

New

**High Feed
Performance**

High feed milling tool for better productivity

HRM Tool

Features

Powerful & economic milling tool with double clamping and 3 corner-use insert.

- Revolutionary design of the cutter and the special cutting edge of the insert make superb feed rate possible when compared with conventional tools. (Max. fz=0.138ipt)
- Low-cutting-resistance chip breaker achieves excellent cutting performance and longer tool life.
- HRM can cover various applications due to HRM insert sizes 08,10,13 and 15 line up.



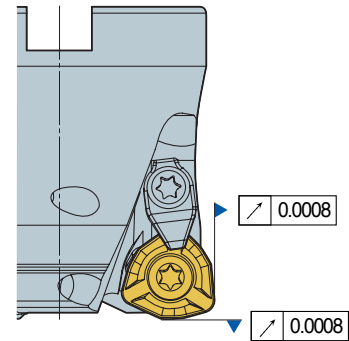
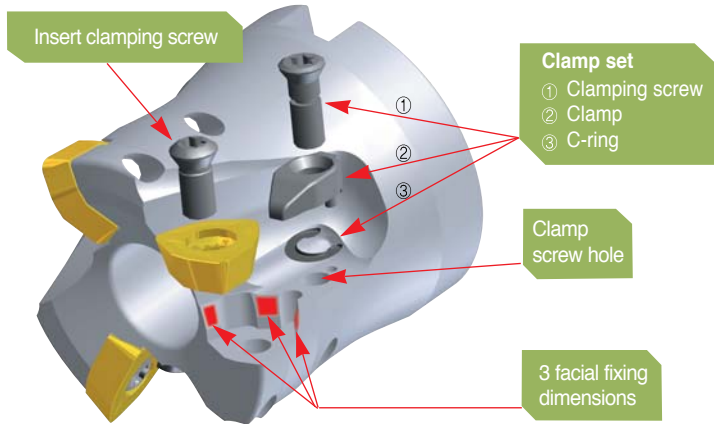


HRM Tool

High feed milling tool for better productivity

Clamping system | Side clearance range | Features of insert

Clamping system

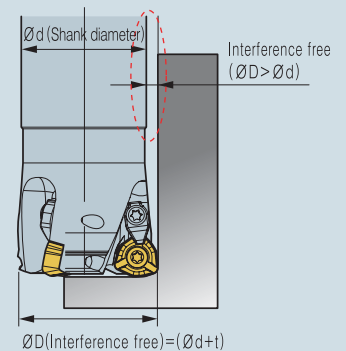


– High tolerance of tip seat part prevents chattering and guarantees high quality surface roughness

Side clearance range

• The side clearance prevents interference between tool and workpiece even in deep hole machining.

Desingation	øD(inch)	ød(inch)	t(inch)
HRMSA08087HR-2 □075	0.875	0.75	0.125
HRMSA10106HR-2 □100	1.063	1.00	0.063
HRMSA13131HR-2 □125	1.313	1.25	0.063
HRMSA13137HR-2 □125	1.375	1.25	0.125
HRMSA13150HR-3 □125	1.500	1.25	0.250
HRMSA15200HR-3 □125	2.000	1.25	0.750
HRMSA15200HR-3 □150	2.000	1.50	0.500
HRMSA15250HR-4 □125	2.000	1.25	0.750
HRMSA15250HR-4 □150	2.000	1.50	0.500



Features of insert



• **Chip breaker**
- Optimal chip flow
- Decrease cutting load

• **Major cutting edge 1**
- Optimal chip flow
- Minimize cutting load

• **Major cutting edge 2**
- Supporting major cutting edge 1.
- High rigidity of cutting edge
- Embodiment of high feed cutting
- Smaller 'un-cut' part than Round type button insert

• **Minor cutting edge**
- Improving surface quality
- Design for decreasing thrust cutting force (load on cutting tool)

• **Nose-R**
- Reinforced rigidity for side-face machining
- Round(nose-R) edge line suitable for high feed

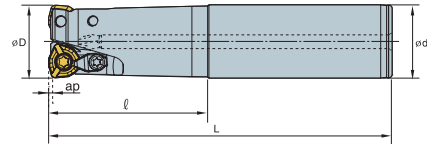


HRM Tool

High feed milling tool for better productivity

HRM Shank

■ HRMSA 08□□/10□□/13□□/15□□



Desingation	Stock	Dimensions(inch)					Flutes	Insert
		ϕD	L	ϕd	ℓ	ap		
08075HR-2S075	○	0.750	5.118	0.75	1.969	0.04	2	WDKT080316ZDSR-MH
08075HR-2M075	○		7.087	0.75	3.937			
08075HR-2L075	○		9.843	0.75	5.118			
08087HR-2S075	○	0.875	5.118	0.75	1.969			
08087HR-2M075	○		7.087	0.75	1.969			
08087HR-2L075	○		9.843	0.75	1.969			
10100HR-2S100	○	1.000	5.512	1.00	2.362	0.06	2	WDKT10T320ZDSR-MH
10100HR-2M100	○		7.874	1.00	4.724			
10100HR-2L100	○		11.811	1.00	7.087			
10106HR-2S100	○	1.063	5.512	1.00	2.362			
10106HR-2M100	○		7.874	1.00	2.362			
10106HR-2L100	○		11.811	1.00	2.362			
10118HR-2S125	○	1.188	5.906	1.25	2.756	0.08	3	WDKT130520ZDSR-MH
10118HR-2M125	○		7.874	1.25	4.724			
10118HR-2L125	○		11.811	1.25	7.087			
13125HR-2S125	○	1.250	5.906	1.25	2.756			
13125HR-2M125	○		7.874	1.25	4.724			
13125HR-2L125	○		11.811	1.25	7.087			
13131HR-2S125	○	1.313	5.906	1.25	2.756	0.08	3	WDKT130520ZDSR-MH
13131HR-2M125	○		7.874	1.25	2.756			
13131HR-2L125	○		11.811	1.25	2.756			
13137HR-2S125	○	1.375	5.906	1.25	1.969			
13137HR-2M125	○		7.874	1.25	1.969			
13137HR-2L125	○		11.811	1.25	1.969			
13150HR-3S125	○	1.500	5.906	1.25	1.969	0.1	3	WDKT150625ZDSR-MH
13150HR-3M125	○		9.843	1.25	1.969			
13150HR-3L125	○		11.811	1.25	1.969			
13150HR-3S150	○	1.500	5.906	1.50	2.362			
13150HR-3M150	○		9.843	1.50	5.118			
13150HR-3L150	○		11.811	1.50	7.087			
15200HR-3S125	○	2.000	5.906	1.25	1.969	0.1	3	WDKT150625ZDSR-MH
15200HR-3M125	○		9.843	1.25	1.969			
15200HR-3L125	○		11.811	1.25	1.969			
15200HR-3S150	○	2.000	5.906	1.50	1.969			
15200HR-3M150	○		9.843	1.50	1.969			
15200HR-3L150	○		11.811	1.50	1.969			
15250HR-4S125	○	2.500	5.906	1.25	1.969	0.1	4	WDKT150625ZDSR-MH
15250HR-4M125	○		9.843	1.25	1.969			
15250HR-4L125	○		11.811	1.25	1.969			
15250HR-4S150	○	2.500	5.906	1.50	1.969			
15250HR-4M150	○		9.843	1.50	1.969			
15250HR-4L150	○		11.811	1.50	1.969			

