



Interchangeable modular endmills



ZHUZHOU CEMENTED CARBIDE
CUTTING TOOLS CO., LTD.

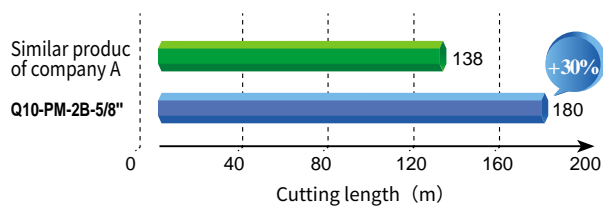
Interchangeable modular endmills

New series of interchangeable modular endmills combine the advantages of both solid carbide endmills and indexable toolholders to achieve high-precision, high-rigidity, and high-efficiency machining.

- Solid carbide cutting head with high precision and consistency;
- The self-centering screw thread ensures the quick replacement, high security and high strength;
- Double positioning from both radial and axial direction guarantees the high rigidity, high stability and high-precision coupling;
- Quick mounting on the machine tool would reduce the non-cutting time, which would significantly increase the productivity;
- Three cutting solid carbide head series can share the shanks with the indexable inserts type interchangeable series, which as a result can satisfy face milling, slot milling, shoulder milling, profile milling, ramping and plunging from roughing to finishing different working conditions.

Good rigidity, longer tool life

Workpiece material: NAK80(HRC40)
Machining methods: Profile milling
Interchangeable head: Q10-PM-2B-5/8"
Toolholder: G0.625-QCH-Q10-5.625C
Cutting method: Down milling, wet cut
Machining requirement: $Ra \leq 0.6\mu m$,
When $Ra > 0.6\mu m$ tool failure.
Machine tool: Vertical Machining Center
Cutting parameters: $V_c=800\text{SFM}$, $f_z=0.002\text{inch/z}$,
 $a_p=0.02\text{inch}$, $a_e=0.02\text{inch}$



Result: The interchangeable modular endmills has good rigidity and anti-vibration performance. Comparing with the similar product from company A, it has longer tool life and better efficiency.

Interchangeable shank

Steel shank and carbide shank are available for long overhang, high feed rate and other working conditions.

Screw thread

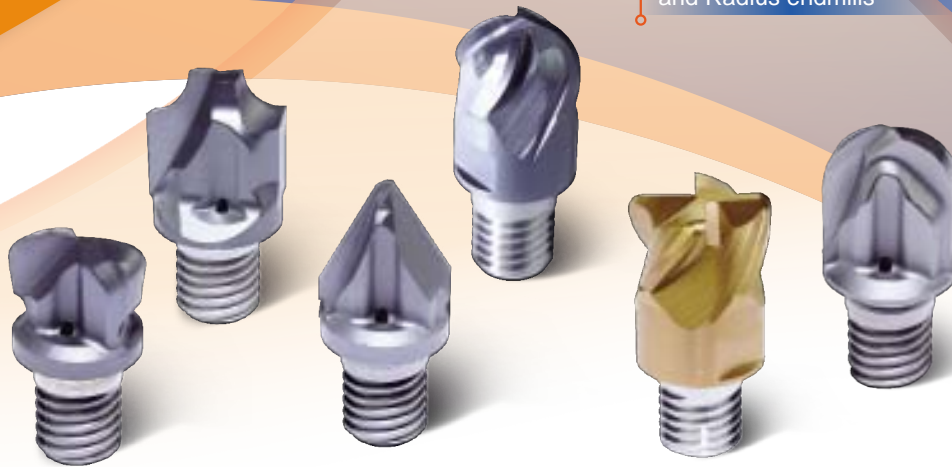
The screw thread has sufficient surface contact with the curved surface with high precision, which provides outstanding precision performance and stability.

High-precision positioning surface

Assurance of the perfect combination of the shank and cutting heads

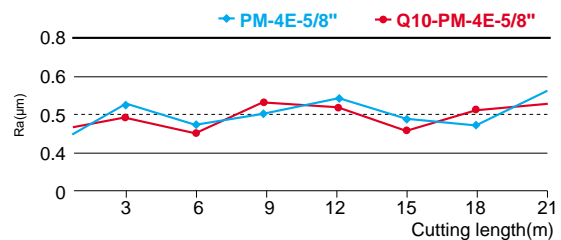
Tungsten carbide interchangeable cutting heads

Flattened endmills, Ball endmills and Radius endmills



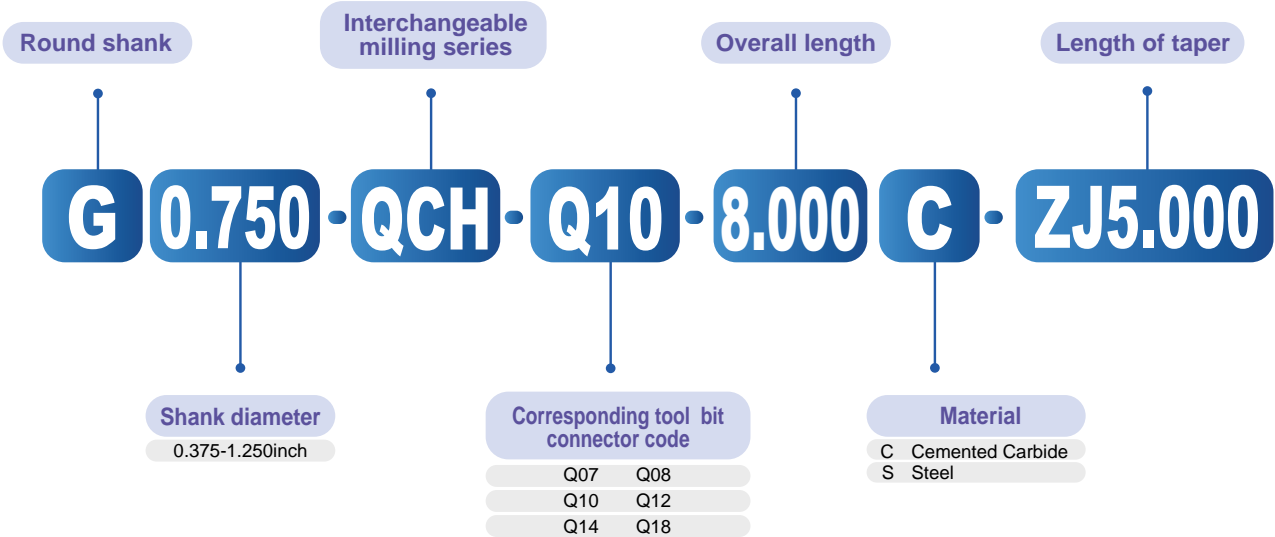
High-precision and extraordinary surface quality

