MOLDINO
The Edge To Innovation

Indexable Square End Mill

ASM type

Super Excellent Mini ASM

MOLDINO Tool Engineering, Ltd.

New Product News | No.1203E-10 | 2022-11

Indexable end mill using advanced small-diameter inserts. Pocket design and 3D-shaped cutting edge enables high-efficient machining of even small diameter sizes.

Small dia.

Lineup of small diameter sizes from ϕ8 to ϕ32.

▶ **Can be used instead of solid end mills.**

Multi-function

JDMT-type inserts for shoulder cutting and EDMT-type inserts for low-depth, high-feed-rate machining can be used in the same holder.

▶ **Concentration of roughing tools**

By using a modular type holder, a carbide shank and special arbor suitable for the cutting depth and cutting shape can be selected.

▶ **Broad cutting range**

Easy cutting

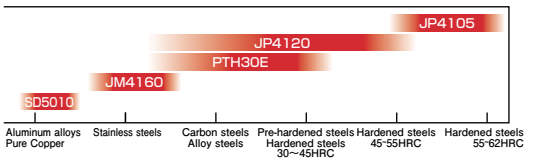
Uses low-force free-cutting-shape insert.

▶ **Compatible with low-powered small-sized machines equivalent to BT-30.**

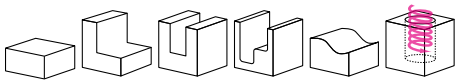
Environment

▶ **Economical insert with 2-corner specifications**

▶ **Special environmentally-friendly, high-hardness, corrosion-resistant surface treatment employed on holder.**



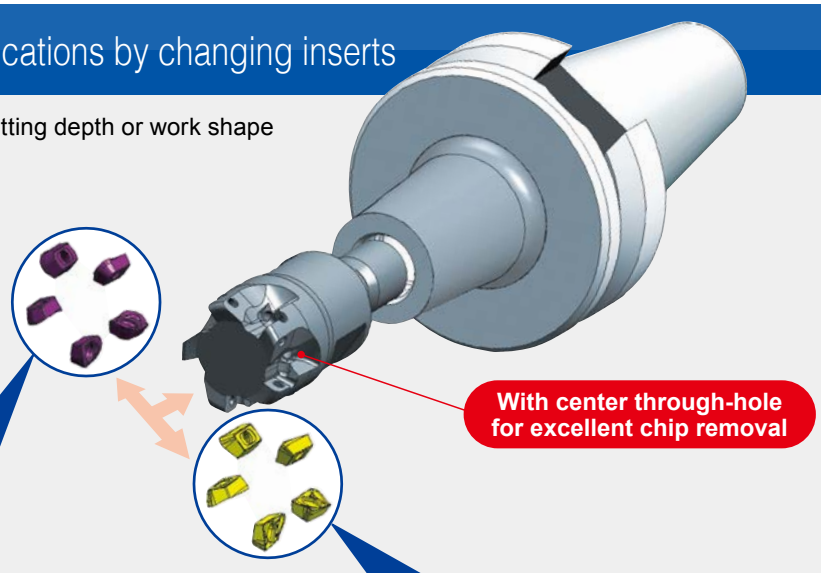
Applications



Features 01 2 types of applications by changing inserts

・High-efficient tooling system to match cutting depth or work shape

1. **Steel Shank type**
2. **Carbide Shank**
3. **Modular Arbor**



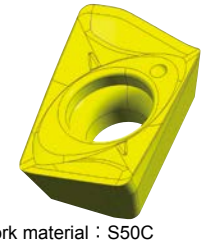
EDMT-type insert for machining efficiency

Utilizes R2.0 cutting edge shape.

- No uncut remnants peculiar to high feed tools
- Low cutting resistance

Work material：S50C
Tools：ASMM0710R-2(ϕ10-2NT)
+ASC10-6.5-114-49
Cutting Conditions：V_c=160m/min
V_f=6,115mm/min
$a_p \times a_e$=0.25×5mm
Tool overhang 80mm

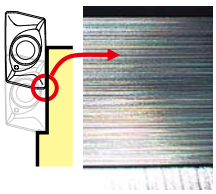
JDMT-type insert for high-grade machined surfaces



Utilizes Fine Wall (FW) shape.

- Decrease unevenness of machined surfaces
- Decrease burring

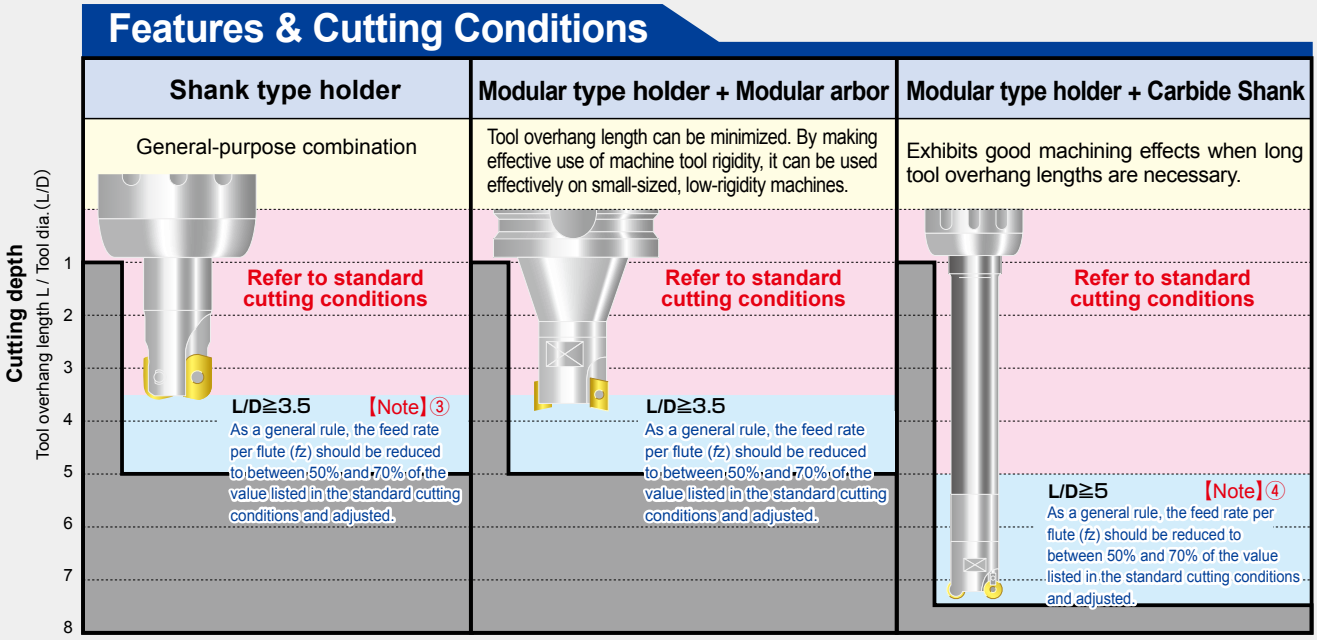
Work material：S50C
Tools：ASM0712S12R-2(ϕ12-3NT)
+ASC10-6.5-114-49
Cutting Conditions：V_c=200m/min
V_f=800mm/min
$a_p \times a_e$=5×0.5mm×2
Tool overhang 25mm



High-efficient tooling system and selecting a cutting conditions

・ASM enables high-efficient machining according to cutting shape by combined use with various tooling systems.

Features & Cutting Conditions

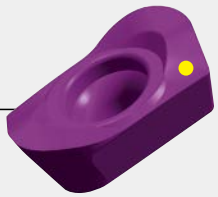


【Note】①This table shows general conditions for shoulder cutting. Adjustments should be made according to machine rigidity or tooling and the shape of the subject for cutting.
②When using ASM Ø20 to Ø32 inserts in a BT30 or BT40 arbor, the use of a combination of modular type holder and modular arbor is recommended.
③When using an ASM0710S08R-2 or ASM0712S10R-2 undercut type shank, as a general rule the feed rate per flute (*fz*) should be reduced to in addition, 50~70% of the value listed in the standard cutting conditions.
④Select the cutting condition of *fz*=0.3mm/t and less than *a*p=0.2mm when you use carbide shank ASC10-6.5-114-49/24 with L/D≧5.

2 kinds of insert geometry

・2 kinds of inserts are available: Standard type inserts (T-type) and low-cutting force-type inserts.
・Low cutting force-type inserts reduce cutting force at the corners when pocketting by approximately 10%.

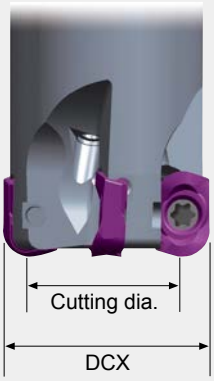
Standard type Insert
(EDMT070220R-T)

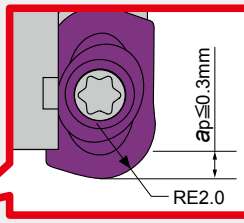


Low-force type Insert
(EDMT070220R)

Cutting programs

・Regular R shape is used for corner R. There is no need for an approximate R definition.





•Tool corner is R2.0
(Unique to high-feed-rate tools to leave no uncut areas.)
•Axial direction cutting depth *a*p should be set to 0.3 mm or less. (*a*p ≦ 0.3 mm)

【Note】
①Cutting dia. ＝DCX - 4mm
②When performing pocket cutting, be careful of the cutting width (*a*e) and generated variations due to remaining work to cut.
(Recommended Cutting width *a*e=Cutting dia.×0.5～0.8(mm))
③When cutting the corner area of a vertical wall, setting thetool path corner area to R will enable more stable cutting.

