MOLDINO
The Edge To Innovation

Indexable multi-function end mill

AHJ type

Easy Cut Multi Function End Mill AHJ

MOLDINO Tool Engineering, Ltd.

New Product News | No.1003E-16 | 2026-2

New variations of coating, introducing AJ coating series.

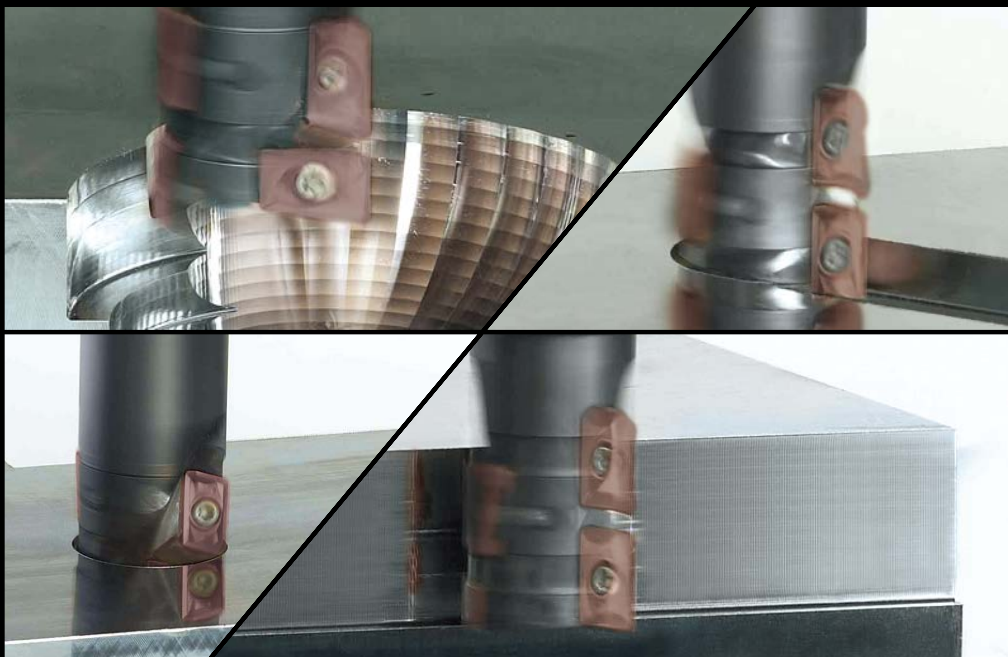
Fusion of "easy cutting geometry" and "multi function geometry"

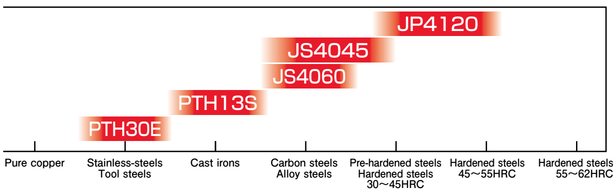
01 Plunge contouring

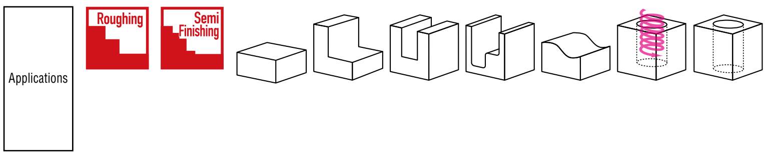
02 Slotting

03 Drilling

04 Deep cutting







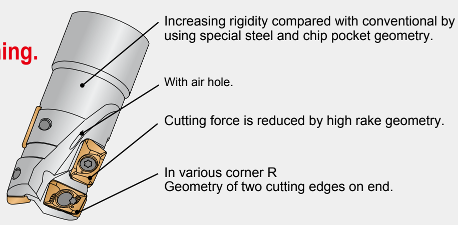
Features

Advanced high-rake geometry combines easy cut and edge strength.
A multi-function end mill with a bottom flute to allow unlimited horizontal and vertical cutting with a single tool.
Perform drilling without a pilot hole, ramping or horizontal milling, etc.

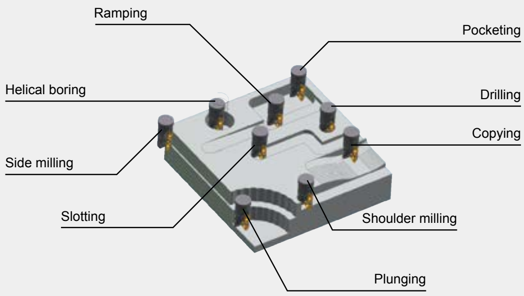
Features and Application

Since advanced high-rake geometry
- Expands application range.
- Reduces cutting vibrations and enables stable cutting even when processing with long overhang.

High-efficiency machining.



Multi-function processing with a single tool



PVD Technology　Grade for machining pre-hardened or hardened materials JP4120

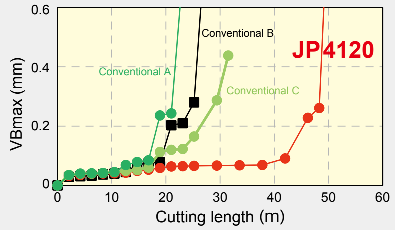
Features

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

Cutting performance



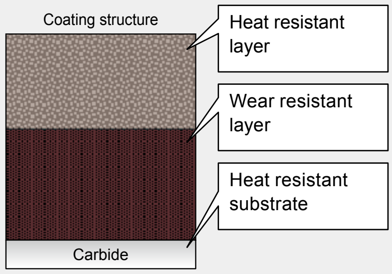
Work material：P21(40HRC)
Tool：ASRT5063R-4
Insert：WDNW140520
Cutting conditions：
v_c=90m/min　f_z=0.8mm/t
a_p×a_e=1×44mm
Dry
※Single-flute cutting

PVD Technology　General purpose for steel JS4045

Features

- JS4045 adopts heat resistant layer, reduces the crater wear by high-speed cutting.
- JS4045 adopts heat resistant substrate, reduces the wear and improves tool life.
- Improves tool life on dry cutting.

Layer structure JS Coating

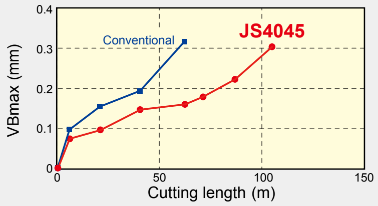


Strong fields

- continuous and light interrupted cutting of less than 35HRC dry cutting.

Cutting performance

Wear graph after cutting SCM440（32HRC）



Cutting Conditions	
Work Material	SCM440(32HRC)
Tool	ASR5063-4
Insert Model	EDNW15T4TN-15
Cutting Speed	V_c = 180m/min
Feed per tooth	f_z = 1.5mm/t
Cutting depth	a_p×a_e = 1.0 × 42mm
Coolant	Dry cutting Single-flute cutting

Wear graph after cutting P20（32HRC）

Cutting Conditions	
Work Material	P20(32HRC)
Tool	ASRS2016R-2
Insert Model	EPNW0603TN-8
Cutting Speed	V_c = 180m/min
Feed per tooth	f_z = 1.5mm/t
Cutting depth	a_p×a_e = 0.5 × 13mm
Coolant	Dry cutting Single-flute cutting

Cutting performance

01 Reduced cutting force

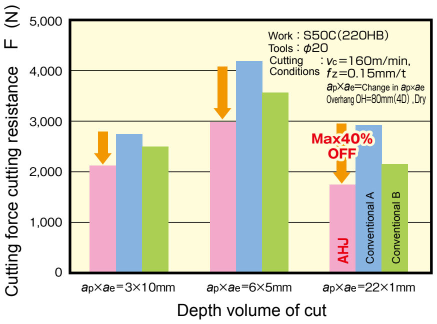
・AHJ uses our original high-rake geometry and insert positioning to provide comfortable cutting by suppressing cutting force and cutting vibration changes to a minimum.

