35	0.25 ~ 0.45
	AH120	130 (80 ~ 180)	0.2 ~ 0.35	0.25 ~ 0.45
	AH330	150 (100 ~ 200)	0.1 ~ 0.3	0.1 ~ 0.4
Cast irons	**AH120**	180 (120 ~ 240)	0.3 ~ 0.5	0.3 ~ 0.6
	AH330	200 (150 ~ 250)	0.2 ~ 0.4	0.2 ~ 0.5
Hardened steels, prehardened steels < 45 HRC	**AH120**	100 (60 ~ 140)	0.08 ~ 0.25	0.1 ~ 0.3
Stainless steel	**AH140**	150 (80 ~ 200)	0.2 ~ 0.5	0.2 ~ 0.6

- No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
- Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Note: When the cutting depth is smaller than 2 mm, use the higher limit of feed values shown above. And, when larger than 3 mm, use the lower limit of the feed values.

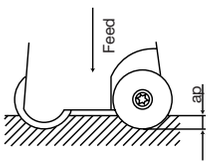
■ Replacement parts

Description	Parts Cat. No. TRD12	TRD16
Clamping screw	CSTB-3.5	CSTB-5
Wrench	T-15D	T-20D

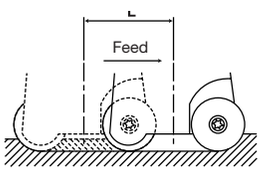
Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

■ Plunging + traverse feed milling

Plunging



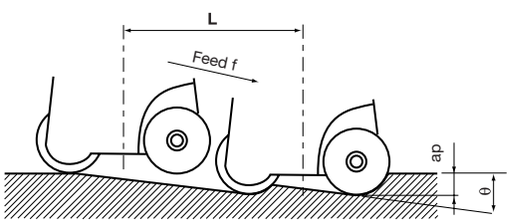
Traverse feed milling



Cat. No.	Max. plunging depth (ap) (mm)	Min. traverse to flatten the bottom surface L (mm)
TRD12050R-E TRD12052R-E TRD12063R-E TRD12066R-E TRD12080R-E TRD12100R-E	4	11
TRD16063R-E TRD16066R-E TRD16080R-E TRD16100R-E	5.5	15

Notes:
- In plunging, the maximum cutting depth is limited as shown in the above table.
- When plunging, set the Z-axis feed in a range of 0.05 to 0.1 mm/tooth.
- When plunging, use pick-feed every 1 mm (or smaller than 1 mm) to break chips.

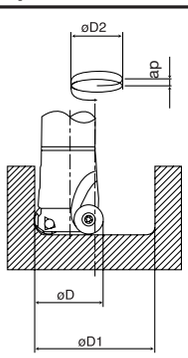
■ Ramping



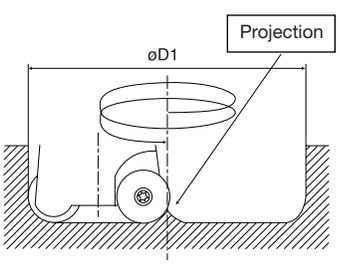
Cat. No.	Max. ramping angle (θ°)
TRD12050R-E	6
TRD12052R-E	5.5
TRD12063R-E	4
TRD12066R-E	4
TRD12080R-E	2.5
TRD12100R-E	1.5
TRD16063R-E	6
TRD16066R-E	6
TRD16080R-E	4
TRD16100R-E	3

Notes:
- tan θ = Cutting depth (ap) / Tool's traveling length (L)
- In ramping, the ramping angle (θ).

■ Spiral interpolation



Cat. No.	Min. machining ø (mm)		Max. machining ø (mm)		ap (mm)
	D1 (mm)	D2 (mm)	D1 (mm)	D2 (mm)	
TRD12050R-E	88	38	98	48	< 6
TRD12052R-E	92	40	102	50	
TRD12063R-E	114	51	124	61	
TRD12066R-E	120	54	130	64	
TRD12080R-E	148	68	158	78	
TRD12100R-E	188	88	198	98	
TRD16063R-E	110	47	124	61	< 8
TRD16066R-E	120	50	130	64	
TRD16080R-E	144	64	158	78	
TRD16100R-E	184	84	198	98	

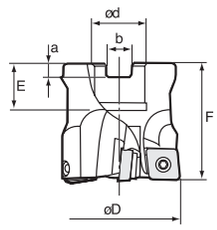


D : Tool diameter
D1 : Machining diameter
D2 : Tool-pass diameter
ap : Z-axis feed per one round of tool pass (Pitch of helical cycle)

- In helical feed drilling, the machinable hole diameter are limited by the tool diameter as shown in the above tables.
- When machining between the minimum and maximum machining diameter, a projection remains in the center of the bottom surface of the hole as shown in the figure on the left. Remove it by traverse feed milling.

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TZP12 TAC "Flash Z-Feed Cutter"



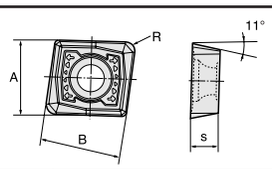
Rake angle: A.R. +6° R.R. -2°

Max. radial cutting depth: 10 mm

Cat. No.	Stock	No. of inserts	Dimensions (mm)						Weight (kg)	Mounting details
			øD	ød	E	F	a	b		
TZP12050R-E	●	3	50	22	20	50	6.3	10.4	0.38	P. 339 Ⓐ
TZP12063R-E	●	3	63	22	20	50	6.3	10.4	0.72	
TZP12080R-E	●	4	80	27	26	63	7	12.4	1.51	

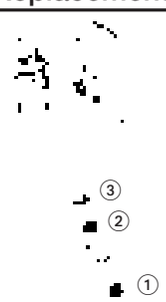
■ Inserts

APMT120416PR-MJ



Cat. No.	Accuracy	Honing	Grade	Dimensions (mm)				Eff. cutting edge length (mm)
			AH120	A	B	S	R	
APMT120416PR-MJ	M	With	●	12.7	13.5	4.76	1.6	10