Technology

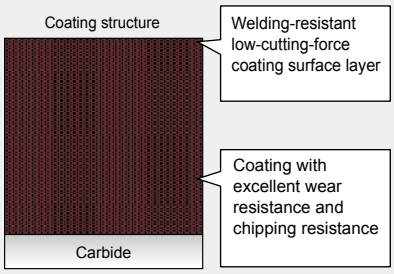
Features of AJ Coating series

- Employs an AlTiN layer with a new composition created by increasing the Al content of conventional layers.
- Excellent wear resistance, chipping resistance, and heat resistance!

New technology!!

- The new layer with high Al content employs a new composition and optimizes the structure to improve wear resistance and chipping resistance!
- Employs a low-friction-effect coating with excellent welding resistance as the top-most surface layer. This reduces welding to the work and decreases cutting force!

Layer structure **AJ Coating**



PVD Technology

Grade for machining pre-hardened or hardened materials JP4120

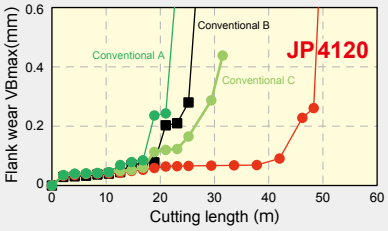
Features

- Employs a fine carbide substrate with an excellent balance between wear resistance and toughness and the new "AJ Coating" to provide improved wear resistance and chipping resistance.
- Highly versatile with excellent wear resistance and chipping resistance when machining steel materials with hardnesses of 30 to 50 HRC.

Strong fields

- Exhibits excellent cutting performance when machining pre-hardened or hardened steel with hardnesses of 30 to 50 HRC.
- Exhibits excellent wear resistance even on difficult-to-cut diecast tool steel or precipitation-hardened stainless steels, or for finishing.

Cutting performance



Work material：P21(40HRC)
Tool：ASRT5063R-4
Insert：WDNW140520
Cutting conditions：
v_c=90m/min f_z=0.8mm/t $a_p \times a_e$=1×44mm
Dry ※Single-flute cutting

PVD Technology

Grade for machining stainless-steel materials JP4160

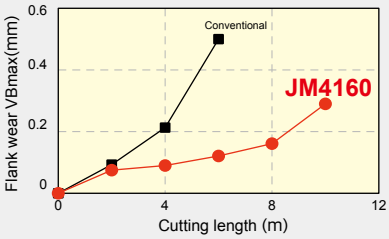
Features

- Employs a carbide substrate with high toughness and the new "AJ Coating" to improve wear resistance and chipping resistance when machining stainless-steel materials.
- Employs AJ Coating with excellent welding resistance to reduce the welding to work material that occurs when machining stainless steel materials.

Strong fields

- Provides long tool life for general processing of stainless-steel materials

Cutting performance



Work material：SUS304
Tool：ASRS2032R-5
Insert：EPMT0603EN-8LF
Cutting conditions：
v_c=180m/min f_z=0.5mm/t $a_p \times a_e$=0.8×21mm
Wet ※Single-flute cutting

PVD Technology

Grade for machining high-hardness materials JP4105

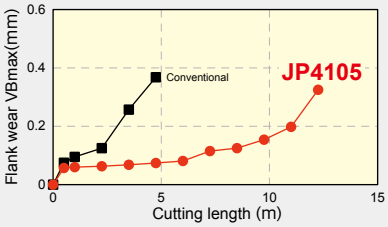
Features

- Employs an ultra-fine cemented carbide substrate and the new "AJ Coating" to improve wear resistance.
- Excellent wear resistance when machining high hardness materials of 50HRC or higher.

Strong fields

- Hardened steels (50 to 60 HRC): SKD11, SKD61, SKH, SUS420, etc.

Cutting performance



Work material：SKD11(61HRC) Tool：ASRS2032-5
Insert：EPNW0603TN-8
Cutting conditions：
v_c=80m/min f_z=0.2mm/t $a_p \times a_e$=0.5×21mm
Dry ※Single-flute cutting

Shank type ASM□07○○S○○R-○

Numeric figure in a circle ○ and alphabetical character comes in a square □.

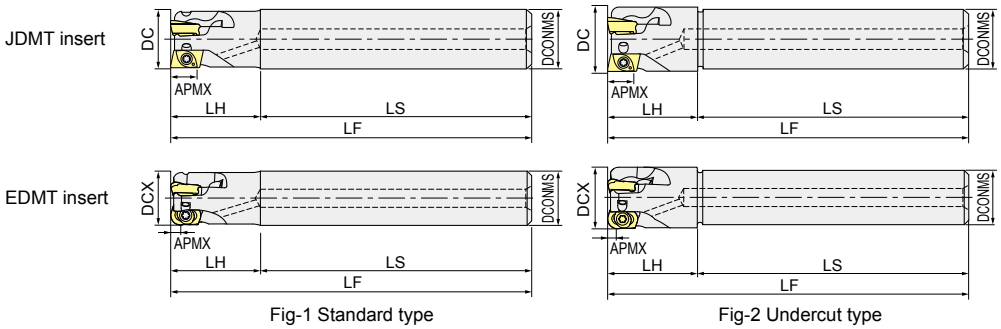


Fig-1 Standard type　　Fig-2 Undercut type

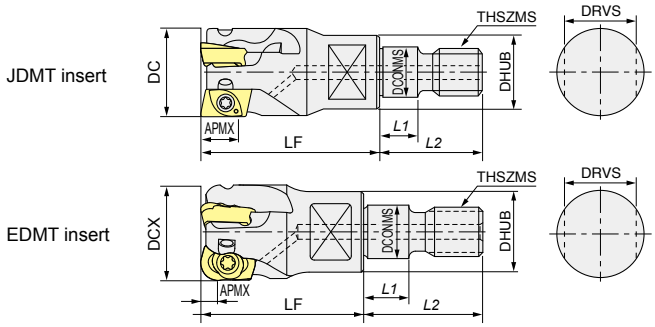
With air hole　　Maximum tightening torque **0.5Nm**　　Spare screw included

Item code	Stock	No.of flutes	Size (mm) DC DCX	LF	APMX	LH	DCONMS	LS	Shape	Inserts
ASM0708S10R-1	●	1	8	75	5 (0.3)※	18	10	57	Standard type (Fig-1)	JDMT0702○○R EDMT070220R(-T)
ASM0710S10R-2	●	2	10	80		20	10	60	Standard type (Fig-1)	
ASM0710S08R-2	●	2	10	80		20	8	60	Undercut type (Fig-2)	
ASM0711S10R-2	●	2	11	80		20	10	60	Undercut type (Fig-2)	
ASM0712S12R-3	●	3	12	80		20	12	60	Standard type (Fig-1)	
ASM0712S10R-3	●	3	12	80		20	10	60	Undercut type (Fig-2)	
ASM0714S12R-3	●	3	14	80		20	12	60	Undercut type (Fig-2)	
ASM0716S16R-4	●	4	16	90		25	16	65	Standard type (Fig-1)	
ASML0716S16R-4	●	4	16	115		50	16	65	Standard type (Fig-1)	
ASM0717S16R-4	●	4	17	115		20	16	95	Undercut type (Fig-2)	
ASM0720S20R-5	●	5	20	105		25	20	80	Standard type (Fig-1)	
ASML0720S20R-5	●	5	20	140		60	20	80	Standard type (Fig-1)	
ASM0721S20R-5	●	5	21	140		20	20	120	Undercut type (Fig-2)	

※When using EDMT070220R (-T), APMX is in ( ) dimensions.

Modular type ASMM07○○R-○

Numeric figure in a circle ○.



With air hole

Maximum tightening torque **0.5Nm**

Spare screw included

Item code	Stock	No.of flutes	Size (mm) DC DCX	LF	APMX	DCONMS	THSZMS	DHUB	L1	L2	DRVS	Inserts
ASMM0708R-1	●	1	8	20	5 (0.3)※	6.5	M6	9.8	5.5	14.5	7	JDMT0702○○R EDMT070220R(-T)
ASMM0710R-2	●	2	10	20		6.5	M6	9.4	5.5	14.5	7	
ASMM0711R-2	●	2	11	20		6.5	M6	9.8	5.5	14.5	7	
ASMM0712R-3	●	3	12	20		6.5	M6	9.8	5.5	14.5	7	
ASMM0712R-2		2	12	20		6.5	M6	9.8	5.5	14.5	7	
ASMM0716R-4	●	4	16	25		8.5	M8	12.8	5.5	17	10	
ASMM0716R-3		3	16	25		8.5	M8	12.8	5.5	17	10	
ASMM0720R-5	●	5	20	30		10.5	M10	17.8	5.5	19	15	
ASMM0720R-4		4	20	30		10.5	M10	17.8	5.5	19	15	
ASMM0725R-6	●	6	25	30		12.5	M12	20.8	5.5	22	17	
ASMM0725R-5		5	25	30		12.5	M12	20.8	5.5	22	17	
ASMM0732R-8	●	8	32	30		17	M16	28.8	6	23	22	
ASMM0732R-5		5	32	30		17	M16	28.8	6	23	22	

※When using EDMT070220R (-T), APMX is in ( ) dimensions.

【Note】 Do not apply lubricants such as grease, etc. to the "contact faces" and "modular screws" of the "modular mill", "dedicated shanks" and "dedicated arbor".