Workpiece material: 718H(HRC35)
Machining methods: Side milling
Interchangeable head: Q10-PM-4E-5/8"
Toolholder: G0.625-QCH-Q10-4.375C
Cutting method: down milling and wet cut
Machine tool: Vertical Machining Center
Cutting parameters: $V_c=650\text{SFPM}$, $f_z=0.002\text{inch/z}$,
 $a_p=0.315\text{inch}$, $a_e=0.016\text{inch}$

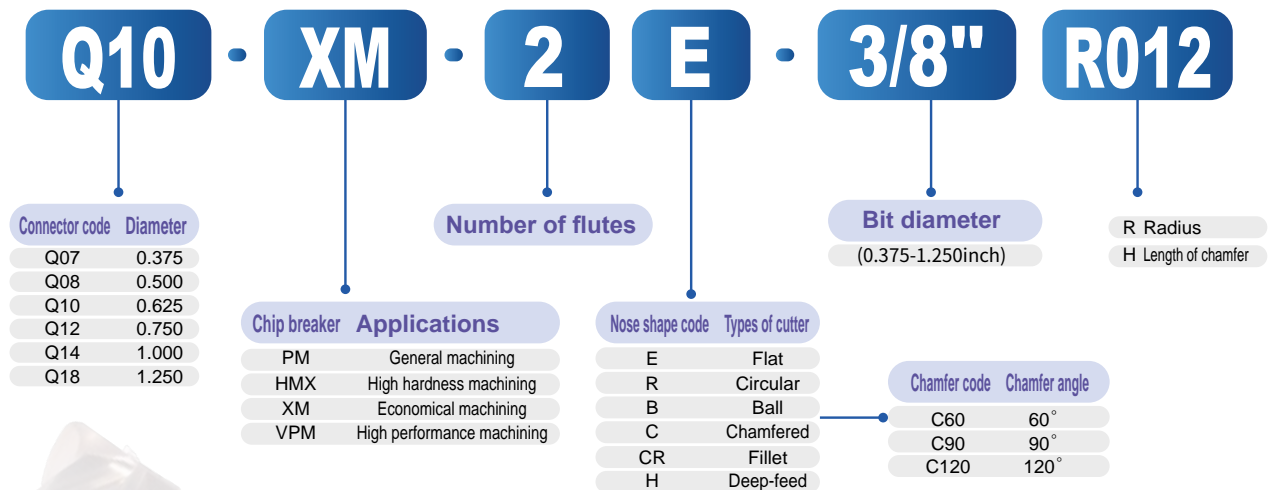


New series of interchangeable modular endmills with high precision and surface quality, which has almost the same performance as the solid carbide endmills.

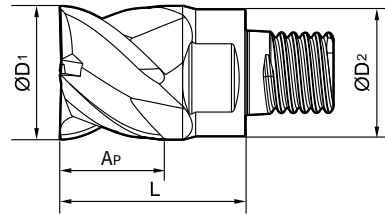
Interchangeable milling cutter



Interchangeable milling bits code



PM-4E series flat nose modular heads



D	$D_1 \leq 0.472$	0-0.0008
	$D_1 > 0.472$	0-0.0012

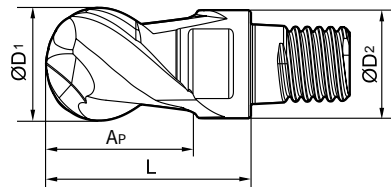


Specification	Basic dimension (inch)				Interface type (MD)	No. of teeth	Nose chamfer	Helical angle
	$\varnothing D_1$	$\varnothing D_2$	L	A_p				
Q07-PM-4E-3/8"	0.375	0.356	0.531	0.216	Q07	4	0.004' × 45°	38°
Q08-PM-4E-1/2"	0.500	0.479	0.669	0.275	Q08	4	0.004' × 45°	38°
Q10-PM-4E-5/8"	0.625	0.594	0.846	0.354	Q10	4	0.004' × 45°	38°
Q12-PM-4E-3/4"	0.750	0.713	1.003	0.433	Q12	4	0.006' × 45°	38°
Q14-PM-4E-1"	1.000	0.960	1.240	0.531	Q14	4	0.006' × 45°	38°
Q18-PM-4E-5/4"	1.250	1.172	1.417	0.669	Q18	4	0.006' × 45°	38°

Explain

1. Different ap, pitch and radius from the above table can be customized;
2. When A_p less or equal to the above dimensions will have higher cost performance.

PM series ball nose modular heads



D	$D_1 \leq 0.472$	0-0.0008
	$D_1 > 0.472$	0-0.0012

R	$D_1 \leq 0.787$	±0.0004
	$D_1 > 0.787$	±0.0008

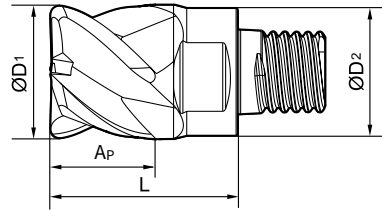


Specification	Basic dimension (inch)					Interface type (MD)	No. of teeth	Helical angle
	$\varnothing D_1$	$\varnothing D_2$	L	A_p	R			
Q07-PM-2B-3/8"	0.375	0.356	0.531	0.216	0.188	Q07	2	38°
Q07-PM-4B-3/8"	0.375	0.356	0.531	0.216	0.188		4	30°
Q08-PM-2B-1/2"	0.500	0.479	0.669	0.275	0.250	Q08	2	38°
Q08-PM-4B-1/2"	0.500	0.479	0.669	0.275	0.250		4	30°
Q10-PM-2B-5/8"	0.625	0.594	0.846	0.354	0.313	Q10	2	38°
Q10-PM-4B-5/8"	0.625	0.594	0.846	0.354	0.313		4	30°
Q12-PM-2B-3/4"	0.750	0.713	1.003	0.433	0.375	Q12	2	38°
Q12-PM-4B-3/4"	0.750	0.713	1.003	0.433	0.375		4	30°
Q14-PM-2B-1"	1.000	0.960	1.240	0.531	0.500	Q14	2	38°
Q14-PM-4B-1"	1.000	0.960	1.240	0.531	0.500		4	30°
Q18-PM-2B-5/4"	1.250	1.172	1.417	0.669	0.628	Q18	2	38°
Q18-PM-4B-5/4"	1.250	1.172	1.417	0.669	0.625		4	30°

Explain

1. Different ap, pitch and radius from the above table can be customized;
2. When A_p less or equal to the above dimensions will have higher cost performance.

