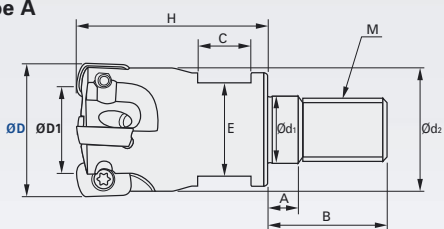


Indexable
Milling
Modular Series

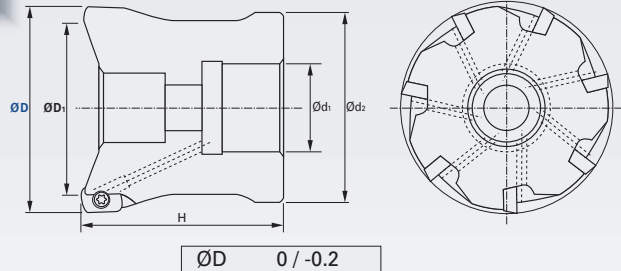
ASR Pico Turbo Metric Series
High Feed Cutting (HFC) & High Hardness Cutting (HHC)
Ø 16 mm ~ Ø 66 mm




Type A



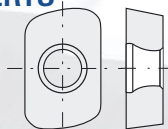
Type B





	ID Code	Item Code	Stock	Flutes	ØD	ØD1	H	Ød ₁	M	Ød ₂	A	B	C	E	Inserts
Type A	FH 529	ASRM-2016R-2	■	2	16	6.2	25	8.5	M8	13	5.5	17	10	10	<p>One Insert-size for all diameters Ø 16 mm ~ Ø 66 mm</p>  <p>EPNW0603TN-8</p>
	FH 530	ASRM-2020R-3	■	3	20	10.2	30	10.5	M10	18	6	19	10	15	
	FH 531	ASRM-2025R-4	■	4	25	15.2	35	12.5	M12	21	7	22	10	17	
	FH 532	ASRM-2032R-5	■	5	32	22.2	40	17	M16	29	7	23	12	22	
	FH 533	ASRM-2040R-6	■	6	40	30.2	40	17	M16	29	7	23	12	22	
Type B	FH 537	ASR-2042RM-6	■	6	42	32.2	40	16		32					
	FH 538	ASR-2052RM-7	■	7	52	42.2	50	22		47					
	FH 539	ASR-2066RM-8	■	8	66	56.2	50	27		60					

■ = Stock | Germany

INSERTS



ID Code	Item No.	Stock	Grade	NEW Coating	R	Clamp Screw	Wrench							
WF 641	EPNW0603TN-8	■	TB6005	PVD Hybrid Coating	2	 								
WF 642	EPNW0603TN-8	■	TB6020	PVD Hybrid Coating	2									
WF 643	EPNW0603TN-8	■	TB6045	PVD Hybrid Coating	2									
<p>■ = Stock Germany</p> <p>Programming Radius \curvearrowright</p>						<table border="1"> <thead> <tr> <th>ID-Code</th> <th>Item-Code</th> <th>ID-Code</th> <th>Item-Code</th> </tr> </thead> <tbody> <tr> <td>ET175</td> <td>250-141(A)</td> <td>ET13</td> <td>104-T8</td> </tr> </tbody> </table>	ID-Code	Item-Code	ID-Code	Item-Code	ET175	250-141(A)	ET13	104-T8
ID-Code	Item-Code	ID-Code	Item-Code											
ET175	250-141(A)	ET13	104-T8											

