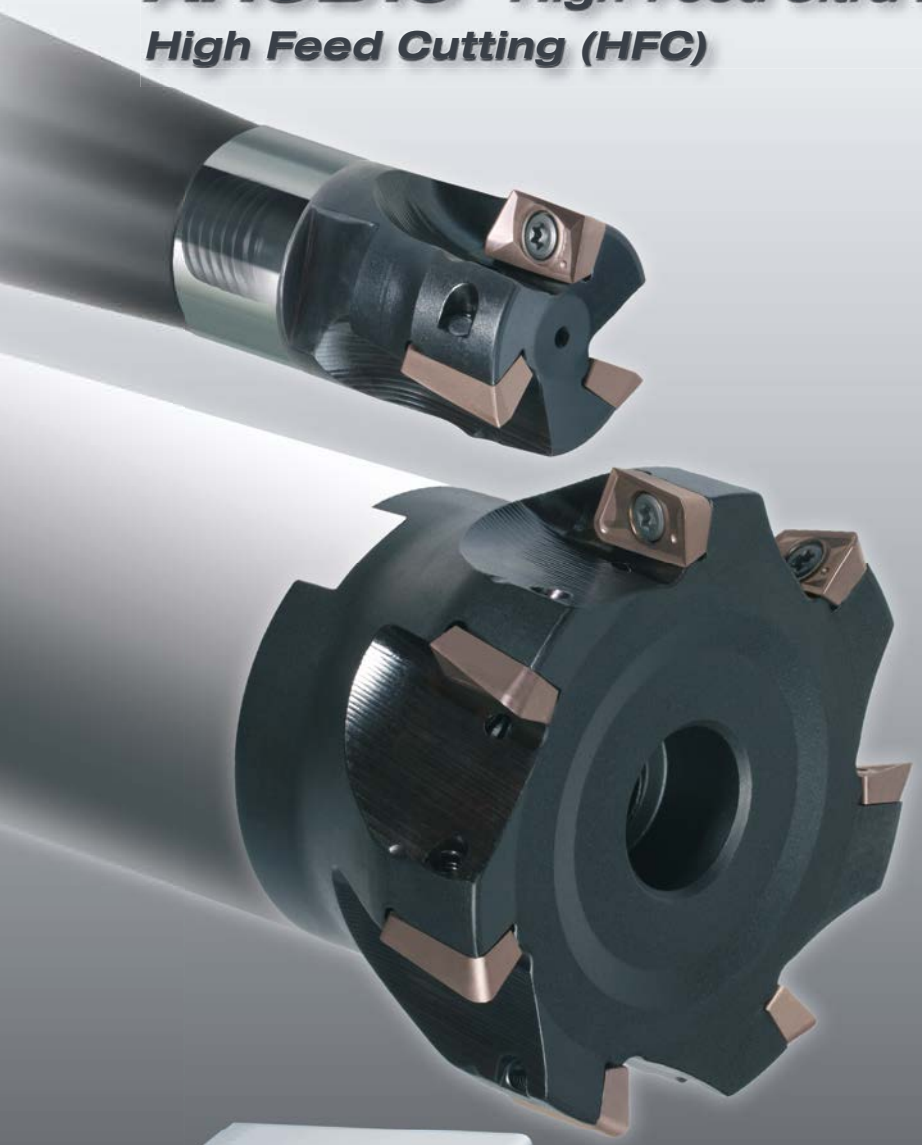
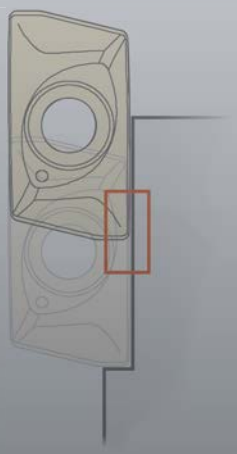
MOLDINO
The Edge To Innovation

AHUM15 High-Feed Ultra End Mill
AHUB15 High-Feed Ultra End Mill Modular Type
High Feed Cutting (HFC)



D25 mm~D250mm
- Modular & Bore Types

FW Fine Wall Finishing
- Improved wall surface accuracy



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No. 323.4 | AHU15 | 2020-03

AHU15 | High Feed Ultra

HIGH-FEED ULTRA END MILL

1. Main cutting forces are reduced by the unique high rake geometry
2. Ramp milling is possible
3. 30% increased rigidity over conventional indexable end-mills due to the utilization of a special steel material and chip pocket geometry
4. Through tool coolant is available
5. The substrate and coating technology has been adopted which allows longer tool-life and the ability to use higher cutting speeds

