PRAMET

AGE Mill

Pramet

NEW GENERATION OF MILLING CUTTERS WITH INSERTS

ADMX

HIGH PRODUCTIVITY OF MILLING
PRECISE MILLING TOOLS
WIDE APPLICATION AREA

PRAMET

AGE Mill

880436

Pramet

Pramet Tools, s.r.o., Uničovská 2, 787 53 Šumperk, CZECH REPUBLIC
Phone: +420 583 381 111, Fax: +420 583 215 401, E-mail: pramet.info.cz@pramet.com

GERMANY Pramet GmbH, Am Weichselgarten 34, D - 91058 Erlangen, Telefon: + 49 9131 / 93 37 40, Fax: + 49 9131 / 93 37 42, E-mail: pramet.info.de@pramet.com **HUNGARY** Pramet Kft., Bártfai utca 54, HU - 1115 Budapest, Tel.: + 36-1-382-90-82, Fax: +36-1-382-90-83, E-mail: pramet.info.hu@pramet.com **INDIA** Head Office & Administration: Pramet Tools India Pvt Ltd, B 64-65, Sushant Lok - 1, Opp Vipul Square Orchid, Behind Galleria Market, Gurgaon - 122001, Phone: + 91 124 4703825, + 91 124 4703826, Fax: + 91 124 4703827, E-mail: pramet.info.in@pramet.com **ITALY** Pramet SRL, Via Re Umberto I, 33, I - 20020 Lainate (MI), Telefono: + 39 02 / 93 79 94 82, Fax: + 39 02 / 93 73 102, E-mail: pramet.info.it@pramet.com **POLAND** Pramet Sp. z o.o., ul. Braci Mieroszewskich 122C, PL - 41-219 Sosnowiec, Telefon: + 48 32 / 78 15 890, Fax: + 48 32 / 78 60 406, E-mail: pramet.info.pl@pramet.com **RUSSIA** ООО «Прамет», ул. Б. Семеновская, д.40, стр.1, офис 113, 107023 Москва, РФ, Тел.: +7 495 739 57 23, 739 58 15 Факс: +7 495 739 57 22, E-mail: pramet.info.ru@pramet.com **SLOVAKIA** Pramet Slovakia, spol. s r.o., Dolné Rudiny 1, SK - 010 81 Žilina, Telefon: + 421 41 / 764 54 60, Fax: + 421 41 / 763 74 49, E-mail: pramet.info.sk@pramet.com

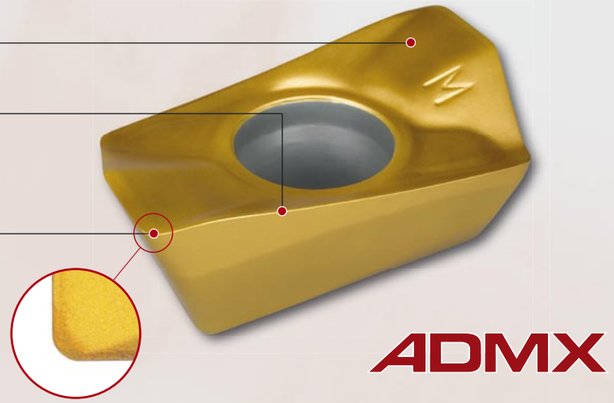
www.pramet.com

PRAMET AGEMILL

NEW GENERATION OF INSERTS AND TOOLS FOR MILLING

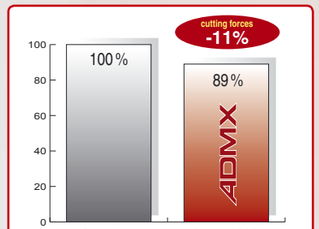
New generation of inserts ADMX16

- **Highly Positive Geometry (rake angle 25°)**
  - lower machine power
- **Optimized Cutting Edge Shape**
  - higher impact resistance
  - lower cutting forces
  - smooth machining
- **Smooth Cutting Edge Continuity**
  - higher tool life
  - better roughness quality