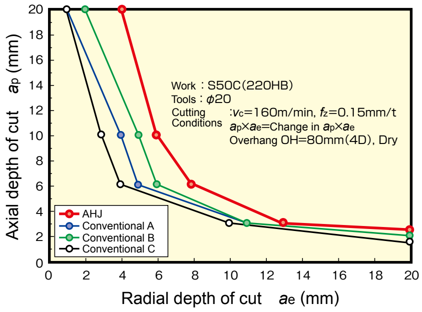
02 Application Range

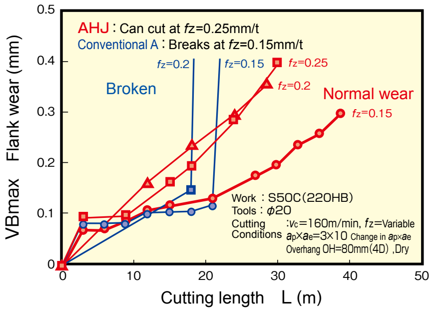
・By reducing cutting force, the application range is greatly expanded compared to conventional products.

03 Edge strength

・Combines cutting comfort with tough edge strength.







Field data

01 Example of reducing processing by half with AHJ25R

Work : Pocketting of mechanical part
Tool : AHJ25R

			Conventional	Proposal
			Conventional	AHJ25R
Y	Tool cost	(¥/Tool)	¥3,200	¥3,840
P	Tool life	(Work/Tool)	10	12
Td	Tool change time	(min/Tool)	2	2
M	Machine charge	(¥/min)	¥60	¥60
Tc	Cutting time	(min/Work)	14.0	3.4
K	Cutting cost	(min/Work)	**¥1,172**	**¥534**
	Processing cost ratio	(%)	**100%**	**46%**
	Reduced monthly processing costs	(¥/month)		**¥720,565**

◎Calculated using the formula below:

Cutting cost : $K=M\times Tc+\frac{(Y+M\times Td)}{P}$ Note: Machine charge is estimated value.

	Conventional	Proposal
Basic unit of CO_2 exhaust volume per chip basic unit (g-CO_2/cm[3]) (g-CO_2/cm³)	1.378	0.475
Environmental load ratio (%)	100%	35%

Cutting cost: Reduced by 54%

CO_2 emission ratio: Reduced by 65%

02 Example of reducing processing by half with AHJ50R

Work : Pocketting of mechanical part
Tool : AHJ50R

			Conventional	Proposal
			Conventional	AHJ50RS
Y	Tool cost	(¥/Tool)	¥3,800	¥4,000
P	Tool life	(Work/Tool)	2	3
Td	Tool change time	(min/Tool)	10	10
M	Machine charge	(¥/min)	¥60	¥60
Tc	Cutting time	(min/Work)	50	35
K	Cutting cost	(min/Work)	**¥5,200**	**¥3,633**
	Processing cost ratio	(%)	**100%**	**70%**
	Reduced monthly processing costs	(¥/month)		**¥171,886**

◎Calculated using the formula below:

Cutting cost : $K=M\times Tc+\frac{(Y+M\times Td)}{P}$ Note: Machine charge is estimated value.

	Conventional	Proposal
Basic unit of CO_2 exhaust volume per chip basic unit (g-CO_2/cm[3]) (g-CO_2/cm³)	1.267	0.462
Environmental load ratio (%)	100%	36%

Cutting cost: Reduced by 30%

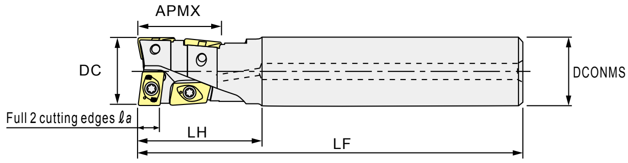
CO_2 emission ratio: Reduced by 64%

Straight Shank type

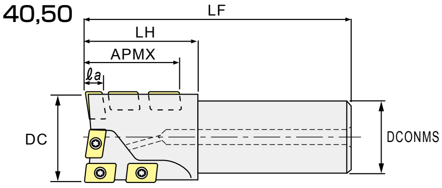
AHJ (L) ○○ R ▌Regular flute

Numeric figure in a circle ○.

DC : φ16～33



DC : φ40,50

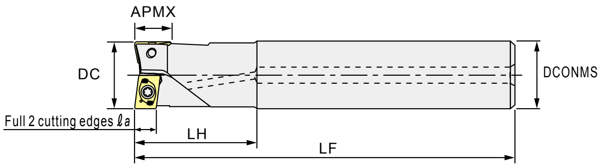


	Item code	Stock	Size(mm) DC	LF	ℓa	APMX	LH	DCONMS	Inserts On end Item Code	No. of inserts	On periphery Item Code	No. of inserts
Regular	AHJ16R	●	16	120	4.5	19	33	16	JDMT0803○○L	1	JDMT0903○○R	3
	AHJ20R	●	20	130	5.5	23	35	20	JDMT1003○○L	1	JDMT1003○○R	3
	AHJ25R	●	25	140	7.0	29	45	25	JDMT12T3○○L	1	JDMT12T3○○R	3
	AHJ32R	●	32	150	8.5	34	50	32	JDMT1605○○L	1	JDMT1505○○R	3
	AHJ40R	●	40	160	7.0	40	55	32	JDMT12T3○○L	2	JDMT12T3○○R	4
	AHJ50R	●	50	170	8.5	50	70	42	JDMT1605○○L	2	JDMT1505○○R	4
Long shank	AHJL16R	●	16	175	4.5	19	50	16	JDMT0803○○L	1	JDMT0903○○R	3
	AHJL17R	●	17				33					
	AHJL20R	●	20	185	5.5	23	60	20	JDMT1003○○L	1	JDMT1003○○R	3
	AHJL21R	●	21				35					
	AHJL25R	●	25	220	7.0	29	75	25	JDMT12T3○○L	1	JDMT12T3○○R	3
	AHJL26R	●	26				45					
	AHJL32R	●	32	230	8.5	34	90	32	JDMT1605○○L	1	JDMT1505○○R	3
	AHJL33R	●	33				50					
	AHJL40R	●	40	240	7.0	40	55	32	JDMT12T3○○L	2	JDMT12T3○○R	4
	AHJL50R	●	50	250	8.5	50	70	42	JDMT1605○○L	2	JDMT1505○○R	4

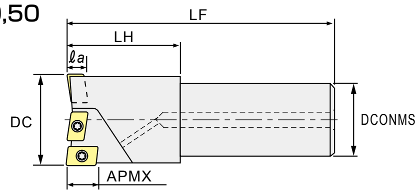
AHJ (L) ○○ RS ▌Short flute

Numeric figure in a circle ○.

DC : φ16～33



DC : φ40,50

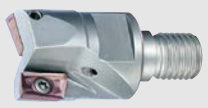


	Item code	Stock	Size(mm) DC	LF	ℓa	APMX	LH	DCONMS	Inserts On end Item Code	No. of inserts	On periphery Item Code	No. of inserts
Regular	AHJ16RS	●	16	120	4.5	8.5	33	16	JDMT0803○○L	1	JDMT0903○○R	1
	AHJ17RS	●	17									
	AHJ20RS	●	20	130	5.5	9.5	35	20	JDMT1003○○L	1	JDMT1003○○R	1
	AHJ21RS	●	21									
	AHJ25RS	●	25	140	7.0	12.5	45	25	JDMT12T3○○L	1	JDMT12T3○○R	1
	AHJ26RS	●	26									
	AHJ32RS	●	32	150	8.5	14.5	50	32	JDMT1605○○L	1	JDMT1505○○R	1
	AHJ33RS	●	33									
	AHJ40RS	●	40	160	7.0	12.5	55	32	JDMT12T3○○L	2	JDMT12T3○○R	1
	AHJ50RS	●	50	170	8.5	14.5	70	42	JDMT1605○○L	2	JDMT1505○○R	1
Long shank	AHJL16RS	●	16	175	4.5	8.5	50	16	JDMT0803○○L	1	JDMT0903○○R	1
	AHJL17RS	●	17				33					
	AHJL20RS	●	20	185	5.5	9.5	60	20	JDMT1003○○L	1	JDMT1003○○R	1
	AHJL21RS	●	21				35					
	AHJL25RS	●	25	220	7.0	12.5	75	25	JDMT12T3○○L	1	JDMT12T3○○R	1
	AHJL26RS	●	26				45					
	AHJL32RS	●	32	230	8.5	14.5	90	32	JDMT1605○○L	1	JDMT1505○○R	1
	AHJL33RS	●	33				50					
	AHJL40RS	●	40	240	7.0	12.5	55	32	JDMT12T3○○L	2	JDMT12T3○○R	1
	AHJL50RS	●	50	250	8.5	14.5	70	42	JDMT1605○○L	2	JDMT1505○○R	1

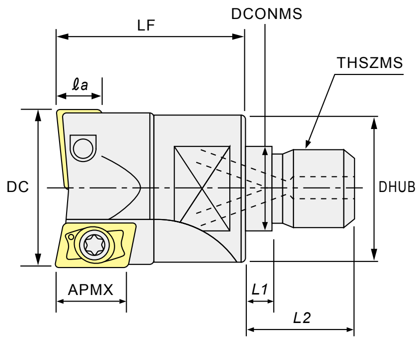
● : Stocked Items.