HIGH-FEED ULTRA END MILL

1. Durch die einzigartige hochpositive Schneidengeometrie des AHU High Feed Ultra wird der Schnittdruck erheblich reduziert
2. Auch Fräsoperationen über Rampe sind möglich
3. Die Verwendung eines speziellen Stahls und einer speziell entwickelten Spankammer-Geometrie erhöhte die Steifigkeit des AHU High Feed Ultra gegenüber konventionellen WSP-Haltern um 30%
4. Zusätzlich verfügt der AHU High Feed Ultra über innen liegende Kühlkanäle
5. Durch das Substrat der Wendeschneidplatten in Verbindung mit einer passenden Beschichtungstechnologie ermöglicht der AHU High Feed Ultra wesentlich höhere Schnittgeschwindigkeiten bei gleichzeitig längeren Standzeiten

HIGH-FEED ULTRA END MILL

1. Maggiore stabilità e minori forze di taglio grazie alla nuova geometria positiva della spoglia.
2. La fresatura in rampa è possibile
3. 30 % maggiore rigidità a confronto con frese convenzionali grazie alla particolare geometria del collo rompitruciolo e una microfusione di acciaio del corpo fresa.
4. Refrigerante attraverso il corpo fresa disponibile
5. La combinazione dello sviluppo di una micrograna
6. Particolare con l´ultimo sviluppo di rivestimenti rende possibile un grande allungamento di vita dell'utensile e l´utilizzo di velocità di taglio più elevate.

HIGH-FEED ULTRA END MILL

1. El esfuerzo de corte se reduce gracias a una exclusiva geometría altamente positiva.
2. Capaz de mecanizar en rampa
3. 30% más de rigidez que herramientas de plaquita
4. Convencionales gracias a la utilización de un acero especial y a la geometría del canal de evacuación de viruta
5. Dispone de canal de refrigeración interior.
6. La combinación de substratos y recubrimientos de ultima tecnología permite una mayor vida de herramienta y la capacidad de usar velocidades de corte mayores

HIGH-FEED ULTRA END MILL

1. L'angle de dépouille très prononcé permet à lui seul de réduire la majeure partie des efforts de coupe.
2. L'usinage de rampes est possible (ramping).
3. Rigidité accrue de 30% par rapport aux fraises à plaquettes rapportées due à l'utilisation d'un acier spécial et à la forme des poches à copeaux.
4. Deux versions de corps sont disponibles : avec ou sans arrosage au centre.
5. Nous avons développés une nuance et une technologie de revêtement générant une durée de vie supérieure et une augmentation significative des vitesses de coupe.

HIGH-FEED ULTRA END MILL

1. Muitas forças de corte são reduzidas devido à sua geometria positiva
2. Fresagem em rampa é possível
3. 30% aumento da rigidez comparado com plaquetes convencionais devido à utilização de um aço especial e geometria e do canal evacuação apara.
4. Dispõe de refrigeração interna
5. Tecnologia de substrato e revestimento de última geração que permite maior vida útil da ferramenta e possibilidade de usar em altas velocidades de corte.

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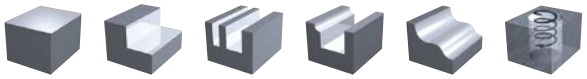
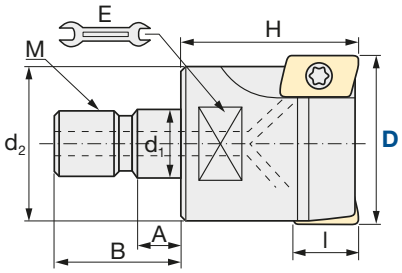
AHUM15 | High Feed Ultra Modular Type

Q max	Jet	▽	▽▽▽	HRC	No. of Teeth
High Efficient	Air Hole	Roughing	Finishing	50	2 – 4



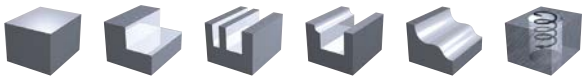


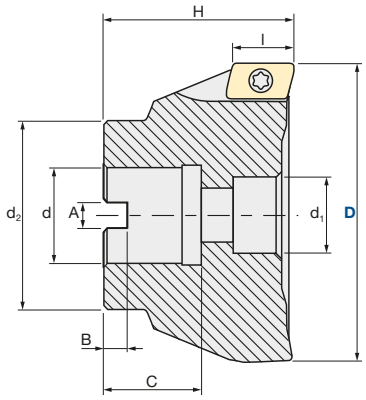
Diameter Holder only [mm]	Fastening Torque [Nm]
D25 – 42 mm: -0.1/-0.2 mm	3.0 Nm