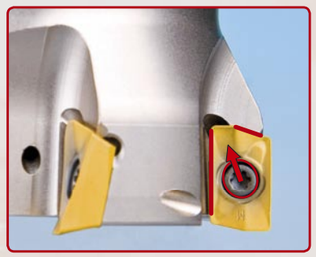


New generation of milling tools with inserts ADMX16 / ADEX 16

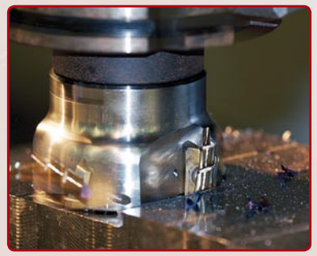
- **New Technology and Heat Treatment**
  - higher tool accuracy
- **Special Surface Finishing**
  - better corrosion resistance
  - abrasive wear reduction
  - lower friction resistance
- **Long-Life Laser Marking**
  - identification of inserts and spare parts
- **Internal Fluid Supply**
  - optimal cooling
- **Tool Body Design**
  - easy chip removing
- **Clamping Screw M4 TORX Plus**
  - reliable insert fixing
- **Highly Positive Geometry**
  - cutting forces reduction
  - higher productivity



Cutting forces reduction



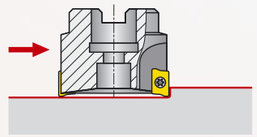
Clamping hole with eliptical fixing
- optimal insert fixed



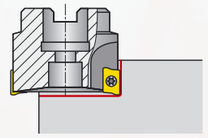
Excellent chip removing

Wide area of applications of new milling cutters with inserts ADMX16

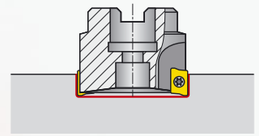
FACE MILLING
currently achieved roughness
by geometry F
Ra ≤ 0,6 [μm]



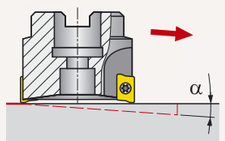
SHOULDER MILLING
areas link-up
x_{max} ≤ 0,03 [mm]



SLOT MILLING
achieved roughness
Ra ≤ 1,6 [μm]

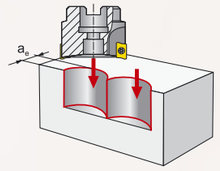


RAMPING

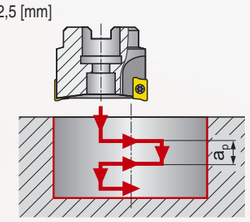


ø cutter	α_{max}
ø 25	12,5°
ø 32	7,5°
ø 40	5,0°
ø 50	3,5°
ø 63	2,5°
ø 80	2,0°
ø 100	1,0°
ø 125	-
ø 160	-

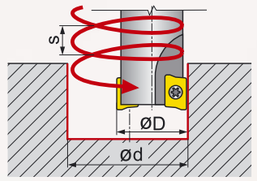
PLUNGE MILLING
axial depth of cut
a_{emax} = 7,5 [mm]



PROGRESSIVE PLUNGING
a_{pmax} = 2,5 [mm]

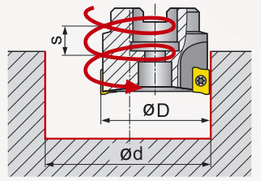


MILLING BY HELICAL INTERPOLATION - END MILLING CUTTERS
to diameter 40 mm



ø cutter	d_{min}	d_{max}	s_{max}
25	42	-	10,0
	-	48	12,5
32	55	-	6,5
	-	62	9,0
40	72	-	5,0
	-	78	8,0