● : Stocked Items.　No Mark:Manufactured upon request only.

Line Up

Inserts

Fig-3 JDMT07020◌R
Insert with 5mm cutting edge for shoulder cutting
（APMX=5.0mm）

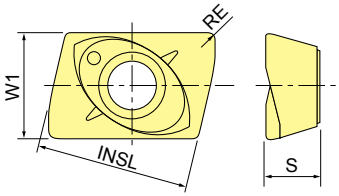
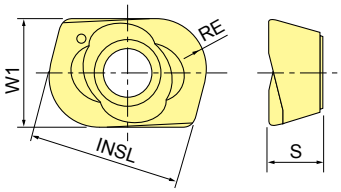


Fig-4 EDMT070220R(-T)
Insert with 2.0mm corner R for small-depth, high-feed-rate cutting
（APMX=0.3mm）



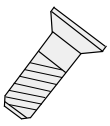
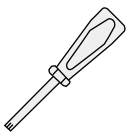
P	Carbon steels		■		⊏	
M	SUS, etc.		⊏	■	■	
K	FC・FCD Cast irons				⊏	
N	Aluminum alloys		⊏		⊏	■
H	Hardened steels	■	⊏			

■ :General cutting, First recommended

⊏ :General cutting, Second recommended

Item code	Tolerance class	AJ Coating JP4105	AJ Coating JP4120	AJ Coating JM4160	TH Coating PTH30E	DLC Coating SD5010	Size (mm) INSL	W1	RE	S	Shape
JDMT070202R	M	●	●	●	●	●	6.4	4.3	0.2	2.45	Fig-3
JDMT070204R		●	●	●	●	●	6.4	4.3	0.4	2.45	
JDMT070208R		●	●	●	●	●	6.4	4.3	0.8	2.45	
EDMT070220R-T		●	●	●			6.4	4.3	2	2.5	Fig-4 Standard type
EDMT070220R		●	●	●			6.4	4.3	2	2.5	Fig-4 Low cutting force type

Parts

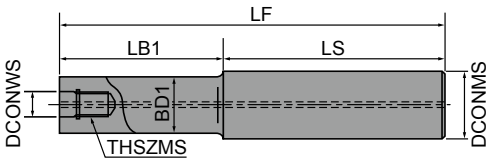
Parts	Clamp screw		Screw driver	Screw anti-seizure agent
Shape / Cutter body		Fastening torque (N・m)		
ASM (L)07◌◌S◌◌R-◌ ASMM07◌◌R-◌	240-140	0.5	104-T6	P-37

【Note】 The clamp screw is a consumable part. Since replacement life depends on the use environment, it is recommended that it be replaced at an early stage.
One spare clamp screw is provided for cutter bodies with 3 or less flutes, and two for 4 or more flutes.

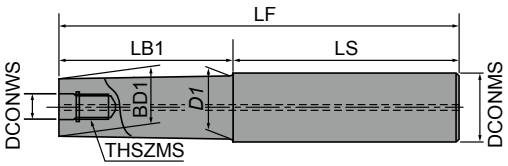
● : Stocked Items. No Mark:Manufactured upon request only.

The Shanks for Modular Mill

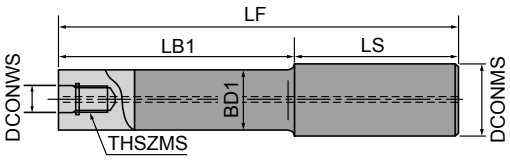
Carbide Shank



A type



B type



C type

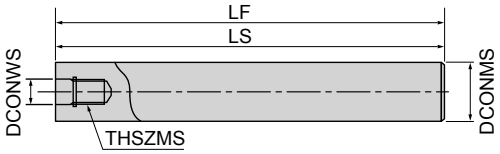
Item code	Stock	Size (mm)								Type	Cutter body	With/ without air hole
		DCONWS	THSZMS	LF	LB1	LS	BD1	DCONMS	*D1*			
ASC10-6.5-74-24Z	●	6.5	M6	74	24	50	9.3	10	–	A	(ϕ8) ※4 ϕ10 (ϕ11) ※3 (ϕ12) ※3	○
ASC10-6.5-84-34Z	●			84	34	50						
ASC10-6.5-114-49Z	●			114	49	65						
ASC10-6.5-114-24Z	●				24	90						
ASC12-6.5-74-24Z	●	6.5	M6	74	24	50	11	12	11.5	B	(ϕ8) ※4 (ϕ10) ※4 (ϕ11) ※4 ϕ12	○
ASC12-6.5-94-44Z	●			94	44	50						
ASC12-6.5-129-64Z	●			129	64	65						
ASC12-6.5-129-24Z	●				24	105						
ASC16-8.5-95-30Z	●	8.5	M8	95	30	65	14.5	16	15.5	B	ϕ16	○
ASC16-8.5-120-55Z	●			120	55	65						
ASC16-8.5-140-75Z	●			140	75	65						
ASC16-8.5-160-95Z	●			160	95	65						
ASC16-8.5-160-30Z	●			160	30	130						
ASC20-10.5-120-50Z	●	10.5	M10	120	50	70	18.5	20	19.5	B	ϕ20	○
ASC20-10.5-170-90Z	●			170	90	80						
ASC20-10.5-220-120Z	●			220	120	100						
ASC20-10.5-270-150Z	●			270	150	120						
ASC20-10.5-220-50Z	●	10.5	M10	220	50	170	18.5	20	19.5	B	ϕ20	○
ASC20-10.5-270-50Z	●			270		220						
ASC25-12.5-145-65	●	12.5	M12	145	65	80	23	25	–	C	ϕ25	○
ASC25-12.5-215-115	●			215	115	100						
ASC25-12.5-265-145	●			265	145	120						
ASC25-12.5-315-195	●			315	195	120						
ASC25-12.5-265-65	●	12.5	M12	265	65	200	23	25	–	C	ϕ25	○
ASC25-12.5-315-65	●			315		250						
ASC32-17-160-80	●	17	M16	160	80	80	28	32	–	C	ϕ32	○
ASC32-17-210-110	●			210	110	100						
ASC32-17-260-140	●			260	140	120						
ASC32-17-310-190	●			310	190	120						
ASC32-17-360-240	●			360	240	120						
ASC32-17-260-80	●	17	M16	260	80	180	28	32	–	C	ϕ32	○
ASC32-17-310-80	●			310		230						
ASC32-17-360-80	●			360		280						

【Note】 ①Commercial milling chucks or shrink-fit holders can be used.
②For ※3, since the cutter diameter is larger than the shank diameter, there is no interference at the shank.
③For ※4, since the cutter diameter is smaller than the shank diameter, interference occurs at the shank.

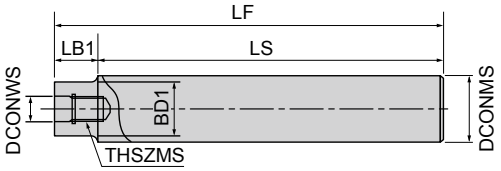
● : Stocked Items.

The Shanks for Modular Mill

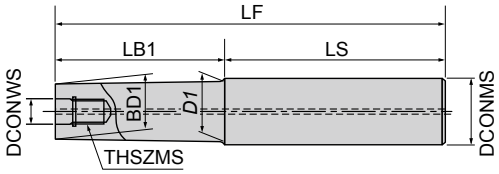
Steel Shank



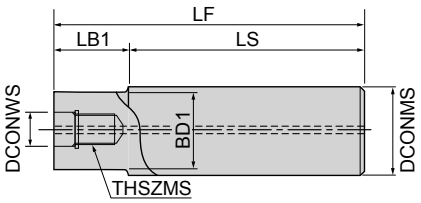
Type A



Type B



Type C（Tapered neck）



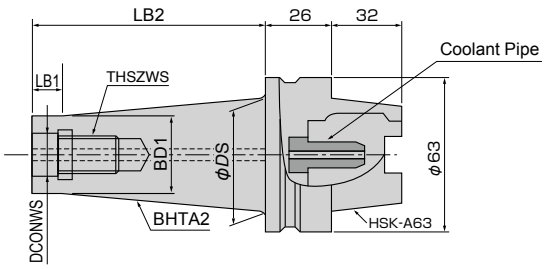
Type D

Item code	Stock	Size (mm)								Type	Cutter body	With/ without air hole
		DCONWS	THSZMS	LF	LB1	LS	BD1	DCONMS	*D1*			
AS10-6.5-74-0	●	**6.5**	M6	74	–	74	–	10	–	A	ϕ10	-
AS12-6.5-84-4	●	**6.5**	M6	84	4	80	11	12	–	B	ϕ11 ϕ12	-
AS16-8.5-95-15	●	**8.5**	M8	95	15	80	14.5	16	15.5	C	ϕ16	○
AS20-10.5-100-20	●	**10.5**	M10	100	20	80	18	20	–	D	ϕ20	○
AS25-12.5-115-35	●	**12.5**	M12	115	35	80	23	25	–	D	ϕ25	○
AS32-17-110-30	●	**17**	M16	110	30	80	28	32	–	D	ϕ32	○

【Note】 Commercial milling chucks can be used.

The Arbor for Modular Mill

HSK-A63

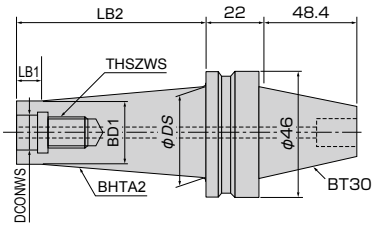


※For neck section, additional machining to user specifications is possible.