Modular Type AHJM○○RS

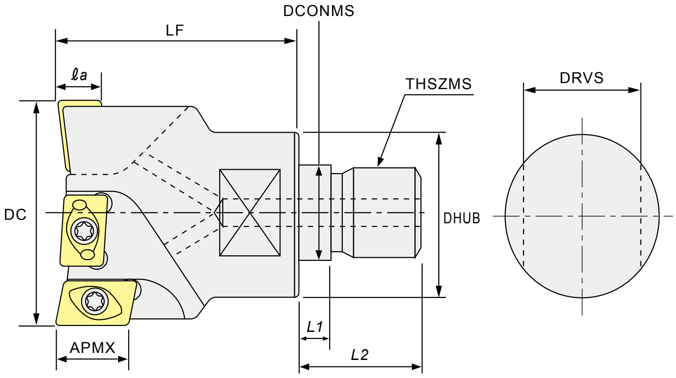
Numeric figure in a circle ○.



DC : φ16～33



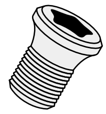
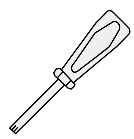
DC : φ40



		Item code	Stock	Size(mm)										Inserts			
														On end		On periphery	
				DC	LF	ℓa	APMX	DCONMS	THSZMS	DHUB	L1	L2	DRVS	Item code	No. of inserts	Item code	No. of inserts
Short flute		AHJM16RS	●	16	25	4.5	8.5	8.5	M8	12.8	5.5	17	10	JDMT0803○○L	1	JDMT0903○○R	1
	※	AHJM17RS	●	17													
		AHJM20RS	●	20	30	5.5	9.5	10.5	M10	17.8	5.5	19	15	JDMT1003○○L	1	JDMT1003○○R	1
	※	AHJM21RS	●	21													
		AHJM25RS	●	25	35	7	12.5	12.5	M12	20.8	5.5	22	17	JDMT12T3○○L	1	JDMT12T3○○R	1
	※	AHJM26RS	●	26						23							
		AHJM32RS	●	32	40	8.5	14.5	17	M16	28.8	6	23	22	JDMT1605○○L	1	JDMT1505○○R	1
	※	AHJM33RS	●	33													
	※	AHJM40RS	●	40	40	7	12.5	17	M16	28.8	6	23	22	JDMT12T3○○L	2	JDMT12T3○○R	1

【Note】When ※ and carbide shank are used together as a set, there is no interference.
Do not apply lubricants such as grease, etc. to the "contact faces" and "modular screws" of the "modular mill", "dedicated shanks" and "dedicated arbor".

Parts

Parts	Clamp screw		Screw driver
Shape / Cutter body		Fastening torque (N·m)	
φ16/17···AHJ(L)16/17R(S) AHJM16/17RS	250-140	0.5	104-T6
φ20/21···AHJ(L)20/21R(S) AHJM20/21RS	251-141	1.1	104-T8
φ25/26···AHJ(L)25/26R(S) AHJM25/26RS	265-143	2.0	104-T10
φ32/33···AHJ(L)32/33R(S) AHJM32/33RS	412-141	2.9	104-T15
φ40·········AHJ(L)40R(S) AHJM40RS	265-143	2.0	104-T10
φ50·········AHJ(L)50R(S)	412-141	2.9	104-T15

【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.

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

Inserts

Fig.1 Inserts on end

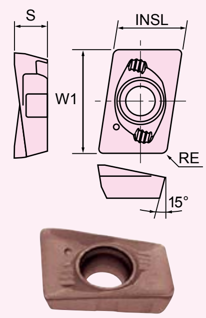
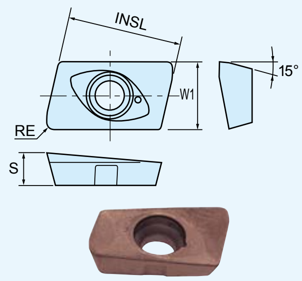
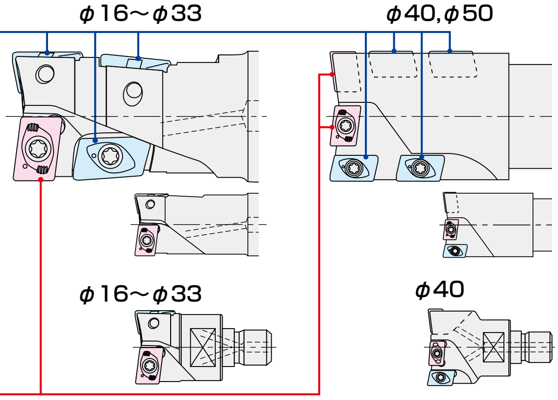


Fig.2 Inserts on periphery





【Note】 When using the insert with *R*≧2.0, it is necessary to carry out additional processing of cutter body corner part.

	Work material	JP4120	JS4045	JS4060	PTH30E	PTH13S
P	Carbon steels	■	□	■	□	
M	SUS, etc.		■ Dry		■ Wet	
K	FC・FCD Cast irons					■