MILLING BY HELICAL INTERPOLATION - FACE MILLING CUTTERS
to diameter 80 mm



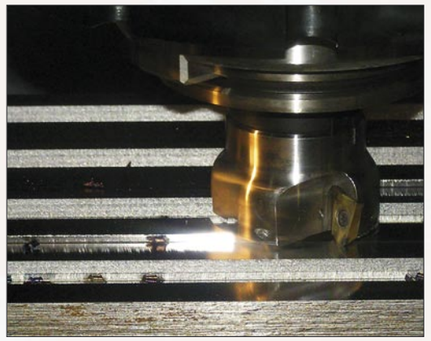
ø cutter	d_{min}	d_{max}	s_{max}
40	72	-	5,0
	-	78	8,0
50	92	-	4,5
	-	98	6,0
63	118	-	4,0
	-	124	5,0
80	136	-	1,5
	-	158	2,0

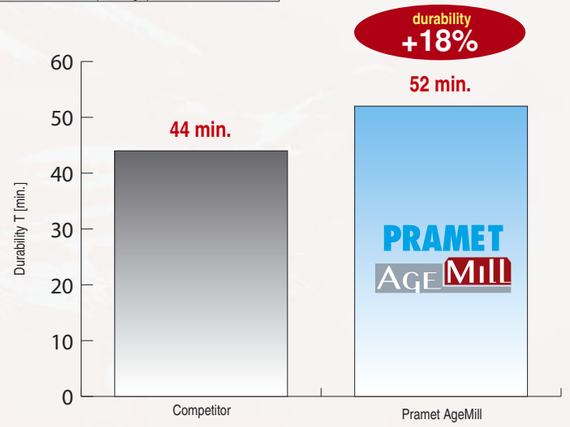
Practical test of milling tools with inserts ADMX16

EXAMPLE:

Machine: milling centre
Type: MCV1270 Power
Operation: face milling with interrupted cut
Workpiece: steel C45
Inserts: ADMT 160608 P25 competitor
ADMX 160608PR-R; 2230 Pramet
Cooling: with cooling

Cutting speed	v_c	300 m.min^{-1}
Feed per tooth	f_z	0,2 mm.tooth^{-1}
Axial depth of cut	a_p	5,0 mm
Radial depth of cut	a_e	50 mm

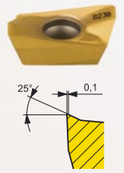
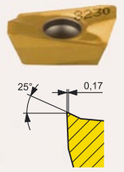