PM series R nose modular heads



D	D ₁ ≤ 0.472	0-0.0008
	D ₁ > 0.472	0-0.0012



Specification	Besicdimension(inch)					Interface type (MD)	No.of teeth	Helical angle
	ØD ₁	ØD ₂	L	A _p	R			
Q07-PM-4R-3/8"R012	0.375	0.356	0.531	0.216	0.012	Q07	4	38°
Q07-PM-4R-3/8"R020	0.375	0.356	0.531	0.216	0.020	Q07	4	38°
Q07-PM-4R-3/8"R040	0.375	0.356	0.531	0.216	0.040	Q07	4	38°
Q07-PM-4R-3/8"R060	0.375	0.356	0.531	0.216	0.060	Q07	4	38°
Q08-PM-4R-1/2"R012	0.050	0.479	0.669	0.275	0.012	Q08	4	38°
Q08-PM-4R-1/2"R020	0.050	0.479	0.669	0.275	0.020	Q08	4	38°
Q08-PM-4R-1/2"R040	0.050	0.479	0.669	0.275	0.040	Q08	4	38°
Q08-PM-4R-1/2"R060	0.050	0.479	0.669	0.275	0.060	Q08	4	38°
Q08-PM-4R-1/2"R080	0.050	0.479	0.669	0.275	0.080	Q08	4	38°
Q10-PM-4R-5/8"R020	0.625	0.594	0.846	0.354	0.020	Q10	4	38°
Q10-PM-4R-5/8"R040	0.625	0.594	0.846	0.354	0.040	Q10	4	38°
Q10-PM-4R-5/8"R060	0.625	0.594	0.846	0.354	0.060	Q10	4	38°
Q10-PM-4R-5/8"R080	0.625	0.594	0.846	0.354	0.080	Q10	4	38°
Q10-PM-4R-5/8"R120	0.625	0.594	0.846	0.354	0.120	Q10	4	38°
Q12-PM-4R-3/4"R040	0.750	0.713	1.003	0.433	0.040	Q12	4	38°
Q12-PM-4R-3/4"R060	0.750	0.713	1.003	0.433	0.060	Q12	4	38°
Q12-PM-4R-3/4"R080	0.750	0.713	1.003	0.433	0.080	Q12	4	38°
Q12-PM-4R-3/4"R120	0.750	0.713	1.003	0.433	0.120	Q12	4	38°
Q14-PM-4R-1"R060	1.000	0.960	1.240	0.531	0.060	Q14	4	38°
Q14-PM-4R-1"R080	1.000	0.960	1.240	0.531	0.080	Q14	4	38°
Q14-PM-4R-1"R100	1.000	0.960	1.240	0.531	0.100	Q14	4	38°
Q14-PM-4R-1"R120	1.000	0.960	1.240	0.531	0.120	Q14	4	38°
Q18-PM-4R-5/4"R080	1.250	1.172	1.417	0.669	0.080	Q18	4	38°
Q18-PM-4R-5/4"R100	1.250	1.172	1.417	0.669	0.100	Q18	4	38°
Q18-PM-4R-5/4"R120	1.250	1.172	1.417	0.669	0.120	Q18	4	38°
Q18-PM-4R-5/4"R160	1.250	1.172	1.417	0.669	0.160	Q18	4	38°

Explain

1. Different ap, pitch and radius from the above table can be customized;
2. When Ap less or equal to the above dimensions will have higher cost performance.

Recommended cutting speed

Workpiece material	P	M	K	N	S	H
Cutting speed Vc						
Vc (SFPM)	220 ~ 900	200 ~ 500	250 ~ 900	860 ~ 2700	60 ~ 220	100 ~ 250

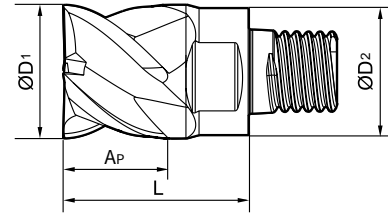
Cutting parameters: (inch)

Edge diameter	Machining methods	Slotting			Side 、 Face milling			Profiling		
		f _z (inch/z)	Cutting width a _e	Cutting depth a _p	f _z (inch/z)	Cutting width a _e	Cutting depth a _p	f _z (inch/z)	Cutting width a _e	Cutting depth a _p
1/2"		0.002~0.004	1D	0.1 ~ 0.5D	0.001~0.004	0.03~ 0.05D	0.1 ~ 0.5D	0.001~0.004	0.1 ~ 0.3R	0.05 ~ 0.15R
5/8"		0.002~0.005			0.002~0.005			0.002~0.005		
3/4"		0.002~0.006			0.002~0.007			0.002~0.007		
1"		0.002~0.006			0.002~0.007			0.002~0.007		
5/4"		0.002~0.007			0.002~0.009			0.002~0.009		

Adjustments of the cutting parameters for different xD shanks

Cutting parameters	Cutting speed (%)	Feed rate (%)	Cutting width (%)
Overhang xD			
2	100	100	100
3	100	100	100
4	80	90	70
5	60	80	40
7	30	60	20
9	20	50	10

HMx series flat nose modular heads



D	$D_1 \leq 0.472$	0-0.0008
	$D_1 > 0.472$	0-0.0012

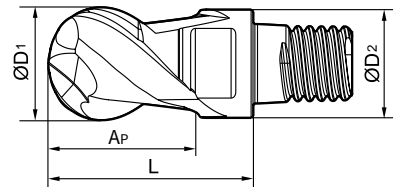
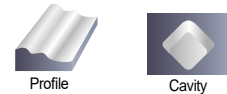


