MOLDINO
The Edge To Innovation

ASRF/M Turbo4

Super Radius Mill Four Corners for High Performance Milling

D 35 mm ~ D 100 mm
- Modular & Bore Types
- 4 Cutting Edges Insert Geometry Turbo4
- CAM Radius: R4.5

www.moldino.eu

No. 321.4 | ASRF | 2020-03

ASRF TURBO4

The ASRF with economical 4-corner specification for increased processing efficiency ensures stable high-performance machining with constant load – even for deep cutting operations.

ASRF TURBO4

Der ASRF mit wirtschaftlicher 4-seitiger Schneidplattengeometrie für höchste Effizienz ermöglicht Hochleistungs-Bearbeitungen mit konstantem Vorschub – auch bei großen Schnitttiefen.

ASRF TURBO4

Il ASRF, nella conveniente versione a 4 angoli per una migliore efficienza di lavoro, assicura una lavorazione stabile di elevate prestazioni con un carico costante, anche per operazioni di taglio profondo.

ASRF TURBO4

El ASRF con especificación económica de 4 esquinas para aumento de eficiencia de procesamiento, asegura un estable funcionamiento de máquina con constante carga – aún para operaciones de corte profundas.

ASRF TURBO4

Le ASRF, avec ses plaquettes spécifiques dotées de quatre arrêtes de coupe, permet des usinages hautes performances grâce à sa stabilité et la constance de la charge requise. Ceci même lors d'usinages avec de forts porte-à-faux.

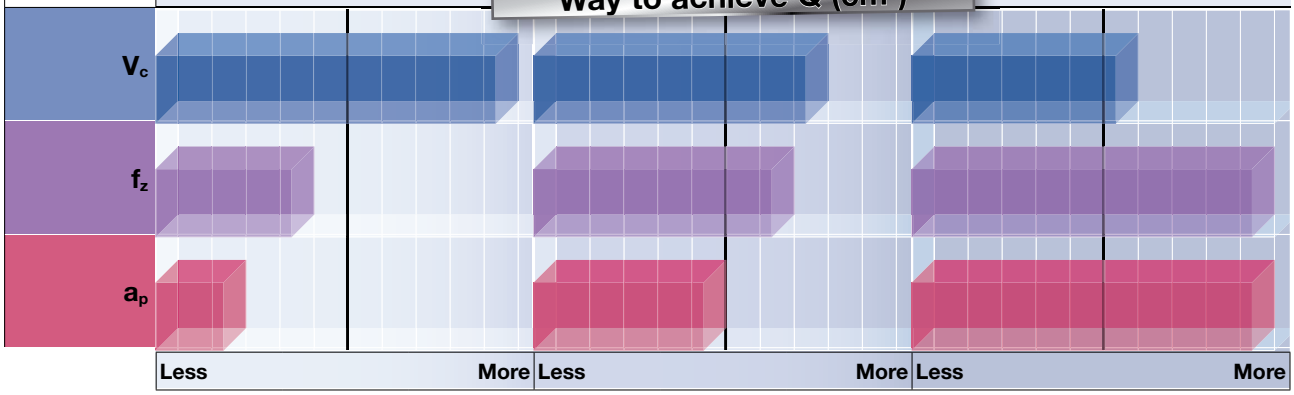
ASRF TURBO4

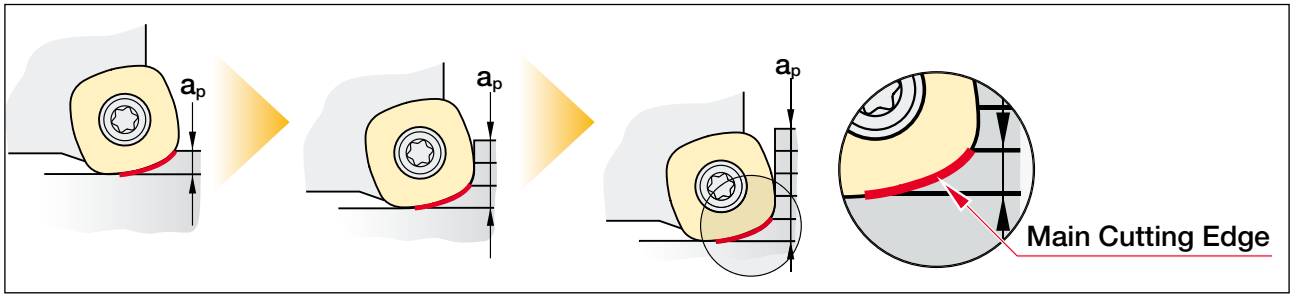
A ASRF Turbo 4 com a económica especificação de 4 arestas para uma maior eficiência de processamento, assegura um funcionamento estável da máquina com carga constante – até em operações de corte mais profundas.