Item code	Stock	Size (mm)							With/ without air hole
		DCONWS	THSZWS	LB2	LB1	BD1	*ϕDS*	BHTA2	
HSK-A63-10.5-30-18	●	**10.5**	M10	30	–	18	20.8	3°	○
HSK-A63-10.5-70-18	●			70	10		25	3°	
HSK-A63-10.5-120-18	●			120	10		30.2	3°	
HSK-A63-12.5-35-21	●	**12.5**	M12×1.75	35	–	21	24.3	3°	○
HSK-A63-12.5-65-21	●			65	10		27.5	3°	
HSK-A63-12.5-115-21	●			115	10		32.7	3°	
HSK-A63-17-40-28	●	**17**	M16×2	40	–	28	31.8	3°	○
HSK-A63-17-60-28	●			60	10		33.9	3°	
HSK-A63-17-110-28	●			110	10		39.2	3°	

● : Stocked Items.

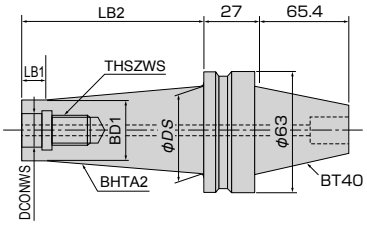
BT30



※For neck section, additional machining to user specifications is possible.

Item code	Stock	Size (mm)							With/without air hole
		DCONWS	THSZWS	LB2	LB1	BD1	ϕDS	BHTA2	
BT30-6.5-30-9.7		6.5	M6	30	5	9.7	25	17.0°	–
BT30-6.5-55-9.7				55	10			9.6°	
BT30-6.5-80-9.7				80	10			6.2°	
BT30-8.5-25-15		8.5	M8	25	5	15	30	20.6°	○
BT30-8.5-50-15				50	10			10.6°	
BT30-8.5-75-15				75	10			6.6°	
BT30-10.5-20-18		10.5	M10	20	5	18	35	29.5°	○
BT30-10.5-45-18				45	10			13.7°	
BT30-10.5-70-18				70	10			8.1°	
BT30-12.5-15-21		12.5	M12	15	5	21	40	32.3°	○
BT30-12.5-40-21				40	10			17.6°	
BT30-12.5-65-21				65	10			9.8°	
BT30-17-10-28		17	M16	10	5	28	40	31°	○
BT30-17-35-28				35	10			13.5°	
BT30-17-60-28				60	10			6.8°	

BT40

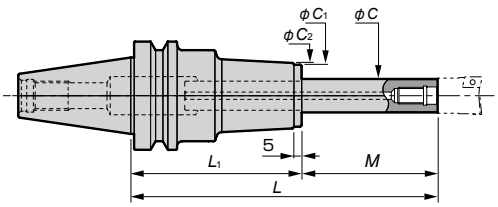


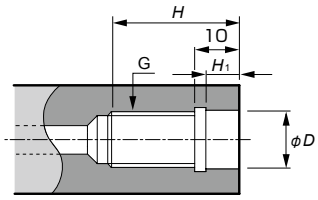
※For neck section, additional machining to user specifications is possible.

Item code	Stock	Size (mm)							With/without air hole
		DCONWS	THSZWS	LB2	LB1	BD1	ϕDS	BHTA2	
BT40-6.5-30-9.7		6.5	M6	30	5	9.7	25	17.0°	–
BT40-6.5-55-9.7				55	10			9.6°	
BT40-6.5-80-9.7				80	10			6.2°	
BT40-8.5-25-15		8.5	M8	25	5	15	30	20.6°	○
BT40-8.5-50-15				50	10			10.6°	
BT40-8.5-75-15				75	10			6.6°	
BT40-10.5-20-18		10.5	M10	20	5	18	35	29.5°	○
BT40-10.5-45-18				45	10			13.7°	
BT40-10.5-70-18				70	10			8.1°	
BT40-12.5-15-21		12.5	M12	15	5	21	40	32.3°	○
BT40-12.5-40-21				40	10			17.6°	
BT40-12.5-65-21				65	10			9.8°	
BT40-17-10-28		17	M16	10	5	28	48	45°	○
BT40-17-35-28				35	10			21.8°	
BT40-17-60-28				60	10			11.3°	

No Mark:Manufactured upon request only.

Red screw arbor





Dimensions for the Modular Mill mounting

■Caution

- Some of the indexable end mills cannot be attached to the RED screw arbor. Please check your indexable end mills for conformance to the dimensions, or please contact MOLDINO Tool Engineering, Ltd.
- Because cutting resistance is greater than the tool holder connection force associated with the machine spindle, please reduce the recommended cutting conditions by 50% for the RED screw arbors marked with ※. Otherwise, the tool holder shank may experience fretting corrosion or fall out of the machine spindle.