Specification	Basic dimension (inch)				Interface type (MD)	No. of teeth	Nose chamfer	Helical angle
	$\varnothing D_1$	$\varnothing D_2$	L	A_p				
Q07-HMX-4E-3/8"	0.375	0.356	0.531	0.216	Q07	4	0.004 × 45°	45°
Q08-HMX-4E-1/2"	0.500	0.479	0.669	0.275	Q08	4	0.004 × 45°	45°
Q10-HMX-4E-5/8"	0.625	0.594	0.846	0.354	Q10	4	0.004 × 45°	45°
Q12-HMX-4E-3/4"	0.750	0.713	1.003	0.433	Q12	4	0.006 × 45°	45°
Q14-HMX-4E-1"	1.000	0.960	1.240	0.531	Q14	4	0.006 × 45°	45°
Q18-HMX-4E-1-1/4"	1.250	1.172	1.417	0.669	Q18	4	0.006 × 45°	45°

Explain

1. Different ap, pitch and radius from the above table can be customized;
2. When A_p less or equal to the above dimensions will have higher cost performance.

HMx series ball nose modular heads



D	$D_1 \leq 0.472$	0-0.0008
	$D_1 > 0.472$	0-0.0012

R	$D_1 \leq 0.787$	±0.0004
	$D_1 > 0.787$	±0.0008



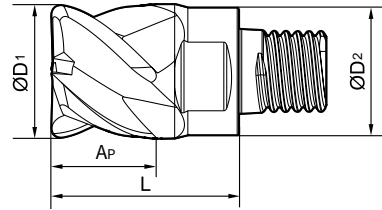
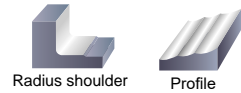
Specification	Basic dimension (inch)					Interface type (MD)	No. of teeth	Helical angle
	$\varnothing D_1$	$\varnothing D_2$	L	A_p	R			
Q07-HMX-2B-3/8"	0.375	0.356	0.531	0.216	0.188	Q07	2	35°
Q07-HMX-4B-3/8"	0.375	0.356	0.531	0.216	0.188		4	35°
Q08-HMX-2B-1/2"	0.500	0.479	0.669	0.275	0.250	Q08	2	35°
Q08-HMX-4B-1/2"	0.500	0.479	0.669	0.275	0.250		4	35°
Q10-HMX-2B-5/8"	0.625	0.594	0.846	0.354	0.313	Q10	2	35°
Q10-HMX-4B-5/8"	0.625	0.594	0.846	0.354	0.313		4	35°
Q12-HMX-2B-3/4"	0.750	0.713	1.003	0.433	0.375	Q12	2	35°
Q12-HMX-4B-3/4"	0.750	0.713	1.003	0.433	0.375		4	35°
Q14-HMX-2B-1"	1.000	0.960	1.240	0.531	0.500	Q14	2	35°
Q14-HMX-4B-1"	1.000	0.960	1.240	0.531	0.500		4	35°
Q18-HMX-2B-1-1/4"	1.250	1.172	1.417	0.669	0.628	Q18	2	35°
Q18-HMX-4B-1-1/4"	1.250	1.172	1.417	0.669	0.625		4	35°

Explain

1. Different ap, pitch and radius from the above table can be customized;
2. When A_p less or equal to the above dimensions will have higher cost performance.



HMX series R nose modular heads



D	$D_1 \leq 0.472$	0-0.0008
	$D_1 > 0.472$	0-0.0012



Specification	Besicdimension(inch)					Interface type (MD)	No.of teeth	Helical angle
	$\varnothing D_1$	$\varnothing D_2$	L	A_p	R			
Q07-HMX-4R-3/8"R012	0.375	0.356	0.531	0.216	0.012	Q07	4	35°
Q07-HMX-4R-3/8"R020	0.375	0.356	0.531	0.216	0.020	Q07	4	35°
Q07-HMX-4R-3/8"R040	0.375	0.356	0.531	0.216	0.040	Q07	4	35°
Q07-HMX-4R-3/8"R060	0.375	0.356	0.531	0.216	0.060	Q07	4	35°
Q08-HMX-4R-1/2"R012	0.050	0.479	0.669	0.275	0.012	Q08	4	35°
Q08-HMX-4R-1/2"R020	0.050	0.479	0.669	0.275	0.020	Q08	4	35°
Q08-HMX-4R-1/2"R040	0.050	0.479	0.669	0.275	0.040	Q08	4	35°
Q08-HMX-4R-1/2"R060	0.050	0.479	0.669	0.275	0.060	Q08	4	35°
Q08-HMX-4R-1/2"R080	0.050	0.479	0.669	0.275	0.080	Q08	4	35°
Q10-HMX-4R-5/8"R020	0.625	0.594	0.846	0.354	0.020	Q10	4	35°
Q10-HMX-4R-5/8"R040	0.625	0.594	0.846	0.354	0.040	Q10	4	35°
Q10-HMX-4R-5/8"R060	0.625	0.594	0.846	0.354	0.060	Q10	4	35°
Q10-HMX-4R-5/8"R080	0.625	0.594	0.846	0.354	0.080	Q10	4	35°
Q10-HMX-4R-5/8"R120	0.625	0.594	0.846	0.354	0.120	Q10	4	35°
Q12-HMX-4R-3/4"R040	0.750	0.713	1.003	0.433	0.040	Q12	4	35°
Q12-HMX-4R-3/4"R060	0.750	0.713	1.003	0.433	0.060	Q12	4	35°
Q12-HMX-4R-3/4"R080	0.750	0.713	1.003	0.433	0.080	Q12	4	35°
Q12-HMX-4R-3/4"R120	0.750	0.713	1.003	0.433	0.120	Q12	4	35°
Q14-HMX-4R-1"R060	1.000	0.960	1.240	0.531	0.060	Q14	4	35°
Q14-HMX-4R-1"R080	1.000	0.960	1.240	0.531	0.080	Q14	4	35°
Q14-HMX-4R-1"R100	1.000	0.960	1.240	0.531	0.100	Q14	4	35°
Q14-HMX-4R-1"R120	1.000	0.960	1.240	0.531	0.120	Q14	4	35°
Q18-HMX-4R-5/4"R080	1.250	1.172	1.417	0.669	0.080	Q18	4	35°
Q18-HMX-4R-5/4"R100	1.250	1.172	1.417	0.669	0.100	Q18	4	35°
Q18-HMX-4R-5/4"R120	1.250	1.172	1.417	0.669	0.120	Q18	4	35°
Q18-HMX-4R-5/4"R160	1.250	1.172	1.417	0.669	0.160	Q18	4	35°

Explain

1. Different ap, pitch and radius from the above table can be customized;
2. When Ap less or equal to the above dimensions will have higher cost performance.