Recommended Selection of MOLDINO's Roughing Series

	ASR Pico D 16–66 mm	ASRF D 35–100 mm	ASF D 63–315 mm
Application Field	HFM High Feed Machining	HPC High Performance Cutting	HVC High Volume Cutting
Machine-spindle	ISO40 / HSK63 ASR Pico	ASRF	ISO50 / HSK100 ASF
f_z mm	0.5 ~ 1.5	**0.5 ~ 2.5**	0.5 ~ 3.5
V_f mm/min	2,000 ~ 20,000	**1,000 ~ 10,000**	500 ~ 5,000
a_p mm	0.35 ~ 0.75 (max. 1)	**0.5 ~ 1.5 (max. 2)**	0.75 ~ 2 (max. 3)
CAM R	R2	**R4.5**	R5

Way to achieve Q (cm^3)





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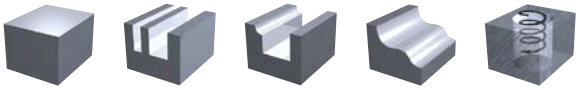
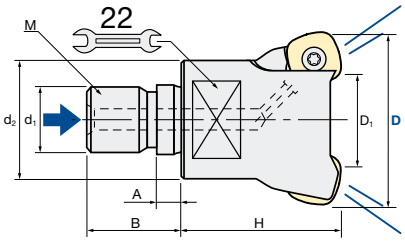
ASRFM | Turbo4 Modular

Q max	Jet	▽	▽▽	HRC	No. of Teeth
High Efficient	Air Hole	Roughing	Semi-Finishing	60	3 ~ 4



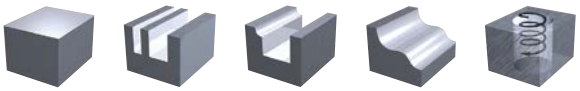


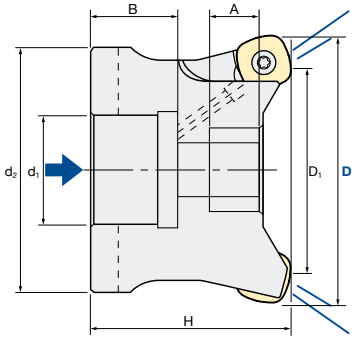
Diameter Holder only [mm]	CAM Radius:	Fastening Torque [Nm]
0/-0.2 mm	4.5 mm	2.9 Nm

Modular Type											
ID Code	Item Code	Flutes	D	D_1	H	d_1	M	d_2	A	B	Inserts
FH114	**ASRFM-4035R-3-M16**	3	35	17	40	17	16	29	6	23	SD..1205ZDTN-R15
FH115	**ASRFM-4042R-4-M16**	4	42	24							

ASRF | Turbo4

Q max	Jet	▽	▽▽	HRC	No. of Teeth
High Efficient	Air Hole	Roughing	Semi-Finishing	60	4 ~ 8





Diameter Holder only [mm]	CAM Radius:	Fastening Torque [Nm]
0/-0.2 mm	4.5 mm	2.9 Nm

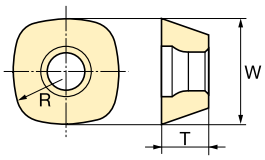
Bore Type											
ID Code	Item Code	Flutes	D	D_1	H	d_1	M	d_2	A	B	Inserts
FH108	**ASRF-4042RM-4-16**	4	42	24	40	16	8*	35	3	18	SD..1205ZDTN-R15
FH217	**ASRF-4050RM-4-22**		50	32	50	22	10	47	16.5	20	
FH273	**ASRF-4050RM-5-22**	5						40			
FH109	**ASRF-4052RM-5-22**		52	34							
FH113	**ASRF-4052RM-5-27**					27	12	45	15.5	22	
FH219	**ASRF-4063RM-5-27**		63	45				60	13		
FH110	**ASRF-4066RM-5-27**		66	48							
FH111	**ASRF-4080RM-6-27**	6	80	62	70				27		
FH112	**ASRF-4100RM-8-32**	8	100	82		32	16	70	25	25.5	