■ Replacement parts



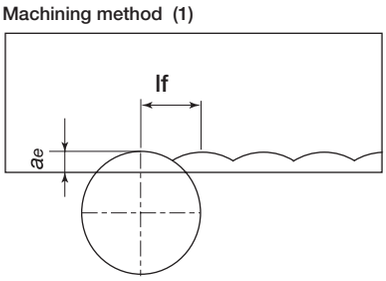
No.	Description	Parts Cat. No.
①	Clamping screws	CSTB-3.5T
②	Shim screw	DTS5-3.5
③	Shim	ZSA1102
—	Wrench	P-3.5
—	Wrench	T-20D

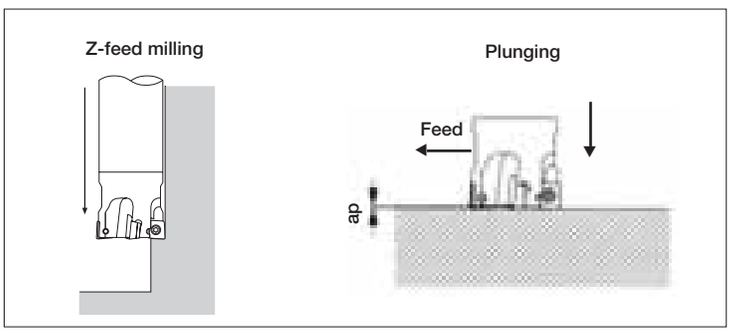
■ Standard cutting conditions

Work material	Insert grade	Cutting speed Vc (m/min)	Feed per tooth ft (mm/t)
Carbon steels Alloy steels	**AH120**	100 ~ 200	0.1 ~ 0.3
Die steels	**AH120**	100 ~ 200	0.1 ~ 0.3
Prehardened steels (< 45 HRC)	**AH120**	60 ~ 120	0.1 ~ 0.2
Cast irons	**AH120**	100 ~ 200	0.1 ~ 0.3

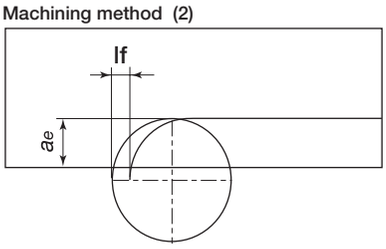
- No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
- Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Machining method (1)





Machining method (2)

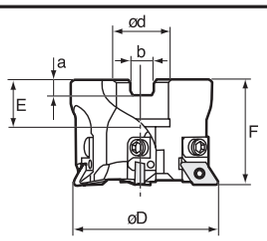


Machining method	Z-feed milling		Plunging
	Pick feed lf (mm)	Radial cutting depth ae (mm)	Cutting depth ap (mm)
(1)	Tool dia. øD/2	Max. 10 mm	~ 0.5
(2)	Max. 10 mm	Tool dia. øD/2	

Note: in Z-feed milling, select either of the machining method (1) or (2) and decide the cutting depth according to the application

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

TZF11 TAC "Z-Feed Cutters" for Finishing



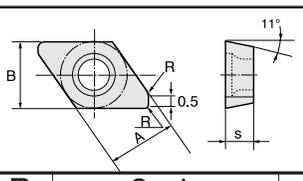
Rake angle: A.R. 0° R.R. -6° ~ 0°

Max. radial cutting depth: 0.5 mm

Cat. No.	Stock	No. of inserts	Dimensions (mm)						Weight (kg)	Mounting details
			øD	ød	E	F	a	b		
TZF11050R-E	●	4	50	22	20	45	6.3	10.4	0.38	P. 339Ⓐ
TZF11063R-E	●	6	63	22	20	45	6.3	10.4	0.72	
TZF11080R-E	●	7	80	27	26	63	7	12.4	1.51	

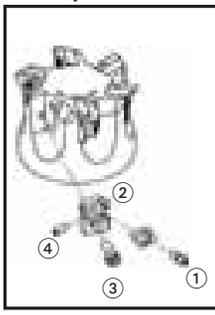
■ Inserts

DPCW11T3ZFR



Cat. No.	Accuracy	Honing	Grade			Dimensions (mm)			
			PVD Coated		Cermet				
			AH120	AH740	NS530	A	B	S	R
DPCW11T3ZFR	C	Without	●	●	●	9.525	9.525	3.97	1.0

■ Replacement parts



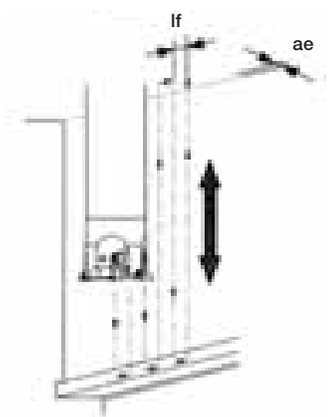
No.	Description	Parts Cat. No.
①	Clamping screws	CSTB-4S
②	Cartridge	SDUPR09CZ-11
③	Cartridge fixing screw	CM4X0.7X12
④	Cartridge adjusting screw	SSHM3-10
—	Wrench	T-15D
—	Hex. wrenches	P-1.5, P-3

■ Standard cutting conditions

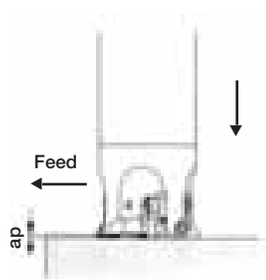
Work material	Insert grade	Cutting speed Vc (m/min)	Feed per tooth ft (mm/t)
Cast irons	**AH120**	300 (200 ~ 500)	0.15 (0.05 ~ 0.20)
Ductile cast irons	**AH120**	250 (150 ~ 350)	0.15 (0.05 ~ 0.20)
Carbon steels • alloy steels (< 300 HB)	**NS530**	300 (150 ~ 400)	0.15 (0.05 ~ 0.20)
	AH740	250 (150 ~ 350)	0.15 (0.05 ~ 0.20)
Prehardened steels, hard materials (40 - 55 HRC)	**AH120**	150 (100 ~ 200)	0.10 (0.05 ~ 0.15)

- No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
- Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Z-feed milling



Plunging



Z-feed milling		Plunging
Pick feed lf (mm)	Radial cutting depth ae (mm)	Cutting depth ap (mm)
0.5 ~ 1.0	~ 0.5	~ 0.5

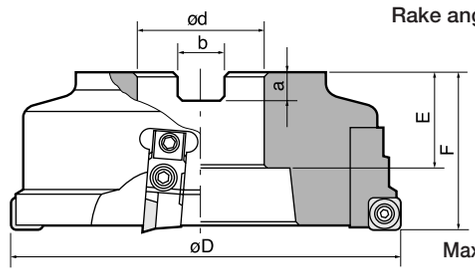
- Dry cutting (including air blow) at a cutting depth up to 0.3 mm (allowable max. 0.5 mm) and a pick feed from 0.5 to 1.0 mm is recommended.
- TZF11 type cutter are not designed to adjust dynamic balance. Therefore, when the tool's overhang ratio (cutter diameter-to-length) exceeds 6 : 1, special care should be taken to the revolution speed. (At first, start the machining at 50 % of the speed shown in the table of the standard cutting conditions, and then gradually increase the speed while confirming safety.)
- To produce highly accurate surface finish, use the cutter on a machine with sufficient rigidity.