● Stock item, ○ Under preparing for stock

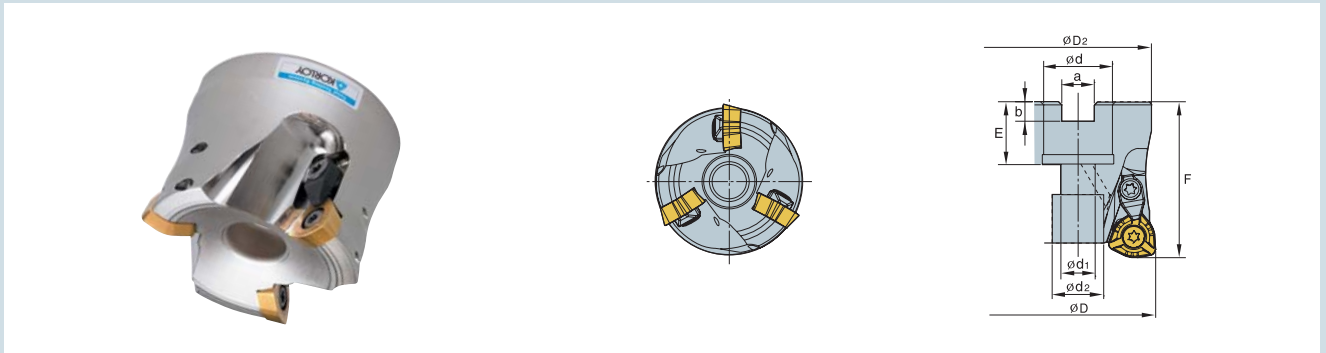


HRM Tool

High feed milling tool for better productivity

HRM Cutter

■ HRMCA 13□□□/15□□□



• HRMCA

Designation	Stock	Dimensions(inch)										Insert	
		ϕD	ϕD_2	ϕd	F	a	b	ϕd_1	ϕd_2	E	⊕		
HRMCA	13200HR-3	○	2.0	1.850	0.75	1.75	0.321	0.220	0.433	0.646	0.787	3	WDKT130520ZDSR-MH
	13200HR-4	○	2.0	1.850	0.75	1.75	0.321	0.220	0.433	0.646	0.787	4	
	13250HR-4	○	2.5	2.362	0.75	1.75	0.321	0.220	0.433	0.669	0.787	4	
	13300HR-5	○	3.0	2.992	1.00	2.00	0.384	0.248	0.709	1.024	0.866	5	WDKT150625ZDSR-MH
	15250HR-3	○	2.5	2.362	0.75	1.75	0.321	0.220	0.433	0.669	0.787	3	
	15300HR-4	○	3.0	2.992	1.00	2.00	0.384	0.248	0.709	1.024	0.866	4	
	15400HR-5	○	4.0	3.780	1.25	2.00	0.510	0.319	0.709	1.024	0.866	5	
	15400HR-6	○	4.0	3.780	1.25	2.00	0.510	0.319	0.709	1.024	0.866	6	
	15500HR-6	○	5.0	3.858	1.50	2.50	0.636	0.394	0.866	1.260	1.181	6	
15600R-7	○	6.0	3.937	2.00	2.50	0.758	0.433	-	2.835	1.181	7		