* Special Screw

Cutting Conditions | Schnittwerte | Condizioni di taglio | Condiciones de Corte | Conditions de coupe | Valores de corte:			
D 35 (Z3) – D 42 (Z4) modular & bore type	Page 5	D 50 (Z4) – D 100 (Z8) bore type	Page 6–7

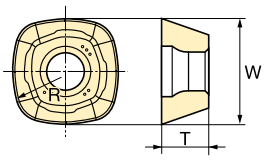
INSERTS ASRF / M | Turbo4 / Turbo4 Modular

Type A



Standard type

Type B



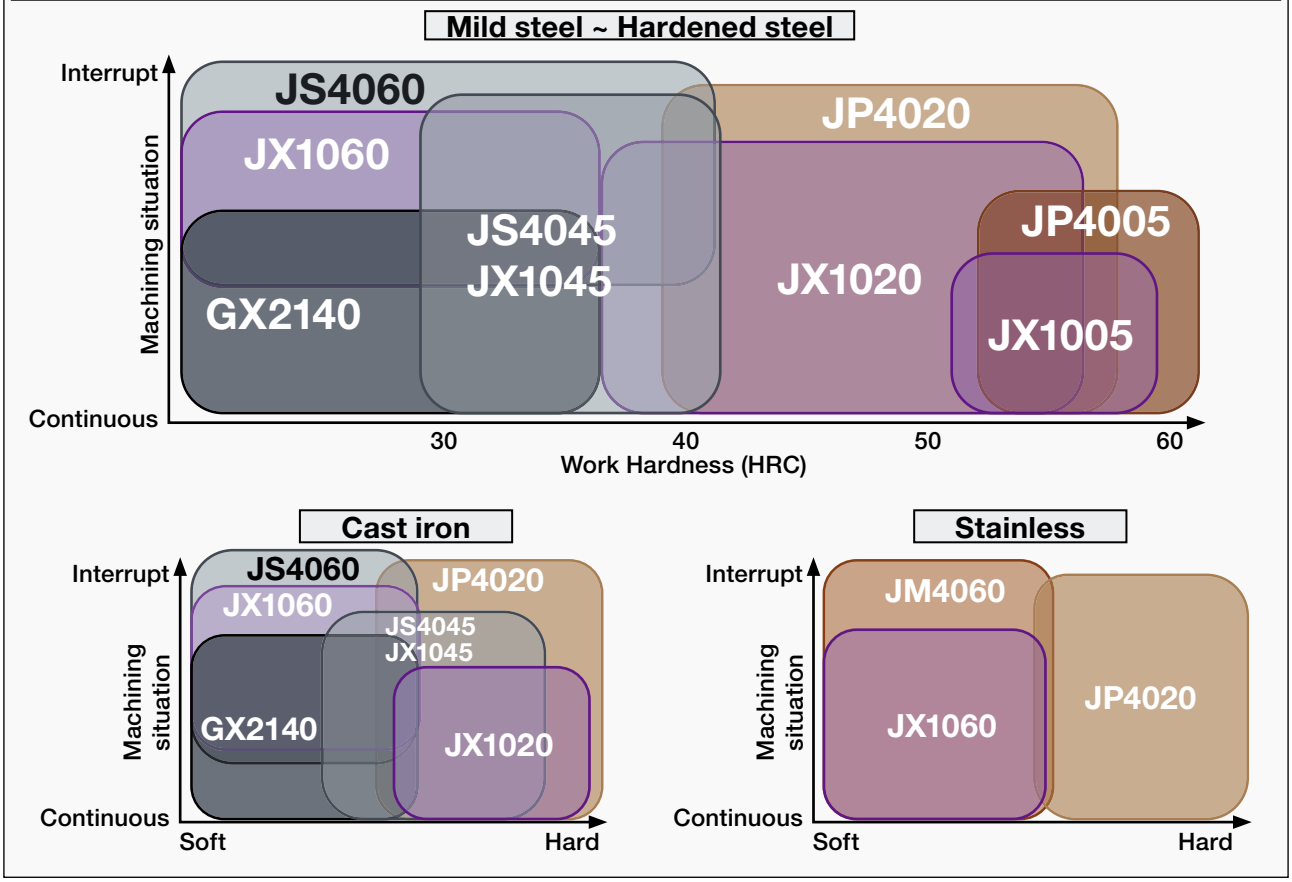
Low-resistance breaker type

Soft — Target Hardness of Workpiece — Hard

Inserts	Grade										Size (mm)			Chip-breaker	Type
	GX2140	JX1060	JM4060	JS4060	JX1045	JS4045	JX1020	JP4020	JX1005	JP4005					
Item Code	ID Code										R	T	W		
SDNW-1205ZDTN-R15	WF239	WF175	WF366	WF332	WF174	WF375	WF173	WF331	WF172	WF330	15	5.56	12.7	no	A
SDMT-1205ZDTN-R15	WF238	WF180	WF335	WF334	WF179	WF374	WF178	WF333	WF177					yes	B