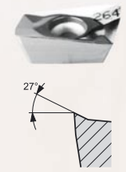


Assortment of inserts ADMX

Basic shape of insert		Cutting condition		Initial cutting conditions P	M	K	N	S	H
ADMX 160608SR-F; 8016	feed	[mm.tooth^{-1}]]		0,07 ÷ 0,15	0,07 ÷ 0,11	0,07 ÷ 0,15	0,07 ÷ 0,15	0,07 ÷ 0,09	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	1,0 ÷ 1 ÷ 13,0	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		165 ÷ 255	95 ÷ 150	155 ÷ 240	245 ÷ 890	30 ÷ 75	-
ADMX 160608SR-F; 8230	feed	[mm.tooth^{-1}]]		0,07 ÷ 0,15	0,07 ÷ 0,11	0,07 ÷ 0,15	0,07 ÷ 0,15	0,07 ÷ 0,09	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	1,0 ÷ 13,0	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		195 ÷ 290	115 ÷ 170	185 ÷ 275	290 ÷ 1015	35 ÷ 85	-
ADMX 160608SR-F; 8240	feed	[mm.tooth^{-1}]]		0,07 ÷ 0,15	0,07 ÷ 0,11	0,07 ÷ 0,15	-	0,07 ÷ 0,09	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		165 ÷ 230	95 ÷ 135	155 ÷ 215	-	30 ÷ 65	-
ADMX 160608SR-M; 2215	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,25	0,10 ÷ 0,19	0,10 ÷ 0,25	-	-	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	-	-
	cutting speed	[m.min^{-1}]		230 ÷ 330	135 ÷ 195	215 ÷ 310	-	-	-
ADMX 160608SR-M; 2230	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,25	0,10 ÷ 0,19	0,10 ÷ 0,25	-	-	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	-	-
	cutting speed	[m.min^{-1}]		180 ÷ 285	105 ÷ 170	170 ÷ 270	-	-	-
ADMX 160608SR-M; 8016	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,25	0,10 ÷ 0,19	0,10 ÷ 0,25	-	0,10 ÷ 0,15	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		150 ÷ 240	90 ÷ 140	140 ÷ 225	-	30 ÷ 70	-
ADMX 160608SR-M; 8230	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,25	0,10 ÷ 0,19	0,10 ÷ 0,25	-	0,10 ÷ 0,15	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		175 ÷ 275	105 ÷ 165	165 ÷ 260	-	35 ÷ 80	-
ADMX 160608SR-M; 8240	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,25	0,10 ÷ 0,19	0,10 ÷ 0,25	-	0,10 ÷ 0,15	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		160 ÷ 225	95 ÷ 135	150 ÷ 210	-	30 -65	-
ADMX 160608PR-R; 2215	feed	[mm.tooth^{-1}]]		0,17 ÷ 0,35	0,17 ÷ 0,26	0,17 ÷ 0,35	-	-	0,10 ÷ 0,20
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	-	0,3 ÷ 1,5
	cutting speed	[m.min^{-1}]		220 ÷ 315	130 ÷ 185	205 ÷ 295	-	-	45 ÷ 65
ADMX 160608PR-R; 2230	feed	[mm.tooth^{-1}]]		0,17 ÷ 0,35	0,17 ÷ 0,26	0,17 ÷ 0,35	-	-	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	-	-
	cutting speed	[m.min^{-1}]		170 ÷ 255	100 ÷ 150	160 ÷ 240	-	-	-
ADMX 160608PR-R; 8016	feed	[mm.tooth^{-1}]]		0,17 ÷ 0,35	0,17 ÷ 0,26	0,17 ÷ 0,35	-	0,17 ÷ 0,21	0,10 ÷ 0,20
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	0,3 ÷ 1,5
	cutting speed	[m.min^{-1}]		135 ÷ 210	80 ÷ 125	125 ÷ 195	-	25 ÷ 60	30 ÷ 45
ADMX 160608PR-R; 8230	feed	[mm.tooth^{-1}]]		0,17 ÷ 0,35	0,17 ÷ 0,26	0,17 ÷ 0,35	-	0,17 ÷ 0,21	0,10 ÷ 0,20
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	0,3 ÷ 1,5
	cutting speed	[m.min^{-1}]		165 ÷ 250	95 ÷ 150	155 ÷ 235	-	30 ÷ 75	35 ÷ 55
ADMX 160608PR-R; 8240	feed	[mm.tooth^{-1}]]		0,17 ÷ 0,35	0,17 ÷ 0,26	0,17 ÷ 0,35	-	0,17 ÷ 0,21	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		160 ÷ 220	95 ÷ 130	150 ÷ 205	-	30 ÷ 65	-
ADMX 160616SR-M; 8016	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,30	0,10 ÷ 0,23	0,10 ÷ 0,30	-	0,10 ÷ 0,18	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		155 ÷ 265	90 ÷ 155	145 ÷ 250	-	30 ÷ 75	-
ADMX 160616SR-M; 8230	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,25	0,10 ÷ 0,19	0,10 ÷ 0,25	-	0,10 ÷ 0,15	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		195 ÷ 300	115 ÷ 180	185 ÷ 285	-	35 ÷ 90	-
ADMX 160616SR-M; 8240	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,30	0,10 ÷ 0,23	0,10 ÷ 0,30	-	0,10 ÷ 0,18	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		175 ÷ 250	105 ÷ 150	165 ÷ 235	-	35 ÷ 75	-
ADMX 160632SR-M; 8016	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,30	0,10 ÷ 0,23	0,10 ÷ 0,30	-	0,10 ÷ 0,18	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		165 ÷ 275	95 ÷ 165	155 ÷ 260	-	30 ÷ 80	-
ADMX 160632SR-M; 8230	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,25	0,10 ÷ 0,19	0,10 ÷ 0,25	-	0,10 ÷ 0,15	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		205 ÷ 315	120 ÷ 185	190 ÷ 295	-	40 ÷ 90	-
ADMX 160632SR-M; 8240	feed	[mm.tooth^{-1}]]		0,10 ÷ 0,25	0,10 ÷ 0,19	0,10 ÷ 0,25	-	0,10 ÷ 0,15	-
	depth of cut	[mm]		1,0 ÷ 13,0	1,0 ÷ 9,8	1,0 ÷ 13,0	-	1,0 ÷ 7,8	-
	cutting speed	[m.min^{-1}]		185 ÷ 265	110 ÷ 155	175 ÷ 250	-	35 ÷ 75	-
ADEX 160608FR-FA; HF7	feed	[mm.tooth^{-1}]]		-	-	-	0,03 ÷ 0,20	-	-
	depth of cut	[mm]		-	-	-	1,0 ÷ 13	-	-
	cutting speed	[m.min^{-1}]		-	-	-	110 ÷ 560	-	-