• Please refer to detail information of arbor on 2006 DINE's catalogue P88~P90

● Stock item, ○ Under preparing for stock

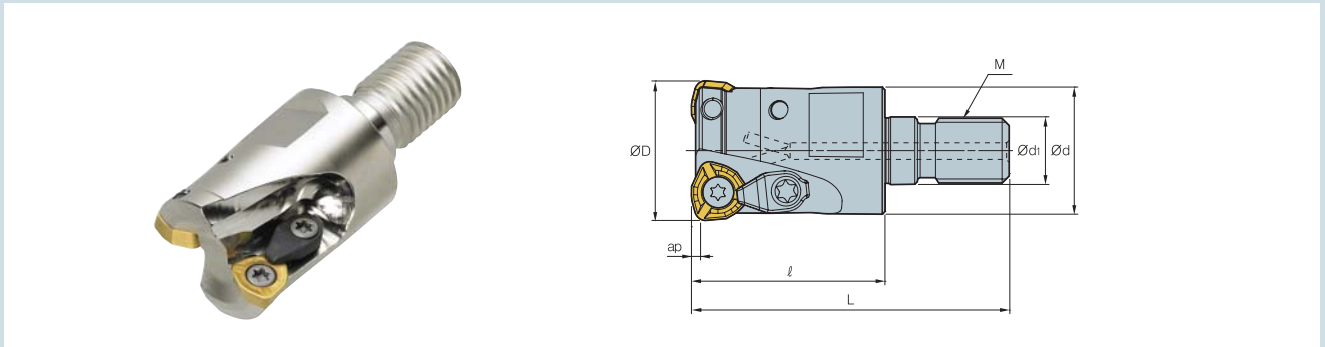


HRM Tool

High feed milling tool for better productivity

HRM Modular

■ HRMMA 08□□/10□□/13□□



Designation	stock	Dimensions(inch)								Insert	
		ØD	L	ℓ	Ød	Ødi	M	ap	⊙		
HRMMA	08075HR-M10	○	0.750	2.008	1.181	0.689	0.413	M10	0.04	2	WDKT08316ZDSR-MH
	08081HR-M10	○	0.813	2.008	1.181	0.689	0.413	M10	0.04	2	
	08100HR-M12	○	1.000	2.323	1.378	0.906	0.492	M12	0.04	3	
	08106HR-M12	○	1.063	2.323	1.378	0.906	0.492	M12	0.04	3	
	08112HR-M12	○	1.125	2.323	1.378	0.906	0.492	M12	0.04	3	
	08125HR-M16	○	1.250	2.638	1.575	1.142	0.669	M16	0.04	4	
	08131HR-M16	○	1.313	2.638	1.575	1.142	0.669	M16	0.04	4	
	08137HR-M16	○	1.375	2.638	1.575	1.142	0.669	M16	0.04	4	
	08150HR-M16	○	1.500	2.638	1.575	1.142	0.669	M16	0.04	5	
	10100HR-M12	○	1.000	2.323	1.378	0.906	0.492	M12	0.06	2	WDKT10T320ZDSR-MH
	10106HR-M12	○	1.063	2.323	1.378	0.906	0.492	M12	0.06	2	
	10118HR-M16	○	1.188	2.638	1.575	1.142	0.669	M16	0.06	2	
	10125HR-M16	○	1.250	2.835	1.772	1.142	0.669	M16	0.06	3	
	10137HR-M16	○	1.375	2.835	1.772	1.142	0.669	M16	0.06	3	
	10150HR-M16	○	1.500	2.835	1.772	1.142	0.669	M16	0.06	4	
	13125HR-M16	○	1.250	2.638	1.575	1.142	0.669	M16	0.08	2	WDKT130520ZDSR-MH
	13131HR-M16	○	1.313	2.638	1.575	1.142	0.669	M16	0.08	2	
	13137HR-M16	○	1.375	2.638	1.575	1.142	0.669	M16	0.08	2	
13150HR-M16	○	1.500	2.835	1.772	1.142	0.669	M16	0.08	3		

● Stock item, ○ Under preparing for stock



Modular adaptor (Steel)

Standard type

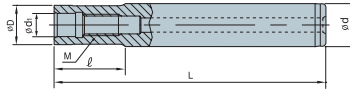


Fig 1. Straight Neck adaptor

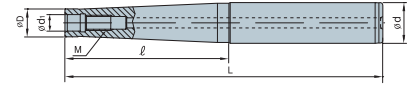


Fig 2. Taper Neck adaptor

(inch)

Designation	Stock	Fig.	Dimensions(inch)					
			M	øD	ød	ød ₁	L	ℓ
MATA - M06-078-S038S	●	1	M06	0.354	0.375	0.256	2.756	0.787
M06-157-S050T	●	2	M06	0.354	0.500	0.256	3.780	1.575
M06-255-S063T	●	2	M06	0.354	0.625	0.256	4.921	2.559
M6B-078-S050S	●	1	M06	0.433	0.500	0.256	2.992	0.787
M6B-157-S050S	●	1	M06	0.433	0.500	0.256	3.780	1.575
M6B-255-S063T	●	2	M06	0.433	0.625	0.256	4.921	2.559
M6B-315-S063T	●	2	M06	0.433	0.625	0.256	5.512	3.150
M08-078-S063S	●	1	M08	0.571	0.625	0.335	3.150	0.787
M08-157-S063T	●	2	M08	0.571	0.625	0.335	3.937	1.575
M08-255-S063T	●	2	M08	0.571	0.625	0.335	4.921	2.559
M08-315-S075T	●	2	M08	0.571	0.750	0.335	5.906	3.150
M08-433-S100T	●	2	M08	0.571	1.000	0.335	7.480	4.331
M10-118-S075S	●	1	M10	0.689	0.750	0.413	3.937	1.181
M10-196-S075T	●	2	M10	0.689	0.750	0.413	4.724	1.969
M10-275-S075T	●	2	M10	0.689	0.750	0.413	5.512	2.756
M10-354-S100T	●	2	M10	0.689	1.000	0.413	6.693	3.543
M10-433-S100T	●	2	M10	0.689	1.000	0.413	7.480	4.331
M10-511-S125T	●	2	M10	0.689	1.250	0.413	8.661	5.118
M12-118-S100S	●	1	M12	0.906	1.000	0.492	4.331	1.181
M12-196-S100T	●	2	M12	0.906	1.000	0.492	5.118	1.969
M12-275-S100T	●	2	M12	0.906	1.000	0.492	5.906	2.756
M12-354-S100T	●	2	M12	0.906	1.000	0.492	6.693	3.543
M12-433-S125T	●	2	M12	0.906	1.250	0.492	7.874	4.331
M12-689-S150T	●	2	M12	0.906	1.500	0.492	11.811	6.890
M16-137-S125S	●	1	M16	1.142	1.250	0.669	4.921	1.378
M16-216-S125T	●	2	M16	1.142	1.250	0.669	5.709	2.165
M16-315-S125T	●	2	M16	1.142	1.250	0.669	6.693	3.150
M16-472-S125T	●	2	M16	1.142	1.250	0.669	8.268	4.724
M16-689-S150T	●	2	M16	1.142	1.500	0.669	11.811	6.890

• Available to use (FMRMA, LBEA, PAMA, AMMA, RM4PMA, HRMMA, PAXMA)

• S : Straight type

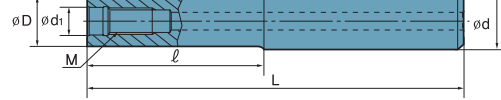
• T : Taper type

● Stock item, ○ Under preparing for stock



Modular adaptor (Carbide)