Interchangeable modular endmills

Recommended cutting speed

Workpiece material Cutting speed Vc	H (40 - 50HRC)	H (50 - 60HRC)	H (60 - 68HRC)
Vc (SFPM)	850 ~ 1000	500 ~ 700	300 ~ 600

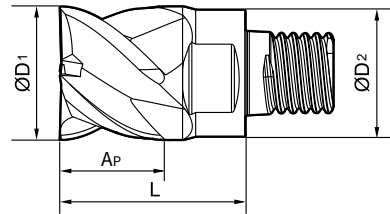
Cutting parameters: (inch)

Edge diameter	Machining methods	Side \ Face milling			Profiling		
		fz(inch/z)	Cutting width ae	Cutting depth ap	fz(inch/z)	Cutting width ae	Cutting depth ap
1/2"		0.001~0.003	0.02 ~ 0.05D	0.1 ~ 0.5D	0.002~0.006	0.3R	0.1R
5/8"		0.001~0.003			0.003~0.007	0.35R	0.1R
3/4"		0.002~0.003			0.004~0.009	0.4R	0.1R
1"		0.002~0.003			0.005~0.010	0.5R	0.12R
5/4"		0.002~0.004			0.006~0.012	0.6R	0.12R

Adjustments of the cutting parameters for different xD shanks

Cutting parameters Overhang xD	Cutting speed (%)	Feed rate (%)	Cutting width (%)
2	100	100	100
3	100	100	100
4	80	90	70
5	60	80	40
7	30	60	20
9	20	50	10

VPM series flat nose modular heads



D	D ₁ ≤ 0.472	0-0.0008
	D ₁ > 0.472	0-0.0012

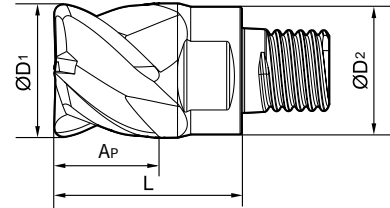


Specification	Basic dimension (inch)				Interface type (MD)	No. of teeth	Nose chamfer
	ØD ₁	ØD ₂	L	A _p			
Q07-VPM-4E-3/8"	0.375	0.356	0.531	0.216	Q07	4	0.002' × 45°
Q08-VPM-4E-1/2"	0.500	0.479	0.669	0.275	Q08	4	0.004' × 45°
Q10-VPM-4E-5/8"	0.625	0.594	0.846	0.354	Q10	4	0.004' × 45°
Q12-VPM-4E-3/4"	0.750	0.713	1.003	0.433	Q12	4	0.004' × 45°
Q14-VPM-4E-1"	1.000	0.960	1.240	0.531	Q14	4	0.004' × 45°
Q18-VPM-4E-5/4"	1.250	1.172	1.417	0.669	Q18	4	0.004' × 45°

Explain

1. Different ap, pitch and radius from the above table can be customized;
2. When Ap less or equal to the above dimensions will have higher cost performance.

VPM series R nose modular heads



D	D ₁ ≤ 0.472	0-0.0008
	D ₁ > 0.472	0-0.0012



Specification	Besicdimension(inch)					Interface type (MD)	No.of teeth
	ØD ₁	ØD ₂	L	A _p	R		
Q07-VPM-4R-3/8"R012	0.375	0.356	0.531	0.216	0.012	Q07	4
Q07-VPM-4R-3/8"R020	0.375	0.356	0.531	0.216	0.020	Q07	4
Q07-VPM-4R-3/8"R040	0.375	0.356	0.531	0.216	0.040	Q07	4
Q07-VPM-4R-3/8"R060	0.375	0.356	0.531	0.216	0.060	Q07	4
Q08-VPM-4R-1/2"R012	0.050	0.479	0.669	0.275	0.012	Q08	4
Q08-VPM-4R-1/2"R020	0.050	0.479	0.669	0.275	0.020	Q08	4
Q08-VPM-4R-1/2"R040	0.050	0.479	0.669	0.275	0.040	Q08	4
Q08-VPM-4R-1/2"R060	0.050	0.479	0.669	0.275	0.060	Q08	4
Q08-VPM-4R-1/2"R080	0.050	0.479	0.669	0.275	0.080	Q08	4
Q10-VPM-4R-5/8"R020	0.625	0.594	0.846	0.354	0.020	Q10	4
Q10-VPM-4R-5/8"R040	0.625	0.594	0.846	0.354	0.040	Q10	4
Q10-VPM-4R-5/8"R060	0.625	0.594	0.846	0.354	0.060	Q10	4
Q10-VPM-4R-5/8"R080	0.625	0.594	0.846	0.354	0.080	Q10	4
Q10-VPM-4R-5/8"R120	0.625	0.594	0.846	0.354	0.120	Q10	4
Q12-VPM-4R-3/4"R040	0.750	0.713	1.003	0.433	0.040	Q12	4
Q12-VPM-4R-3/4"R060	0.750	0.713	1.003	0.433	0.060	Q12	4
Q12-VPM-4R-3/4"R080	0.750	0.713	1.003	0.433	0.080	Q12	4
Q12-VPM-4R-3/4"R120	0.750	0.713	1.003	0.433	0.120	Q12	4
Q14-VPM-4R-1"R060	1.000	0.960	1.240	0.531	0.060	Q14	4
Q14-VPM-4R-1"R080	1.000	0.960	1.240	0.531	0.080	Q14	4
Q14-VPM-4R-1"R100	1.000	0.960	1.240	0.531	0.100	Q14	4
Q14-VPM-4R-1"R120	1.000	0.960	1.240	0.531	0.120	Q14	4
Q18-VPM-4R-5/4"R080	1.250	1.172	1.417	0.669	0.080	Q18	4
Q18-VPM-4R-5/4"R100	1.250	1.172	1.417	0.669	0.100	Q18	4
Q18-VPM-4R-5/4"R120	1.250	1.172	1.417	0.669	0.120	Q18	4
Q18-VPM-4R-5/4"R160	1.250	1.172	1.417	0.669	0.160	Q18	4

Explain

1. Different ap, pitch and radius from the above table can be customized;
2. When Ap less or equal to the above dimensions will have higher cost performance.