Modular Type												
ID Code	Item Code	Flutes	D	H	d_1	M	d_2	A	B	E	l	Inserts
FH068	**AHUM-1525R-2**	2	**25**	35	12.5	12	20.8	6	20	17	14	JDMT1505..R.. JDET-1505..R..
FH066	**AHUM-1532R-3-M16**	3	**32**	40	17	16	28.8		22	22		
FH176	**AHUM-1535R-3-M16**		**35**									
FH067	**AHUM-1540R-4-M16**	4	**40**	45								
FH177	**AHUM-1542R-4-M16**		**42**									

AHUB15 | High Feed Ultra Bore Type

Q max	Jet	▽	▽▽▽	HRC	No. of Teeth
High Efficient	Air Hole	Roughing	Finishing	50	4 ~ 14



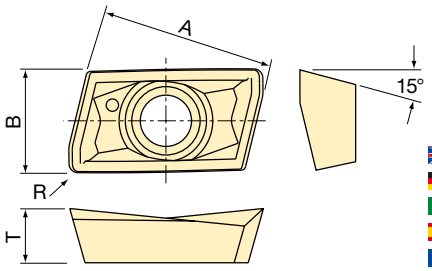


Diameter Holder only [mm]	Fastening Torque [Nm]
D40 – 100 mm: -0.1/-0.2 mm D125 – 160 mm: -0.1/-0.25 mm D200 mm: -0.1/-0.3 mm D250 mm: -0.1/-0.45 mm	3.0 Nm

Face Mill												
ID Code	Item Code	Flutes	D	H	d	d_1	d_2	A	B	C	l	Inserts
FH060	**AHUB-1540RM-4-16**	4	**40**	45	16	11.5	35	8.4	5.6	18	14	JDMT1505..R.. JDET-1505..R..
FH061	**AHUB-1550RM-5-22**	5	**50**	50	22	18	40	10.4	6.3	20		
FH062	**AHUB-1550RM-5-27**		**50**		27	20	45	12.4	7	22		
FH178	**AHUB-1552RM-5-22**		**52**		22	18	40	10.4	6.3	20		
FH063	**AHUB-1563RM-6-27**	6	**63**		27	20	60	12.4	7	22		
FH179	**AHUB-1566RM-6-27**		**66**									
FH064	**AHUB-1580RM-7-27**	7	**80**									
FH065	**AHUB-15100RM-8-32**	8	**100**	63	32	26	70	14.4	8	25		
FH211	**AHUB-15125RM-8-40**		**125**		40	32.5	90	16.4	9	29		
FH212	**AHUB-15160RM-10-40**	10	**160**			56	114					
FH213	**AHUB-15200RM-12-60**	12	**200**		60	60+screw	145	25.7	14	49		
FH214	**AHUB-15250RM-14-60**	14	**250**				180					

Cutting Conditions | Schnittwerte | Condizioni di taglio | Condiciones de Corte | Conditions de coupe | Valores de corte:
D 25 (Z2) – D 250 (Z14): Page 6 – 7

INSERTS




JDMT-150530-R


JDMT-150504-R-FW

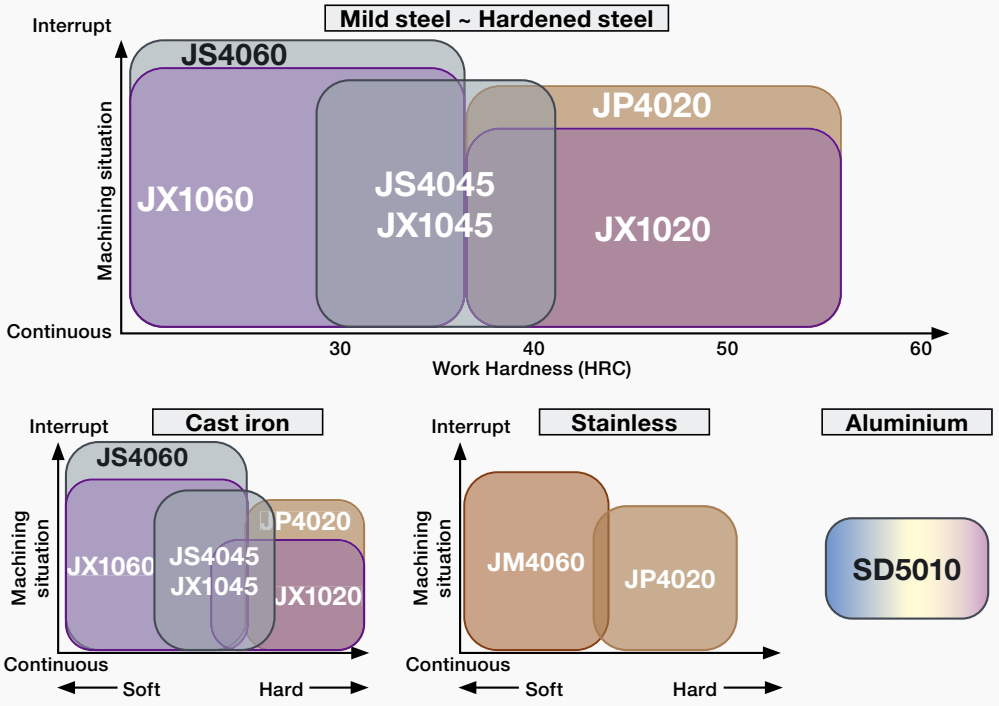
In case of bigger corner-R than R 2.0, modification of body is needed.
Für Eckenradien über R 2.0 muss der Halter entsprechend modifiziert werden.
In caso di raggio torico R maggiore di 2 è necessario modificare opportunamente il corpo fresa.
Si el radio de placa es superior a R 2.0, el soporte debe modificarse.
Si le rayon de tore est supérieur à R 2, une modification du porte plaquettes s'avère nécessaire.
Se o raio da plaquete for maior que R 2.0 , precisa de mudar o corpo.