Recommended Cutting Conditions

Work piece material	Insert Grade	Cutting Condition	Ø16 (z2)					Ø20 (z3)					Ø25 (z4)				
			< 3D		3D-5D	5D-7D	> 7D	< 3D		3D-5D	5D-7D	> 7D	< 3D		3D-5D	5D-7D	> 7D
			General	High Speed				General	High Speed				General	High Speed			
I II Carbon-Steel Alloy-Steel <30HRC	TB 6020 TB 6045	n (min ⁻¹)	1,800	3,590	2,590	2,590	1,800	1,440	2,870	2,080	2,080	1,440	1,150	2,300	1,660	1,660	1,150
		V _c (m/min)	90	180	130	130	90	90	180	130	130	90	90	180	130	130	90
		V _f (mm/min)	2,880	10,060	4,150	4,150	2,880	4,320	13,780	6,240	6,240	4,320	4,600	14,720	6,640	6,640	4,600
		f _z feed/tooth	0.8	1.4	0.8	0.8	0.8	1.0	1.6	1.0	1.0	1.0	1.0	1.6	1.0	1.0	1.0
		a _p (mm)	0.8	0.6	0.6	0.5	0.4	1.0	0.5	0.8	0.6	0.4	1.0	0.5	0.8	0.6	0.4
		a _e (mm)	12	12	12	12	12	15	15	15	15	15	20	20	20	20	20
		Volume cm ³	28	72	30	25	14	65	103	75	56	26	92	147	106	80	37
III Alloy-Steel Tool-Steel 30~40HRC	TB 6020 TB 6045	n (min ⁻¹)	1,800	3,590	2,590	2,590	1,800	1,440	2,870	2,080	2,080	1,440	1,150	2,300	1,660	1,660	1,150
		V _c (m/min)	90	180	130	130	90	90	180	130	130	90	90	180	130	130	90
		V _f (mm/min)	2,880	10,060	4,150	4,150	2,880	4,320	13,780	6,240	6,240	4,320	4,600	14,720	6,640	6,640	4,600
		f _z feed/tooth	0.8	1.4	0.8	0.8	0.8	1.0	1.6	1.0	1.0	1.0	1.0	1.6	1.0	1.0	1.0
		a _p (mm)	0.6	0.4	0.5	0.4	0.3	0.8	0.4	0.6	0.5	0.35	0.8	0.4	0.6	0.5	0.35
		a _e (mm)	12	12	12	12	12	15	15	15	15	15	20	20	20	20	20
		Volume cm ³	21	48	25	20	10	52	83	56	47	23	74	118	80	66	32
IV Pre-Hardened Steel Tool-Steel 40~50HRC	TB 6005 TB 6020	n (min ⁻¹)	1,800	2,590	1,800	1,800	1,800	1,440	2,080	1,440	1,440	1,440	1,150	1,660	1,150	1,150	1,150
		V _c (m/min)	90	130	90	90	90	90	130	90	90	90	90	130	90	90	90
		V _f (mm/min)	2,160	6,220	2,880	2,880	2,880	3,460	8,740	3,460	3,460	3,460	3,680	9,300	3,680	3,680	3,680
		f _z feed/tooth	0.6	1.2	0.8	0.8	0.8	0.8	1.4	0.8	0.8	0.8	0.8	1.4	0.8	0.8	0.8
		a _p (mm)	0.5	0.35	0.4	0.3	0.2	0.6	0.35	0.5	0.4	0.25	0.6	0.35	0.5	0.4	0.25
		a _e (mm)	12	12	12	12	12	15	15	15	15	15	20	20	20	20	20
		Volume cm ³	13	26	14	10	7	31	46	26	21	13	44	65	37	29	18
V Pre-Hardened Steel Tool steel (50-62HRC)	TB 6005 TB 6020	n (min ⁻¹)	1,600	2,390	1,600	1,600	1,600	1,280	1,920	1,280	1,280	1,280	1,020	1,530	1,020	1,020	1,020
		V _c (m/min)	80	120	80	80	80	80	120	80	80	80	80	120	80	80	80
		V _f (mm/min)	1,600	4,780	1,920	1,920	1,920	2,310	5,760	2,310	2,310	2,310	2,450	6,120	2,450	2,450	2,450
		f _z feed/tooth	0.5	1.0	0.6	0.6	0.6	0.6	1.0	0.6	0.6	0.6	0.6	1.0	0.6	0.6	0.6
		a _p (mm)	0.4	0.25	0.35	0.25	0.15	0.4	0.25	0.35	0.25	0.15	0.4	0.25	0.35	0.25	0.15
		a _e (mm)	12	12	12	12	12	15	15	15	15	15	20	20	20	20	20
		Volume cm ³	8	14	8	6	3	14	22	12	9	5	20	31	17	12	7
VIII Cast-Iron GG GGG	TB 6020 TB 6045	n (min ⁻¹)	1,800	3,590	2,590	2,590	1,800	1,440	2,870	2,080	2,080	1,440	1,150	2,300	1,660	1,660	1,150
		V _c (m/min)	90	180	130	130	90	90	180	130	130	90	90	180	130	130	90
		V _f (mm/min)	4,320	11,490	6,220	6,220	4,320	6,050	15,500	8,740	8,740	6,050	6,440	16,560	9,300	9,300	6,440
		f _z feed/tooth	1.2	1.6	1.2	1.2	1.2	1.4	1.8	1.4	1.4	1.4	1.4	1.8	1.4	1.4	1.4
		a _p (mm)	1.0	0.8	0.8	0.6	0.5	1.25	1.0	0.8	0.6	0.4	1.25	1.0	0.8	0.6	0.4
		a _e (mm)	12	12	12	12	12	15	15	15	15	15	20	20	20	20	20
		Volume cm ³	52	110	60	45	26	113	233	105	79	36	161	331	149	112	52