GX2140	CVD · For heavy roughing of mild steels I Recommended for dry cutting
JX1060	PVD · For carbon steels < 35 HRC
JM4060	PVD · For stainless steels & carbon steels < 35 HRC
JS4060	PVD · For carbon steels < 35 HRC
JX1045	PVD · General grade for 30 – 40 HRC I Recommended for dry cutting
JS4045	PVD · For general steels 30 – 40 HRC
JX1020	PVD · For pre-hardened steels 40 – 55 HRC
JP4020	PVD · For pre-hardened steels 40 – 55 HRC
JX1005	PVD · PVD Coating
JP4005	PVD · For hardened steels > 50 HRC

ASRF Insert grade – target material



Cutter Body / Parts		Clamp Screw ID-Code	Item-Code	Wrench ID-Code	Item-Code
ASRFM	ASRF	ET048	262-142	ET049	105-T15
ASRF-4042RM-4-16		Special screw ID-Code	Item-Code		
		ET050	K06-676		

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ASRF / M | Recommended Cutting Conditions

ISO40 / HSK63

Work piece material		Recommend grade & Target hardness (HRC) 30	40	50	Emulsion	Mist	Air	Parameter		D 35 (Z3) Modular Q max	3D - 5D	5D - 7D	> 7D	D 42 (Z4) modular & bore type Q max	3D - 5D	5D - 7D	> 7D
I II	Carbon-Steel Alloy-Steel <30HRC	GX2140					•	V_c	m/min	200	160	130	100	200	160	130	100
								n	min^{-1}	1,820	1,460	1,180	910	1,520	1,210	990	760
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	10,910	8,730	5,320	4,090	12,130	9,700	5,910	4,550
		JS4045					•	a_p	mm	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
		JX1045					•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
								Q	cm^3/min	401	321	127	75	537	429	170	101
III	Alloy-Steel Tool-Steel 30~40HRC	GX2140					•	V_c	m/min	160	128	104	80	160	128	104	80
								n	min^{-1}	1,460	1,160	950	730	1,210	970	790	610
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	8,730	6,980	4,260	3,270	9,700	7,760	4,730	3,640
		JS4045					•	a_p	mm	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6
		JX1045					•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
			JP4020		•	•	•	Q	cm^3/min	257	205	81	48	343	275	109	64
IV	Pre-Hardened Steel Tool-Steel 40~50HRC							V_c	m/min	120	96	78	60	120	96	78	60
								n	min^{-1}	1,090	870	710	550	910	730	590	450
								f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JS4045					•	V_f	mm/min	4,910	3,930	2,550	1,960	5,460	4,370	2,840	2,180
		JX1045					•	a_p	mm	1	1	0.7	0.5	1	1	0.7	0.5
			JP4020		•	•	•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
								Q	cm^3/min	120	96	41	24	161	129	54	32
V	Hardened steel Tool-Steel 50~55HRC							V_c	m/min	100	80	65	50	100	80	65	50
								n	min^{-1}	910	730	590	450	760	610	490	380
								f_z	mm/t	1	1	0.7	0.7	1	1	0.7	0.7
								V_f	mm/min	2,730	2,180	1,240	950	3,030	2,430	1,380	1,060
								a_p	mm	0.7	0.7	0.5	0.35	0.7	0.7	0.5	0.35
			JP4020		•	•	•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
				JP4005	•	•	•	Q	cm^3/min	47	37	14	8	63	50	19	11
V	Hardened steel Tool-Steel > 55HRC							V_c	m/min	80	64	52	40	80	64	52	40
								n	min^{-1}	730	580	470	360	610	490	390	300
								f_z	mm/t	0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5
								V_f	mm/min	1,750	1,400	710	550	1,940	1,550	790	610
								a_p	mm	0.5	0.5	0.3	0.25	0.5	0.5	0.3	0.25
			JP4020		•	•	•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
				JP4005	•	•	•	Q	cm^3/min	21	17	6	3	29	23	8	4
VIII	Cast-Iron GG EN-JL10** EN-GJL-***	GX2140					•	V_c	m/min	200	160	130	100	200	160	130	100
								n	min^{-1}	1,820	1,460	1,180	910	1,520	1,210	990	760
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	10,910	8,730	5,320	4,090	12,130	9,700	5,910	4,550
		JS4045					•	a_p	mm	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
		JX1045					•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
			JP4020		•	•	•	Q	cm^3/min	401	321	127	75	537	429	170	101
VIII	Cast-Iron GGG EN-JS10** EN-GJS-***	GX2140					•	V_c	m/min	160	128	104	80	160	128	104	80
								n	min^{-1}	1,460	1,160	950	730	1,210	970	790	610
		JS4060			•	•	•	f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JX1060			•	•	•	V_f	mm/min	6,550	5,240	3,410	2,620	7,280	5,820	3,780	2,910
		JS4045					•	a_p	mm	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
		JX1045					•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
			JP4020		•	•	•	Q	cm^3/min	241	193	81	48	322	258	109	64
VI	Stainless Steels High alloy Steels							V_c	m/min	160	128	104	80	160	128	104	80
		JM4060			•	•	•	n	min^{-1}	1,460	1,160	950	730	1,210	970	790	610
		JX1060			•	•	•	f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JS4045					•	V_f	mm/min	6,550	5,240	3,410	2,620	7,280	5,820	3,780	2,910
		JX1045					•	a_p	mm	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6
			JP4020		•	•	•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
								Q	cm^3/min	193	154	65	39	258	206	87	52