■ : General cutting, First recommended
□ : General cutting, Second recommended

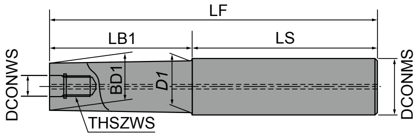
Tool dia. DC	Corner *R*	Position		Item code	※ No.of inserts	Tolerance class	AJ Coating JP4120	JS Coating JS4045	JS Coating JS4060	TH Coating PTH30E	TH Coating PTH13S	Size(mm) INSL	W1	S	RE
φ16 φ17	R0.4	On end	Fig.1	JDMT080304L	1		●	●	●	●		5.3	7.8	3.0	0.4
		On periphery	Fig.2	JDMT090304R	3(1)		●	●	●	●		9.2	5.0	2.8	0.4
	R0.8	On end	Fig.1	JDMT080308L	1		●	●	●	●	●	5.3	7.8	3.0	0.8
		On periphery	Fig.2	JDMT090308R	3(1)		●	●	●	●	●	9.2	5.0	2.8	0.8
φ20 φ21	R0.4	On end	Fig.1	JDMT100304L	1		●	●	●	●		6.3	9.8	3.2	0.4
		On periphery	Fig.2	JDMT100304R	3(1)		●	●	●	●	[●]	11.0	6.1	3.5	0.4
	R0.8	On end	Fig.1	JDMT100308L	1		●	●	●	●	●	6.3	9.8	3.2	0.8
		On periphery	Fig.2	JDMT100308R	3(1)		●	●	●	●	●	11.0	6.1	3.5	0.8
	R2.0	On end	Fig.1	JDMT100320L	1		●		●	●		6.3	9.8	3.2	2.0
		On periphery	Fig.2	JDMT100320R	1		●	[●]	●	●		11.0	6.1	3.5	2.0
				JDMT100308R	2(0)		●	[●]	●	●	[●]	11.0	6.1	3.5	0.8
φ25 φ26	R0.8	On end	Fig.1	JDMT12T308L	1		●	●	●	●	●	7.9	12.3	3.9	0.8
		On periphery	Fig.2	JDMT12T308R	3(1)		●	●	●	●	●	13.6	8.0	3.9	0.8
	R2.0	On end	Fig.1	JDMT12T320L	1		●		●	●		7.9	12.3	3.9	2.0
		On periphery	Fig.2	JDMT12T320R	1		●		●	●		13.6	8.0	3.9	2.0
				JDMT12T308R	2(0)		●	[●]	●	●	[●]	13.6	8.0	3.9	0.8
	R3.0	On end	Fig.1	JDMT12T330L	1		●		●	●		7.9	12.3	3.9	3.0
		On periphery	Fig.2	JDMT12T330R	1		●		●	●		13.6	8.0	3.9	3.0
				JDMT12T308R	2(0)		●	[●]	●	●	[●]	13.6	8.0	3.9	0.8
φ32 φ33	R0.8	On end	Fig.1	JDMT160508L	1	M	●	●	●	●	●	9.5	15.8	5.0	0.8
		On periphery	Fig.2	JDMT150508R	3(1)		●	●	●	●	●	16.0	9.1	5.0	0.8
	R3.0	On end	Fig.1	JDMT160530L	1		●		●	●		9.5	15.8	5.0	3.0
		On periphery	Fig.2	JDMT150530R	1		●	[●]	●	●		16.0	9.1	5.0	3.0
				JDMT150508R	2(0)		●	[●]	●	●	[●]	16.0	9.1	5.0	0.8
φ40	R0.8	On end	Fig.1	JDMT12T308L	2		●	●	●	●	●	7.9	12.3	3.9	0.8
		On periphery	Fig.2	JDMT12T308R	4(1)		●	●	●	●	●	13.6	8.0	3.9	0.8
	R2.0	On end	Fig.1	JDMT12T320L	1		●		●	●		7.9	12.3	3.9	2.0
				JDMT12T308L	1		●	[●]	●	●	[●]	7.9	12.3	3.9	0.8
		On periphery	Fig.2	JDMT12T320R	1		●		●	●		13.6	8.0	3.9	2.0
				JDMT12T308R	3(0)		●	[●]	●	●	[●]	13.6	8.0	3.9	0.8
	R3.0	On end	Fig.1	JDMT12T330L	1		●		●	●		7.9	12.3	3.9	3.0
				JDMT12T308L	1		●	[●]	●	●	[●]	7.9	12.3	3.9	0.8
		On periphery	Fig.2	JDMT12T330R	1		●		●	●		13.6	8.0	3.9	3.0
				JDMT12T308R	3(0)		●	[●]	●	●	[●]	13.6	8.0	3.9	0.8
φ50	R0.8	On end	Fig.1	JDMT160508L	2		●	●	●	●	●	9.5	15.8	5.0	0.8
		On periphery	Fig.2	JDMT150508R	4(1)		●	●	●	●	●	16.0	9.1	5.0	0.8
	R3.0	On end	Fig.1	JDMT160530L	1		●		●	●		9.5	15.8	5.0	3.0
				JDMT160508L	1		●	[●]	●	●	[●]	9.5	15.8	5.0	0.8
		On periphery	Fig.2	JDMT150530R	1		●	[●]	●	●		16.0	9.1	5.0	3.0
				JDMT150508R	3(0)		●	[●]	●	●	[●]	16.0	9.1	5.0	0.8

[ ]: Since the same insert grade is not used for the bottom flute, it is not recommended.
※: Numbers in parentheses are the number of inserts when using a short flute and Modular Mill.
【Note】 Please note that the JS coating does not cause a reaction in conductive touch sensors.

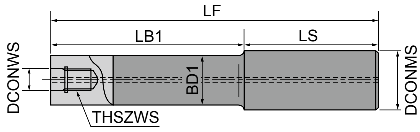
The Shanks for Modular Mill

Carbide Shank

C Type



E Type

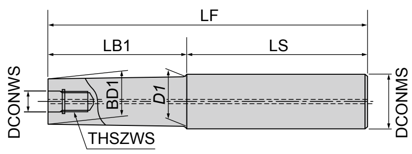


Item code	Stock	Size(mm)								Type	Cutter body	Note
		DCONWS	THSZWS	LF	LB1	LS	BD1	DCONMS	*D1*			
ASC16-8.5-95-30Z	●	8.5	M8	95	30	65	14.5	16	15.5	C	ϕ16 ϕ17 ϕ18	With Air hole
ASC16-8.5-120-55Z	●			120	55	65						
ASC16-8.5-140-75Z	●			140	75	65						
ASC16-8.5-160-95Z	●			160	95	65						
※2 ASC16-8.5-160-30Z	●			160	30	130						
ASC20-10.5-120-50Z	●	10.5	M10	120	50	70	18.5	20	19.5	C	ϕ20 ϕ21 ϕ22	
ASC20-10.5-170-90Z	●			170	90	80						
ASC20-10.5-220-120Z	●			220	120	100						
ASC20-10.5-270-150Z	●			270	150	120						
※2 ASC20-10.5-220-50Z	●	10.5	M10	220	50	170	18.5	20	19.5	C	ϕ20、ϕ21 ϕ22	
※2 ASC20-10.5-270-50Z	●			270		220						
ASC25-12.5-145-65	●	12.5	M12	145	65	80	23	25	—	E	ϕ25 ϕ26 ϕ28	
ASC25-12.5-215-115	●			215	115	100						
ASC25-12.5-265-145	●			265	145	120						
ASC25-12.5-315-195	●			315	195	120						
※2 ASC25-12.5-265-65	●	12.5	M12	265	65	200	23	25	—	E	ϕ25、ϕ26 ϕ28	
※2 ASC25-12.5-315-65	●			315		250						
ASC32-17-160-80	●	17	M16	160	80	80	28	32	—	E	ϕ30 ϕ32 ϕ33 ϕ35 〈ϕ40〉	
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						
※2 ASC32-17-260-80	●	17	M16	260	80	180	28	32	—	E	ϕ30、ϕ32 ϕ33、ϕ35 〈ϕ40〉	
※2 ASC32-17-310-80	●			310		230						
※2 ASC32-17-360-80	●			360		280						

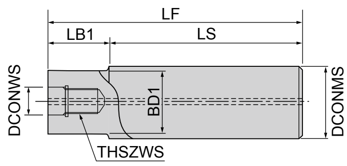
【Note】①When※2 and※1 (P6) are used together as a set, there is no interference.
②Commercial milling chucks or shrink-fit holders can be used.
③For the Ø40 size, it is recommended that the overhang is 200mm or less.

Steel Shank

C Type



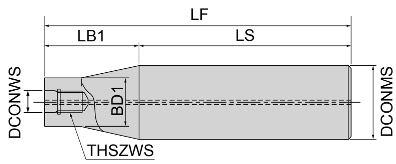
D Type



Item code	Stock	Size(mm)								Type	Cutter body	Note
		DCONWS	THSZWS	LF	LB1	LS	BD1	DCONMS	*D1*			
AS16-8.5-95-15	●	8.5	M8	95	15	80	14.5	16	15.5	C	ϕ16、ϕ17 ϕ18	With Air hole
AS20-10.5-100-20	●	10.5	M10	100	20	80	18	20	—	D	ϕ20、ϕ21 ϕ22	
AS25-12.5-115-35	●	12.5	M12	115	35	80	23	25	—	D	ϕ25、ϕ26 ϕ28	
AS32-17-110-30	●	17	M16	110	30	80	28	32	—	D	ϕ30、ϕ32 ϕ33、ϕ35 ϕ40	

【Note】Commercial milling chucks can be used.

Steel Shank



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

Item code	Stock	Size(mm)							Cutter body	Note
		DCONWS	THSZWS	LF	LB1	LS	BD1	DCONMS		
AS42-17-360-90	●	17	M16	360	90	270	28	42	ϕ30 ϕ32 ϕ35 ϕ40	With Air hole

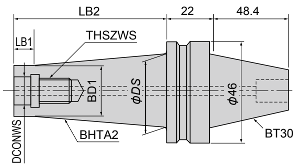
【Note】Commercial milling chucks can be used.