	Item code	Stock	G	φD	H	H1	φC	L	M	L1	φC1	φC2	Weight (kg)	Rigidity value (μm) δ↓
BT40	BT40-RSG8-105-M25		M8	8.5	18	6.5	15	105		80	30	32	1.4	0.6
	BT40-RSG8-135-M25							135	25	110			1.8	0.7
	BT40-RSG8-165-M25							165		140			2.1	0.8
	BT40-RSG8-130-M50							130		80			1.4	1.5
	BT40-RSG8-160-M50							160	50	110			1.8	1.7
	BT40-RSG8-190-M50							190		140			2.1	1.8
	BT40-RSG8-155-M75							155		80			1.5	3.1
	BT40-RSG8-185-M75							185	75	110			1.9	3.4
	BT40-RSG8-215-M75							215		140			2.2	3.5
	BT40-RSG8-170-M90							170		140			1.5	4.5
	BT40-RSG8-200-M90							200	90	110			1.9	4.8
	BT40-RSG8-230-M90							230		140			2.2	4.9
	BT40-RSG8-185-M105							185		80			1.6	6.2
	BT40-RSG8-215-M105							215	105	110			2.0	6.7
	BT40-RSG8-245-M105							245		140			2.3	6.8
	BT40-RSG10-125-M25		M10	10.5	22	6.5	19	125		100	36	38	1.8	0.4
	BT40-RSG10-155-M25							155	25	130			2.2	0.5
	BT40-RSG10-185-M25							185		160			2.4	0.7
	BT40-RSG10-150-M50							150		100			1.9	0.8
	BT40-RSG10-180-M50							180	50	130			2.3	1.0
	BT40-RSG10-210-M50							210		160			2.5	1.2
	BT40-RSG10-175-M75							175		100			2.0	1.6
	BT40-RSG10-205-M75							205	75	130			2.4	1.8
	BT40-RSG10-235-M75							235		160			2.6	2.0
	BT40-RSG10-200-M100							200		100			2.0	2.7
	BT40-RSG10-230-M100							230	100	130			2.4	3.0
	BT40-RSG10-260-M100							260		160			2.6	3.3
	BT40-RSG10-220-M120							220		100			2.1	4.0
	BT40-RSG10-250-M120							250	120	130			2.5	4.3
	BT40-RSG10-280-M120							280		160			2.7	4.6
	BT40-RSG12-125-M25		M12	12.5	22	6	24	125		100	43	45	2.0	0.3
	BT40-RSG12-155-M25							155	25	130			2.4	0.4
	BT40-RSG12-185-M25							185		160			2.7	0.5
	BT40-RSG12-150-M50							150		100			2.1	0.5
	BT40-RSG12-180-M50							180	50	130			2.5	0.7
	BT40-RSG12-210-M50							210		160			2.8	0.9
	BT40-RSG12-175-M75							175		100			2.3	0.9
	BT40-RSG12-205-M75							205	75	130			2.7	1.1
	BT40-RSG12-235-M75							235		160			3.0	1.3
	BT40-RSG12-200-M100							200		100			2.4	1.4
	BT40-RSG12-230-M100							230	100	130			2.8	1.6
	BT40-RSG12-260-M100							260		160			3.1	1.9
	BT40-RSG12-225-M125							225		100			2.6	2.1
	BT40-RSG12-255-M125							255	125	130			3.0	2.4
	BT40-RSG12-285-M125							285		160			3.3	2.8
	BT40-RSG16-125-M25		M16	17	25	6	29	125	25		52	54	2.6	0.2
	BT40-RSG16-150-M50							150	50				2.8	0.3
	BT40-RSG16-175-M75							175	75	100			3.0	0.5
	BT40-RSG16-200-M100							200	100				3.2	0.8
	BT40-RSG16-225-M125 ※							225	125				3.4	1.2
BT50	BT50-RSG8-120-M25		M8	8.5	18	6.5	15	120		95	30	32	4.0	0.6
	BT50-RSG8-150-M25							150	25	125			4.3	0.7
	BT50-RSG8-180-M25							180		155			4.8	0.7
	BT50-RSG8-145-M50							145		95			4.0	1.5
	BT50-RSG8-175-M50							175	50	125			4.3	1.7
	BT50-RSG8-205-M50							205		155			4.8	1.7
	BT50-RSG8-170-M75							170		95			4.1	3.1
	BT50-RSG8-200-M75							200	75	125			4.4	3.4
	BT50-RSG8-230-M75							230		155			4.9	3.4
	BT50-RSG8-185-M90							185		155			4.9	4.4
	BT50-RSG8-215-M90							215	90	125			4.4	4.8
	BT50-RSG8-245-M90							245		155			4.9	4.8
	BT50-RSG8-200-M105							200		95			4.2	6.2
	BT50-RSG8-230-M105							230	105	125			4.5	6.6
	BT50-RSG8-260-M105							260		155			5.0	6.6
	BT50-RSG10-140-M25		M10	10.5	22	6.5	19	140	25	115	36	38	4.3	0.4
	BT50-RSG10-170-M25							170		145			4.6	0.5
	BT50-RSG10-200-M25							200	25	175			5.6	0.5
	BT50-RSG10-165-M50							165		115			4.4	0.8
	BT50-RSG10-195-M50							195	50	145			4.7	0.9
	BT50-RSG10-225-M50							225		175			5.7	1.0
	BT50-RSG10-190-M75							190		115			4.5	1.6
	BT50-RSG10-220-M75							220	75	145			4.8	1.7
	BT50-RSG10-250-M75							250		175			5.8	1.8
	BT50-RSG10-215-M100							215		115			4.5	2.7
	BT50-RSG10-245-M100							245	100	145			4.8	2.9
	BT50-RSG10-275-M100							275		175			5.8	2.9
	BT50-RSG10-235-M120							235		115			4.6	3.9
	BT50-RSG10-265-M120							265	120	145			4.9	4.2
	BT50-RSG10-295-M120							295		175			5.9	4.2
	BT50-RSG10-255-M140							255		115			4.7	5.5
	BT50-RSG10-285-M140							285	140	145			5.0	5.8
	BT50-RSG10-315-M140							315		175			6.0	5.8
	BT50-RSG12-140-M25		M12	12.5	22	6	24	140		115	43	45	4.6	0.2
	BT50-RSG12-170-M25							170	25	145			5.0	0.3
	BT50-RSG12-200-M25							200		175			5.8	0.4
	BT50-RSG12-165-M50							165		115			4.7	0.5
	BT50-RSG12-195-M50							195	50	145			5.1	0.6
	BT50-RSG12-225-M50							225		175			5.9	0.6
	BT50-RSG12-190-M75							190		115			4.9	0.8
	BT50-RSG12-220-M75							220	75	145			5.3	1.0
	BT50-RSG12-250-M75							250		175			6.1	1.0
	BT50-RSG12-215-M100							215		115			5.0	1.3
	BT50-RSG12-245-M100							245	100	145			5.4	1.5
	BT50-RSG12-275-M100							275		175			6.2	1.6
	BT50-RSG12-240-M125							240		115			5.2	2.1
	BT50-RSG12-270-M125							270	125	145			5.6	2.3
	BT50-RSG12-300-M125							300		175			6.4	2.4
	BT50-RSG12-265-M150							265		115			5.3	3.0
	BT50-RSG12-295-M150							295	150	145			5.7	3.3
	BT50-RSG12-325-M150							325		175			6.5	3.4
	BT50-RSG12-290-M175							290		115			5.5	4.2
	BT50-RSG12-320-M175							320	175	145			5.9	4.6
	BT50-RSG12-350-M175							350		175			6.7	4.6
	BT50-RSG16-140-M25		M16	17	25	6	29	140		115	52	54	4.8	0.2
	BT50-RSG16-170-M25							170	25	145			5.4	0.2
	BT50-RSG16-200-M25							200		175			6.6	0.2
	BT50-RSG16-165-M50							165		115			5.0	0.3
	BT50-RSG16-195-M50							195	50	145			5.6	0.4
	BT50-RSG16-225-M50							225		175			6.8	0.4
	BT50-RSG16-190-M75							190		115			5.3	0.5
	BT50-RSG16-220-M75							220	75	145			5.9	0.6
	BT50-RSG16-250-M75							250		175			7.0	0.6
	BT50-RSG16-215-M100							215		115			5.5	0.7
	BT50-RSG16-245-M100							245	100	145			6.1	0.9
	BT50-RSG16-275-M100							275		175			7.2	0.9
	BT50-RSG16-240-M125							240		115			5.7	1.1
	BT50-RSG16-270-M125							270	125	145			6.3	1.3
	BT50-RSG16-300-M125							300		175			7.4	1.3
	BT50-RSG16-265-M150							265		115			5.9	1.6
	BT50-RSG16-295-M150							295	150	145			6.5	1.8
	BT50-RSG16-325-M150							325		175			7.7	1.8
	BT50-RSG16-290-M175							290		115			6.1	2.2
	BT50-RSG16-320-M175							320	175	145			6.7	2.4
	BT50-RSG16-350-M175							350		175			7.9	2.5
	BT50-RSG16-315-M200							315		115			6.3	3.0
	BT50-RSG16-345-M200							345	200	145			6.9	3.2
	BT50-RSG16-375-M200							375		175			8.1	3.3
	BT50-RSG16-340-M225							340		115			6.5	3.9
	BT50-RSG16-370-M225							370	225	145			7.1	4.1
	BT50-RSG16-400-M225							400		175			8.3	4.2
A63	A63-RSG8-105-M25		M8	8.5	18	6.5	15	105		80	30	32	1.3	0.6
	A63-RSG8-135-M25							135	25	110			1.4	0.7
	A63-RSG8-165-M25							165		140			1.9	0.8

No mark : Manufactured upon request only. Delivery time is about ten days after an order received.

	Item code	Stock	Size(mm) G	φD	H	H1	φC	L	M	L1	φC1	φC2	Weight (kg)	Rigidity value (μm) δ
A63	A63-RSG8-130-M50		M8	8.5	18	6.5	15	130	50	80	30	32	1.3	1.5
	A63-RSG8-160-M50							160		110			1.4	1.7
	A63-RSG8-190-M50							190		140			1.9	1.7
	A63-RSG8-155-M75							155	75	80			1.4	3.1
	A63-RSG8-185-M75							185		110			1.5	3.4
	A63-RSG8-215-M75							215		140			2.0	3.4
	A63-RSG8-170-M90							170	90	80			2.0	4.4
	A63-RSG8-200-M90							200		110			1.5	4.8
	A63-RSG8-230-M90							230		140			2.0	4.9
	A63-RSG8-185-M105							185	105	80			1.5	6.2
	A63-RSG8-215-M105							215		110			1.6	6.6
	A63-RSG8-245-M105							245		140			2.1	6.7
	A63-RSG10-125-M25		M10	10.5	22	6.5	19	125	25	100	36	38	1.6	0.4
	A63-RSG10-155-M25							155		130			1.9	0.5
	A63-RSG10-185-M25							185		160			2.3	0.6
	A63-RSG10-150-M50							150	50	100			1.7	0.8
	A63-RSG10-180-M50							180		130			2.0	1.0
	A63-RSG10-210-M50							210		160			2.4	1.2
	A63-RSG10-175-M75							175	75	100			1.8	1.6
	A63-RSG10-205-M75							205		130			2.1	1.8
	A63-RSG10-235-M75							235		160			2.5	2.0
	A63-RSG10-200-M100							200	100	100			1.8	2.7
	A63-RSG10-230-M100							230		130			2.1	2.9
	A63-RSG10-260-M100							260		160			2.5	3.2
	A63-RSG10-220-M120							220	120	100			1.9	4.0
	A63-RSG10-250-M120							250		130			2.2	4.2
	A63-RSG10-280-M120							280		160			2.6	4.5
	A63-RSG10-240-M140							240	140	100			2.0	5.6
	A63-RSG10-270-M140							270		130			2.3	5.9
	A63-RSG10-300-M140							300		160			2.7	6.2
	A63-RSG12-125-M25		M12	12.5	22	6	24	125	25	100	43	45	1.9	0.3
	A63-RSG12-155-M25							155		130			2.3	0.4
	A63-RSG12-185-M25							185		160			2.7	0.5
	A63-RSG12-150-M50							150	50	100			2.0	0.5
	A63-RSG12-180-M50							180		130			2.4	0.6
	A63-RSG12-210-M50							210		160			2.8	0.8
	A63-RSG12-175-M75							175	75	100			2.2	0.9
	A63-RSG12-205-M75							205		130			2.6	1.0
	A63-RSG12-235-M75							235		160			3.0	1.3
	A63-RSG12-200-M100							200	100	100			2.3	1.4
	A63-RSG12-230-M100							230		130			2.7	1.6
	A63-RSG12-260-M100							260		160			3.1	1.9
	A63-RSG12-225-M125							225	125	100			2.5	2.1
	A63-RSG12-255-M125							255		130			2.9	2.4
	A63-RSG12-285-M125							285		160			3.3	2.7
	A63-RSG12-250-M150							250	150	100			2.6	3.1
	A63-RSG12-280-M150							280		130			3.0	3.4
	A63-RSG12-310-M150							310		160			3.4	3.8
	A63-RSG16-140-M25		M16	17	25	6	29	140	25	115	52	54	2.8	0.2
	A63-RSG16-165-M50							165	50				3.2	0.4
	A63-RSG16-190-M75							190	75				3.6	0.6
	A63-RSG16-215-M100							215	100				2.8	0.9
	A63-RSG16-240-M125 ※							240	125				2.8	1.3
	A63-RSG16-265-M150 ※							265	150				3.2	1.9
	A63-RSG16-290-M175 ※							290	175				3.6	2.5
A100	A100-RSG8-120-M25		M8	8.5	18	6.5	15	120	25	95	30	32	2.6	0.6
	A100-RSG8-150-M25							150		125			2.9	0.8
	A100-RSG8-180-M25							180		155			3.4	0.8
	A100-RSG8-145-M50							145	50	95			2.6	1.5
	A100-RSG8-175-M50							175		125			2.9	1.7
	A100-RSG8-205-M50							205		155			3.4	1.7
	A100-RSG8-170-M75							170	75	95			2.7	3.1
	A100-RSG8-200-M75							200		125			3.0	3.4
	A100-RSG8-230-M75							230		155			3.5	3.4
	A100-RSG8-185-M90							185	90	95			2.7	4.5
	A100-RSG8-215-M90							215		125			3.0	4.9
	A100-RSG8-245-M90							245		155			3.5	4.8
	A100-RSG8-200-M105							200	105	95			2.8	6.3