■ Cautionary points in use

- Use the cutter for finish milling of vertical wall surfaces requiring long tool-overhang of L/D > 6.
- Radial cutting edge run-out should be adjusted within 0.01 mm.
- In addition to Z-feed milling, TZF11 type cutter can be also used for traverse feed milling.

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

SFP4000 With cutting-edge adjusting mechanism for superior finishing



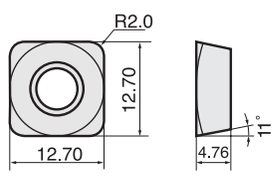
Rake angle: A.R. +5° R.R. -20°

Max. cutting depth: 0.1 mm
Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	ød	E	F	a	b	Weight (kg)	Mounting details
SFP4004R/LE	●		2	100	32	32	40	8	14.4	2.3	P. 339Ⓐ
SFP4005R/LE	●		2	125	40	32	40	9	16.4	3.5	P. 339Ⓑ
SFP4006R/LE	●		4	160	40	29	50	9	16.4	5.8	P. 339Ⓒ
SFP4008R/LE			4	200	60	38	63	14	25.7	9.0	
SFP4010R/LE			6	250	60	38	63	14	25.7		
SFP4012R/LE			8	315	60	38	63	14	25.7		P. 339Ⓓ

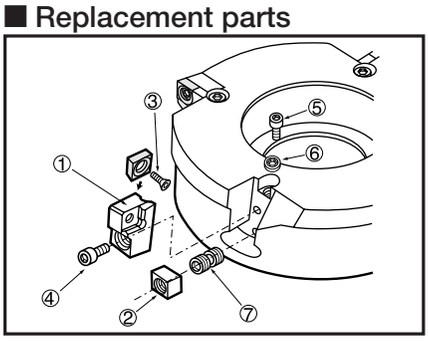
■ Inserts

SPHB120420FN-W



Cat. No.	ISO Cat. No.	Accuracy	Honing	Cermet N308	Uncoated TH10
SPHA435FNW	SPHB120420FN-W	H	Without	●	●

■ Replacement parts



No.	Description	Parts Cat. No.
①	Locator	LW400R/L
②	Locator adjusting wedge	FW-305
③	Insert fixing screw	CSTA-5S
④	Locator fixing screw	CM5×0.8×16
⑤	Hex. socket-head screw	CM5×0.8×8
⑥	Washer	(JIS) L5
⑦	Wedge-locking screw	FDS-8S
—	Spring washer	(JIS) 5S
—	T-handle wrench	TP-4
—	Wrench	T-15D

■ Standard cutting conditions

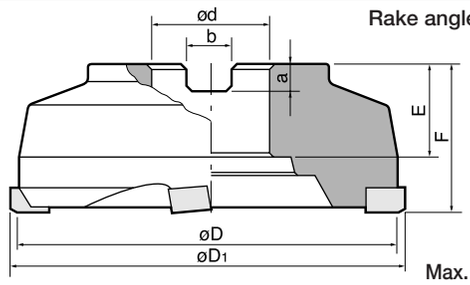
Work materials	Insert grades	Cutting speed Vc (m/min)	Feed rate f (mm/rev)	Cutting depth ap (mm)
Mild steels	**N308**	180 ~ 250	< 6	< 0.1
Carbon steels Alloy steels	**N308**	150 ~ 200	< 6	< 0.1
Stainless steels	**N308**	160 ~ 200	< 4	< 0.1
Cast irons	**TH10**	100 ~ 150	< 5	< 0.2
Non-ferrous metals	**TH10**	200 ~ 500	< 6	< 0.1

Note: Under above conditions, attainable surface roughness is 3 to 4 µm (Rmax) for steels and 6~12 µm (Rz) for cast irons.

- **No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)**
- **Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)**

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

MS For super precision finishing



Rake angle: A.R. -5° R.R. -30°

Max. cutting depth: 0.1 mm

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
MS04RE			2	100	105	32	32	55	8	14.4	3	P. 339Ⓑ
MS05RE			2	125	130	40	32	60	9	16.4	4	
MS06RE			4	160	165	40	29	60	9	16.4	5	P. 339Ⓒ
MS08RE			4	200	205	60	38	60	14	25.7	8.5	
MS10RE			4	250	255	60	38	60	14	25.7	14	
MS12RE			4	300	305	60	38	60	14	25.7	23	P. 339Ⓓ

■ Inserts

SNAC1509PNTR

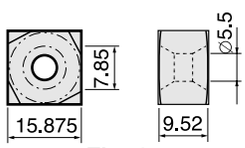


Fig. 1

SNAJ1509PNTR

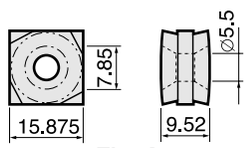


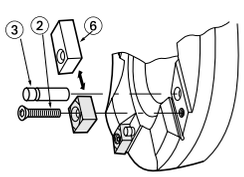
Fig. 2

Right hand (R) shown

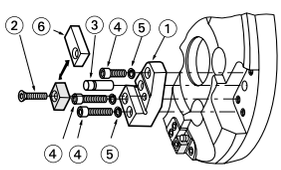
Cat. No. (Inch)	ISO Cat. No. (Metric)	Accuracy	Cutting edge length (mm)	Grades: Cermet X407	Grades: Uncoated TU10	Figure
SNAA56FTR	**SNAC1509PNTR**	A	7.80	●		1
SNAG56FTR	**SNAJ1509PNTR**				●	2