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

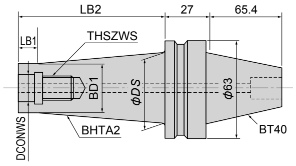
Modular Mill Arbor

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

BT30



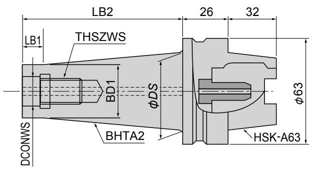
BT40



Item code	Stock	Size (mm)							Note
		DCONWS	THSZWS	BD1	ϕDS	LB2	LB1	BHTA2	
BT30-8.5-25-15		8.5	8	15	30	25	5	20.6°	With Air hole
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	10	18	35	20	5	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	12	21	40	15	5	32.3°	
BT30-12.5-40-21						40	10	17.6°	
BT30-12.5-65-21						65	10	9.8°	
BT30-12.5-85-21						85	10	7.2°	
BT30-17-10-28		17	16	28	40	10	5	31°	
BT30-17-35-28						35	10	13.5°	
BT30-17-60-28						60	10	6.8°	
BT40-8.5-25-15		8.5	8	15	30	25	5	20.6°	
BT40-8.5-50-15						50	10	10.6°	
BT40-8.5-75-15						75	10	6.6°	
BT40-8.5-125-15						125	10	3.7°	
BT40-10.5-20-18		10.5	10	18	35	20	5	29.5°	
BT40-10.5-45-18						45	10	13.7°	
BT40-10.5-70-18						70	10	8.1°	
BT40-10.5-120-18						120	10	4.4°	
BT40-12.5-15-21		12.5	12	21	40	15	5	32.3°	
BT40-12.5-40-21						40	10	17.6°	
BT40-12.5-65-21						65	10	9.8°	
BT40-12.5-115-21						115	10	5.2°	
BT40-17-10-28		17	16	28	48	10	5	45°	
BT40-17-35-28						35	10	21.8°	
BT40-17-60-28						60	10	11.3°	
BT40-17-110-28						110	10	5.7°	

【Note】 When using the BT30 arbor for modular mills, determine the processing conditions using the standard cutting conditions table as a general guide. If vibrations are a concern due to the processing conditions, adjust conditions by 1.reducing cutting depth (ap) or 2.reducing per-flute feed rate (fz).

HSK-A63



Item code	Stock	Size (mm)							Note
		DCONWS	THSZWS	BD1	ϕDS	LB2	LB1	BHTA2	
HSK-A63-10.5-30-18	●	10.5	10	18	20.8	30	–	3°	With Air hole
HSK-A63-10.5-70-18	●				25	70	10	3°	
HSK-A63-10.5-70-18S					48	70	10	12°	
HSK-A63-10.5-120-18	●				30.2	120	10	3°	
HSK-A63-12.5-35-21	●	12.5	12	21	24.3	35	–	3°	
HSK-A63-12.5-65-21	●				27.5	65	10	3°	
HSK-A63-12.5-65-21S					48	65	10	12°	
HSK-A63-12.5-115-21	●				32.7	115	10	3°	
HSK-A63-17-40-28	●	17	16	28	31.8	40	–	3°	
HSK-A63-17-60-28	●				33.9	60	10	3°	
HSK-A63-17-60-28S					48	60	10	9.5°	
HSK-A63-17-110-28	●				39.2	110	10	3°	

【Note】 Coolant Pipe is attached.

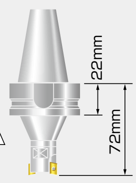
Arbor (BT,HSK) Features

! Point

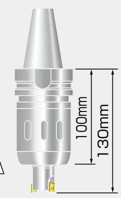
Reduce the chattering vibration by BT, HSK arbor due to the reduction in the "actual" overhang.

Figure Example：Overhang and Application Area

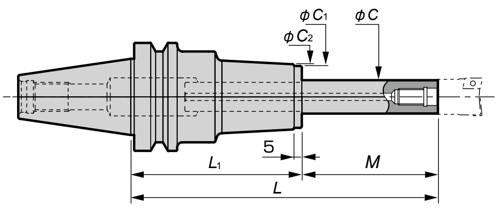
Cutter：
AHJM20RS
Arbor：
BT30-10.5-20-18

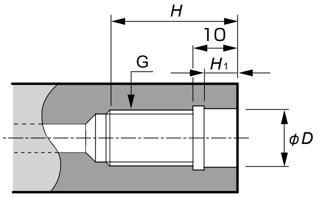


Cutter：
AHJM20RS
Arbor：
Commercial milling chuck
(BT30 type)



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	Size(mm) G	φD	H	H1	φC	L	M	L1	φC1	φC2	Weight (kg)	Rigidity value (μm) δ
BT40	BT40-RSG8-105-M25							105		80			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		M8	8.5	18	6.5	15	185	75	110	30	32	1.9	3.4
	BT40-RSG8-215-M75							215		140			2.2	3.5
	BT40-RSG8-170-M90							170		80			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							125		100			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		M10	10.5	22	6.5	19	205	75	130	36	38	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							125		100			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		M12	12.5	22	6	24	205	75	130	43	45	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							125	25				2.6	0.2
	BT40-RSG16-150-M50							150	50				2.8	0.3
	BT40-RSG16-175-M75		M16	17	25	6	29	175	75	100	52	54	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							120		95			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		M8	8.5	18	6.5	15	200	75	125	30	32	4.4	3.4
	BT50-RSG8-230-M75							230		155			4.9	3.4
	BT50-RSG8-185-M90							185		95			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

	Item code	Stock	Size(mm) G	φD	H	H1	φC	L	M	L1	φC1	φC2	Weight (kg)	Rigidity value (μm) δ
BT50	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		M10	10.5	22	6.5	19	215		115	36	38	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							140		115			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		M12	12.5	22	6	24	245	100	145	43	45	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							140		115			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		M16	17	25	6	29	270	125	145	52	54	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							105		80			1.3	0.6
	A63-RSG8-135-M25		M8	8.5	18	6.5	15	135	25	110	30	32	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)										Weight (kg)	Rigidity value (μm) δ
			G	φD	H	H_1	φC	L	M	L_1	φC_1	φC_2		
A63	A63-RSG8-130-M50							130		80			1.3	1.5
	A63-RSG8-160-M50							160	50	110			1.4	1.7
	A63-RSG8-190-M50							190		140			1.9	1.7
	A63-RSG8-155-M75							155		80			1.4	3.1
	A63-RSG8-185-M75							185	75	110			1.5	3.4
	A63-RSG8-215-M75		M8	8.5	18	6.5	15	215		140	30	32	2.0	3.4
	A63-RSG8-170-M90							170		80			2.0	4.4
	A63-RSG8-200-M90							200	90	110			1.5	4.8
	A63-RSG8-230-M90							230		140			2.0	4.9
	A63-RSG8-185-M105							185		80			1.5	6.2
	A63-RSG8-215-M105							215	105	110			1.6	6.6
	A63-RSG8-245-M105							245		140			2.1	6.7
	A63-RSG10-125-M25							125		100			1.6	0.4
	A63-RSG10-155-M25							155	25	130			1.9	0.5
	A63-RSG10-185-M25							185		160			2.3	0.6
	A63-RSG10-150-M50							150		100			1.7	0.8
	A63-RSG10-180-M50							180	50	130			2.0	1.0
	A63-RSG10-210-M50							210		160			2.4	1.2
	A63-RSG10-175-M75							175		100			1.8	1.6
	A63-RSG10-205-M75							205	75	130			2.1	1.8
	A63-RSG10-235-M75		M10	10.5	22	6.5	19	235		160	36	38	2.5	2.0
	A63-RSG10-200-M100							200		100			1.8	2.7
	A63-RSG10-230-M100							230	100	130			2.1	2.9
	A63-RSG10-260-M100							260		160			2.5	3.2
	A63-RSG10-220-M120							220		100			1.9	4.0
	A63-RSG10-250-M120							250	120	130			2.2	4.2
	A63-RSG10-280-M120							280		160			2.6	4.5
	A63-RSG10-240-M140							240		100			2.0	5.6
	A63-RSG10-270-M140							270	140	130			2.3	5.9
	A63-RSG10-300-M140							300		160			2.7	6.2
	A63-RSG12-125-M25							125		100			1.9	0.3
	A63-RSG12-155-M25							155	25	130			2.3	0.4
	A63-RSG12-185-M25							185		160			2.7	0.5
	A63-RSG12-150-M50							150		100			2.0	0.5
	A63-RSG12-180-M50							180	50	130			2.4	0.6
	A63-RSG12-210-M50							210		160			2.8	0.8
	A63-RSG12-175-M75							175		100			2.2	0.9
	A63-RSG12-205-M75							205	75	130			2.6	1.0
	A63-RSG12-235-M75		M12	12.5	22	6	24	235		160	43	45	3.0	1.3
	A63-RSG12-200-M100							200		100			2.3	1.4
	A63-RSG12-230-M100							230	100	130			2.7	1.6
	A63-RSG12-260-M100							260		160			3.1	1.9
	A63-RSG12-225-M125							225		100			2.5	2.1
	A63-RSG12-255-M125							255	125	130			2.9	2.4
	A63-RSG12-285-M125							285		160			3.3	2.7
	A63-RSG12-250-M150							250		100			2.6	3.1
	A63-RSG12-280-M150							280	150	130			3.0	3.4
	A63-RSG12-310-M150							310		160			3.4	3.8
	A63-RSG16-140-M25							140	25				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		M16	17	25	6	29	215	100	115	52	54	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							120		95			2.6	0.6
	A100-RSG8-150-M25							150	25	125			2.9	0.8
	A100-RSG8-180-M25							180		155			3.4	0.8
	A100-RSG8-145-M50							145		95			2.6	1.5
	A100-RSG8-175-M50							175	50	125			2.9	1.7
	A100-RSG8-205-M50							205		155			3.4	1.7
	A100-RSG8-170-M75		M8	8.5	18	6.5	15	170		95	30	32	2.7	3.1
	A100-RSG8-200-M75							200	75	125			3.0	3.4
	A100-RSG8-230-M75							230		155			3.5	3.4
	A100-RSG8-185-M90							185		95			2.7	4.5
	A100-RSG8-215-M90							215	90	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