Recommended cutting speed

Workpiece material Cutting speed Vc	P	M	K	N	S	H
Vc (SFPM)	220 ~ 900	200 ~ 500	250 ~ 900	860 ~ 2700	60 ~ 220	100 ~ 250

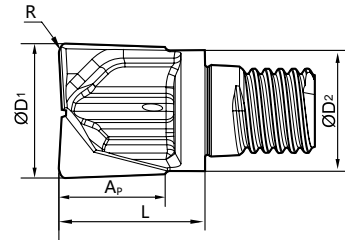
Cutting parameters: (inch)

Edge diameter	Machining methods	Slotting			Side 、 Face milling			Profiling		
		f _z (inch/z)	Cutting width a _e	Cutting depth a _p	f _z (inch/z)	Cutting width a _e	Cutting depth a _p	f _z (inch/z)	Cutting width a _e	Cutting depth a _p
1/2"		0.002~0.004			0.001~0.004			0.001~0.004		
5/8"		0.002~0.005			0.002~0.005			0.002~0.005		
3/4"		0.002~0.006	1D	0.1 ~ 0.5D	0.002~0.007	0.03~ 0.05D	0.1 ~ 0.5D	0.002~0.007	0.1 ~ 0.3R	0.05 ~ 0.15R
1"		0.002~0.006			0.002~0.007			0.002~0.007		
5/4"		0.002~0.007			0.002~0.009			0.002~0.009		

Adjustments of the cutting parameters for different xD shanks

Cutting parameters Overhang xD	Cutting speed (%)	Feed rate (%)	Cutting width (%)
2	100	100	100
3	100	100	100
4	80	90	70
5	60	80	40
7	30	60	20
9	20	50	10

XM series flat nose modular heads



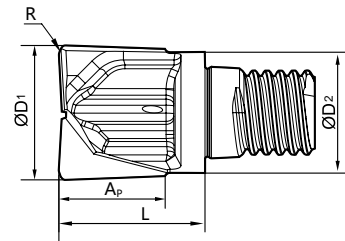
Coated
**NANO
TiAlN**

D	D ₁ ≤ 0.472	0-0.0008
	D ₁ > 0.472	0-0.0012



Specification	Basic dimension (inch)					Interface type (MD)	No. of teeth
	ØD ₁	ØD ₂	L	A _p	R		
Q07-XM-2E-3/8"R012	0.375	0.356	0.492	0.354	0.012	Q07	2
Q08-XM-2E-1/2"R016	0.500	0.479	0.602	0.452	0.016	Q08	2
Q10-XM-2E-5/8"R020	0.625	0.598	0.709	0.551	0.020	Q10	2

XM series R nose modular heads



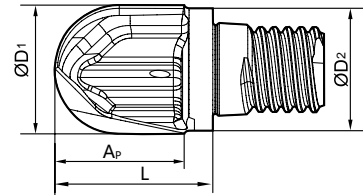
Coated
**NANO
ALCrXN**

D	D ₁ ≤ 0.472	0-0.0008
	D ₁ > 0.472	0-0.0012



Specification	Basic dimension (inch)					Interface type (MD)	No. of teeth
	ØD ₁	ØD ₂	L	A _p	R		
Q07-XM-2R-3/8"R040	0.375	0.356	0.433	0.236	0.040	Q07	2
Q07-XM-2R-3/8"R080	0.375	0.356	0.433	0.236	0.080	Q07	2
Q08-XM-2R-1/2"R040	0.500	0.479	0.433	0.236	0.040	Q08	2
Q08-XM-2R-1/2"R080	0.500	0.479	0.433	0.236	0.080	Q08	2
Q08-XM-2R-1/2"R120	0.500	0.479	0.433	0.236	0.120	Q08	2
Q10-XM-2R-5/8"R040	0.625	0.598	0.531	0.276	0.040	Q10	2
Q10-XM-2R-5/8"R080	0.625	0.598	0.531	0.276	0.080	Q10	2
Q10-XM-2R-5/8"R120	0.625	0.598	0.531	0.276	0.120	Q10	2
Q10-XM-2R-5/8"R160	0.625	0.598	0.531	0.276	0.160	Q10	2

XM series ball nose modular heads

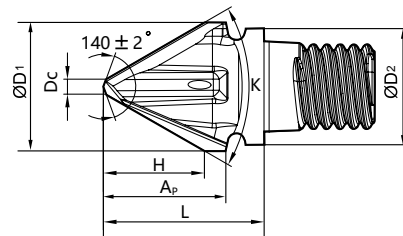
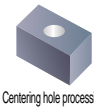


D	$D_1 \leq 0.472$	0-0.0008
	$D_1 > 0.472$	0-0.0012



Specification	Besicdimension (inch)					Interface type (MD)	No. of teeth
	ØD ₁	ØD ₂	L	A _p	R		
Q07-XM-2B-3/8"	0.375	0.356	0.492	0.402	0.188	Q07	2
Q08-XM-2B-1/2"	0.500	0.479	0.602	0.453	0.250	Q08	2
Q10-XM-2B-5/8"	0.625	0.598	0.709	0.551	0.313	Q10	2

XM series chamfer nose modular heads



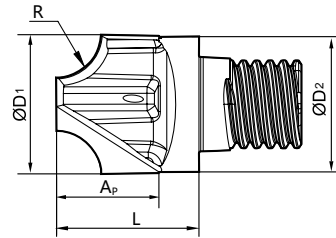
D	$D_1 \leq 0.472$	0-0.0008
	$D_1 > 0.472$	0-0.0012