■ Replacement parts

MS04R/L~MS06R/L



MS08R/L~MS12R/L



No.	Description	Parts Cat. No. MS04R	MS05R, MS06R	MS08R ~ MS12R
①	Locator	–	–	LMS56R
②	Screw	CST-5	CST-5	CST-5
③	Pin	SP-8	SP-8	SP-8
④	Locator fixing screw	–	–	CM6x25, CM6x16
⑤	Washer	–	–	VA6
⑥	Protector	PMS4R	PMS5R	PMS5R
—	Wrench	T-25D	T-25D	T-25D

■ Standard cutting conditions

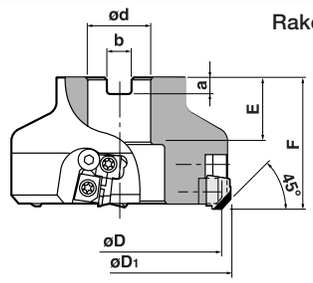
Work materials	Insert grades	Cutting speed Vc (m/min)	Feed f (mm/rev)	Cutting depth ap (mm)
Mild steels	**X407**	260 ~ 300	< 6	< 0.1
Carbon steels	**X407**	120 ~ 180	< 6	< 0.1
Alloy steels	**X407**	120 ~ 180	< 6	< 0.1
Die steels	**X407**	120 ~ 180	< 6	< 0.1
Cast irons	**TU10**	100 ~ 150	< 6	< 0.1

- No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
- Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

All-Diamond Tipped Mills

DAD15 For high-speed and high-precision face milling of aluminium alloys



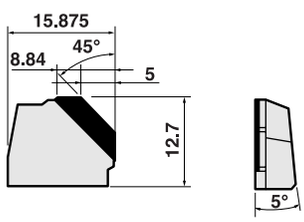
Rake angle: A.R. +8.5° R.R. +5.0°

Max. cutting depth: 5 mm
Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	F	E	a	b	Weight (kg)	Mounting details
DAD15080R/L-E			4	80	90	27	40	26	7	12.4	1.4	P. 339Ⓐ
DAD15100R/L-E			4	100	110	32	40	28.5	8	14.4	2.4	
DAD15125R/L-E			6	125	135	40	63	32	9	16.4	3.6	P. 339Ⓑ
DAD15160R/L-E			6	160	170	40	63	29	9	16.4	5.5	
DAD15200R/L-E			8	200	210	60	63	38	14	25.7	8.9	P. 339Ⓒ
DAD15250R/L-E			10	250	260	60	63	38	14	25.7	14.6	
DAD15315R/L-E			12	315	325	60	63	38	14	25.7	24.0	P. 339Ⓓ

■ Inserts

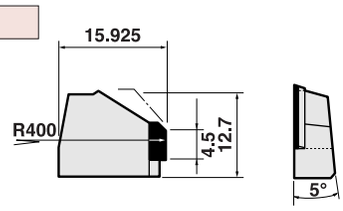
Roughing



Right hand (R) shown

Cat. No.	Grades	Stock
YDEN1505ADFR-D	DX140 (PKD)	○
YDEN1505ADFL-D		

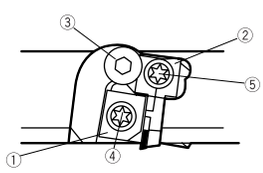
Wiper



Right hand (R) shown

Cat. No.	Grades	Stock
YDEN1505ADFR-WD	DX140 (PKD)	○
YDEN1505ADFL-WD		

■ Replacement parts



Right hand (R) shown

No.	Description	Parts Cat. No.
①	Insert locking wedge	FW304R/L-D
②	Locator adjusting wedge	FW325R/L-D
③	Screw for preventing wedge from flying out	BHM615-GT
④	Wedge fixing screw (for øD = 80)	FDS-8ST-18
	Wedge fixing screw (for øD > 80)	FDS-8ST
⑤	Adjusting wedge fixing screw	FDS-8ST-18
⑥	Wrench	T-27T

■ Standard cutting conditions

Work materials	Insert grades	Cutter dia. ØD (mm)	80	100	125	160	200	250	315	355	400
Aluminium alloys (Si < 12%)	DX140 (T-DIA)	Max. cutting speed Vc (m/min)	4000								
		Max. revolution N (rpm)	16000	12700	10200	8000	6400	5100	4000	3600	3200
		Cutting depth ap (mm)	~ 5								
		Feed per tooth ft (mm/t)	0.05 ~ 0.28								
Aluminium alloys (Si > 13%)	DX140	Max. cutting speed Vc (m/min)	200 ~ 500								

• No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
• Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

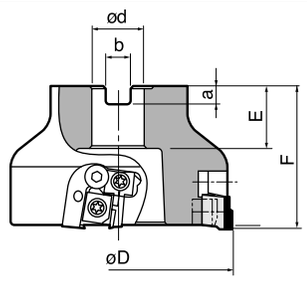
■ Cautionary Points in Use

- To avoid a danger of unbalanced revolution, the TAC mill should not be used in a state of reduced number of inserts.
- Use the cutter within the maximum revolutions written on the cutter body.
- When using the cutter at lower cutting speed than 1500 m/min, the balance quality of the arbor and toolholder should be prepared within class G16.
- When installing the inserts, recommended clamping torque for the wedge fixing screw is 980 N・cm.