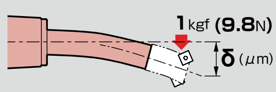
	Item code	Stock	Size(mm)										Weight (kg)	Rigidity value (μm) δ
			G	φD	H	H_1	φC	L	M	L_1	φC_1	φC_2		
A100	A100-RSG8-230-M105		M8	8.5	18	6.5	15	230	105	125	30	32	3.1	6.7
	A100-RSG8-260-M105							260		155			3.6	6.6
	A100-RSG10-140-M25							140		115			3.1	0.4
	A100-RSG10-170-M25							170	25	145			3.5	0.5
	A100-RSG10-200-M25							200		175			4.4	0.5
	A100-RSG10-165-M50							165		115			3.2	0.8
	A100-RSG10-195-M50							195	50	145			3.6	1.0
	A100-RSG10-225-M50							225		175			4.5	1.0
	A100-RSG10-190-M75							190		115			3.3	1.6
	A100-RSG10-220-M75							220	75	145			3.7	1.8
	A100-RSG10-250-M75		M10	10.5	22	6.5	19	250		175	36	38	4.6	1.8
	A100-RSG10-215-M100							215		115			3.3	2.7
	A100-RSG10-245-M100							245	100	145			3.7	2.9
	A100-RSG10-275-M100							275		175			4.6	2.9
	A100-RSG10-235-M120							235		115			3.4	4.0
	A100-RSG10-265-M120							265	120	145			3.8	4.2
	A100-RSG10-295-M120							295		175			4.7	4.2
	A100-RSG10-255-M140							255		115			3.5	5.6
	A100-RSG10-285-M140							285	140	145			3.9	5.8
	A100-RSG10-315-M140							315		175			4.8	5.8
	A100-RSG12-140-M25							140		115			3.4	0.3
	A100-RSG12-170-M25							170	25	145			3.7	0.4
	A100-RSG12-200-M25							200		175			4.7	0.4
	A100-RSG12-165-M50							165		115			3.5	0.5
	A100-RSG12-195-M50							195	50	145			3.8	0.6
	A100-RSG12-225-M50							225		175			4.8	0.6
	A100-RSG12-190-M75							190		115			3.7	0.8
	A100-RSG12-220-M75							220	75	145			4.0	1.0
	A100-RSG12-250-M75							250		175			5.0	1.0
	A100-RSG12-215-M100							215		115			3.8	1.4
	A100-RSG12-245-M100		M12	12.5	22	6	24	245	100	145	43	45	4.1	1.6
	A100-RSG12-275-M100							275		175			5.1	1.6
	A100-RSG12-240-M125							240		115			4.0	2.1
	A100-RSG12-270-M125							270	125	145			4.3	2.4
	A100-RSG12-300-M125							300		175			5.3	2.4
	A100-RSG12-265-M150							265		115			4.1	3.0
	A100-RSG12-295-M150							295	150	145			4.4	3.4
	A100-RSG12-325-M150							325		175			5.4	3.4
	A100-RSG12-290-M175							290		115			4.3	4.3
	A100-RSG12-320-M175							320	175	145			4.6	4.6
	A100-RSG12-350-M175							350		175			5.6	4.6
	A100-RSG16-140-M25							140		115			4.0	0.2
	A100-RSG16-170-M25							170	25	145			4.5	0.2
	A100-RSG16-200-M25							200		175			5.7	0.2
	A100-RSG16-165-M50							165		115			4.2	0.3
	A100-RSG16-195-M50							195	50	145			4.7	0.4
	A100-RSG16-225-M50							225		175			5.9	0.4
	A100-RSG16-190-M75							190		115			4.5	0.5
	A100-RSG16-220-M75							220	75	145			5.0	0.6
	A100-RSG16-250-M75							250		175			6.1	0.6
	A100-RSG16-215-M100							215		115			4.7	0.8
	A100-RSG16-245-M100							245	100	145			5.2	0.9
	A100-RSG16-275-M100							275		175			6.3	0.9
	A100-RSG16-240-M125							240		115			4.9	1.1
	A100-RSG16-270-M125		M16	17	25	6	29	270	125	145	52	54	5.4	1.3
	A100-RSG16-300-M125							300		175			6.5	1.3
	A100-RSG16-265-M150							265		115			5.1	1.6
	A100-RSG16-295-M150							295	150	145			5.6	1.8
	A100-RSG16-325-M150							325		175			6.7	1.8
	A100-RSG16-290-M175							290		115			5.3	2.2
	A100-RSG16-320-M175							320	175	145			5.8	2.4
	A100-RSG16-350-M175							350		175			7.0	2.5
	A100-RSG16-315-M200							315		115			5.5	3.0
	A100-RSG16-345-M200							345	200	145			6.0	3.2
	A100-RSG16-375-M200							375		175			7.2	3.3
	A100-RSG16-340-M225							340		115			5.7	3.9
	A100-RSG16-370-M225							370	225	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

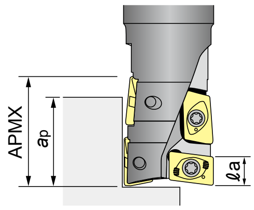
A rigidity value represents the amount of deflection for the entire holder and tool when a bending load of 1 kgf (9.8 N) is applied to the tip of the tool. The smaller the numerical value is, the higher the rigidity and the more accurate the machining.



Recommended Cutting Conditions

Cutting conditions for shoulder milling

- Full 2 inserts are used up to the cutting depth ℓa.
- If ℓa is exceeded, depending on the overlap relationship, a single insert region may occur. Care should be taken regarding the relationship between cutting depth and feed rate.
- In general, insert damage tends to become larger at the border region of the cut. When using for deep cutting, it is recommended that the cutting depth be set so that two inserts will be used at the cutting border region.



(mm)

Tool dia. DC	Recommended *ap*		APMX
	Full 2 inserts region ℓa		
φ16, φ17	~4.5	13~16	19
φ20, φ21	~5.5	15~18	23
φ25, φ26	~7.0	18~24	29
φ32, φ33	~8.5	21~28	34
φ40	~7.0	21~23	42
φ50	~8.5	24~28	50

※Red indicates primary recommended grade.