Soft — Target Hardness of Workpiece — Hard

Inserts			Grade								Size (mm)		
			SD5010	JM4060	JX1060	JS4060	JS4045	JX1045	JP4020	JX1020			
Item Code	Tolerance Class	Corner-R	ID Code								A	B	T
JDMT-1505-R04-FW	M	0.4-FW		WF358		WF357	WF367	WF182	WF356		16	9.12	5
JDMT-1505-R08-FW		0.8-FW		WF361	WF185	WF360	WF368	WF184	WF359	WF183			
JDMT-1505-R20		2.0		WF364		WF363	WF369	WF186	WF362				
JDMT-1505-R20-FW		2.0-FW					WF370	WF199					
JDMT-1505-R30		3.0					WF371	WF187					
JDET-1505-R04-FA	E	0.4-FA	WF365										

SD5010	PVD · For Aluminium
JM4060	PVD · For stainless steels & carbon steels < 35 HRC
JS4060	PVD · For carbon steels < 35 HRC
JX1020	PVD · For pre-hardened steels 40 – 55 HRC
JX1045	PVD · General grade for 30 – 40 HRC | Recommended for dry cutting
JS4045	PVD · For general steels 30 – 40 HRC
JX1060	PVD · For carbon steels < 35 HRC
JP4020	PVD · For pre-hardened steels 40 – 55 HRC

AHU15 Insert grade – target material



Parts	Clamp Screw ID-Code	Clamp Screw Item-Code	Wrench ID-Code	Wrench Item-Code
AHU-M / AHU-B	ET038	412-141	ET049	105-T15

Parts	Special screw ID-Code	Special screw Item-Code
AHUB-1540RM-4-16	ET050	K06-676

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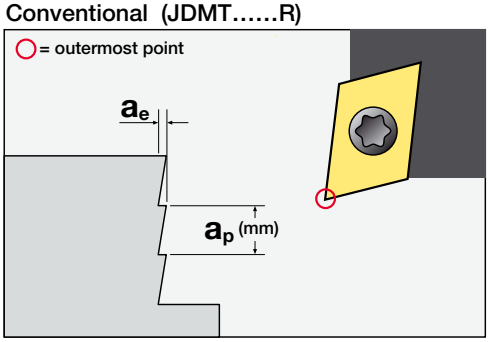
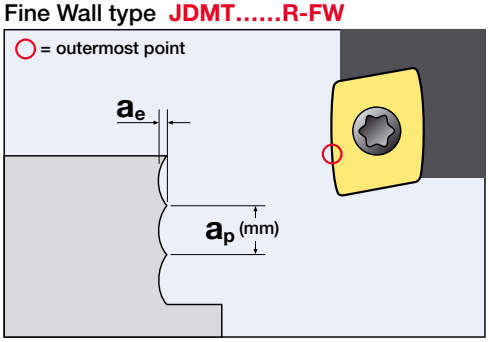
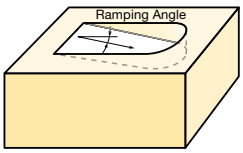
AHU15 | High Feed Ultra – improved cutting surface

Conventional (JDMT……R)

