



Technical Guide for Pro-X Mill - for Aluminium Machining

Special Features

- Strong clamping is achieved due to the concave part of the insert bottom.
- Good chip flow and less build up edge are achieved due to the special treatment on the top of the insert.
- High rake angle of insert provides a good surface finish and low cutting loads.
- Specially designed for high speed machining of aluminium.
- Suitable for square shouldering and curved surface machining.



Special Clamping System for High Speed Machining

Special design for strong clamping at high speed machining to prevent flying-out of the insert

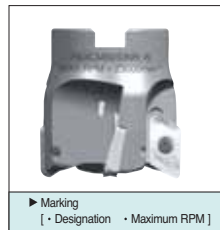
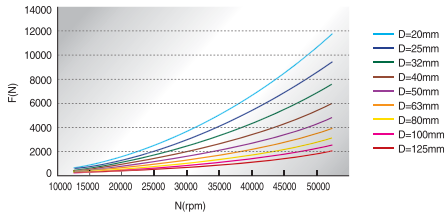
Various insert corner radius is available (R0.4 ~ R5.0)

3 dimensional design for low cutting load

▶ Clamping design as per FEM analysis. (Cutting load analysis)

▶ Strong clamping of insert

Centrifugal Force as RPM



Maximum RPM as Per Cutting Diameter

Machining diameter	20	25	32	40	50	63	80	100	125
Maximum RPM	36500	32600	28800	25800	23000	20500	18200	16300	14600

* This table is for data only for flying-out of insert by centrifugal force at unloaded condition. In case of actual machining, accidental breakage of insert or tool could happen even under the written RPM. A special cover or door is necessary to prevent damage from broken inserts or tools.



Recommended Cutting Conditions

Work piece		Cutting speed Vc(m/min)	Feed rate fz(mm/tooth)
Aluminum alloy	Rm < 280 N/mm ²	1200	0.3
	Rm > 280 N/mm ²	1000	0.25
Copper alloy	Long chip	400	0.2
Thermoplastics	-	350	0.15
Aluminum alloys	Si < 12%	1000	0.25
	Si ≥ 12%	-	-
Copper alloys	Short chip	500	0.2
Magnesium alloys	-	450	0.2
Duro-plastics	-	200	0.15

Formula for Ramping

$$L_{min} = \frac{d}{\tan \alpha} \text{ (mm)}$$

L_{min} : Minimum cutting length for ramping
 α : Ramping angle available
 d : Cutting depth

■ PAXC(M)

Cutting diameter(Ø)	α ° (max)	Lmin
Ø40	11.31	50
Ø50	7.24	78
Ø63	5.10	112
Ø80	3.86	148
Ø100	3.94	145
Ø125	2.14	267

■ PAXS

Cutting diameter(Ø)	α ° (max)	Lmin
Ø20	8.30	68
Ø25	17.95	31
Ø32	12.6	45
Ø40	9.91	57
-	-	-
-	-	-

(In case of d=10mm)

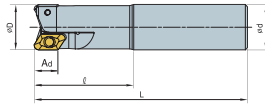


Pro-X Mill
For Aluminium



MILLING TOOLS

PAXS

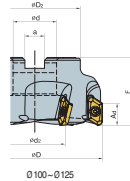
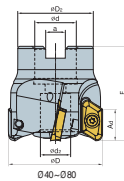


Designation	2007 £	ØD	Ød	<i>l</i>	L	A _s		α' max	Coolant hole
PAXS 5020NR-A, B	51.50	20	20	60	130	17	1	8.30	-
5025NR-A, B	55.00	25	25	60	140	17	2	17.95	-
5032NR-A, B	57.00	32	32	70	150	17	2	12.6	-
5040NR-A, B	75.00	40	40	70	160	17	3	9.91	-

(mm)

For full insert range please see page 95

PAXM



(mm)

Designation	2007 £	ØD	ØD2	Ød	Ød2	a	F	A _s		α' max	Coolant hole
PAXM 5040NR-A, B	75.00	40	34	16	14	8.4	40	17	3	11.31	-
5050NR-A, B	79.00	50	42	22	16.5	10.4	50	17	4	7.24	-
5063NR-A, B	89.00	63	49	22	16.5	10.4	50	17	4	5.10	-
5080NR-A, B	95.00	80	57	27	19	12.4	50	17	5	3.86	-
5100NR-A, B	99.00	100	67	32	45	14.4	50	17	6	3.94	-
5125NR-A, B	135.00	125	87	40	56	16.4	63	17	7	2.14	-

Do you want a FREE milling body? Please phone for more information

Holder	Insert	Screw	Wrench
PAXS, PAXC	XEKT-MA	PTKA048	TW15S

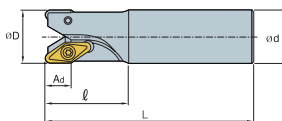
For full insert range please see page 95

Holders Ending -A for inserts with radius from 0.4 mm to 3.2 mm
Holders Ending -B for inserts with radius from 4.0 mm to 5.0 mm



INDEXABLE MILLING TOOLS Pro-X Mill

PAS2000/4000

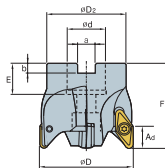


(mm)

Designation	2007 £	OD	ODd	L	l	\odot	Ad	Insert	Screw	Wrench
PAS 2012R	35.00	12	16	85	25	1	8	VDKT11T210N-MA	ETNA02505	TW07S
2016R	45.00	16	16	90	25	2	8	VDKT11T210N-MA	ETNA02505	TW07S
2020R	53.00	20	20	100	30	2	8	VDKT11T210N-MA	ETNA02506	TW07S
2025R	69.00	25	25	115	35	3	8	VDKT11T210N-MA	ETNA02506	TW07S
2032R	85.00	32	32	125	40	4	8	VDKT11T210N-MA	ETNA02506	TW07S
2042R	89.00	42	32	130	42	5	8	VDKT11T210N-MA	ETNA02506	TW07S
4032R	59.00	32	32	125	50	2	15	VCKT220530N-MA	FTNC04509	TW20S
4040R	78.00	40	32	140	50	3	15	VCKT220530N-MA	FTNC04509	TW20S

Do you want a FREE milling body? Please phone for more information

PAC(M)4000



(mm)

Designation	2007 £	OD	ODd	ODd	F	a	b	E	\odot	Ad	Insert	Screw	Wrench
PACM 4040R	85.00	40	32	16	55	8.4	5.6	20.0	3	15	VCKT220530N-MA	FTNC04509	TW20S
4050R	89.00	50	40	22	55	10.4	6.3	22.0	3	15	VCKT220530N-MA	FTNC04511	TW20S
4063R	99.00	63	50	22	60	10.4	6.3	22.0	4	15	VCKT220530N-MA	FTNC04511	TW20S
4080R	109.00	80	60	27	60	12.4	7.0	22.0	4	15	VCKT220530N-MA	FTNC04511	TW20S
4100R	125.00	100	80	32	60	14.4	8.0	32.0	5	15	VCKT220530N-MA	FTNC04511	TW20S

For full insert range please see page 94



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MILLING TOOLS

INDEXABLE MILLING TOOLS Pro-A Mill