Standard type



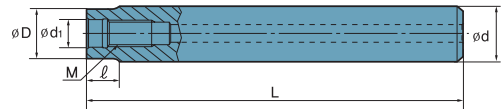
Designation	Stock	Dimensions(inch)					
		M	øD	ød	ød ₁	L	ℓ
MATA - M08-315-S063S-C	●	M08	0.571	0.625	0.335	5.906	3.150
M08-433-S063S-C	●	M08	0.571	0.625	0.335	7.087	4.331
M08-590-S063S-C	●	M08	0.571	0.625	0.335	9.843	5.906
M10-354-S075S-C	●	M10	0.689	0.750	0.413	6.693	3.543
M10-433-S075S-C	●	M10	0.689	0.750	0.413	7.874	4.331
M10-689-S075S-C	●	M10	0.689	0.750	0.413	11.811	6.890
M12-354-S100S-C	●	M12	0.906	1.000	0.492	6.693	3.543
M12-433-S100S-C	●	M12	0.906	1.000	0.492	7.874	4.331
M12-689-S100S-C	●	M12	0.906	1.000	0.492	11.811	6.890
M16-354-S125S-C	●	M16	1.142	1.250	0.669	7.087	3.543
M16-472-S125S-C	●	M16	1.142	1.250	0.669	8.268	4.724
M16-689-S125S-C	●	M16	1.142	1.250	0.669	11.811	6.890

● Available to use (FMRMA, LBEA, PAMA, AMMA, RM4PMA, HRMMA, PAXMA)

● Stock item, ○ Under preparing for stock

Modular adaptor (Carbide)

Standard type



Designation	Stock	Dimensions(inch)					
		M	øD	ød	ød ₁	L	ℓ
MATA - M08-394-S063S-C-590	●	M08	0.571	0.625	0.335	5.906	0.394
M08-394-S063S-C-708	●	M08	0.571	0.625	0.335	7.087	0.394
M08-394-S063S-C-984	●	M08	0.571	0.625	0.335	9.843	0.394
M10-394-S075S-C-669	●	M10	0.689	0.750	0.413	6.693	0.394
M10-394-S075S-C-787	●	M10	0.689	0.750	0.413	7.874	0.394
M10-394-S075S-C-1181	●	M10	0.689	0.750	0.413	11.811	0.394
M12-059-S100S-C-669	●	M12	0.906	1.000	0.492	6.693	0.591
M12-059-S100S-C-787	●	M12	0.906	1.000	0.492	7.874	0.591
M12-059-S100S-C-1181	●	M12	0.906	1.000	0.492	11.811	0.591
M16-078-S125S-C-708	●	M16	1.142	1.250	0.669	7.087	0.787
M16-078-S125S-C-826	●	M16	1.142	1.250	0.669	8.268	0.787
M16-078-S125S-C-1181	●	M16	1.142	1.250	0.669	11.811	0.787

● Available to use (FMRMA, LBEA, PAMA, AMMA, RM4PMA, HRMMA, PAXMA)

● Stock item, ○ Under preparing for stock



HRM Tool

High feed milling tool for better productivity

HRM insert | Parts | Corner R programming

HRM insert

Designation	Grade						Dimensions(inch)					Configuration
	PC3525	PC3535	PC3545	PC9530	PC6510	PC8520	d	t	F	R	ød ₁	
WDKT080316ZDSR-MH	●	●	●	●	●	●	0.315	1/8	0.071	1/16	0.130	
WDKT10T320ZDSR-MH	●	●	●	●	●	●	0.394	5/32	0.091	0.079	0.169	
WDKT130520ZDSR-MH	●	●	●	●	●	●	0.531	7/32	0.122	0.079	0.219	
WDKT150625ZDSR-MH	●	●	●	●	●	●	0.591	1/4	0.138	0.098	0.219	

● Stock item, ○ Under preparing for stock

Parts

Tool	Shape	Screw	Clamp	Clamp Screw	C-ring	Wrench		
						A	B	C
HRMSA 08 type		FTNA0306	-	-	-	TW09P	-	-
HRMSA 10 type		FTKA0408	CHH3.5R1	CTX03510	CR03	-	TW15S	-
HRMCA 13 type	Ø1.25,1.313,1.375	FTGA0510-P	CHH4.5R1	CTX04513H	CR03	-	-	TW20
	Ø1.5	FTGA0512-P						TW20-100
	Ø2.0,2.5,3.0	FTGA0513-P						
HRMCA 15 type	Ø2.0,2.5	FTGA0513-P	CHH5.5R1	CTX0515	CR04	-	-	TW20-100
	Ø3.0,4.0,5.0,6.0							

Corner R programming

Designation	Condition		Approx. R (inch)		Configuration
	Max.ap (inch)	Max.fz (ipf)	Input.R	Uncut	
WDKT080316ZDSR-MH	0.040	0.06	0.08	0.015	
WDKT10T320ZDSR-MH	0.060	0.08	0.10	0.018	
WDKT130520ZDSR-MH	0.080	0.12	0.12	0.028	
WDKT150625ZDSR-MH	0.100	0.14	0.12	0.035	

• Information for uncut part by using "InputR" for CAM program.

• Uncut part can be changed by poor machine condition or weak clamp of workpiece, etc.

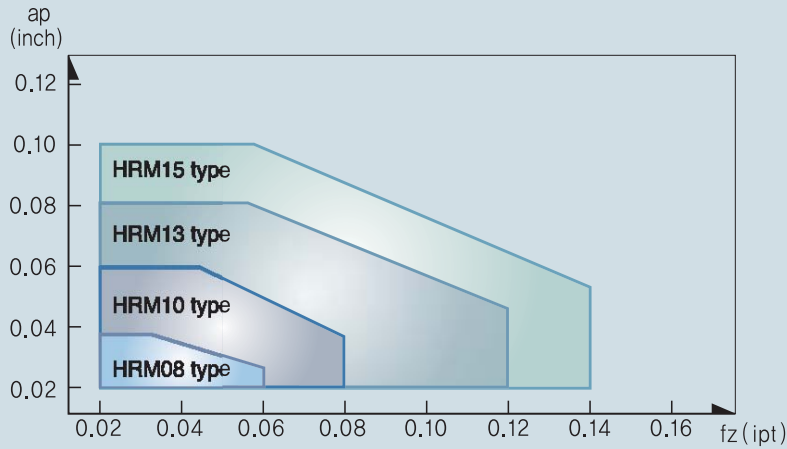


HRM Tool

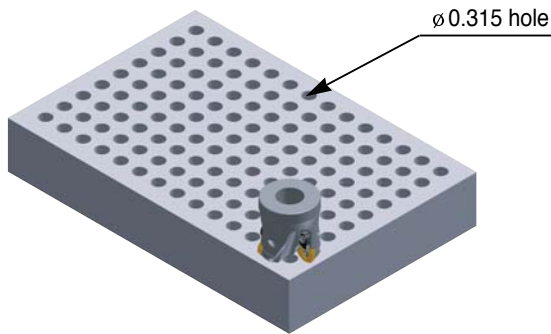
High feed milling tool for better productivity