Work material	Recommended grade	Cutting speed *Vc*(m/min)	Tool dia. DC (mm) φ16,φ17 Cutting Depth *ap* (mm)	φ16,φ17 Cutting Width *ae* (mm)	φ16,φ17 Feed *Vf* (mm/min)	φ16,φ17 Feed rate *fz* (mm/t)	φ20,φ21 Cutting Depth *ap* (mm)	φ20,φ21 Cutting Width *ae* (mm)	φ20,φ21 Feed *Vf* (mm/min)	φ20,φ21 Feed rate *fz* (mm/t)
Steels for general structure SS (≦180HB)	※ JS4060 JS4045 PTH30E	180 (140~220)	~4.5	~8	570	0.08	~5.5	~10	860	0.15
			4.5~13	~3	500	0.07	5.5~15	~6	690	0.12
			13~19	~2	290	0.04	15~23	~3	460	0.08
			Revolution *n*=3,580min^{-1} (*vc*=180m/min)				Revolution *n*=2,870min^{-1} (*vc*=180m/min)			
Carbon Steels & Alloy Steels S-C SCM (180~300HB)	JS4060 JS4045	160 (120~200)	~4.5	~8	510	0.08	~5.5	~10	760	0.15
			4.5~13	~3	450	0.07	5.5~15	~6	610	0.12
			13~19	~2	250	0.04	15~23	~3	410	0.08
			Revolution *n*=3,180min^{-1} (*vc*=160m/min)				Revolution *n*=2,550min^{-1} (*vc*=160m/min)			
Carbon Steels & Alloy Steels S-C SCM (30~40HRC)	JP4120	100 (70~120)	~4.5	~6	320	0.08	~5.5	~6	320	0.10
			4.5~13	~2	280	0.07	5.5~15	~4	260	0.08
			13~19	~1	160	0.04	15~23	~2	190	0.06
			Revolution *n*=1,990min^{-1} (*vc*=100m/min)				Revolution *n*=1,590min^{-1} (*vc*=100m/min)			
Stainless Steels SUS	Dry JS4045	250 (200~300)	~4.5	~8	800	0.08	~5.5	~10	1,200	0.15
			4.5~13	~3	700	0.07	5.5~15	~6	960	0.12
			13~19	~2	400	0.04	15~23	~3	640	0.08
			Revolution *n*=4,970min^{-1} (*vc*=250m/min)				Revolution *n*=3,980min^{-1} (*vc*=250m/min)			
	Wet PTH30E	100 (80~120)	~4.5	~8	320	0.08	~5.5	~10	480	0.15
			4.5~13	~3	280	0.07	5.5~15	~6	380	0.12
			13~19	~2	160	0.04	15~23	~3	260	0.08
			Revolution *n*=1,990min^{-1} (*vc*=100m/min)				Revolution *n*=1,590min^{-1} (*vc*=100m/min)			
Cast Irons FC FCD	PTH13S	160 (120~200)	~4.5	~8	640	0.10	~5.5	~10	760	0.15
			4.5~13	~4	450	0.07	5.5~15	~7	610	0.12
			13~19	~3	260	0.04	15~23	~4	410	0.08
			Revolution *n*=3,180min^{-1} (*vc*=160m/min)				Revolution *n*=2,550min^{-1} (*vc*=160m/min)			

【Note】(1) For short flute type, use extra caution regarding the cutting depth.
(2) Please note that the JS Coating does not cause a reaction in conductive touch sensors.

- When the amount the tool sticks out is large, chattering vibrations, etc. are more likely to occur, making cutting conditions unstable. Since this may result in abnormal damage and cause shortened tool life, refer to the factors in the table at right and reduce the cutting width *a*e when machining.
- When using a modular carbide shank with a tool overhang of 5DC or more, set the conditions by multiplying cutting speed *V*c by a factor of 0.7 to 0.5.

DC:Tool dia.(mm)

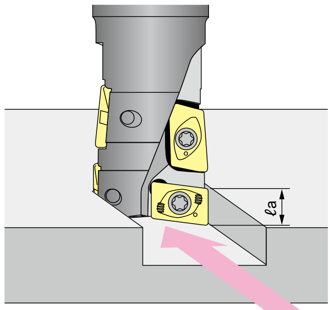
Tool dia. DC	Overhang		
	DC×2	DC×3	DC×4
ϕ16,ϕ17	ae×1	ae×0.6	ae×0.3
ϕ20,ϕ21	ae×1	ae×0.8	ae×0.6
ϕ25,ϕ26	ae×1	ae×1	ae×0.7
ϕ32,ϕ33	ae×1	ae×1	ae×0.8
ϕ40	ae×1	ae×1	ae×0.8
ϕ50	ae×1	ae×1	ae×0.8

Tool dia. DC (mm)																Work material
ϕ25,ϕ26				ϕ32,ϕ33				ϕ40				ϕ50				
Cutting Depth *a*p (mm)	Cutting Width *a*e (mm)	Feed *V*f (mm/min)	Feed rate *f*z (mm/t)	Cutting Depth *a*p (mm)	Cutting Width *a*e (mm)	Feed *V*f (mm/min)	Feed rate *f*z (mm/t)	Cutting Depth *a*p (mm)	Cutting Width *a*e (mm)	Feed *V*f (mm/min)	Feed rate *f*z (mm/t)	Cutting Depth *a*p (mm)	Cutting Width *a*e (mm)	Feed *V*f (mm/min)	Feed rate *f*z (mm/t)	
~7	~12.5	780	0.17	~8.5	~16	720	0.20	~7	~20	490	0.17	~8.5	~25	460	0.20	Steels for general structure SS(≦180HB)
7~18	~7	600	0.13	8.5~21	~10	540	0.15	7~21	~12	370	0.13	8.5~24	~15	350	0.15	
18~29	~4	460	0.10	21~34	~5	430	0.12	21~42	~8	290	0.10	24~50	~10	280	0.12	
Revolution *n*=2,290min-1 (*V*c=180m/min)				Revolution *n*=1,790min-1 (*V*c=180m/min)				Revolution *n*=1,430min-1 (*V*c=180m/min)				Revolution *n*=1,150min-1 (*V*c=180m/min)				
~7	~12.5	700	0.17	~8.5	~16	640	0.20	~7	~20	430	0.17	~8.5	~25	410	0.20	Carbon Steels & Alloy Steels S-C SCM (180~300HB)
7~18	~7	530	0.13	8.5~21	~10	480	0.15	7~21	~12	330	0.13	8.5~24	~15	310	0.15	
18~29	~4	410	0.10	21~34	~5	380	0.12	21~42	~8	250	0.10	24~50	~10	250	0.12	
Revolution *n*=2,040min-1 (*V*c=160m/min)				Revolution *n*=1,590min-1 (*V*c=160m/min)				Revolution *n*=1,270min-1 (*V*c=160m/min)				Revolution *n*=1,020min-1 (*V*c=160m/min)				
~7	~8	310	0.12	~8.5	~10	300	0.15	~7	~20	190	0.12	~8.5	~25	190	0.15	Carbon Steels & Alloy Steels S-C SCM (30~40HRC)
7~18	~6	260	0.10	8.5~21	~7	240	0.12	7~21	~12	160	0.10	8.5~24	~15	150	0.12	
18~29	~3	200	0.08	21~34	~4	200	0.10	21~42	~8	130	0.08	24~50	~10	130	0.10	
Revolution *n*=1,270min-1 (*V*c=100m/min)				Revolution *n*=1,000min-1 (*V*c=100m/min)				Revolution *n*= 800min-1 (*V*c=100m/min)				Revolution *n*= 640min-1 (*V*c=100m/min)				
~7	~12.5	1,080	0.17	~8.5	~16	1,000	0.20	~7	~20	680	0.17	~8.5	~25	640	0.20	Stainless Steels SUS
7~18	~7	830	0.13	8.5~21	~10	750	0.15	7~21	~12	520	0.13	8.5~24	~15	480	0.15	
18~29	~4	640	0.10	21~34	~5	600	0.12	21~42	~8	400	0.10	24~50	~10	380	0.12	
Revolution *n*=3,180min-1 (*V*c=250m/min)				Revolution *n*=2,490min-1 (*V*c=250m/min)				Revolution *n*=1,990min-1 (*V*c=250m/min)				Revolution *n*=1,590min-1 (*V*c=250m/min)				
~7	~12.5	430	0.17	~8.5	~16	400	0.20	~7	~20	270	0.17	~8.5	~25	260	0.20	
7~18	~7	330	0.13	8.5~21	~10	300	0.15	7~21	~12	210	0.13	8.5~24	~15	190	0.15	
18~29	~4	260	0.10	21~34	~5	240	0.12	21~42	~8	160	0.10	24~50	~10	150	0.12	
Revolution *n*=1,270min-1 (*V*c=100m/min)				Revolution *n*=1,000min-1 (*V*c=100m/min)				Revolution *n*= 800min-1 (*V*c=100m/min)				Revolution *n*= 640min-1 (*V*c=100m/min)				
~7	~12.5	690	0.17	~8.5	~16	640	0.20	~7	~20	430	0.17	~8.5	~25	410	0.20	Cast Irons FC FCD
7~18	~8	530	0.13	8.5~21	~11	480	0.15	7~21	~12	330	0.13	8.5~24	~15	310	0.15	
18~29	~5	410	0.10	21~34	~6	380	0.12	21~42	~8	250	0.10	24~50	~10	250	0.12	
Revolution *n*=2,040min-1 (*V*c=160m/min)				Revolution *n*=1,590min-1 (*V*c=160m/min)				Revolution *n*=1,270min-1 (*V*c=160m/min)				Revolution *n*=1,020min-1 (*V*c=160m/min)				