Overview of geometries ADMX16 / ADEX 16

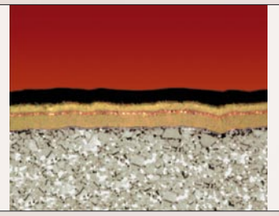
Geometry	Insert / Geometry	Description of geometry
F		- highly positive geometry - first choice for machined materials group P (low carbon steel) and group M - light and medium machining
M		- highly positive geometry - suitable for machining of materials groups P, K and M - for medium machining - geometry M also on inserts with r_ε 1,6 and 3,2 mm

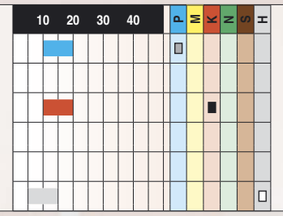
Geometry	Insert / Geometry	Description of geometry
R		- in comparison to F and M nor less positive geometry - suitable for machining of materials groups P and K - suitable for medium and heavy machining
FA		- highly positive geometry, sharp cutting edge - especially for machining in group N - polished top reduces built-up effect

all dimension in [mm]

Grades - application area

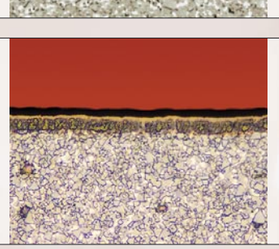
2215

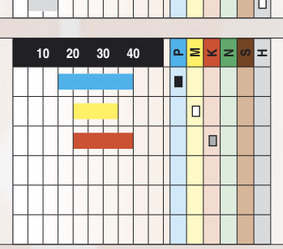




- 1st choice for milling of grey cast iron
- suitable for all types of cast iron
- high wear resistance
- good operation reliability

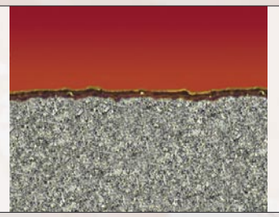
2230

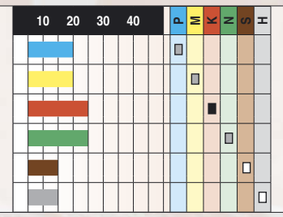




- good operation reliability
- mechanical impact resistance
- built-up effect resistance
- suitable for steel, also for stainless steel and cast iron

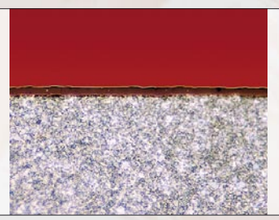
8016

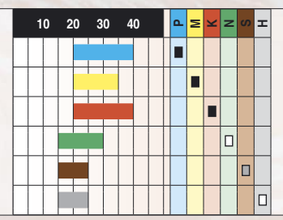




- versatile grade (fit to all groups of machined materials)
- small to medium chip cross section
- stable cutting conditions

8230

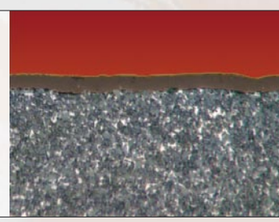


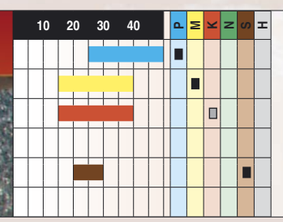


NEW

- highly versatile grade
- excellent wear resistance and toughness
- suitable for fine, medium up to heavy machining
- efficient, reliable grade