Application area | Toughness test

Application area



Toughness test



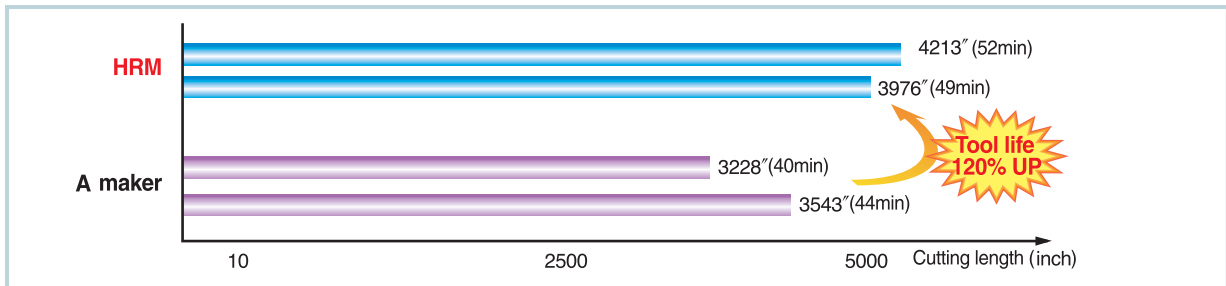
HRM cutter- Interrupted cutting

※Cutting condition

- Tool : HRMCA13200HR-3
WDKT130520ZDSR-MH (PC3545)
- Workpiece: AISI 4140, 41CrMo5 (HRC34)

vc	fz	ap	ae
600	0.072	0.04	1 1/2

- Dry down cut, 1 tooth cutting
- Workpiece size : 14" × 1" × 0.2" (inch)



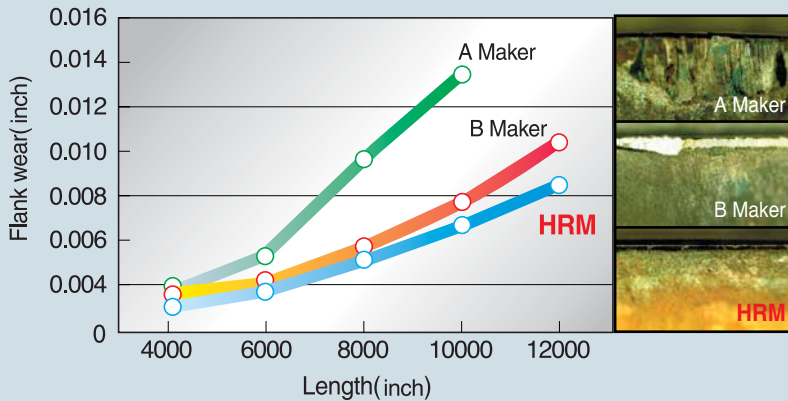


HRM Tool

High feed milling tool for better productivity

Wear resistance test | Application example | Recommended grade as per workpiece

Wear resistance test



※Cutting condition

- Tool : HRMCA13200HR-3
WDKT130520ZDSR-MH (PC3535)
- Workpiece: X165CrMoV12 (280HB)

vc	fz	ap	ae
660	01	0.06	1 1/2

- Dry down cut, 1tooth cutting
- Workpiece size : 14" × 1" × 4"(inch)

Application example



※Cutting condition

- Tool : HRMCA13300HR-5
WDKT130520ZDSR-MH
- Workpiece: AISI 1050, Ck55 (Carbon steel)
(255HB)

vc	vf	ap	ae	L
530	183	0.06	2 5/8	10

- Machine : Horizontal MC, 23kW, Air blow
- Chip removal rate: 447cm³/min

447cm³/min

※Result

Machining time is shortened up to 30% with no change of ap & ae. Increase feed rate only.

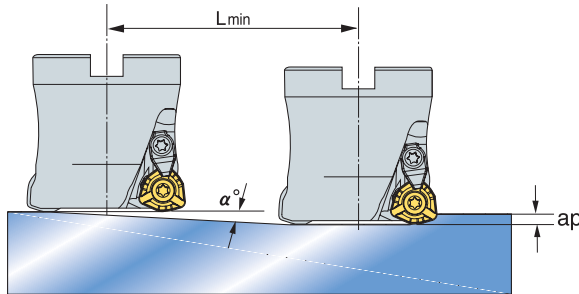
Recommended grade as per workpiece

Workpiece	Recommended grade	
	Light intermittent machining	Heavy intermittent machining
Carbon steel	PC3525, PC6510	PC9530
Alloy Tool steel	PC3525	PC3545
Stainless steel	PC3545	
Cast iron	PC6510	PC3525
Per-hardened steel	PC8520	