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

All-Diamond Tipped Mills

DPD15 For high-speed and high-precision square shoulder milling of aluminium alloys



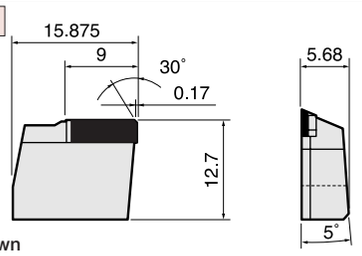
Rake angle: A.R. +8.5° R.R. +5.0°

Max. cutting depth: 7 mm
Right hand shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	ød	E	F	a	b	Weight (kg)	Mounting details
DPD15080R/L-E			4	80	27	26	40	7	12.4	1.2	P. 339Ⓐ
DPD15100R/L-E			4	100	32	28.5	40	8	14.4	2.2	
DPD15125R/L-E			6	125	40	32	63	9	16.4	3.6	P. 339Ⓑ
DPD15160R/L-E			6	160	40	29	63	9	16.4	5.2	
DPD15200R/L-E			8	200	60	38	63	14	25.7	8.2	P. 339Ⓒ
DPD15250R/L-E			10	250	60	38	63	14	25.7	13.4	
DPD15315R/L-E			12	315	60	38	63	14	25.7	22.5	P. 339Ⓓ

■ Inserts

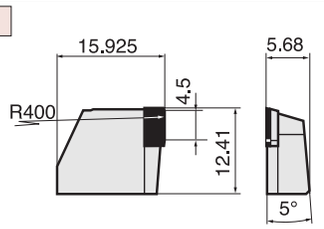
Roughing



Right hand shown

Cat. No.	Standard grade	Stock
YDEN1505PDFR-D	DX140 (PKD)	●

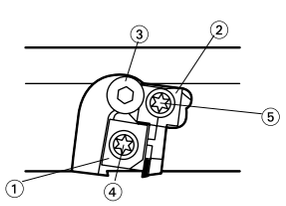
Wiper



Right hand shown

Cat. No.	Standard grade	Stock
YDEN1505PDFR-WD	DX140 (PKD)	●

■ Replacement parts



Right hand shown

No.	Description	Parts Cat. No.
①	Insert locking wedge	FW304R/L-D
②	Locator adjusting wedge	FW325R/L-D
③	Screw for preventing wedge from flying out	BHM615-GT
④	Wedge fixing screw (for øD = 80)	FDS-8ST-18
	Wedge fixing screw (for øD > 80)	FDS-8ST
⑤	Adjusting wedge fixing screw	FDS-8ST-18
⑥	Wrench	T-27T

■ Standard cutting conditions

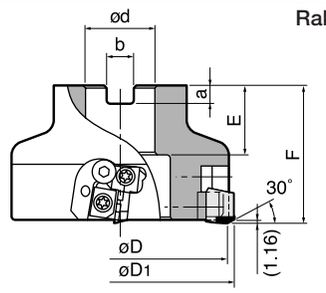
Work materials		Insert grade	Cutter dia. øD (mm)	80	100	125	160	200	250	315	355	400
Aluminium alloys	Si < 12%	DX140 (T-DIA)	Max. cutting speed Vc (m/min)	4000								
			Max. No. of revolutions n (rpm)	16000	12700	10200	8000	6400	5100	4000	3600	3200
			Cutting depth ap (mm)	~ 7								
			Feed per tooth ft (mm/t)	0.05 ~ 0.20								
	Si > 13%		Max. Vc (m/min)	200 ~ 500								

• No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
• Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

All-CBN Tipped Mills

QPP15 High-speed and high-precision finishing of grey cast irons

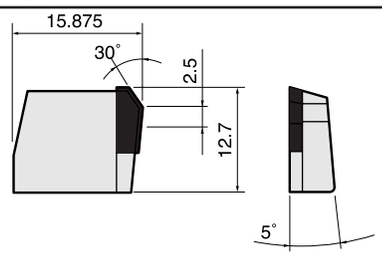


Rake angle: A.R. +5.5° R.R. -3°

Max. cutting depth: 1.0 mm
Right hand (R) shown

Cat. No.	Stock R	Stock L	No. of inserts	Dimensions (mm) øD	øD1	ød	E	F	a	b	Weight (kg)	Mounting details
QPP15080R/L-E			4	80	84	27	26	50	7	12.4	1.1	P. 339Ⓐ
QPP15100R/L-E			6	100	104	32	28.5	63	8	14.4	2.1	
QPP15125R/L-E			6	125	129	40	32	63	9	16.4	3.7	P. 339Ⓑ
QPP15160R/L-E			8	160	164	40	29	63	9	16.4	5.3	
QPP15200R/L-E			10	200	204	60	38	63	14	25.7	8.3	P. 339Ⓒ
QPP15250R/L-E			12	250	254	60	38	63	14	25.7	13.5	
QPP15315R/L-E			14	315	319	60	38	63	14	25.7	22.6	P. 339Ⓓ
QPP15355R/L-E			16	355	359	60	38	80	14	25.7	33.4	
QPP15400R/L-E			18	400	404	60	38	80	14	25.7	43.3	

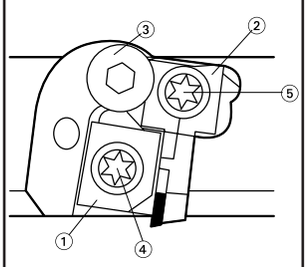
■ Inserts



Right hand (R) shown

Cat. No.	grade	Stock
YPEN1505PPTR-Q	BX950	●

■ Replacement parts



Right hand (R) shown

No.	Description	Parts Cat. No.
①	Insert locking wedge	FW304R/L-D
②	Locator adjusting wedge	FW325R/L-D
③	Screw for preventing wedge from flying out	BHM615-GT
④	Wedge fixing screw (for øD = 80)	FDS-8ST-18
	Wedge fixing screw (for øD > 80)	FDS-8ST
⑤	Adjusting wedge fixing screw	FDS-8ST-18
⑥	Wrench	T-27T

■ Standard cutting conditions

Work materials	Insert grade	Cutting speed Vc (m/min)	Feed ft (mm/t)	Cutting depth ap (mm)
Grey cast irons (GG25 ~ GG35)	BX950 (CBN)	350 ~ 2000	0.1 ~ 0.25	0.1 ~ 1.0

• No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm) Note: Dry cutting is recommended.
• Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Features

1 Highly efficient and accurate machining capability

Rz ≤ 3.0 μm, Rmax ≤ 6.0 μm

2 Provided with adjusting mechanism for all the inserts

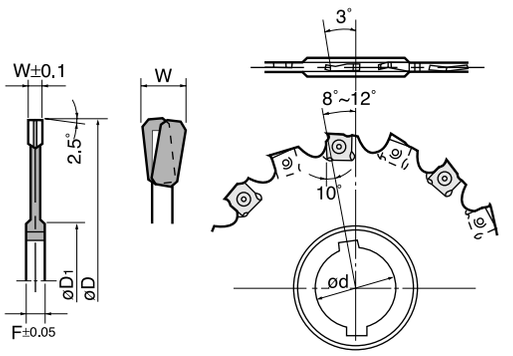
- Attainable axial runout: Within 5 μm
- Inserts are regrindable

3 Superior resistance to centrifugal force

Even when using at speeds as high as 2000 m/min, inserts are firmly locked and free from any movement or looseness.