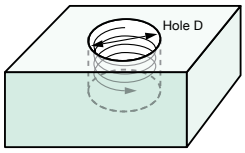


Fine Wall type JDMT……R-FW





Ramping



Helical Milling

Tool Dia (mm)		32	40	50	63	80	100	125	160	200	250
Maximum Ramping Angle		4°	3°	2°	1.5°	1°	1°	0.8°	0.6°	0.5°	0.4°
Helical Milling - Hole Dia (mm)	Min.	47	64	83	109	143	183	233	303	383	483
	Max.	60	76	96	122	156	196	246	316	396	496

AHU15 | Recommended Cutting Conditions

1. Please choose the best conditions from the table
2. To reduce tool breakage index the inserts earlier than the maximum edge life
3. Chips can become hot and can cause burns or damage to eyes. Please ensure machine guards are used, and safety specs and gloves worn at all times when carrying out work near to the tool or work-piece
4. Please ensure caution when using neat cutting oil due to the risk of fire

1. Bitte wählen Sie aus der Tabelle die für Ihre Anwendung am besten geeigneten Bedingungen
2. Um die Gefahr des Werkzeugbruchs zu reduzieren, sollten die Wendeschneidplatten gewechselt werden, bevor die maximale Standzeit der Schneide erreicht ist
3. Die während der Bearbeitung entstehenden Späne können sehr heiß werden und können zu Verbrennungen oder Verletzungen von Haut und Augen führen. Bitte stellen Sie sicher, dass während der Bearbeitung die Maschinentüren geschlossen sind. Bei Arbeiten in der Nähe oder direkt am Werkzeug oder Werkstück, sollten immer eine Schutzbrille und Handschuhe getragen werden
4. Erhöhte Vorsicht ist geboten beim Einsatz von purem Schneidöl, da es sich während der Bearbeitung entzünden kann

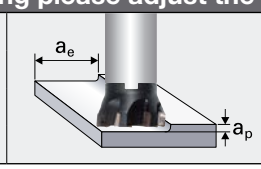
1. Scegliere le condizioni migliori della tabella indicata.
2. Per evitare la rottura dell'utensile cambiate l´inserto prima di arrivare all'usura massima.
3. I trucioli possono essere molto caldi durante il lavoro. Usate sempre i mezzi di sicurezza (Occhiali, guanti, vetri di sicurezza…) durante il lavoro vicino all'utensile o al materiale.
4. Attenzione al rischio di fiamma se durante il lavoro usate refrigerante a base di olio.

1. Veuillez choisir les conditions de coupes les mieux adaptées grâce au tableau.
2. Pour réduire les risques de rupture de l'outil, changez l'insert avant d'avoir atteint la durée de vie maximale de l'arrête de coupe.
3. Les copeaux peuvent devenir chauds et causer des lésions oculaires ou des brûlures. Veuillez vous assurer que les protections de la machines sont correctement utilisées, et que des lunettes et des gants soient portés pour tout travail à proximité de l'outil ou de la pièce à usiner.
4. Prenez vos précautions lors d'utilisation d'huiles de coupes à cause des risques d'incendie

1. Seleccionar las condiciones de la tabla de indicada
2. Para reducir el riesgo de rotura de la herramienta hay cambiar la plaquita antes de agotar la vida máxima del filo
3. Las virutas pueden saltar candentes y pueden causar quemaduras o daño en los ojos.
4. Por favor, asegúrese de cerrar las protecciones de la máquina y de que son utilizados gafas y guantes en todo momento al realizar trabajos cerca de la herramienta o la pieza.
5. Por favor, tome precaución al utilizar aceite de corte debido al riesgo de ignición.

1. Escolha as melhores condições da tabela
2. Para evitar que a ferramenta se destrua substituir as plaquetes mais cedo que o seu desgaste limite.
3. As aparas quentes podem provocar queimaduras ou danos nos olhos, verifique se as protecções da máquina são usadas e todas as especificações de segurança são respeitadas perto da máquina e ferramenta.
4. Cuidado ao utilizar óleo de corte puro, devido ao risco de incêndio.