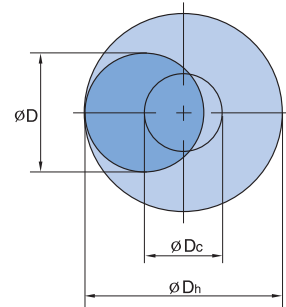


Ramping & Helical cutting technical data

■ Ramping



■ Helical cutting



■ Tool pass diameter

$$L_{min} = \frac{ap}{\tan \alpha^\circ} \text{ (inch)}$$

$$\varnothing D_c = \varnothing D_h - \varnothing D$$

$\varnothing D_c$ = Tool pass of tool center

$\varnothing D_h$ = Desirable hole diameter on workpiece

$\varnothing D$ = Tool diameter

Designation	Tool Diameter øD(inch)	Valid Cutting Diameter (inch)	Ramping			Helical Cutting		
			Max. ap(inch)	Max.Angle α°	Cutting Length Lmin(inch)	Min.hole øDh min(inch)	Max.hole øDh max(inch)	
HRMCA	13200HR-□	2.0	1.528	0.08	2°	2.291	3.063	3.811
	13250HR-□	2.5	2.028	0.08	1°40′	2.751	4.075	4.823
	13300HR-5	3.0	2.528	0.08	1°30′	3.055	5.244	5.992
	15250HR-□	2.5	1.989	0.10	2°40′	2.148	3.996	4.783
	15300HR-□	3.0	2.489	0.10	2°	2.864	5.165	5.953
	15400HR-□	4.0	3.489	0.10	1°30′	3.819	6.953	7.740
	15500HR-□	5.0	4.489	0.10	50′	6.878	8.937	9.724
	15600R-□	6.0	5.489	0.10	30′	11.459	11.315	12.102
HRMSA	0875HR-□□075	0.75	0.404	0.04	3°30′	0.654	1.065	1.380
	08100HR-□□100	1.00	0.567	0.06	4°	0.858	1.315	1.827
	08118HR-□□25	1.188	0.755	0.06	3°30′	0.981	1.699	2.211
	13125HR-□□125	1.25	0.778	0.08	4°	1.144	1.526	2.352
	13137HR-□□125	1.375	0.903	0.08	3°30′	1.308	1.769	2.595
	13150HR-□□□□	1.50	1.028	0.08	3°	1.526	2.091	2.917
	13200HR-□□□□	2.00	1.489	0.10	2°50′	2.021	2.984	3.772
	13250HR-□□□□	2.50	1.989	0.10	2°40′	2.148	3.996	4.783

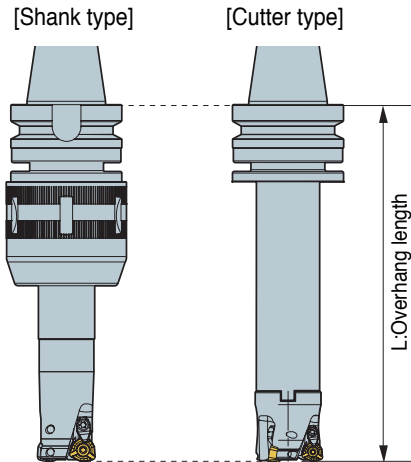


HRM Tool

High feed milling tool for better productivity

Overhang length (L)

Overhang length (L)



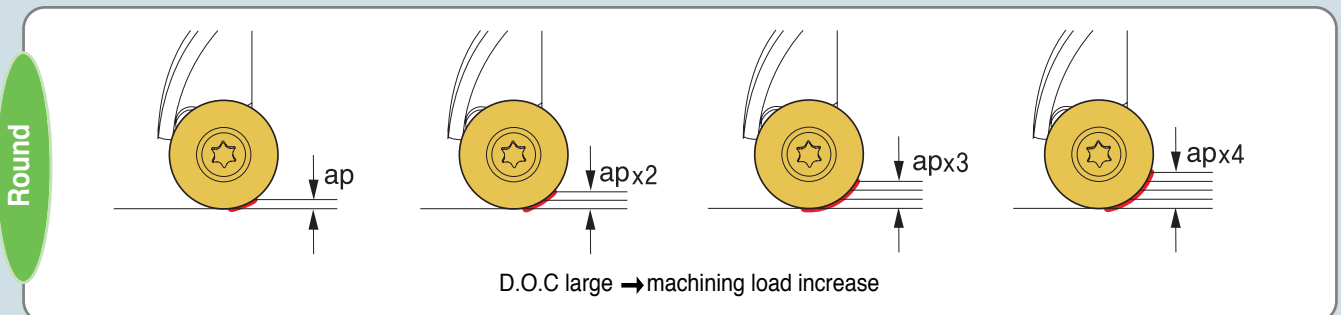
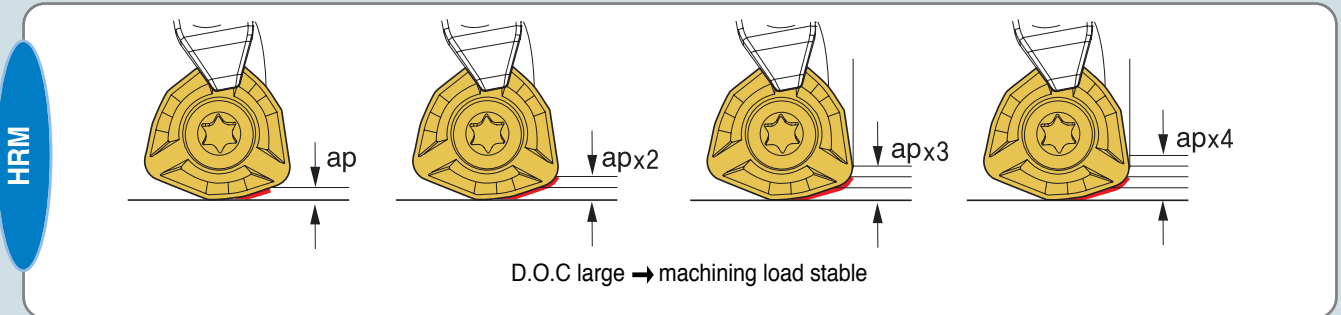
- L = Overhang length
- $vc(\text{m/min}) = \pi \times D \times n / 1000$
- $vf(\text{mm/min}) = fz \times z \times n$
- $Q(\text{cm}^3/\text{min}) = ap \times ae \times vf / 1000$
- $Pc(\text{kW}) = Q \times Kc / 60 \times 102 \times \eta$
- $H(\text{Hp}) = Pc / 0.75$

※Note

- fz = Feed rate(mm/t)
- z = Tooth, $\pi = 3.14$, D =Tool Diameter(inch)
- n = rpm(min^{-1})
- ap = Axial depth of cut(inch)
- ae = Radial depth of cut(inch)
- Kc = Specific cutting force (kg/mm^2)
- η = Machine efficiency(%)

※ Instruction

- 1) Insert should be correctly clamped in seat part of cutter
- 2) In case of noise from chattering, reduce L (overhang length) or decrease feed rate, spindle speed and axial depth of cut.
- 3) Reduce spindle speed or axial depth of cut if the power of machine is not powerful enough.
- 4) Use coolant or air for smooth of chip evacuation and long tool life.
- 5) Reduce axial depth of cut, spindle speed and feed approx. 30~50% of recommendation in machining of high hardness material (HRC 50~60).
- 6) Overhang length written in "recommended cutting condition table" from page 10 is represent the length L from the picture "Overhang Length(L)" shown above.
- 7) Use recommended cutting condition for better tool life. Especially, axial depth of cut (ap) should be certainly fulfilled.
- 8) Even during deep pocket milling, HRM tool remains constant cutting force due to the unique corner geometry of the insert.
- 9) To get stable cutting, it's better to apply radial depth of cut (ae) more than 60% of tool diameter.