Specification	Besicdimension (inch)							Interface type (MD)	No. of teeth
	ØD ₁	ØD ₂	D _c	L	A _p	H	K		
Q07-XM-2C60-3/8"H0284	0.375	0.356	0.059	0.472	0.366	0.284	60°	Q07	2
Q07-XM-2C90-3/8"H0169	0.375	0.356	0.059	0.472	0.366	0.169	90°	Q07	2
Q07-XM-2C120-3/8"H0102	0.375	0.356	0.059	0.472	0.366	0.102	120°	Q07	2
Q08-XM-2C60-1/2"H0393	0.500	0.479	0.059	0.630	0.433	0.393	60°	Q08	2
Q08-XM-2C90-1/2"H0231	0.500	0.479	0.059	0.630	0.433	0.231	90°	Q08	2
Q08-XM-2C120-1/2"H0138	0.500	0.479	0.059	0.630	0.433	0.138	120°	Q08	2
Q10-XM-2C60-5/8"H0474	0.625	0.598	0.098	0.709	0.551	0.474	60°	Q10	2
Q10-XM-2C90-5/8"H0294	0.625	0.598	0.059	0.709	0.551	0.294	90°	Q10	2
Q10-XM-2C120-5/8"H0174	0.625	0.598	0.059	0.709	0.551	0.174	120°	Q10	2



XM series filleted corner nose modular heads



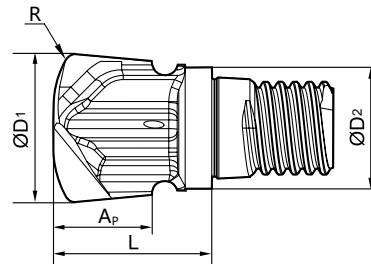
Coated
Nano TiAlN

D	D ₁ ≤ 0.472	0-0.0008
	D ₁ > 0.472	0-0.0012



Specification	Basic dimension (inch)					Interface type (MD)	No. of teeth
	ØD ₁	ØD ₂	R	L	A _p		
Q07-XM-2CR-3/8"R040	0.375	0.356	0.040	0.551	0.374	Q07	2
Q07-XM-2CR-3/8"R080	0.375	0.356	0.080	0.551	0.374	Q07	2
Q08-XM-2CR-1/2"R040	0.500	0.479	0.040	0.630	0.472	Q07	2
Q08-XM-2CR-1/2"R120	0.500	0.479	0.120	0.630	0.472	Q07	2
Q08-XM-2CR-1/2"R160	0.500	0.479	0.160	0.630	0.472	Q08	2
Q10-XM-2CR-5/8"R040	0.625	0.598	0.040	0.709	0.512	Q08	2
Q10-XM-2CR-5/8"R120	0.625	0.598	0.120	0.709	0.512	Q08	2
Q10-XM-2CR-5/8"R160	0.625	0.598	0.160	0.709	0.512	Q10	2
Q10-XM-2CR-5/8"R200	0.625	0.598	0.200	0.709	0.512	Q10	2

XM series roughing feed nose modular heads



Coated
Nano AlCrXN

D	D ₁ ≤ 0.472	0-0.0008
	D ₁ > 0.472	0-0.0012



Specification	Basic dimension (inch)					Interface type (MD)	No. of teeth
	ØD ₁	ØD ₂	L	A _p	R		
Q07-XM-2H-3/8"R060	0.375	0.356	0.433	0.236	0.060	Q07	2
Q08-XM-2H-1/2"R080	0.500	0.479	0.433	0.236	0.080	Q08	2
Q10-XM-2H-5/8"R100	0.625	0.598	0.531	0.275	0.100	Q10	2

XM-2E/XM-2R/XM-2B Recommended cutting speed

Edge diameter	Machining methods	Side 、 Face milling			Profiling		
		f_z (inch/z)	Cutting width a_e	Cutting depth a_p	f_z (inch/z)	Cutting width a_e	Cutting depth a_p
3/8"		0.001~0.004	0.05~0.3D	0.1~0.5D	0.005~0.006	0.3R	0.1R
1/2"		0.002~0.004			0.005~0.006	0.3R	0.1R
5/8"		0.002~0.005			0.005~0.006	0.35R	0.1R

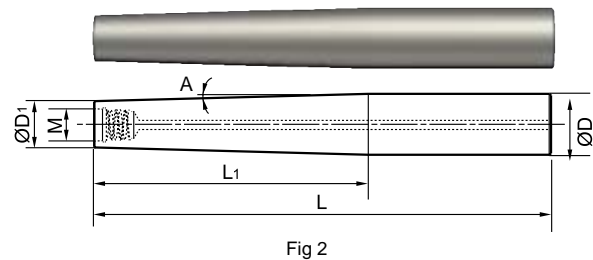
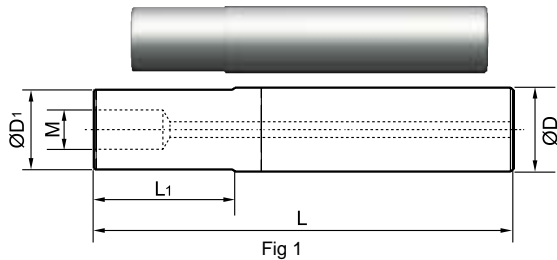
XM-2C/XM-2CR Recommended cutting speed

Edge diameter	Cutting parameters f_z (inch/z)	Cutting width a_e	Cutting depth a_p
3/8"	0.003~0.005	0.1D	0.1D
1/2"	0.003~0.12		
5/8"	0.004~0.005		

XM-2H Recommended cutting speed

Edge diameter	Cutting parameters f_z (inch/z)	Cutting width a_e	Cutting depth a_p
3/8"	0.010~0.012	0.5D	0.1D
1/2"	0.012~0.014		
5/8"	0.014~0.018		

Round shanks of interchangeable head Modular milling tools



h6	0.500 ≤ D4 ≤ 0.625	0.750 ≤ D4 ≤ 1.000	1.000 ≤ D4 ≤ 1.250
	0-0.0004	0-0.0005	0-0.0006