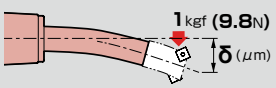
	Item code	Stock	Size(mm) G	φD	H	H1	φC	L	M	L1	φC1	φC2	Weight (kg)	Rigidity value (μm) δ
A100	A100-RSG8-230-M105		M8	8.5	18	6.5	15	230	105	125	30	32	3.1	6.7
	A100-RSG8-260-M105							260		155			3.6	6.6
	A100-RSG10-140-M25		M10	10.5	22	6.5	19	140	25	115	36	38	3.1	0.4
	A100-RSG10-170-M25							170		145			3.5	0.5
	A100-RSG10-200-M25							200		175			4.4	0.5
	A100-RSG10-165-M50							165	50	115			3.2	0.8
	A100-RSG10-195-M50							195		145			3.6	1.0
	A100-RSG10-225-M50							225		175			4.5	1.0
	A100-RSG10-190-M75							190	75	115			3.3	1.6
	A100-RSG10-220-M75							220		145			3.7	1.8
	A100-RSG10-250-M75							250		175			4.6	1.8
	A100-RSG10-215-M100							215	100	115			3.3	2.7
	A100-RSG10-245-M100							245		145			3.7	2.9
	A100-RSG10-275-M100							275		175			4.6	2.9
	A100-RSG10-235-M120							235	120	115			3.4	4.0
	A100-RSG10-265-M120							265		145			3.8	4.2
	A100-RSG10-295-M120							295		175			4.7	4.2
	A100-RSG10-255-M140							255	140	115			3.5	5.6
	A100-RSG10-285-M140							285		145			3.9	5.8
	A100-RSG10-315-M140							315		175			4.8	5.8
	A100-RSG12-140-M25		M12	12.5	22	6	24	140	25	115	43	45	3.4	0.3
	A100-RSG12-170-M25							170		145			3.7	0.4
	A100-RSG12-200-M25							200		175			4.7	0.4
	A100-RSG12-165-M50							165	50	115			3.5	0.5
	A100-RSG12-195-M50							195		145			3.8	0.6
	A100-RSG12-225-M50							225		175			4.8	0.6
	A100-RSG12-190-M75							190	75	115			3.7	0.8
	A100-RSG12-220-M75							220		145			4.0	1.0
	A100-RSG12-250-M75							250		175			5.0	1.0
	A100-RSG12-215-M100							215	100	115			3.8	1.4
	A100-RSG12-245-M100							245		145			4.1	1.6
	A100-RSG12-275-M100							275		175			5.1	1.6
	A100-RSG12-240-M125							240	125	115			4.0	2.1
	A100-RSG12-270-M125							270		145			4.3	2.4
	A100-RSG12-300-M125							300		175			5.3	2.4
	A100-RSG12-265-M150							265	150	115			4.1	3.0
	A100-RSG12-295-M150							295		145			4.4	3.4
	A100-RSG12-325-M150							325		175			5.4	3.4
	A100-RSG12-290-M175							290	175	115			4.3	4.3
	A100-RSG12-320-M175							320		145			4.6	4.6
	A100-RSG12-350-M175							350		175			5.6	4.6
	A100-RSG16-140-M25		M16	17	25	6	29	140	25	115	52	54	4.0	0.2
	A100-RSG16-170-M25							170		145			4.5	0.2
	A100-RSG16-200-M25							200		175			5.7	0.2
	A100-RSG16-165-M50							165	50	115			4.2	0.3
	A100-RSG16-195-M50							195		145			4.7	0.4
	A100-RSG16-225-M50							225		175			5.9	0.4
	A100-RSG16-190-M75							190	75	115			4.5	0.5
	A100-RSG16-220-M75							220		145			5.0	0.6
	A100-RSG16-250-M75							250		175			6.1	0.6
	A100-RSG16-215-M100							215	100	115			4.7	0.8
	A100-RSG16-245-M100							245		145			5.2	0.9
	A100-RSG16-275-M100							275		175			6.3	0.9
	A100-RSG16-240-M125							240	125	115			4.9	1.1
	A100-RSG16-270-M125							270		145			5.4	1.3
	A100-RSG16-300-M125							300		175			6.5	1.3
	A100-RSG16-265-M150							265	150	115			5.1	1.6
	A100-RSG16-295-M150							295		145			5.6	1.8
	A100-RSG16-325-M150							325		175			6.7	1.8
	A100-RSG16-290-M175							290	175	115			5.3	2.2
	A100-RSG16-320-M175							320		145			5.8	2.4
	A100-RSG16-350-M175							350		175			7.0	2.5
	A100-RSG16-315-M200							315	200	115			5.5	3.0
	A100-RSG16-345-M200							345		145			6.0	3.2
	A100-RSG16-375-M200							375		175			7.2	3.3
	A100-RSG16-340-M225							340	225	115			5.7	3.9
	A100-RSG16-370-M225							370		145			6.3	4.2
	A100-RSG16-400-M225							400		175			7.4	4.2

■ Standard accessories
- Coolant duct(HSK)

■ Caution
- The Modular Mill is not a standard accessory.
- Pull stud is not a standard accessory.
- Please check your Modular Mills for conformance to the dimensions.

δ About the rigidity value

A rigidity value represents the amount of deflection for the entire holder and tool when a bending load of 1 kgf (9.8 N) is applied to the tip of the tool. The smaller the numerical value is, the higher the rigidity and the more accurate the machining.



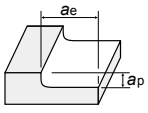
Recommended Cutting Conditions

Side Milling standard cutting conditions for EDMT-type inserts：Low cutting depth, high feed rate

※Red indicates primary recommended grade.

Work material	Recommended grade	Cutting speed Vc (m/min)	Cutting conditions	φ8 1 Flute	φ10 2 Flutes	φ12 3 Flutes	φ14 3 Flutes	φ16 4 Flutes	φ20 5 Flutes	φ25 6 Flutes	φ32 8 Flutes
Carbon steels Alloy steels Die tool steels S-C SCM SKD SKT <30HRC	※ JP4120	vc=100～180	n(min-1)	4,780	3,820	3,180	2,730	2,390	1,910	1,530	1,190
			Vc(m/min)	120	120	120	120	120	120	120	120
			Vf(mm/min)	～2,870	～4,590	～5,730	～6,550	～7,640	～7,640	～7,340	～7,640
			fz(mm/t)	～0.6	～0.6	～0.6	～0.8	～0.8	～0.8	～0.8	～0.8
			ap(mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
			ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
			Q(cm3/min)	3	7	12	16	23	25	37	50
Pre-harden steels Alloy steels Die tool steels SCM SKD SKT 30～40HRC	JP4120	vc=100～160	n(min-1)	4,380	3,500	2,920	2,500	2,190	1,750	1,400	1,090
			Vc(m/min)	110	110	110	110	110	110	110	110
			Vf(mm/min)	～2,630	～4,200	～5,260	～6,010	～7,010	～7,010	～6,730	～7,010
			fz(mm/t)	～0.6	～0.6	～0.6	～0.8	～0.8	～0.8	～0.8	～0.8
			ap(mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
			ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
			Q(cm3/min)	2	6	11	14	21	23	34	46
Pre-harden steels Alloy steels Die tool steels SCM SKD SKT 40～50HRC	JP4120	vc=80～120	n(min-1)	3,580	2,870	2,390	2,050	1,790	1,430	1,150	900
			Vc(m/min)	90	90	90	90	90	90	90	90
			Vf(mm/min)	～1,430	～2,290	～2,870	～3,690	～4,300	～4,300	～4,130	～4,300
			fz(mm/t)	～0.4	～0.4	～0.4	～0.6	～0.6	～0.6	～0.6	～0.6
			ap(mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
			ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
			Q(cm3/min)	1	3	6	9	13	14	21	28
Stainless steels SUS	JM4160 JP4120	vc=80～120	n(min-1)	3,580	2,870	2,390	2,050	1,790	1,430	1,150	900
			Vc(m/min)	90	90	90	90	90	90	90	90
			Vf(mm/min)	～1,430	～2,290	～2,870	～3,690	～4,300	～4,300	～4,130	～4,300
			fz(mm/t)	～0.4	～0.4	～0.4	～0.6	～0.6	～0.6	～0.6	～0.6
			ap(mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
			ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
			Q(cm3/min)	1	3	6	9	13	14	21	28
Cast irons FC FCD	JP4120	vc=120～220	n(min-1)	5,970	4,780	3,980	3,410	2,990	2,390	1,910	1,490
			Vc(m/min)	150	150	150	150	150	150	150	150
			Vf(mm/min)	～3,580	～5,730	～7,170	～8,190	～9,550	～9,550	～9,170	～9,550
			fz(mm/t)	～0.6	～0.6	～0.6	～0.8	～0.8	～0.8	～0.8	～0.8
			ap(mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
			ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
			Q(cm3/min)	3	9	15	20	29	32	47	63
Hardened steels 50～60HRC	JP4105 JP4120	vc=60～100	n(min-1)	2,390	1,910	1,590	1,360	1,190	950	760	600
			Vc(m/min)	60	60	60	60	60	60	60	60
			Vf(mm/min)	～720	～1,150	～1,430	～1,630	～1,900	～1,900	～1,820	～1,900
			fz(mm/t)	～0.3	～0.3	～0.3	～0.4	～0.4	～0.4	～0.4	～0.4
			ap(mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
			ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
			Q(cm3/min)	0.4	1	2	2	3	3	6	8