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

SVN4000 Grooving and parting of steels, cast irons and aluminium alloys



Cat. No.	Stock M	Stock W	Inserts	No. of inserts	Cutter øD	Tool width W	No. of staggered lines	Mounting hole dia. ød M (Metric)	Mounting hole dia. ød W (Inch)	Boss øD1	Boss thick. F	Parts Screw	Parts Wrench
SVN4100-5M/W	●		SNEN12T2ZT/FN	10	100	5	2	32	31.75	48	8	CST-3.5S	T-9D
SVN4100-6M/W	●		SNEN1233ZT/FN			6					10	CST-3.5	
SVN4100-8M/W	●			8		8	4				12		
SVN4125-5M/W	●		SNEN12T2ZT/FN	12	125	5	2	32	31.75	48	8	CST-3.5S	
SVN4125-6M/W	●		SNEN1233ZT/FN			6					10	CST-3.5	
SVN4125-8M/W	●					8	4				12		
SVN4160-5M/W	●		SNEN12T2ZT/FN	16	160	5	2	40	38.1	58	8	CST-3.5S	
SVN4160-6M/W	●		SNEN1233ZT/FN			6					10	CST-3.5	
SVN4160-8M/W	●					8	4				12		
SVN4200-5M/W	●		SNEN12T2ZT/FN	20	200	5	2	40	38.1	68	8	CST-3.5S	
SVN4200-6M/W	●		SNEN1233ZT/FN			6					10	CST-3.5	
SVN4200-8M/W	●					8	4				12		

● Notes on specifications of specials made to order

① The cutter widths (W) are available in a range from 5 ~ 8 mm.
② The maximum cutter diameter available is ø960 mm.
③ Special mounting specifications are also available on request.

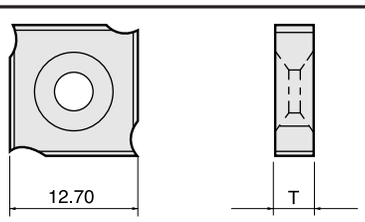
● Nomenclature

SVN4□□□–□M/W

Cutter diameter
Tool width
Mounting hole spec.

■ Inserts

SNEN



ISO Cat. No.	Accuracy	T (mm)	Honing	Grades PVD Coated AH330	Grades Uncoated UX30	Grades Uncoated TH10
SNEN12T2ZTN SNEN12T2ZFN	E	2.78	With Without	●	●	●
SNEN1233ZTN SNEN1233ZFN		3.30	With Without	●	●	●

■ Standard cutting conditions

Work materials	Insert grades	Cutting speed Vc (m/min)
Carbon steels (< 300 HB)	**AH330**	100 ~ 200
	UX30	80 ~ 120
Die steels (< 300 HB)	**AH330**	60 ~ 120
	UX30	60 ~ 80
Cast irons	**TH10**	80 ~ 100
Aluminium alloys	**TH10**	600 ~ 1000

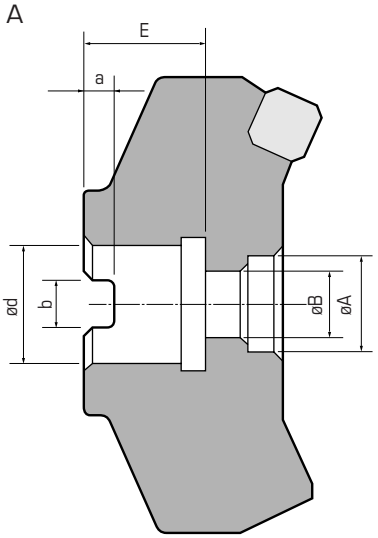
• No. of revolutions n (rpm) = Cutting speed Vc (m/min) × 1000 ÷ 3.14 ÷ Cutter ø (mm)
• Table feed Vf (mm/min) = n (rpm) × Feed per tooth ft (mm/t) × t (No. of inserts)

Features P. 298 ~ 302 | Reference guide | Technical data P. 476 ~ 479

Mounting Details of LS and S Series TAC Mills

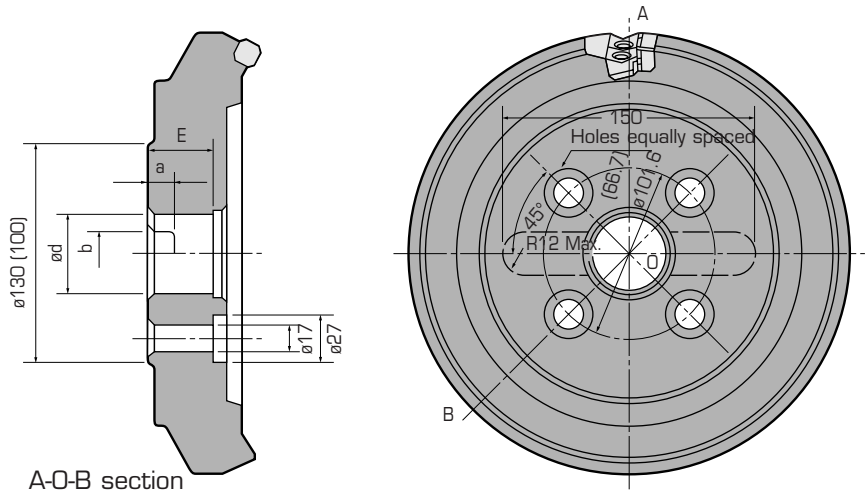
Cutter diameter (mm)	Fig.	Dimensions (mm)					
		øA	øB	ød	a	b	E
ø50, ø52, ø63, ø66	A	18	10	22	6.3	10.4	20
ø80	A	20	13.5	27	7	12.4	22
	B	38	–				26
ø100	A	27	17.5	32	8	14.4	25
	B	45	–				32
ø125	B	56	–	40	9	16.4	
ø160 (ø150)	C	–	–				29
ø200	C	–	–	60	14	25.7	38
ø250	C	–	–				
ø315 (ø300)	D	–	–				