AHU15 | Adjust of Cutting Conditions for Finishing

For finishing please adjust the cutting conditions as follows:		
Finishing 	V_c	+50 %
	f_z	0.1 mm
	a_p	~ 5 mm maximum
	a_e	0.3 ~ 0.5 mm

AHU15 | Recommended Cutting Conditions

Work piece material		Recommend grade & Target hardness (HRC) 30	40	50	Emulsion	Mist	Air	Parameter		D 25 (Z2) Side miling	D 25 (Z2) Slotting	D 32 / 35 (Z3) Side miling	D 32 / 35 (Z3) Slotting	D 40 / 42 (Z4) Side miling	D 40 / 42 (Z4) Slotting	D 50 / 52 (Z5) Side miling	D 50 / 52 (Z5) Slotting
								V_c	m/min	300	180	300	180	300	180	300	180
								n	min^{-1}	3820	2290	2730	1640	2390	1430	1910	1150
I	Mild steel <200HB	JS4060			•	•	•	f_z	mm/t	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
		JX1060					•	V_f	mm/min	1910	920	2050	980	2390	1150	2390	1150
		JS4045					•	a_p	mm	10	5	10	5	10	5	10	5
		JX1045					•	a_e	mm	7.5	25	10	32 / 35	12	40 / 42	15	50 / 52
								Q	cm^3/min	143	115	205	157 / 172	287	230 / 242	359	288 / 299
								V_c	m/min	250	150	250	150	250	150	250	150
		JM4060			•	•	•	n	min^{-1}	3180	1910	2270	1360	1990	1190	1590	950
II	Carbon-Steel Alloy-Steel <30HRC	JS4060			•	•	•	f_z	mm/t	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
		JX1060			•	•	•	V_f	mm/min	1590	760	1710	820	1990	950	1990	950
		JS4045					•	a_p	mm	8.5	4.5	8.5	4.5	8.5	4.5	8.5	4.5
		JX1045					•	a_e	mm	7.5	25	10	32 / 35	12	40 / 42	15	50 / 52
								Q	cm^3/min	101	86	145	118 / 129	203	171 / 180	254	214 / 222
								V_c	m/min	180	120	180	120	180	120	180	120
								n	min^{-1}	2290	1530	1640	1090	1430	950	1150	760
		JS4060			•	•	•	f_z	mm/t	0.18	0.15	0.18	0.15	0.18	0.15	0.18	0.15
III	Alloy-Steel Tool-Steel 30~40HRC	JX1060			•	•	•	V_f	mm/min	830	460	880	490	1030	570	1030	570
		JS4045					•	a_p	mm	7	3.5	7	3.5	7	3.5	7	3.5
		JX1045					•	a_e	mm	7.5	25	10	32 / 35	12	40 / 42	15	50 / 52
								Q	cm^3/min	44	40	62	55 / 60	87	80 / 84	108	100 / 104
								V_c	m/min	120	80	120	80	120	80	120	80
								n	min^{-1}	1530	1020	1090	730	950	640	760	510
		JS4045					•	f_z	mm/t	0.12	0.1	0.12	0.1	0.12	0.1	0.12	0.1
IV	Hardened steel 40~50HRC	JX1045					•	V_f	mm/min	370	200	390	220	460	250	460	250
			JX1020				•	a_p	mm	5	2.5	5	2.5	5	2.5	5	2.5
			JP4020		•	•	•	a_e	mm	7.5	25	10	32 / 35	12	40 / 42	15	50 / 52
								Q	cm^3/min	14	13	20	18 / 19	28	25 / 26	35	31 / 33
								V_c	m/min	110	70	110	70	110	70	110	70
	Stainless steel (wet condition)	JM4060			•	•	•	n	min^{-1}	1400	890	1000	640	880	560	700	450
		JS4060			•	•	•	f_z	mm/t	0.18	0.15	0.18	0.15	0.18	0.15	0.18	0.15
V	We recommend to increase V_c 30% more in dry condition	JX1060			•	•	•	V_f	mm/min	500	270	540	290	630	330	630	330
		JS4045					•	a_p	mm	8	4	8	4	8	4	8	4
		JX1045					•	a_e	mm	7.5	25	10	32 / 35	12	40 / 42	15	50 / 52
			JP4020		•	•	•	Q	cm^3/min	30	27	43	37 / 41	60	53 / 55	76	66 / 69
								V_c	m/min	180	150	180	150	180	150	180	150
								n	min^{-1}	2290	1910	1640	1360	1430	1190	1150	950
		JS4060			•	•	•	f_z	mm/t	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
VI	Cast-Iron GG EN-GJL	JX1060					•	V_f	mm/min	1150	760	1230	820	1430	950	1430	950
		JS4045					•	a_p	mm	10	5	10	5	10	5	10	5
		JX1045					•	a_e	mm	7.5	25	10	32 / 35	12	40 / 42	15	50 / 52
								Q	cm^3/min	86	95	123	218 / 238	172	190 / 200	215	238 / 247
								V_c	m/min	150	120	150	120	150	120	150	120
								n	min^{-1}	1910	1530	1360	1090	1190	950	950	760
		JS4060			•	•	•	f_z	mm/t	0.2	0.15	0.2	0.15	0.2	0.15	0.2	0.15
VII	Cast-Iron GGG EN-GJS EN-JS	JX1060					•	V_f	mm/min	760	460	820	490	950	570	950	570
		JS4045					•	a_p	mm	8	4	8	4	8	4	8	4
		JX1045					•	a_e	mm	7.5	25	10	32 / 35	12	40 / 42	15	50 / 52
			JP4020		•	•	•	Q	cm^3/min	46	46	66	63 / 69	91	91 / 96	114	114 / 119
		SD5010			•	•	•	V_c	m/min	600	400	600	400	600	400	600	400
								n	min^{-1}	7640	5090	5460	3640	4770	3180	3820	2550
								f_z	mm/t	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
VIII	Aluminium							V_f	mm/min	3820	2040	4090	2180	4770	2550	4770	2550
								a_p	mm	10	5	10	5	10	5	10	5
								a_e	mm	7.5	25	10	32 / 35	12	40 / 42	15	50 / 52
								Q	cm^3/min	287	255	409	349 / 382	572	510 / 536	716	638 / 663
								V_c	m/min	60	40	50	30	50	30	50	30
								n	min^{-1}	760	510	450	270	400	240	320	190
								f_z	mm/t	0.15	0.1	0.15	0.1	0.15	0.1	0.15	0.1
IX	Titanium							V_f	mm/min	230	100	200	80	240	100	240	100
								a_p	mm	2	1.5	2	1.5	2	1.5	2	1.5
			JP4020		•	•	•	a_e	mm	7.5	25	10	32 / 35	12	40 / 42	15	50 / 52
								Q	cm^3/min	3	4	4	4 / 4	6	6 / 6	7	8 / 8