8240



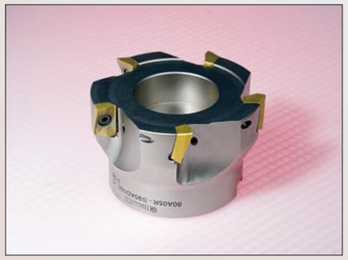


- excellent operation reliability
- wide area of application
- high mechanical impact resistance
- low friction coefficient

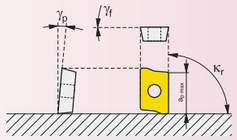
■ main area ▣ other application □ conditional application

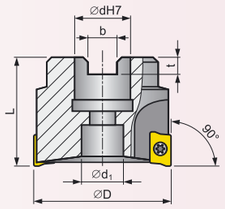
S90AD16E

Shoulder milling cutter with ADMX 16

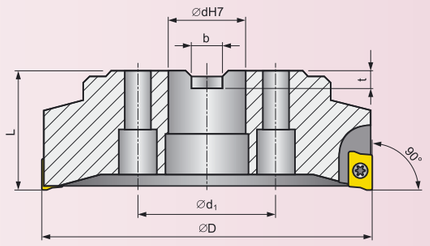


γ_p	+10,5° ÷ 12°	κ_r	90°
γ_f	-3,8° ÷ -8,2°	$a_{p\,max}$	13 mm





ø 40 ÷ 125 mm



ø 160 mm

Z* - Number of teeth

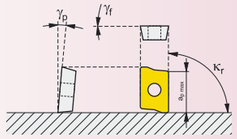
ISO	Assortment	Dimensions D	dH7	d_1	L	b	t	Z*	[kg]	Cooling	Spare Parts		Inserts
40A04R- S90AD16E-C	●	40	16	14	40	8,4	5,6	4	0,16	+	US4008-T15P		
50A03R- S90AD16E-C	●	50	22	18	40	10,4	6,3	3	0,30	+			
50A05R- S90AD16E-C	●	50	22	18	40	10,4	6,3	5	0,29	+			
63A04R- S90AD16E-C	●	63	22	18	40	10,4	6,3	4	0,48	+			
63A06R- S90AD16E-C	●	63	22	18	40	10,4	6,3	6	0,46	+			
80A05R- S90AD16E-C	●	80	27	38	50	12,4	7,0	5	0,98	+			
80A07R- S90AD16E-C	●	80	27	38	50	12,4	7,0	7	0,96	+			
100A06R- S90AD16E-C	●	100	32	45	50	14,4	8,0	6	1,80	+			
100A08R- S90AD16E-C	●	100	32	45	50	14,4	8,0	8	1,68	+			
125A09R- S90AD16E-C	●	125	40	56	63	16,4	9,0	9	3,48	+			
160C10R- S90AD16E	●	160	40	67	63	16,4	9,0	10	5,70				

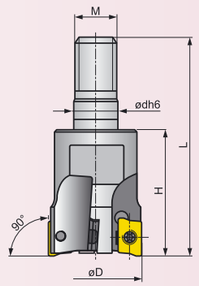
US4011-T15P | SDR T15P | AD.X 1606....-..