NOTES

1. Make sure to use air blow to remove the thick and heavy chips produced when using this tool. Blockage of chips can result in tool breakage. The recommended method is „Spindle centre through air blast". (Pay much attention to chip removal when using vertical machining centres).
2. To maintain safe cutting conditions ensure effective chip removal before running machine unmanned.
3. To avoid tool breakage, it is important to replace the inserts when wear occurs.

BEMERKUNGEN

1. Wenn möglich, während der Bearbeitung Luft-Kühlung einsetzen, um die dicken & schweren Späne gut abzuleiten bzw. aus der Folge-Bearbeitung fernzuhalten. Verbleibende Späne könnten die WSP beschädigen. Wir empfehlen, wenn möglich, die Luft durch das Werkzeug/den Halter zu fördern. Bitte aufpassen bei vertikalen Bearbeitungen (von Zeit zu Zeit ist die Maschine zu stoppen, um Späne zu entsorgen).
2. Um den Prozess zu sichern, bitte vor der Bearbeitung die Späne-Entsorgung bedenken (eventuell horizontal spannen).
3. Um Wendeplatten-Brüche zu vermeiden, ist es wichtig, die Platten bei auftretendem Verschleiß zu wechseln/zu drehen.

ASRF / M | Recommended Cutting Conditions

ISO50 / HSK100

Work piece material		Recommend grade & Target hardness (HRC) 30	40	50	Emulsion	Mist	Air	Parameter		D 50 (Z4) bore type Q max	3D - 5D	5D - 7D	> 7D	D 50 / D 52 (Z5) bore type Q max	3D - 5D	5D - 7D	> 7D
I II	Carbon-Steel Alloy-Steel <30HRC	GX2140					•	V_c	m/min	200	160	130	100	200	160	130	100
								n	min^{-1}	1,270	1,020	830	640	1,220	980	800	610
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	10,190	8,150	4,970	3,820	12,240	9,790	5,970	4,590
		JS4045					•	a_p	mm	1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75
		JX1045					•	a_e	mm	35	35	35	35	37	37	37	37
								Q	cm^3/min	535	342	183	120	679	543	215	127
III	Alloy-Steel Tool-Steel 30~40HRC	GX2140					•	V_c	m/min	160	128	104	80	160	128	104	80
								n	min^{-1}	1,020	810	660	510	980	780	640	490
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	8,150	6,520	3,970	3,060	9,790	7,840	4,770	3,670
		JS4045					•	a_p	mm	1.2	1.0	0.8	0.7	1.2	1.2	0.8	0.6
		JX1045					•	a_e	mm	35	35	35	35	37	37	37	37
			JP4020		•	•	•	Q	cm^3/min	342	219	117	77	435	348	138	81
IV	Pre-Hardened Steel Tool-Steel 40~50HRC							V_c	m/min	120	96	78	60	120	96	78	60
								n	min^{-1}	760	610	500	380	730	590	480	370
								f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JS4045					•	V_f	mm/min	4,580	3,670	2,380	1,830	5,510	4,410	2,860	2,200
		JX1045					•	a_p	mm	1	0.8	0.7	0.6	1	1	0.7	0.5
			JP4020		•	•	•	a_e	mm	35	35	35	35	37	37	37	37
								Q	cm^3/min	160	103	58	38	204	163	69	41
V	Hardened steel Tool-Steel 50~55HRC							V_c	m/min	100	80	65	50	100	80	65	50
								n	min^{-1}	640	510	410	320	610	490	400	310
								f_z	mm/t	1	1	0.7	0.7	1	1	0.7	0.7