COMMENTS: We recommend to reduce "f_z" to 70% of standard condition when you use FW type.

VIII & IX: Please pay attention for shorter tool life especially with emulsion.

ANMERKUNGEN: Wir empfehlen bei Verwendung von Schneidplatten des FW-Typs, "f_z" auf 70% des Standardwertes zu reduzieren.

VIII & IX: Bitte beachten Sie eine möglicherweise verkürzte Werkzeugbensdauer, insbesondere bei Verwendung von Kühlemulsion.

COMMENTO: raccomandiamo di ridurre "f_z" al 70% rispetto alle condizioni standard durante l'utilizzo dell'inserto FW.

VIII & IX: prestare attenzione alla minor vita utensile specialmente con l'uso dell'emulsione.

COMMENTO: raccomandiamo di ridurre "f_z" al 70% rispetto alle condizioni standard durante l'utilizzo dell'inserto FW

VIII & IX: prestare attenzione alla minor vita utensile specialmente con l'uso dell'emulsione

No. 323.4 | AHU15 | 2020-03

AHU15 | Recommended Cutting Conditions

D 63 / 66 (Z6)		D 80 (Z7)		D 100 (Z8)		D 125 (Z8)		D 160 (Z10)		D 200 (Z12)		D 250 (Z14)	
Side miling	Slotting	Side miling	Slotting	Side miling	Slotting	Side miling	Slotting	Side miling	Slotting	Side miling	Slotting	Side miling	Slotting
300	180	300	180	300	180	300	180	300	180	300	180	300	180
1520	910	1190	720	950	570	760	460	600	360	480	290	380	230
0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
2270	1090	2090	1000	1910	920	1530	730	1490	720	1430	690	1340	640
10	5	10	5	10	5	10	5	10	5	10	5	10	5
18	63 / 66	24	80	30	100	37	125	48	160	60	200	75	250
409	343 / 360	502	400	573	460	566	456	715	576	858	690	1005	800
250	150	250	150	250	150	250	150	250	150	250	150	250	150
1260	760	990	600	800	480	640	380	500	300	400	240	320	190
0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
1890	910	1740	840	1590	760	1270	610	1240	600	1190	570	1110	530
8.5	4.5	8.5	4.5	8.5	4.5	8.5	4.5	8.5	4.5	8.5	4.5	8.5	4.5
18	63 / 66	24	80	30	100	37	125	48	160	60	200	75	250
289	258 / 270	355	302	405	342	399	343	506	432	607	513	708	596
180	120	180	120	180	120	180	120	180	120	180	120	180	120
910	610	720	480	570	380	460	310	360	240	290	190	230	150
0.18	0.15	0.18	0.15	0.18	0.15	0.18	0.15	0.18	0.15	0.18	0.15	0.18	0.15
980	550	900	500	830	460	660	370	640	360	620	340	580	320
7	3.5	7	3.5	7	3.5	7	3.5	7	3.5	7	3.5	7	3.5
18	63 / 66	24	80	30	100	37	125	48	160	60	200	75	250
123	121 / 127	151	140	174	161	171	162	215	202	260	238	305	280
120	80	120	80	120	80	120	80	120	80	120	80	120	80
610	400	480	320	380	250	310	200	240	160	190	130	150	100
0.12	0.1	0.12	0.1	0.12	0.1	0.12	0.1	0.12	0.1	0.12	0.1	0.12	0.1
440	240	400	220	370	200	290	160	290	160	280	150	260	140
5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5
18	63 / 66	24	80	30	100	37	125	48	160	60	200	75	250