A



Note: Can be mounted with a commercially available hexagonal socket head

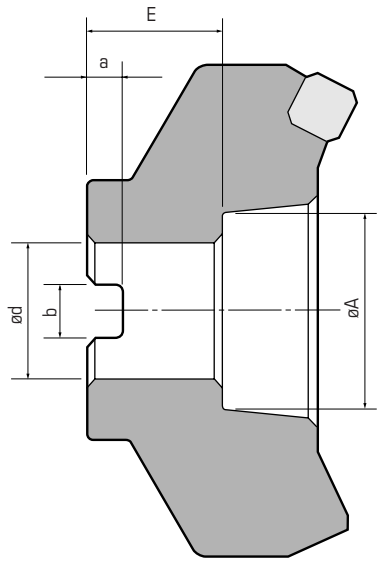
C



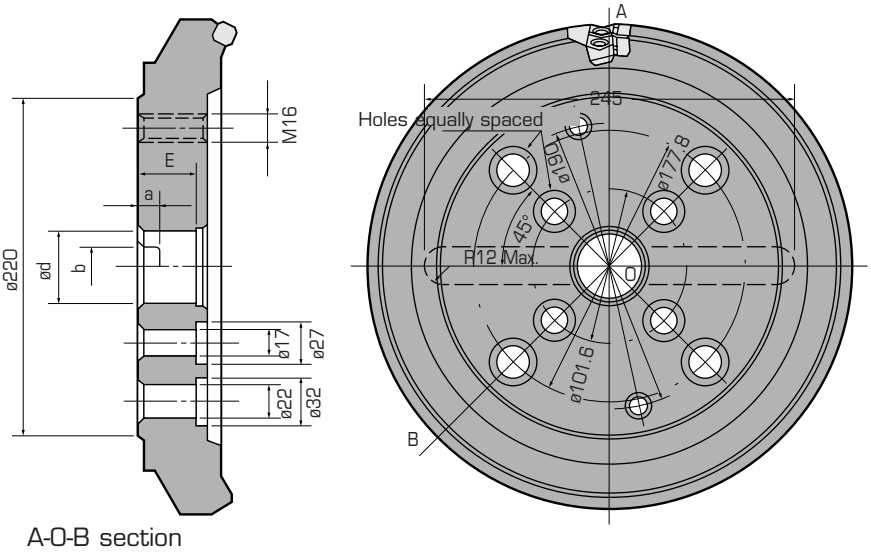
A-O-B section

Note: In the ø200 cutters, the drive key way are opened through.
() are for cutters ø160 European type.

B



D



A-O-B section

Milling made “easy”

NEW

V_f = 5500 mm/min

V_f = 4500 mm/min

V_f = 6500 mm/min

Our formula for high productivity:

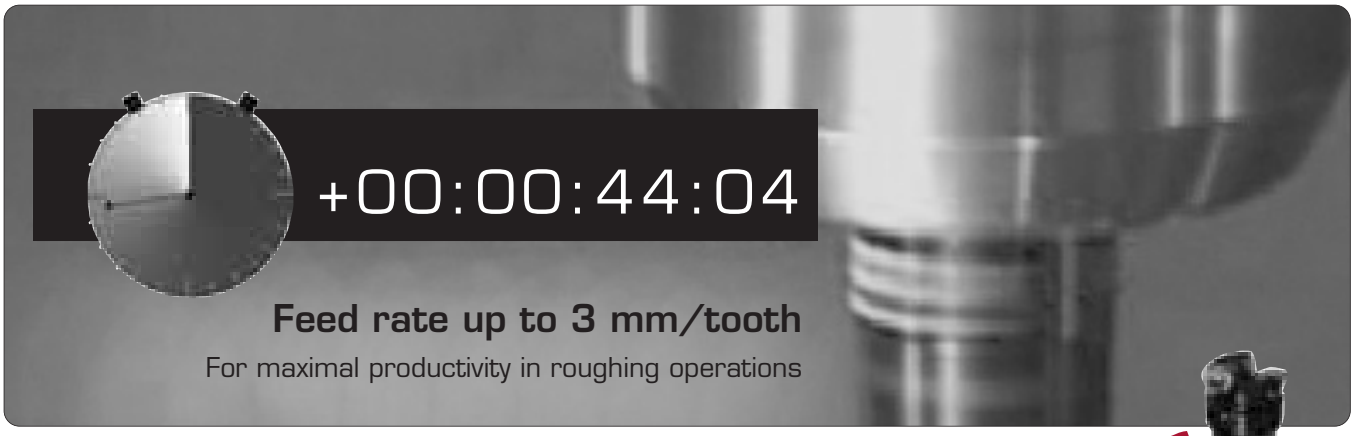
HJ = High feed milling

Features

With the **newly developed tool system for face and square shoulder milling** Tungaloy strikes out in a new direction in precision and design. This modern tool concept convinces in various application fields and enables **productive and flexible utilisation on all different machining centres.**

Due to two different versions (standard pitch and close pitch type) this tool system offers **optimal adaptation to a great variety of working materials**. All tools dispose of an inner coolant system directed precisely on each insert. Thanks to the highly positive rake angle and the application oriented chipbreaker, lowest cutting forces can be achieved. Thus especially the machining of unstable work pieces on low power machining centres becomes totally uncomplicated. The application of the HJ high feed geometry in the 45° TAW milling **cutter is revolutionary. Simply by changing the insert the face milling cutter turns into a high feed milling cutter.** This points out the complete potential of our new milling system as it realizes significantly shorter machining times.