SAD16E

Exchangable heads with ADMX 16

γ_p	+7° ÷ 10,5°	κ_r	90°
γ_f	-8,2° ÷ -12°	$a_{p\,max}$	13 mm



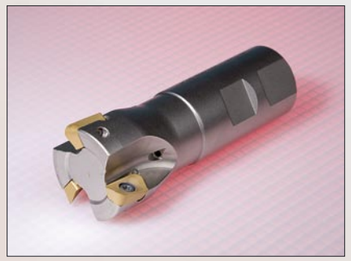


Z* - Number of teeth

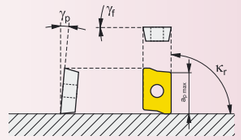
ISO	Assortment	Dimensions D	L	H	dh6	M	Z*	[kg]	Cooling	Spare Parts		Inserts
32A3R043M16-SAD16E-C	●	32	66	43	16	M16	3	0,16	+	US4008-T15P	SDR T15P	AD.X 1606....-..
40A4R043M16-SAD16E-C	●	40	66	43	16	M16	4	0,20	+			

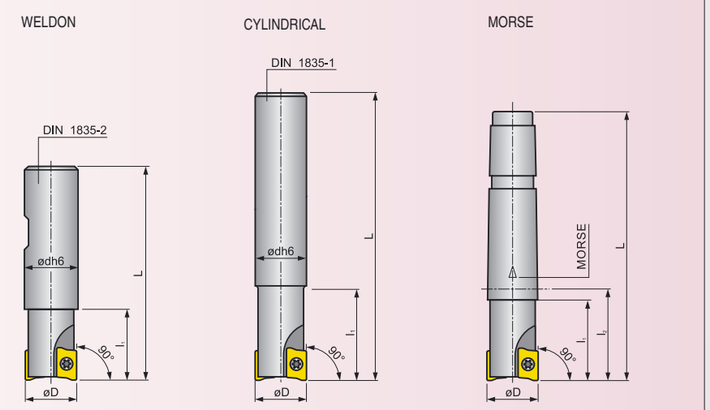
SAD16E

End milling cutters with ADMX 16



γ_p	+5° ÷ 10,5°	κ_r	90°
γ_f	-8,2° ÷ -13°	$a_{p\,max}$	13 mm



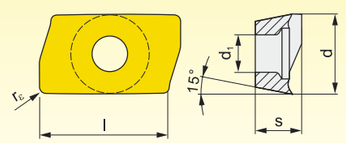


Z* - Number of teeth

ISO	Assortment	Dimensions D	L	l_1	dh6	Morse	Z*		[kg]	Cooling	Spare Parts		Inserts
WELDON													
25A2R042B25-SAD16E-C	●	25	98	42	25	-	2		0,28	+	US 4008-T15P	SDR T15P	AD.X 1606....-..
32A3R040B32-SAD16E-C	●	32	100	40	32	-	3		0,48	+			
40A3R050B32-SAD16E-C	●	40	110	50	32	-	3		0,60	+			
40A4R050B32-SAD16E-C	●	40	110	50	32	-	4		0,58	+			
CYLINDRICAL													
25A2R033A25-SAD16E-C	●	25	165	33	25	-	2		0,47	+			
32A3R033A32-SAD16E-C	●	32	195	33	32	-	3		0,90	+			
MORSE													
25A2R043E03-SAD16E-C	●	25	98	42	-	3	2		0,28	+			
32A3R043E03-SAD16E-C	●	32	100	40	-	3	3		0,48	+			
40A3R054E04-SAD16E-C	●	40	110	50	-	4	3		0,58	+			
40A4R054E04-SAD16E-C	●	40	110	50	-	4	4		0,60	+			

Indexable cutting inserts AD.X16

ADMX 16 / ADEX 16



Size	l	d	s	d_1	r_ε
1606	16,000	9,95	6,25	4,50	0,8 ÷ 3,2

Chip breaker	ISO	ANSI	Grade 2215	2230	8016	8230	8240	HF7					Radius
F	ADMX 160608SR-F	ADMX -42SR-F			●	●	●						0,8
M	ADMX 160608SR-M	ADMX -42SR-M	●	●	●	●	●						0,8
R	ADMX 160608PR-R	ADMX -42SR-R	●	●	●	●	●						0,8
	ADMX 160616SR-M	ADMX -44SR			●	●	●						1,6
	ADMX 160632SR-M	ADMX -48SR			●	●	●						3,2
	ADEX 160608FR-FA	ADEX -42FR-FA						●					0,8

● Stock assortment ○ Non-stock assortment

all dimensions in [mm]