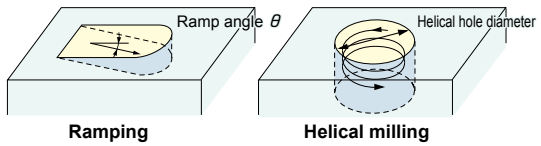
【Note】①Use the appropriate coolant for the work material and machining shape.
②These conditions are for general guidance; in actual machining conditions adjust the parameters according to your actual machine and work-piece conditions.
③For slotting or ramping, feed rate should be set to 70% as general criteria.
④Ensure to index the insert at the correct time to ensure safety of the tool-body.
⑤The evacuation of swarf can cause burns, cuts or damage to the eyes please ensue the correct safety cover is fitted around the machine, and necessary personal protection equipment is worn by the machine operator.
⑥Due to fire risks do not use neat cutting oil as a coolant.
⑦When using an undercut type shank, as a general rule the feed rate per flute (fz) should be reduced to 50~70% of the value listed in the standard cutting conditions.



Ramping with EDMT-type inserts

Since the cutting flute do not extend to the center, there are limitations on the ramp angle and hole diameter, but as shown below, cutting by direct milling without a pilot hole is possible for ramping and helical milling.

(mm)



Inserts	EDMT070220R(-T)									
Tool dia. DCX	φ8	φ10	φ12	φ14	φ16	φ17	φ20	φ21	φ25	φ32
Recommended θ	Less than 0.5 °									
Hole Dia	10～15	13～19	17～23	21～27	25～31	27～33	33～39	35～41	43～49	57～63

【Note】①Use the appropriate coolant for the work material and machining shape.
②These conditions are for general guidance; in actual machining conditions adjust the parameters according to your actual machine and work-piece conditions.
③For hole diameters outside the ranges listed above, a pilot hole should be drilled before milling.

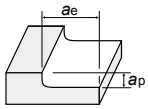
Side Milling standard cutting conditions for JDMT-type inserts

It is make standard that the depth cut *ap* and the cutting width *ae* be as shown in Tool Overhang (OH) and Cutting Region on the next page.
Work Hardness > Please use the conditions in the table as a guideline for the cut depth *ap* and width *ae* of 40HRC.

※Red indicates primary recommended grade.

Work material	Recommended grade	Cutting speed *Vc* (m/min) / Feed rate per flute *fz* (mm/t)	Cutting conditions	φ8 1 Flute	φ10 2 Flutes	φ12 3 Flutes	φ14 3 Flutes	φ16 4 Flutes	φ20 5 Flutes	φ25 6 Flutes	φ32 8 Flutes
Carbon steels Alloy steels S-C SCM <30HRC	※ JP4120 PTH30E	*vc*=150～200	*n*(min⁻¹)	7,170	5,730	4,780	4,090	3,580	2,870	2,290	1,790
			vc(m/min)	180	180	180	180	180	180	180	180
		fz=0.04～0.09	*vf*(mm/min)	500	800	1,000	860	1,000	1,000	960	1,000
			fz(mm/t)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Die tool steels SKD SKT <30HRC	JP4120 PTH30E	*vc*=130～180	*n*(min⁻¹)	5,970	4,780	3,980	3,410	2,990	2,390	1,910	1,490
			vc(m/min)	150	150	150	150	150	150	150	150
		fz=0.04～0.07	*vf*(mm/min)	360	570	720	610	720	720	690	720
			fz(mm/t)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Pre-hardened steels Alloy steels, Die tool steels SCM SKD SKT 30～40HRC	JP4120 PTH30E	*vc*=100～150	*n*(min⁻¹)	4,780	3,820	3,180	2,730	2,390	1,910	1,530	1,190
			vc(m/min)	120	120	120	120	120	120	120	120
		fz=0.04～0.07	*vf*(mm/min)	290	460	570	490	570	570	550	570
			fz(mm/t)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Pre-hardened steels Alloy steels Die tool steels SCM SKD SKT 40～50HRC	JP4120	*vc*=80～120	*n*(min⁻¹)	3,580	2,860	2,390	2,050	1,790	1,430	1,150	900
			vc(m/min)	90	90	90	90	90	90	90	90
		fz=0.04～0.07	*vf*(mm/min)	220	340	430	370	430	430	410	430
			fz(mm/t)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
			ap(mm)	2	2	2	2	2	2	2	2
			ae(mm)	0.05D	0.05D	0.05D	0.05D	0.05D	0.05D	0.05D	0.05D
Stainless steels SUS	JM4160 PTH30E JP4120	*vc*=100～150	*n*(min⁻¹)	4,780	3,820	3,180	2,730	2,390	1,910	1,530	1,190
			vc(m/min)	120	120	120	120	120	120	120	120
		fz=0.04～0.09	*vf*(mm/min)	290	460	570	490	570	570	550	570
			fz(mm/t)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Cast irons FC FCD	JP4120 PTH30E	*vc*=130～180	*n*(min⁻¹)	5,970	4,780	3,980	3,410	2,990	2,390	1,910	1,490
			vc(m/min)	150	150	150	150	150	150	150	150
		fz=0.04～0.10	*vf*(mm/min)	420	670	840	720	840	840	800	840
			fz(mm/t)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Aluminum alloys (wet condition)	SD5010 PTH30E JP4120	*vc*=200～500	*n*(min⁻¹)	11,940	9,550	7,960	6,820	5,970	4,780	3,820	2,990
			vc(m/min)	300	300	300	300	300	300	300	300
		fz=0.04～0.12	*vf*(mm/min)	960	1,530	1,910	1,640	1,910	1,910	1,830	1,910
			fz(mm/t)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Hardened steels 50～60HRC	JP4105 JP4120	*vc*=60～100	*n*(min⁻¹)	2,390	1,910	1,590	1,360	1,190	950	760	600
			vc(m/min)	60	60	60	60	60	60	60	60
		fz=0.04～0.07	*vf*(mm/min)	140	230	290	240	290	290	270	290
			fz(mm/t)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
			ap(mm)	2	2	2	2	2	2	2	2
			ae(mm)	0.05D	0.05D	0.05D	0.05D	0.05D	0.05D	0.05D	0.05D

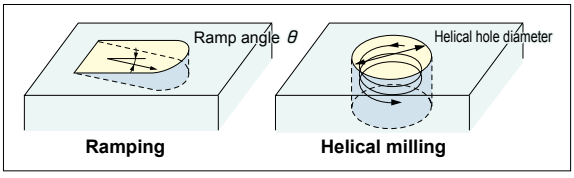
【Note】①Use the appropriate coolant for the work material and machining shape.
②These conditions are for general guidance; in actual machining conditions adjust the parameters according to your actual machine and work-piece conditions.
③For slotting or ramping, feed rate should be set to 70% as general criteria.
④Ensure to index the insert at the correct time to ensure safety of the tool-body.
⑤The evacuation of swarf can cause burns, cuts or damage to the eyes please ensue the correct safety cover is fitted around the machine, and necessary personal protection equipment is worn by the machine operator.
⑥Due to fire risks do not use neat cutting oil as a coolant.



Ramping with JDMT-type inserts

Since the cutting flute do not extend to the center, there are limitations on the ramp angle and hole diameter, but as shown below, cutting by direct milling without a pilot hole is possible for ramping and helical milling.

(mm)

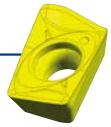


Inserts	JDMT0702○○R Numeric figure in a circle ○									
Tool dia. DC	φ8	φ10	φ12	φ14	φ16	φ17	φ20	φ21	φ25	φ32
Recommended θ	Less than 1 °									
Hole Dia	10～15	13～19	17～23	21～27	25～31	27～33	33～39	35～41	43～49	57～63

【Note】①Use the appropriate coolant for the work material and machining shape.
②These conditions are for general guidance; in actual machining conditions adjust the parameters according to your actual machine and work-piece conditions.
③For hole diameters outside the ranges listed above, a pilot hole should be drilled before milling.

Field data

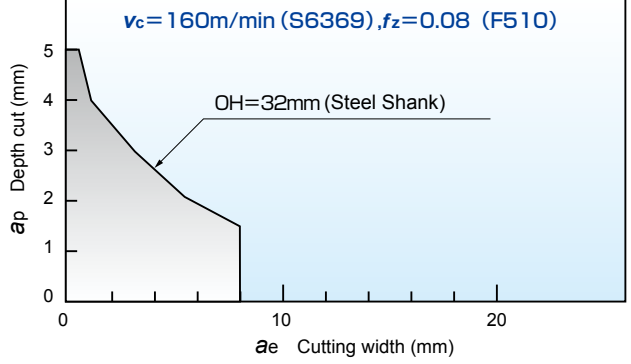
Relation between Tool Overhang（OH）and Limits of the cutting region



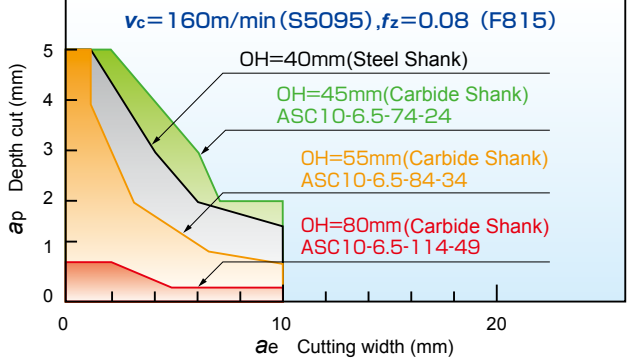
The cutting region curves shown below indicate criteria for selecting cutting conditions at each overhang (OH).
If chattering occurs near the limits of the cutting region, make adjustments by reducing the per-flute feed rate (*f*z).