40	38 / 40	48	44	56	50	54	50	70	64	84	75	98	88
110	70	110	70	110	70	110	70	110	70	110	70	110	70
560	350	440	280	350	220	280	180	220	140	180	110	140	90
0.18	0.15	0.18	0.15	0.18	0.15	0.18	0.15	0.18	0.15	0.18	0.15	0.18	0.15
600	320	550	290	500	270	400	210	390	210	380	200	350	190
8	4	8	4	8	4	8	4	8	4	8	4	8	4
18	63 / 66	24	80	30	100	37	125	48	160	60	200	75	250
86	81 / 84	106	93	120	108	118	105	150	134	182	160	210	190
180	150	180	150	180	150	180	150	180	150	180	150	180	150
910	760	720	600	570	480	460	380	360	300	290	240	230	190
0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
1360	910	1250	840	1150	760	920	610	900	600	860	570	800	530
10	5	10	5	10	5	10	5	10	5	10	5	10	5
18	63 / 66	24	80	30	100	37	125	48	160	60	200	75	250
245	287 / 300	300	336	345	380	340	381	432	480	516	570	600	663
150	120	150	120	150	120	150	120	150	120	150	120	150	120
760	610	600	480	480	380	380	310	300	240	240	190	190	150
0.2	0.15	0.2	0.15	0.2	0.15	0.2	0.15	0.2	0.15	0.2	0.15	0.2	0.15
910	550	840	500	760	460	610	370	600	360	570	340	530	320
8	4	8	4	8	4	8	4	8	4	8	4	8	4
18	63 / 66	24	80	30	100	37	125	48	160	60	200	75	250
131	139 / 145	161	160	182	184	181	185	230	230	274	272	318	320
600	400	600	400	600	400	600	400	600	400	600	400	600	400
3030	2020	2390	1590	1910	1270	1530	1020	1190	800	950	640	760	510
0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
4550	2430	4180	2230	3820	2040	3060	1630	2980	1590	2860	1530	2670	1430
10	5	10	5	10	5	10	5	10	5	10	5	10	5
18	63 / 66	24	80	30	100	37	125	48	160	60	200	75	250
819	765 / 802	1003	892	1146	1020	1132	1019	1430	1272	1716	1530	2003	1788
50	30	50	30	50	30	50	30	50	30	50	30	50	30
250	150	200	120	160	100	130	80	100	60	80	50	60	40
0.15	0.1	0.15	0.1	0.15	0.1	0.15	0.1	0.15	0.1	0.15	0.1	0.15	0.1
230	90	210	80	190	80	150	60	150	60	140	60	130	50
2	1.5	2	1.5	2	1.5	2	1.5	2	1.5	2	1.5	2	1.5
18	63 / 66	24	80	30	100	37	125	48	160	60	200	75	250
8	9 / 9	10	10	11	12	11	11	14	14	17	18	20	19

COMMENTAIRES : Nous recommandons de réduire « f_z » à 70% de la valeur standard lors de l'utilisation de plaquettes de type FW.

VIII & IX : Notez que les durées de vies seront réduites, surtout lors de l'utilisation de soluble.

COMENTÁRIOS: Nós recomendamos reduzir "f_z" para 70% das condições de corte gerais, quando usar o tipo FW.

VIII & IX: Por favor tenha atenção para uma menor vida útil da ferramenta especialmente com uso de emulsão.

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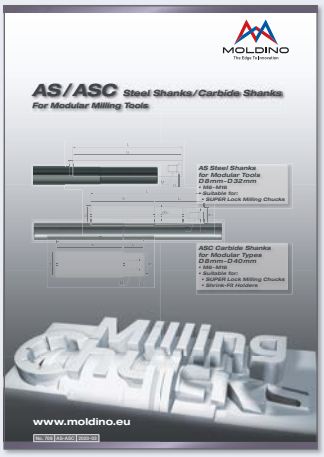
For more information about Modular Tools and available Shanks please check our brochures:

Indexable Modular No. 328.x

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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