								V_f	mm/min	2,550	2,040	1,160	890	3,060	2,450	1,390	1,070
								a_p	mm	0.7	0.6	0.5	0.4	0.7	0.7	0.5	0.35
			JP4020		•	•	•	a_e	mm	35	35	35	35	37	37	37	37
				JP4005	•	•	•	Q	cm^3/min	62	40	20	13	79	63	23	14
V	Hardened steel Tool-Steel > 55HRC							V_c	m/min	80	64	52	40	80	64	52	40
								n	min^{-1}	510	410	330	250	490	390	320	240
								f_z	mm/t	0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5
								V_f	mm/min	1,630	1,300	660	510	1,960	1,570	800	610
								a_p	mm	0.5	0.4	0.35	0.3	0.5	0.5	0.3	0.25
			JP4020		•	•	•	a_e	mm	35	35	35	35	37	37	37	37
				JP4005	•	•	•	Q	cm^3/min	29	18	8	5	36	29	10	6
VIII	Cast-Iron GG EN-JL10** EN-GJL-***	GX2140					•	V_c	m/min	200	160	130	100	200	160	130	100
								n	min^{-1}	1,270	1,020	830	640	1,220	980	800	610
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	10,190	8,150	4,970	3,820	12,240	9,790	5,970	4,590
		JS4045					•	a_p	mm	1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75
		JX1045					•	a_e	mm	35	35	35	35	37	37	37	37
			JP4020		•	•	•	Q	cm^3/min	535	342	183	120	679	543	215	127
VIII	Cast-Iron GGG EN-JS10** EN-GJS-***	GX2140					•	V_c	m/min	160	128	104	80	160	128	104	80
								n	min^{-1}	1,020	810	660	510	980	780	640	490
		JS4060			•	•	•	f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JX1060			•	•	•	V_f	mm/min	6,110	4,890	3,180	2,440	7,350	5,880	3,820	2,940
		JS4045					•	a_p	mm	1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75
		JX1045					•	a_e	mm	35	35	35	35	37	37	37	37
			JP4020		•	•	•	Q	cm^3/min	321	205	117	77	408	326	138	82
VI	Stainless Steels High alloy Steels							V_c	m/min	160	128	104	80	160	128	104	80
		JM4060			•	•	•	n	min^{-1}	1,020	810	660	510	980	780	640	490
		JX1060			•	•	•	f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JS4045					•	V_f	mm/min	6,110	4,890	3,180	2,440	7,350	5,880	3,820	2,940
		JX1045					•	a_p	mm	1.2	1.0	0.8	0.7	1.2	1.2	0.8	0.6
			JP4020		•	•	•	a_e	mm	35	35	35	35	37	37	37	37
								Q	cm^3/min	257	164	93	61	326	261	110	65

IMPORTANTE:

1. Questo utensile genera trucioli spessi e pesanti. Accertarsi una buona rimozione degli stessi per mezzo di aria, per evitare danni causati dal blocco dei trucioli. Il metodo raccomandato è l'adduzione interna dell'aria nel mandrino. (Porre maggior attenzione nel caso di lavorazioni in cavità con macchine ad asse verticale).
2. Prima di eseguire lavorazione non presidiate, assicurarsi che la rimozione dei trucioli e le condizioni di taglio siano garantite in sicurezza.
3. I trucioli possono causare tagli, scottature o danni agli occhi. Assicurarsi di installare una copertura di sicurezza intorno all'utensile e di indossare gli occhiali di sicurezza prima di eseguire la lavorazione.
4. Sostituire l'inserto in tempo, allo scopo di evitare che una maggiore usura possa danneggiare il corpo fresa.