- ☞ HRM insert uses same area of cutting edge at every pass.
- ☞ It makes it possible to perform high feed milling when the depth is getting deeper.



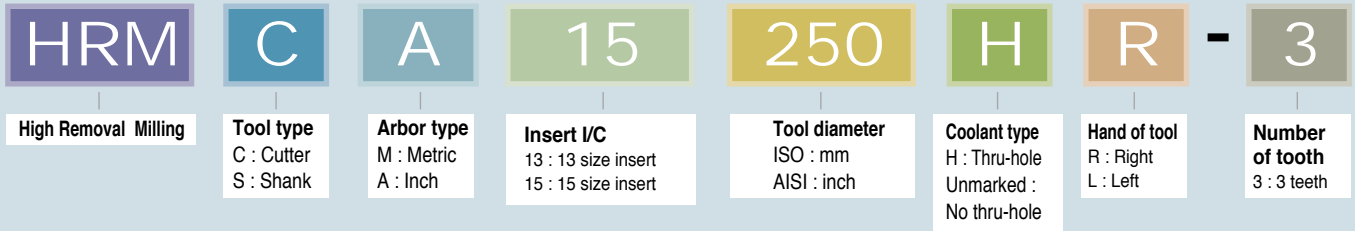
HRM Tool

High feed milling tool for better productivity

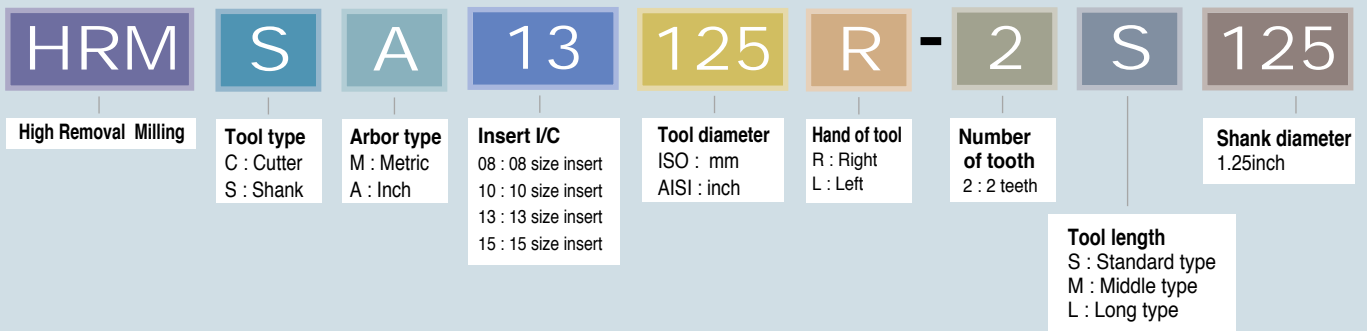
HRM code system

HRM code system

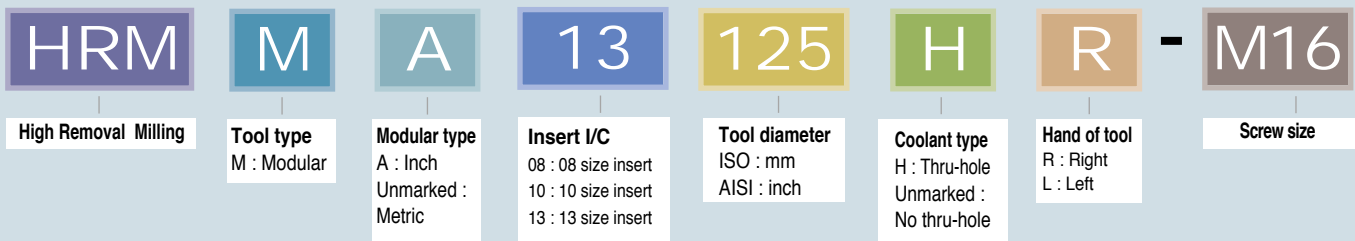
■ Cutter type



■ Shank type



■ Modular type



Warning

※ Safety instruction

- Use glasses safely and face cover with protective equipment. If cutting condition and use method are inaccurate, you may be injured by broken tools or scattered chips.
- Excessive cutting load may influence badly on both tool and machine.
Make suitable tool replacement for preventing failure of machining.
- After machine stopped, clean remained chips from machine with special cleaning equipment.
- Keep safety distance from acute and hot chip during machining.
- Make precaution for prevention of fire in advance when you use insoluble cutting oil.
- Assembled parts may be scattered at high speed cutting. Please use protective equipment.



HRM Tool

High feed milling tool for better productivity

Recommended cutting condition

Recommended cutting condition

Workpiece	Hardness	Grade	Diameter (\varnothing 0.750~ \varnothing 0.875)			
			vc(sfm)	fz(ipt)	overhang(inch)	
P General structural steel Mild steel	Under 200HB	PC3525	590(394~754)	0.039	5.906	
		PC3525	525(394~656)	0.035	7.874	
		PC3545	492(328~558)	0.028	9.843	
	Carbon steel, Alloy steel	Under 30HrC	PC3525	525(426~623)	0.039	5.906
			PC3525	492(426~590)	0.035	7.874
			PC3545	426(328~492)	0.028	9.843
	High carbon steel Alloy steel	30~40 HrC	PC3525	361(295~426)	0.035	5.906
			PC3545	328(262~426)	0.028	7.874
			PC3545	295(262~394)	0.020	9.843
Pre-hardened steel	40~50 HrC	PC3525	328(230~394)	0.028	5.906	
			262(230~394)	0.020	7.874	
M Stainless steel	Under 270HB	PC9530	394(230~525)	0.035	5.906	
		PC8520		0.028	7.874	
K Cast Iron	Under 350N _{mm} ²	PC6510	492(328~656)	0.051	5.906	
				0.043	7.874	