Super “Quick motion” milling cutter



Benefits

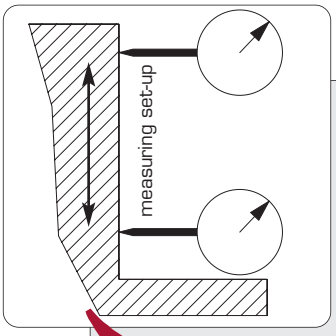
- Highly economic design with 3 cutting edges
- New chipbreaker geometries for optimum performance
- Stable double clamping system of the insert
- All EXP milling cutter with inne coolant
- Extremely quiet running at large cutting depths

Features

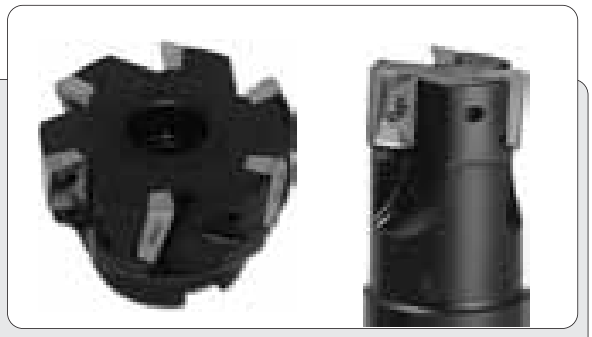
Modern machine tool centres allow for highly economic production by means of increased number of revolutions and higher table feed rates. So far, these cutting parameter have been applied for smooth milling rev. precision finishing. The innovative EXP & TXP milling cutter now optimize also the more time consuming roughing operation. The EXP & TXP milling cutter are suited for **feed rates > 3 mm/tooth** and thus lead to a substantial reduction in machining time.

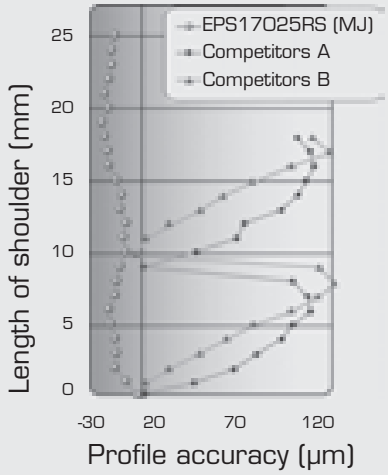
With the EXP & TXP milling cutter, surface milling operations, ramping and cavity enlarging at maximum cutting depths of 1.5 mm are possible. Compared to conventional cutting parameter the machining time can be reduced by one half. The economic design of the insert with three cutting edges with chipbreaker reduces cutting forces and thus enables the use of the larger TXP milling cutter also on machines with low spindle speed.

High Precision 90° milling cutter



90° Square Shoulder





Cutter:	EPS17025RS (ø 25, t = 2)
Insert:	ASMT170508PDPR-MJ
Grade:	AH120
Work material:	C55
Cutting speed:	V_c = 150 m/min
Feed per tooth:	f_t = 0.1 mm
Axial cutting depth:	a_p = 2 x 14 mm
Cutting width:	a_e = 5 mm
Coolant:	without

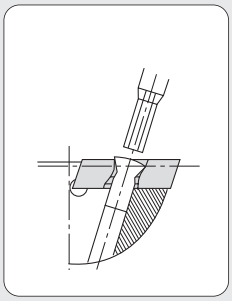
Features

High precision and general purpose are the main characteristics of Tungaloy's latest innovative development. The new and modern **EPS & TPS generation of milling cutters** covers a multitude of different applications. The endmills, of which some are equipped with air hole, are best suited for square shoulder and slotting operations at only low cutting forces. The exact positioning of the insert combined with a positive chipbreaker and **a two-step rake angle enable the machining of a high precision 90° shoulder without any steps in the profile.** Further finishing operations with a solid carbide milling cutter thus become unnecessary.

Multifunctional milling cutter with centre cutting edge for plunge milling

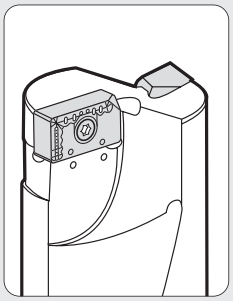
Benefits

Double clamping
Insert is fixed with clamp screw and form fit for highest stability. Optimal fixing through the inclination of the clamping screw



Unique
Special marks on inserts and cutter body for easy indexing

Air hole
Effecient coolant supply (cooling lubricant or compressed air)

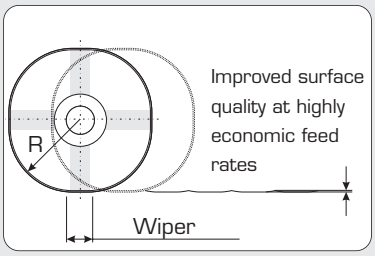


Features

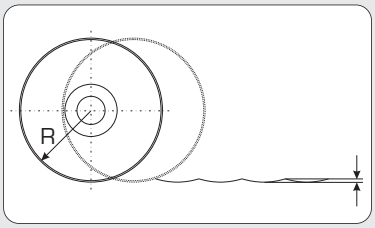
Modern machining processes demand for flexible application and highest productivity. Tungaloy set a sign and developed a new tool concept. The **multi-functional EVX endmill** is the result of an elaborate market analysis carried out amongst a carefully chosen and well balanced circle of end-users from the **Die and Mould industry, machine tool industry and fixture construction but also machine construction industry and repair shops**.
The innovative EVX endmill is a double cutting endmill with centre cutting edge best suited for a multitude of different applications. These are next to conventional milling operations as shoulder milling and slotting also **plunging operations** into the full material.
Especially the effective double clamping mechanism of the insert by clamp screw and form fit extraordinarily compensates cutting forces developing from different sources and directs these into the insert seat. The result is **higher stability** of the whole tool system and an optimised complete machining process.

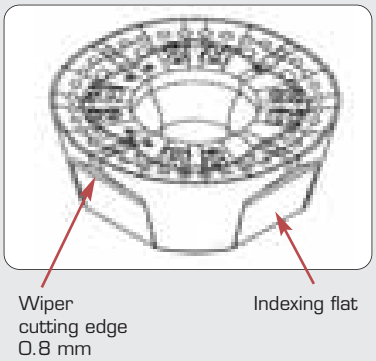
Multifunctional milling cutter with round insert

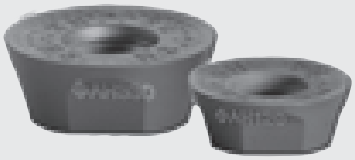
"Wiper effect" with RDMT/W...



Standard round insert







Features

The TRD12-16 is a **unique milling cutter** with round inserts for a great variety of applications in the automobile industry. The positive rake angle allows **for low vibration machining at large cutting depths and only minimal spindle load**.

Due to the indexing flat, the insert finds a stable seat and can easily be fixed and turned.

The new wiper effect at the round insert grants for excellent surface qualities at high feed rates, similar to turning operations.