Connector (MD)	Specification	Basic dimension (inch)				Material	Fig
		L	L ₁	D	D ₁		
Q07	G0.375-QCH-Q07-2.250S	2.250	0.250			Steel	1
	G0.375-QCH-Q07-2.625S	2.625	0.625				
	G0.375-QCH-Q07-3.000S	3.000	1.000				
	G0.375-QCH-Q07-2.250C	2.250	0.250			Solid Carbide	
	G0.375-QCH-Q07-3.625C	2.625	0.625	0.375	0.356		
	G0.375-QCH-Q07-3.375C	3.375	1.375				
	G0.375-QCH-Q07-4.250C	4.250	2.250				
	G0.375-QCH-Q07-5.000C	5.000	3.000				
	G0.375-QCH-Q07-5.750C	5.750	3.750				
	G0.500-QCH-Q07-4.750C-ZJ2.750	4.750	2.750	0.500		2	
Q08	G0.500-QCH-Q08-2.375S	2.375	0.375			Steel	1
	G0.500-QCH-Q08-2.750S	2.750	0.750				
	G0.500-QCH-Q08-3.250S	3.250	1.250				
	G0.500-QCH-Q08-2.375C	2.375	0.375			Solid Carbide	
	G0.500-QCH-Q08-2.750C	2.750	0.750	0.500	0.479		
	G0.500-QCH-Q08-3.750C	3.750	1.750				
	G0.500-QCH-Q08-4.750C	4.750	2.750				
	G0.500-QCH-Q08-5.625C	5.625	3.625				
	G0.500-QCH-Q08-6.625C	6.625	4.625				
	G0.625-QCH-Q08-2.500S	2.500	0.500			Steel	
G0.625-QCH-Q08-5.500C-ZJ3.500	5.500	3.500	0.625		2		
Q10	G0.625-QCH-Q10-2.500S	2.500	0.500			Steel	1
	G0.625-QCH-Q10-3.125S	3.125	1.125				
	G0.625-QCH-Q10-3.750S	3.750	1.750				
	G0.625-QCH-Q10-2.500C	2.500	0.500			Solid Carbide	
	G0.625-QCH-Q10-3.125C	3.125	1.125	0.625	0.594		
	G0.625-QCH-Q10-4.375C	4.375	2.375				
	G0.625-QCH-Q10-5.625C	5.625	3.625				
	G0.625-QCH-Q10-5.625C	6.875	4.875				
	G0.625-QCH-Q10-5.625C	8.125	6.125				
	G0.750-QCH-Q10-2.500S	2.500	0.500			Steel	
G0.750-QCH-Q10-8.000C-ZJ5.000	8.000	5.000	0.750		2		

Connector (MD)	Specification	Basic dimension (inch)				Material	Fig
		L	L ₁	D	D ₁		
Q12	G0.750-QCH-Q12-3.125S	3.125	0.625			Steel	1
	G0.750-QCH-Q12-3.875S	3.875	1.375				
	G0.750-QCH-Q12-4.750S	4.750	2.250				
	G0.750-QCH-Q12-3.125C	3.125	0.625			Solid Carbide	
	G0.750-QCH-Q12-3.875C	3.875	1.375	0.750	0.713		
	G0.750-QCH-Q12-3.500C	3.500	3.000				
	G0.750-QCH-Q12-6.125C	6.125	4.625				
	G0.750-QCH-Q12-8.625C	8.625	6.125				
	G0.750-QCH-Q12-10.250C	10.250	7.750				
	G1.000-QCH-Q12-3.500S	3.500	0.500			Steel	
G1.000-QCH-Q12-10.500C-ZJ7.500	10.500	7.500	1.000		2		
Q14	G1.000-QCH-Q14-3.750S	3.750	0.750			Steel	1
	G1.000-QCH-Q14-4.750S	4.750	1.750				
	G1.000-QCH-Q14-5.750S	5.750	2.750				
	G1.000-QCH-Q14-3.750C	3.750	0.750			Solid Carbide	
	G1.000-QCH-Q14-4.750C	4.750	1.750	1.000	0.960		
	G1.000-QCH-Q14-6.750C	6.750	3.750				
	G1.000-QCH-Q14-8.750C	8.750	5.750				
	G1.000-QCH-Q14-10.750C	10.750	7.750				
	G1.000-QCH-Q14-12.625C	12.625	9.625				
	G1.250-QCH-Q14-3.500S	3.500	0.500			Steel	
G1.250-QCH-Q14-10.500C-ZJ7.500	10.500	7.500	1.250		2		
Q18	G1.250-QCH-Q18-4.125S	4.125	1.125			Steel	1
	G1.250-QCH-Q18-5.375S	5.375	2.375				
	G1.250-QCH-Q18-6.625S	6.625	3.625				
	G1.250-QCH-Q18-4.125C	4.125	1.125			Solid Carbide	
	G1.250-QCH-Q18-5.375C	5.375	2.375	1.250	1.172		
	G1.250-QCH-Q18-8.000C	8.000	5.000				
	G1.250-QCH-Q18-10.500C	10.500	7.500				
	G1.250-QCH-Q18-13.000C	13.000	10.000				
	G1.250-QCH-Q18-15.500C	15.500	12.500				

Tolerance of shank (inch)

Diameter (inch)	0.375	0.500/0.625	0.750	1.000	1.125
radial runout	0.0004	0.0006	0.0006	0.0008	0.0008
total runout	0.0004	0.0004	0.0004	0.0004	0.0004

Wrench

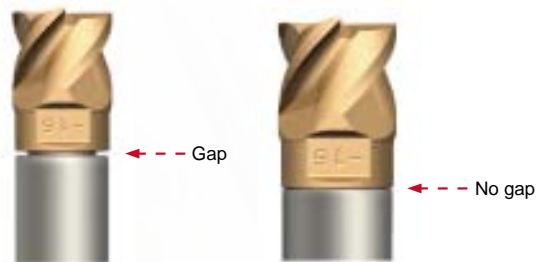
	Interface type	Applicative series	Wrench specifications	Installation torque
	Q08	PM/HMX	QCH-10X13	16N.M
	Q10			20N.M
	Q12			30N.M
	Q14	PM/HMX	QCH-16X20	40N.M
	Q18	PM/HMX	QCH-26	50N.M
	Q07	XM	QCH-5X6.5	10N.M
	Q08			16N.M
	Q07	PM/HMX	QCH-7.5X8	10N.M
	Q10	XM		20N.M

 The wrench need to be purchased separately

Cutting head installation instructions

- 1. Use the clean cotton to remove the oil and dust on the interface cone, end face, and threads.
- 2. Direct hand contact with the cutting edges during clamping may cause injury. Please handle with protective equipment.
- 3. After installing the cutting head, if there is a gap between the cutting head and the end face of the shank, please use the wrench to tighten it until it fits completely.
- 4. The strict requirement is a torque should be used to install the cutting head.

Remove the oil and dust





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