Workpiece	Hardness	Grade	Diameter (\varnothing 1.000~ \varnothing 1.188)			
			vc(sfm)	fz(ipt)	overhang(inch)	
P General structural steel Mild steel	Under 200HB	PC3525	590(394~754)	0.059	6.693	
		PC3525	525(394~656)	0.051	8.661	
		PC3545	492(328~558)	0.043	10.630	
	Carbon steel, Alloy steel	Under 30HrC	PC3525	525(426~623)	0.055	6.693
			PC3525	492(426~590)	0.047	8.661
			PC3545	426(328~492)	0.039	10.630
	High carbon steel Alloy steel	30~40 HrC	PC3525	361(295~426)	0.051	6.693
			PC3545	328(262~426)	0.043	8.661
			PC3545	295(262~394)	0.035	10.630
Pre-hardened steel	40~50 HrC	PC3525	328(230~394)	0.039	6.693	
			262(230~394)	0.031	8.661	
M Stainless steel	Under 270HB	PC9530	394(230~525)	0.047	6.693	
		PC8520		0.039	8.661	
K Cast Iron	Under 350N _{mm} ²	PC6510	492(328~656)	0.067	6.693	
				0.059	8.661	

Workpiece	Hardness	Grade	Diameter (\varnothing 1.250~ \varnothing 1.500)			
			vc(sfm)	fz(ipt)	overhang(inch)	
P General structural steel Mild steel	Under 200HB	PC3525	590(394~754)	0.059	5.906	
		PC3525	525(394~656)	0.051	9.843	
		PC3545	492(328~558)	0.043	13.780	
	Carbon steel, Alloy steel	Under 30HrC	PC3525	525(426~623)	0.055	5.906
			PC3525	492(426~590)	0.047	9.843
			PC3545	426(328~492)	0.039	13.780
	High carbon steel Alloy steel	30~40 HrC	PC3525	361(295~426)	0.051	5.906
			PC3545	328(262~426)	0.043	9.843
			PC3545	295(262~394)	0.035	13.780
Pre-hardened steel	40~50 HrC	PC3525	328(230~394)	0.039	5.906	
			262(230~394)	0.031	9.843	
M Stainless steel	Under 270HB	PC9530	394(230~525)	0.047	5.906	
		PC8520		0.039	9.843	
K Cast Iron	Under 350N _{mm} ²	PC6510	492(328~656)	0.067	5.906	
				0.059	9.843	



HRM Tool

High feed milling tool for better productivity

Recommended cutting condition

Recommended cutting condition

Workpiece	Hardness	Grade	Diameter (\varnothing 2.000~ \varnothing 2.500)			
			vc(sfm)	fz(ipt)	overhang(inch)	
P	General structural steel Mild steel	PC3525	180(120~230)	0.059	5.906	
		PC3525	160(120~200)	0.051	9.843	
		PC3545	150(100~170)	0.043	13.780	
	Carbon steel, Alloy steel	Under 30HrC	PC3525	160(130~190)	0.055	5.906
			PC3525	150(130~180)	0.047	9.843
			PC3545	130(100~150)	0.039	13.780
	High carbon steel Alloy steel	30~40 HrC	PC3525	110(90~130)	0.051	5.906
			PC3545	100(80~130)	0.043	9.843
			PC3545	90(80~120)	0.035	13.780
	Pre-hardened steel	40~50 HrC	PC3525	100(70~120)	0.039	5.906
				80(70~120)	0.031	9.843
	M	Stainless steel	Under 270HB	PC9530	120(70~160)	0.047
PC8520				0.039		9.843
K	Cast Iron	Under 350N/mm ²	PC6510	150(100~200)	0.067	5.906
					0.059	9.843

Workpiece	Hardness	Grade	Diameter (\varnothing 3.000~ \varnothing 4.000)			
			vc(sfm)	fz(ipt)	overhang(inch)	
P	General structural steel Mild steel	Under 200HB	PC3525	590(394~754)	0.059	5.906
			PC3525	525(394~656)	0.051	9.843
			PC3545	492(328~558)	0.039	13.780
	Carbon steel, Alloy steel	Under 30HrC	PC3525	525(426~623)	0.059	5.906
			PC3525	492(426~590)	0.051	9.843
			PC3545	426(328~492)	0.039	13.780
	High carbon steel Alloy steel	30~40 HrC	PC3525	361(295~426)	0.051	5.906
			PC3545	328(262~426)	0.043	9.843
			PC3545	295(262~394)	0.059	13.780
	Pre-hardened steel	40~50 HrC	PC3525	328(230~394)	0.043	5.906
				262(230~394)	0.035	9.843
	M	Stainless steel	Under 270HB	PC9530	394(230~525)	0.051
PC8520				0.043		9.843
K	Cast Iron	Under 350N/mm ²	PC6510	492(328~656)	0.067	5.906
					0.059	9.843

Workpiece	Hardness	Grade	Diameter (\varnothing 5.000~ \varnothing 6.000)			
			vc(sfm)	fz(ipt)	overhang(inch)	
P	General structural steel Mild steel	Under 200HB	PC3525	590(394~754)	0.059	5.906
			PC3525	525(394~656)	0.051	9.843
			PC3545	492(328~558)	0.043	13.780
	Carbon steel, Alloy steel	Under 30HrC	PC3525	525(426~623)	0.055	5.906
			PC3525	492(426~590)	0.047	9.843
			PC3545	426(328~492)	0.039	13.780
	High carbon steel Alloy steel	30~40 HrC	PC3525	361(295~426)	0.051	5.906
			PC3545	328(262~426)	0.043	9.843
			PC3545	295(262~394)	0.035	13.780
	Pre-hardened steel	40~50 HrC	PC3525	328(230~394)	0.039	5.906
				262(230~394)	0.039	9.843
	M	Stainless steel	Under 270HB	PC9530	394(230~525)	0.047
PC8520				0.039		9.843
K	Cast Iron	Under 350N/mm ²	PC6510	492(328~656)	0.067	5.906
					0.059	9.843



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