Recommended Cutting Conditions

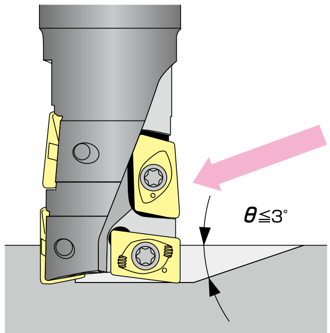
Cutting condition for slotting.

- Refer to the cutting conditions for shoulder milling and set the feed rate to 70% of the value as general criteria.
- It is recommended that the cutting depth be set within the full 2 inserts region R a.



Cutting condition for ramping

- Refer to the cutting conditions for shoulder milling and set the feed rate to 70% of the value as general criteria.
- When cutting steel, it is recommended that the ramp angle θ is 3° or less. With angles larger than this there is a danger of the cut chips not breaking off and sticking to the tool body.
- For hardnesses higher than 40HRC, the ramp angle should be set to 1° or less.



Cutting condition for drilling

- The drill hole depth h should be less than the one half the tool diameter. In addition, for materials with hardnesses of 40HRC or higher, helical boring should be performed.
- To allow the cut chips to break off, step feed should be performed.
- An air blower should be used while machining to remove chips.
- Since the cut chips may fly off in unexpected directions, take appropriate safety measures when machining.
- For AHJM, AHJL, and AHJL-RS with flute diameters of ϕ17, 21, 26, and 33, a column with a diameter of about ϕ1 will be left in the center of the hole.

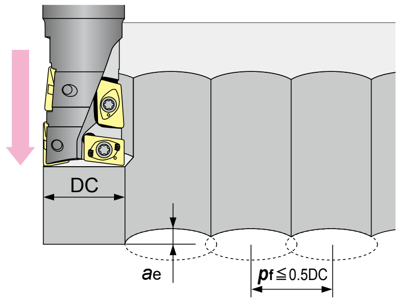
※Red indicates primary recommended grade.

Work material	Recommended grade	Cutting speed Vc(m/min)	Tool dia. DC (mm)					
			ϕ16,ϕ17		ϕ20,ϕ21		ϕ25,ϕ26	
			Feed (mm/min)	Step (mm)	Feed (mm/min)	Step (mm)	Feed (mm/min)	Step (mm)
Steels for general structure SS (≦180HB)	※JS4060 JS4045 PTH30E	180 (140～220)	110	0.2	120	0.3	120	0.3
			Revolution n=3,580min^{-1}		Revolution n=2,870min^{-1}		Revolution n=2,290min^{-1}	
Carbon Steels & Alloy Steels S-C SCM (180～300HB)	JS4060 JS4045	160 (120～200)	100	0.2	100	0.3	100	0.3
			Revolution n=3,180min^{-1}		Revolution n=2,550min^{-1}		Revolution n=2,040min^{-1}	
Carbon Steels & Alloy Steels S-C SCM (30～40HRC)	JP4120	100 (70～120)	40	0.15	50	0.25	50	0.25
			Revolution n=1,990min^{-1}		Revolution n=1,590min^{-1}		Revolution n=1,270min^{-1}	
Stainless Steels SUS	JS4045 PTH30E	100 (80～120)	60	0.15	60	0.25	60	0.25
			Revolution n=1,990min^{-1}		Revolution n=1,590min^{-1}		Revolution n=1,270min^{-1}	
Cast Irons FC FCD	PTH13S	160 (120～200)	130	0.3	130	0.5	120	0.5
			Revolution n=3,180min^{-1}		Revolution n=2,550min^{-1}		Revolution n=2,040min^{-1}	

【Note】 (1) Choose the best cutting condition from above table.
(2) Please note that the JS Coating does not cause a reaction in conductive touch sensors.
(3) In order to avoid of insert breakage, please change insert earlier.
(4) The steel chips may cause cuts, bums or damages to eyes.
Be sure to install the safty cover around the tool and wear the safty glasses when carring out any works.
(5) Please don't use cutting oil as coolant. (It may be cause of fire.)

Cutting condition for plunging

- Refer to the cutting conditions for drilling and set feed rate at 150% to 180% as general criteria.
- Step feed is not necessary.
- Pick feed *pf* ≦0.5DC; Refer to the table below for diametrical cutting amount *a*e.

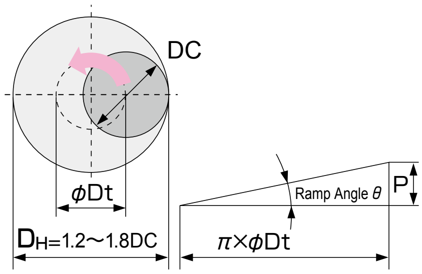


(mm)

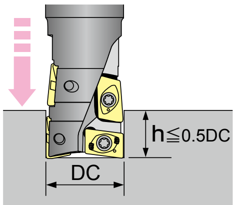
Tool dia. DC	φ16,φ17	φ20,φ21	φ25,φ26	φ32,φ33	φ40	φ50
Radial depth of cut *a*e	4.5	6	7.5	8.5	7.5	8.5

Cutting condition for helical boring

- Refer to the cutting conditions for shoulder milling and set the feed rate to 70% of the value as general criteria.
- The helical hole diameter φDH for a tool diameter DC is 1.2DC to 1.8DC.
- Boring should be performed while using an air blower to discharge cutting chips.



- Helical centrode (Helical hole dia. / Tool dia. DC) $\phi Dt=\phi D_H-DC$
- Cutting amount per tool rotation (Ramp angle) $P=\pi\times\phi Dt\times\tan\theta$



Tool dia. DC (mm) φ32,φ33 Feed (mm/min)	φ32,φ33 Step (mm)	φ40 Feed (mm/min)	φ40 Step (mm)	φ50 Feed (mm/min)	φ50 Step (mm)	Work material
90	0.3	70	0.3	60	0.3	Steels for general structure SS(≦180HB)
Revolution *n*=1,790min-1		Revolution *n*=1,430min-1		Revolution *n*=1,150min-1		
80	0.3	60	0.3	50	0.3	Carbon Steels & Alloy Steels S-C SCM(180～300HB)
Revolution *n*=1,590min-1		Revolution *n*=1,270min-1		Revolution *n*=1,020min-1		
40	0.25	30	0.25	25	0.25	Carbon Steels & Alloy Steels S-C SCM(30～40HRC)
Revolution *n*=1,000min-1		Revolution *n*= 800min-1		Revolution *n*= 640min-1		
50	0.25	40	0.25	30	0.25	Stainless Steels SUS
Revolution *n*=1,000min-1		Revolution *n*= 800min-1		Revolution *n*= 640min-1		
110	0.5	75	0.5	60	0.5	Cast Irons FC FCD
Revolution *n*=1,590min-1		Revolution *n*=1,270min-1		Revolution *n*=1,020min-1		

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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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