OBSERVACIONES

1. Esta herramienta produce virutas gruesas y pesadas. Se debe asegurar la evacuación de la viruta para evitar roturas de placa. Se recomienda el soplado de aire a través del cabezal. (Se debe prestar especial atención a la evacuación de viruta al mecanizar cajeras en centros verticales)
2. Antes de dejar la máquina trabajando sola asegurarse de sacar las virutas y de utilizar condiciones de corte de seguridad.
3. Las virutas pueden provocar cortes, quemadas y heridas oculares. Asegurarse de tener instalada la protección de seguridad (puerta o similar.) mientras la herramienta trabaja y de llevar gafas durante las manipulaciones.
4. Sustituir las placas de forma preventiva para evitar roturas por desgaste.

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ASRF/M | Recommended Cutting Conditions

ISO50 / HSK100

D 63 (Z5) bore type				D 66 (Z5) bore type				D 80 (Z6) bore type				D 100 (Z8) bore type			
Q max	3D - 5D	5D - 7D	> 7D	Q max	3D - 5D	5D - 7D	> 7D	Q max	3D - 5D	5D - 7D	> 7D	Q max	3D - 5D	5D - 7D	> 7D
200	160	130	100	200	160	130	100	200	160	130	100	200	160	130	100
1,010	810	660	510	960	770	630	480	800	640	520	400	640	510	410	320
2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5
10,110	8,080	4,930	3,790	9,650	7,720	4,700	3,620	9,550	7,640	4,660	3,580	10,190	8,150	4,970	3,820
1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
667	427	228	150	695	556	220	130	860	688	273	161	1,146	917	363	215
160	128	104	80	160	128	104	80	160	128	104	80	160	128	104	80
810	650	530	400	770	620	500	390	640	510	410	320	510	410	330	250
2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5
8,080	6,470	3,940	3,030	7,720	6,170	3,760	2,890	7,640	6,110	3,720	2,860	8,150	6,520	3,970	3,060
1.2	1.0	0.8	0.7	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
427	273	146	96	445	355	141	83	550	440	174	103	734	587	232	138
120	96	78	60	120	96	78	60	120	96	78	60	120	96	78	60
610	490	390	300	580	460	380	290	480	380	310	240	380	310	250	190
1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
4,550	3,640	2,360	1,820	4,340	3,470	2,260	1,740	4,300	3,440	2,230	1,720	4,580	3,670	2,380	1,830
1	0.8	0.7	0.6	1	1	0.7	0.5	1	1	0.7	0.5	1	1	0.7	0.5
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
200	128	73	48	208	167	71	42	258	206	87	52	344	275	116	69
100	80	65	50	100	80	65	50	100	80	65	50	100	80	65	50
510	400	330	250	480	390	310	240	400	320	260	200	320	250	210	160
1	1	0.7	0.7	1	1	0.7	0.7	1	1	0.7	0.7	1	1	0.7	0.7
2,530	2,020	1,150	880	2,410	1,930	1,100	840	2,390	1,910	1,090	840	2,550	2,040	1,160	890
0.7	0.6	0.5	0.4	0.7	0.7	0.5	0.35	0.7	0.7	0.5	0.35	0.7	0.7	0.5	0.35
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
78	50	25	16	81	65	24	14	100	80	30	18	134	107	40	23
80	64	52	40	80	64	52	40	80	64	52	40	80	64	52	40
400	320	260	200	390	310	250	190	320	250	210	160	250	200	170	130
0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5
1,620	1,290	660	510	1,540	1,230	630	480	1,530	1,220	620	480	1,630	1,300	660	510
0.5	0.4	0.35	0.3	0.5	0.5	0.3	0.25	0.5	0.5	0.3	0.25	0.5	0.5	0.3	0.25
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
36	23	10	7	37	30	10	6	46	37	12	7	61	49	16	10
200	160	130	100	200	160	130	100	200	160	130	100	200	160	130	100
1,010	810	660	510	960	770	630	480	800	640	520	400	640	510	410	320
2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5
10,110	8,080	4,930	3,790	9,650	7,720	4,700	3,620	9,550	7,640	4,660	3,580	10,190	8,150	4,970	3,820
1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
667	427	228	150	695	556	220	130	860	688	273	161	1,146	917	363	215
160	128	104	80	160	128	104	80	160	128	104	80	160	128	104	80
810	650	530	400	770	620	500	390	640	510	410	320	510	410	330	250
1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
6,060	4,850	3,150	2,430	5,790	4,630	3,010	2,310	5,730	4,580	2,980	2,290	6,110	4,890	3,180	2,440
1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
400	256	146	96	417	333	141	83	516	412	174	103	687	550	233	137
160	128	104	80	160	128	104	80	160	128	104	80	160	128	104	80
810	650	530	400	770	620	500	390	640	510	410	320	510	410	330	250
1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
6,060	4,850	3,150	2,430	5,790	4,630	3,010	2,310	5,730	4,580	2,980	2290	6,110	4,890	3,180	2,440
1.2	1.0	0.8	0.7	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
320	205	116	77	334	267	113	67	413	330	139	82	550	440	186	110