Work piece material	Insert Grade	Cutting Condition	Ø32 (z5)					Ø40 (z6), Ø42 (z6)					Ø52 (z7)		Ø66 (z8)	
			< 3D		3D-5D	5D-7D	> 7D	< 3D		3D-5D	5D-7D	> 7D	< 3D		< 3D	
			General	High Speed				General	High Speed				General	High Speed	General	High Speed
I II Carbon-Steel Alloy-Steel <30HRC	TB 6020 TB 6045	n (min ⁻¹)	900	1,800	1,300	1,300	900	720	1,440	1,040	1,040	720	551	1,102	434	869
		V _c (m/min)	90	180	130	130	90	90	180	130	130	90	90	180	90	180
		V _f (mm/min)	4,500	14,400	6,500	6,500	4,500	4,320	13,830	6,240	6,240	4,320	3,858	12,347	3,474	11,118
		f _z feed/tooth	1.0	1.6	1.0	1.0	1.0	1.0	1.6	1.0	1.0	1.0	1	1.6	1	1.6
		a _p (mm)	1.0	0.5	0.8	0.6	0.4	1.0	0.5	0.8	0.6	0.4	1	0.5	1	0.5
		a _e (mm)	24	24	24	24	24	30	30	30	30	30	40	40	50	50
		Volume cm ³	108	173	125	94	43	130	207	150	112	52	154	247	174	278
III Alloy-Steel Tool-Steel 30~40HRC	TB 6020 TB 6045	n (min ⁻¹)	900	1,800	1,300	1,300	900	720	1,440	1,040	1,040	720	551	1,102	434	869
		V _c (m/min)	90	180	130	130	90	90	180	130	130	90	90	180	90	180
		V _f (mm/min)	4,500	14,400	6,500	6,500	4,500	4,320	13,830	6,240	6,240	4,320	3,858	12,347	3,474	11,118
		f _z feed/tooth	1.0	1.6	1.0	1.0	1.0	1.0	1.6	1.0	1.0	1.0	1	1.6	1	1.6
		a _p (mm)	0.8	0.4	0.6	0.5	0.35	0.8	0.4	0.6	0.5	0.35	0.8	0.4	0.8	0.4
		a _e (mm)	24	24	24	24	24	30	30	30	30	30	40	40	50	50
		Volume cm ³	86	138	94	78	38	104	166	112	94	45	123	198	139	222
IV Pre-Hardened Steel Tool-Steel 40~50HRC	TB 6005 TB 6020	n (min ⁻¹)	900	1,300	900	900	900	720	1,040	720	720	720	551	796	434	627
		V _c (m/min)	90	130	90	90	90	90	130	90	90	90	90	130	90	130
		V _f (mm/min)	3,600	9,100	3,600	3,600	3,600	3,460	8,740	3,460	3,460	3,460	3,087	7,803	2,779	7,026
		f _z feed/tooth	0.8	1.4	0.8	0.8	0.8	0.8	1.4	0.8	0.8	0.8	0.8	1.4	0.8	1.4
		a _p (mm)	0.6	0.35	0.5	0.4	0.25	0.6	0.35	0.5	0.4	0.25	0.6	0.35	0.6	0.35
		a _e (mm)	24	24	24	24	24	30	30	30	30	30	40	40	50	50
		Volume cm ³	52	76	43	35	22	62	92	52	42	26	74	109	83	123
V Pre-Hardened Steel Tool steel (50-62HRC)	TB 6005 TB 6020	n (min ⁻¹)	800	1,200	800	800	800	640	960	640	640	640	490	735	386	579
		V _c (m/min)	80	120	80	80	80	80	120	80	80	80	80	120	80	120
		V _f (mm/min)	2,400	6,000	2,400	2,400	2,400	2,310	5,760	2,310	2,310	2,310	2,058	5,145	1,853	4,632
		f _z feed/tooth	0.6	1.0	0.6	0.6	0.6	0.6	1.0	0.6	0.6	0.6	0.6	1	0.6	1
		a _p (mm)	0.4	0.25	0.35	0.25	0.15	0.4	0.25	0.35	0.25	0.15	0.4	0.25	0.4	0.25
		a _e (mm)	24	24	24	24	24	30	30	30	30	30	40	40	50	50
		Volume cm ³	23	36	20	14	9	28	43	24	17	10	33	51	37	58
VIII Cast-Iron GG GGG	TB 6020 TB 6045	n (min ⁻¹)	900	1,800	1,300	1,300	900	720	1,440	1,040	1,040	720	551	1,102	434	869
		V _c (m/min)	90	180	130	130	90	90	180	130	130	90	90	180	90	180
		V _f (mm/min)	6,300	16,200	9,100	9,100	6,300	6,050	15,560	8,740	8,740	6,050	5,402	13,890	4,864	12,507
		f _z feed/tooth	1.4	1.8	1.4	1.4	1.4	1.4	1.8	1.4	1.4	1.4	1.4	1.8	1.4	1.8
		a _p (mm)	1.25	1.0	0.8	0.6	0.4	1.25	1.0	0.8	0.6	0.4	1.25	1	1.25	1
		a _e (mm)	24	24	24	24	24	30	30	30	30	30	40	40	50	50
		Volume cm ³	189	389	175	131	60	227	467	210	157	73	270	556	304	625

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