Milling Conditions
Machine：BT30 5.5/3.7kw
Work material：Carbon Steels
Cutting Conditions：*v*c=160m/min, *f*z=0.08mm/t

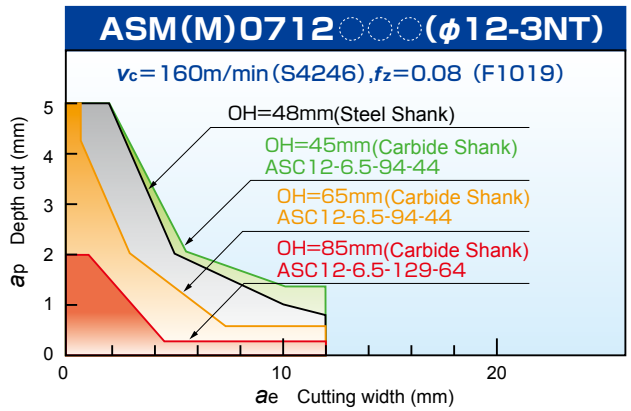
ASM0708S10R-1(φ8-1NT)



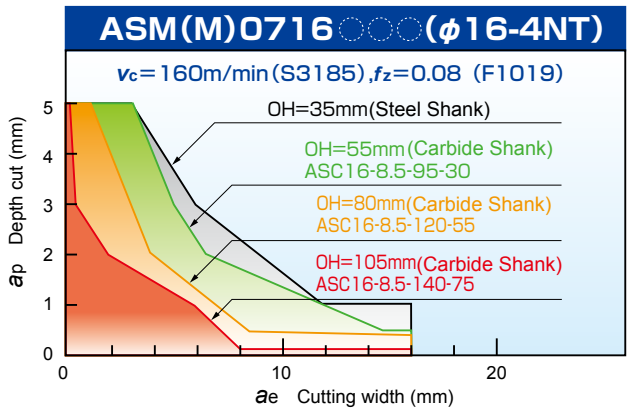
ASM(M)0710○○○(φ10-2NT)



ASM(M)0712○○○(φ12-3NT)



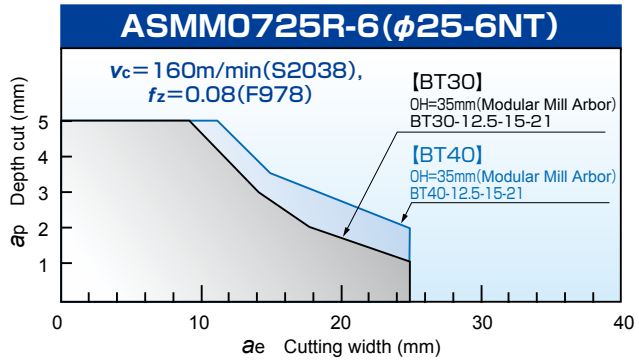
ASM(M)0716○○○(φ16-4NT)



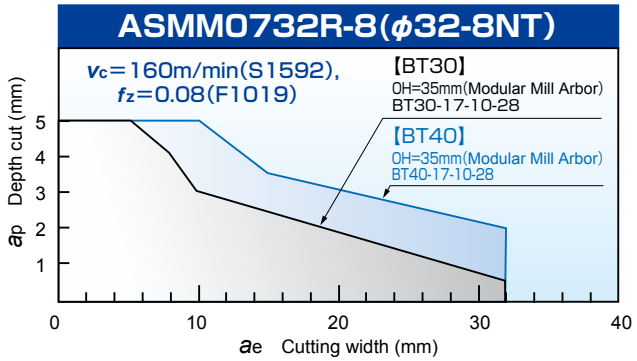
※As a general rule, the cutting amount for ASM0710S08R-2 undercut type shank should be set within 50% of the cutting region for ASM0710S10R-2, and the cutting amount for ASM0712S10R-2 should be set within the cutting region for ASM0710S10R-2.

Milling Conditions
Machine：BT40 11kw
Work material：Carbon Steels
Cutting Conditions：*v*c=160m/min, *f*z=0.08mm/t

ASMM0725R-6(φ25-6NT)



ASMM0732R-8(φ32-8NT)



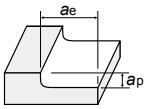
Cutting conditions for cutting aluminum alloy and copper

<Shoulder cutting> : *a*e=0.5DC <Recommended grade> : SD5010

Work material		φ8	φ10	φ12	φ14	φ16	φ17	φ20	φ21	φ25	φ32
Expanded aluminum alloy material A5052,A7075, etc. (Wet: Water-soluble agent)	*n* (min^{-1})	11,900	12,700	10,600	11,400	9,900	9,400	9,500	9,100	7,600	6,000
	*v*f (mm/min)	950	2,040	2,550	2,730	3,180	3,000	3,820	3,640	3,670	3,820
	*f*z (mm/t)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	*v*c (m/min)	300	400	400	500	500	500	600	600	600	600
	*a*p (mm)	2	2	2	2	2	2	2	2	2	2
Cast aluminum alloy material AC4A,ADC12, etc. (Wet: Water-soluble agent)	*n* (min^{-1})	9,900	11,100	9,300	9,100	8,000	7,500	8,000	7,600	6,400	5,000
	*v*f (mm/min)	800	1,780	2,230	2,180	2,550	2,400	3,180	3,030	3,060	3,180
	*f*z (mm/t)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	*v*c (m/min)	250	350	350	400	400	400	500	500	500	500
	*a*p (mm)	2	2	2	2	2	2	2	2	2	2
Pure copper C1100,C1020, etc. (Wet: Water-soluble agent)	*n* (min^{-1})	9,900	9,500	8,000	6,800	6,000	5,600	4,800	4,500	3,800	3,000
	*v*f (mm/min)	800	1,530	1,910	1,640	1,910	1,800	1,910	1,820	1,830	1,910
	*f*z (mm/t)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	*v*c (m/min)	250	300	300	300	300	300	300	300	300	300
	*a*p (mm)	2	2	2	2	2	2	2	2	2	2

【Note】

①Use the appropriate coolant for the work material and machining shape.
②These conditions are for general guidance; in actual machining conditions adjust the parameters according to your actual machine and work-piece conditions.
③For slotting, feed rate should be set to 70% as general criteria.
④When L/D=4 or higher, reduce rotation speed and feed rate by 50% (set to 0.5× stated values) as general criteria. In addition, when machining copper, set cutting depth in axial direction to 1mm or less. .
⑤Use on a machine equipped with splashguards. During use, be sure to wear protective equipment such as safety glasses, and always perform work in a safe environment.
⑥When using a machine that cannot provide the rotation speed shown above, set the highest rotation speed possible and calculate the feed rate using the *f*z value.
⑦Be sure to use this tool at rotation speeds within the acceptable range for the milling chuck being used. If the acceptable rotation speed range is below the rotation speed shown above, set the highest acceptable rotation speed and calculate the feed rate using the *f*z value.



Field data

No.	Tool dia. (mm)	Cutter	Insert	Work material	Cutting conditions	Result
1	12	ASM0712S12R-3	JDMT070204R (PTH30E)	SUS304	*v*c=120m/min, *v*f=670mm/min *a*p×*a*e=1×8mm, Dry	1.5× the tool life of insert tools from competitor.
2	20	ASMM0720R-5	EDMT070220R (Material equivalent to JP4105)	Material equivalent to P21 (40HRC)	*v*c=90m/min, *v*f=4,300mm/min *a*p×*a*e=0.3×10mm, Dry	Good cutting performance and good tool life with O.H.80mm.
3	10	ASMM0710R-2	JDMT070208R (SD5010)	Graphite	*v*c=1,000m/min, *v*f=10,000mm/min *a*p×*a*e=0.6×4.0mm, Dry	Good cutting performance with O.H.90mm. 2×the tool life of conventional products.

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The diagrams and table data are examples of test results, and are not guaranteed values.
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⚠ Attentions on Safety

1. Attentions regarding handling

(1) When removing the tool from the case (package), be careful not to drop it on your foot or drop it onto the tips of your bare fingers.
(2) When actually setting the inserts, be careful not to touch the cutting flute directly with your bare hands.

2. Attentions regarding mounting

(1) When preparing for use, be sure that the inserts are firmly mounted in place and that they are firmly mounted on the arbor, etc.
(2) If abnormal chattering occurs during use, stop the machine immediately and remove the cause of the chattering.

3. Attentions 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) The inserts 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 installed and safety equipment such as safety glasses should be worn to create a safe environment for work.
・Do not use where there is a risk of fire or explosion.
・Do not use non-water-soluble cutting oils. Such oils may result in fire.
(4) Do not use the tool for any purpose other than that for which it is intended, and do not modify it.

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DISTRIBUTED BY:

Printed in JAPAN
2022-11 (ME-To)
2012-2:FP