NOTES

1. Utilisez de l´air pour évacuer les copeaux lourds et épais quand vous usinez avec cet outil. Le ré-usinage des copeaux peut endommager l´outil. La méthode recommandée est l´utilisation d´une broche avec refroidissement par le centre. (Accordez beaucoup d´attention à l´évacuation des copeaux avec les centres verticaux)
2. Pour sauvegarder les conditions de coupe assurez vous de la bonne évacuation des copeaux avant de lancer l´usinage.
3. Pour prévenir la cassa d´outil, il est important de remplacer les plaquettes dés l´apparition de signe d´usure.

NOTAS

1. Assegure-se que usa ar na remoção das limalhas grossas e pesadas, produzidas quando se utiliza esta ferramenta. A obstrução de limalhas pode provocar a quebra da ferramenta. Recomenda-se o método de jato de ar no eixo-árvore. (Tomar especial cuidado na remoção de limalhas aquando do uso de centros de maquinação vertical).
2. Para manter condições de corte seguras, certifique-se previamente da remoção eficiente das limalhas na maquinação sem operador.
3. Para evitar quebra da ferramenta, é importante substituir as plaquetes ao primeiro sinal de desgaste.

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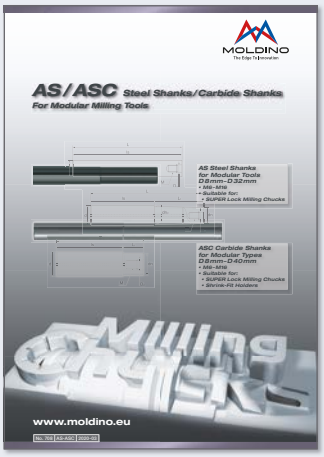
AS/ASC Shanks No. 708



Attentions on Safety

1. Cautions regarding handling

(1) When removing the tool from its case (packaging), be careful that the tool does not pop out or is dropped. Be particularly careful regarding contact with the tool flutes.

(2) When handling tools with sharp cutting flutes, be careful not to touch the cutting flutes directly with your bare hands.

2. Cautions regarding mounting

(1) Before use, check the outside appearance of the tool for scratches, cracks, etc. and that it is firmly mounted in the collet chuck, etc.

(2) When preparing for use, be sure that the inserts are firmly mounted in place and that they are firmly mounted on the arbor, etc.

(3) If abnormal chattering, etc. occurs during use, stop the machine immediately and remove the cause of the chattering.

3. Cautions during use

(1) Before use, confirm the dimensions and direction of rotation of the tool and milling work material.

(2) The numerical values in the standard cutting conditions table should be used as criteria when starting new work. The cutting conditions should be adjusted as appropriate when the cutting depth is large, the rigidity of the machine being used is low, or according to the conditions of the work material.

(3) Cutting tools are made of a hard material. During use, they may break and fly off. In addition, cutting chips may also fly off. Since there is a danger of injury to workers, fire, or eye damage from such flying pieces, a safety cover should be attached when work is performed and safety equipment such as safety goggles should be worn to create a safe environment for work.

(4) There is a risk of fire or inflammation due to sparks, heat due to breakage, and cutting chips. Do not use where there is a risk of fire or explosion. Please caution of fire while using oil base coolant, fire prevention is necessary.

(5) Do not use the tool for any purpose other than that for which it is intended.

4. Cautions regarding regrinding

(1) If regrinding is not performed at the proper time, there is a risk of the tool breaking. Replace the tool with one in good condition, or perform regrinding.

(2) Grinding dust will be created when regrinding a tool. When regrinding, be sure to attach a safety cover over the work area and wear safety clothes such as safety goggles, etc.

(3) This product contains the specified chemical substance cobalt and its inorganic compounds. When performing regrinding or similar processing, be sure to handle the processing in accordance with thelocal laws and regulations regarding prevention of hazards due to specified chemical substances.

Specifications for the products listed in this catalog are subject to change without notice due to replacement or modification.

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HTT802 2003 ASRF-0.0 BW-DS