



Definition of flute shape for programming

MQT-...A03/A05 Holder

Fig.1 XPHW/T Type

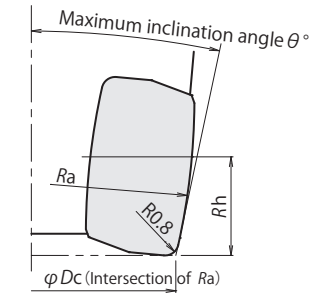
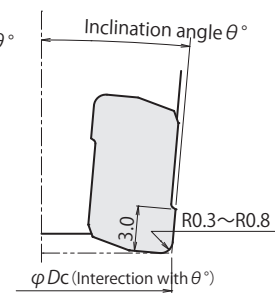


Fig.2 YPHW Type



Accuracy of tool dia. with master inserts $-0.02 \sim -0.05$

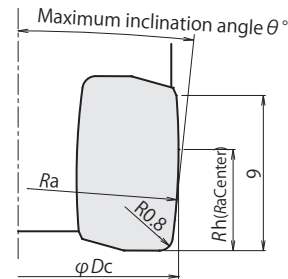
Fig	Cat. No.	Dc (mm)	Ra (mm)	Rh (mm)	Inclination angle
1	MQT-2016A03-M8	$\phi 15.5$	R64.19	8.76	$1^\circ \sim 6^\circ$
1	MQT-2016A05-M8	$\phi 15.5$	R64.34	10.98	$3^\circ \sim 8^\circ$
1	MQT-2020A03-M10	$\phi 19.5$	R63.34	8.67	$1^\circ \sim 6^\circ$
1	MQT-2020A05-M10	$\phi 19.5$	R63.46	10.85	$3^\circ \sim 8^\circ$

Tool dia. with YPHW Type inserts (Inclination angle: $3^\circ, 5^\circ$)

Fig	Cat. No.	Dc (mm)	Inclination angle
2	MQT-2016A03-M8	$\phi 16$	3°
2	MQT-2016A05-M8	$\phi 16$	5°
2	MQT-2020A03-M10	$\phi 20$	3°
2	MQT-2020A05-M10	$\phi 20$	5°

MQT-...A00 Holder

Fig.3 XPHW/T Type



Accuracy of tool dia. with master inserts $-0.02 \sim -0.05$

Fig	Cat. No.	Dc (mm)	Ra (mm)	Rh (mm)	Inclination angle
3	MQT-2016A00-M8	$\phi 16$	R63.27	5.48	$0^\circ \sim 3^\circ$
3	MQT-4020A00-M10	$\phi 20$	R64.29	5.48	$0^\circ \sim 3^\circ$
3	MQT-5025A00-M12	$\phi 25$	R63.26	5.48	$0^\circ \sim 3^\circ$
3	MQT-6035A00-M16	$\phi 35$	R62.16	5.48	$0^\circ \sim 3^\circ$

Tool dia. with YPHW Type inserts (Inclination angle: 0°)

Fig	Cat. No.	Dc (mm)	Inclination angle
-	MQT-2016A00-M8	$\phi 16$	0°
-	MQT-4020A00-M10	$\phi 20$	0°
-	MQT-5025A00-M12	$\phi 25$	0°
-	MQT-6035A00-M16	$\phi 35$	0°

1) Shape of cutting edge is different depends on combination of inserts and holder. Please refer to the table above.

2) Regarding detail of the tool shape, we will provide DXF file so please contact our closest distributor.



Recommended cutting conditions for MQT

MQT Type + MSN Carbide Shank holder

Basic parameter of cutting conditions <Tilted wall finishing>: XPHT/W Type

Work material	L/D	~3.5	3.5~5	5~6.5	6.5~
		Vc	1	$\times 0.75$	$\times 0.6$
Carbon steel S50C, S55C (C50, C55) Below 250HB	a_p (mm)	≤ 1.5	≤ 1.2	≤ 1.2	≤ 1.0
	a_e (mm)	< 0.12	< 0.10	< 0.10	< 0.10
	Vc (m/min)	600	450	360	300
Die steel SKD61, SKD11 (1.2344, 1.2379) Below 255HRC	a_p (mm)	≤ 1.5	≤ 1.2	≤ 1.2	≤ 1.0
	a_e (mm)	< 0.12	< 0.10	< 0.10	< 0.10
	Vc (m/min)	500	375	300	250
Mold steel HPM7, PXS, P20 (1.2311, P20) 30~36HRC	a_p (mm)	≤ 1.2	≤ 1.0	≤ 1.0	≤ 0.8
	a_e (mm)	< 0.12	< 0.10	< 0.10	< 0.10
	Vc (m/min)	450	337	270	225
Mold steel NAK80, HPM1, P21 (1.2311, P21) 38~43HRC	a_p (mm)	≤ 1.0	≤ 0.8	≤ 0.8	≤ 0.6
	a_e (mm)	< 0.12	< 0.10	< 0.10	< 0.10
	Vc (m/min)	400	300	240	200
Hardened die steel SKD61, DAC, DHA (1.2344, 1.2379) 42~52HRC	a_p (mm)	≤ 1.0	≤ 0.8	≤ 0.8	≤ 0.6
	a_e (mm)	< 0.10	< 0.08	< 0.08	< 0.08
	Vc (m/min)	250	187	150	125
Grey & Nodular cast iron FC, FCD (GG, GGG) Below 300HB	a_p (mm)	≤ 1.5	≤ 1.2	≤ 1.2	≤ 1.0
	a_e (mm)	< 0.12	< 0.10	< 0.10	< 0.10
	Vc (m/min)	600	450	360	300
Stainless steel SUS304 Below 250HB	a_p (mm)	≤ 1.2	≤ 1.0	≤ 1.0	≤ 0.8
	a_e (mm)	< 0.12	< 0.10	< 0.10	< 0.10
	Vc (m/min)	500	375	300	250

Theoretical cusp height: XPHT/W Type

Cusp height (μm)	a_p (mm)	Cusp height (μm)	a_p (mm)
0.50	0.5	2.40	1.1
0.71	0.6	2.86	1.2
0.97	0.7	3.35	1.3
1.27	0.8	3.89	1.4
1.61	0.9	4.46	1.5
1.98	1.0		

Note

- 1) The parameter to be adjusted according to the machine rigidity or work rigidity.
- 2) In case of chatter occurring, recommend to reduce the depth of cut a_p and Pick feed a_e .
- 3) Use air blow.
- 4) In case carbon steel or die steel machining by CX75 inserts, reduce 80% above

PRODUCT NEWS

No. 489

NEW PRODUCT



BARREL TOOL

High precision QM MAX

MQT Type

Modular head type
 $\phi 16 \sim \phi 35$



DIJET GmbH

BARREL TOOL

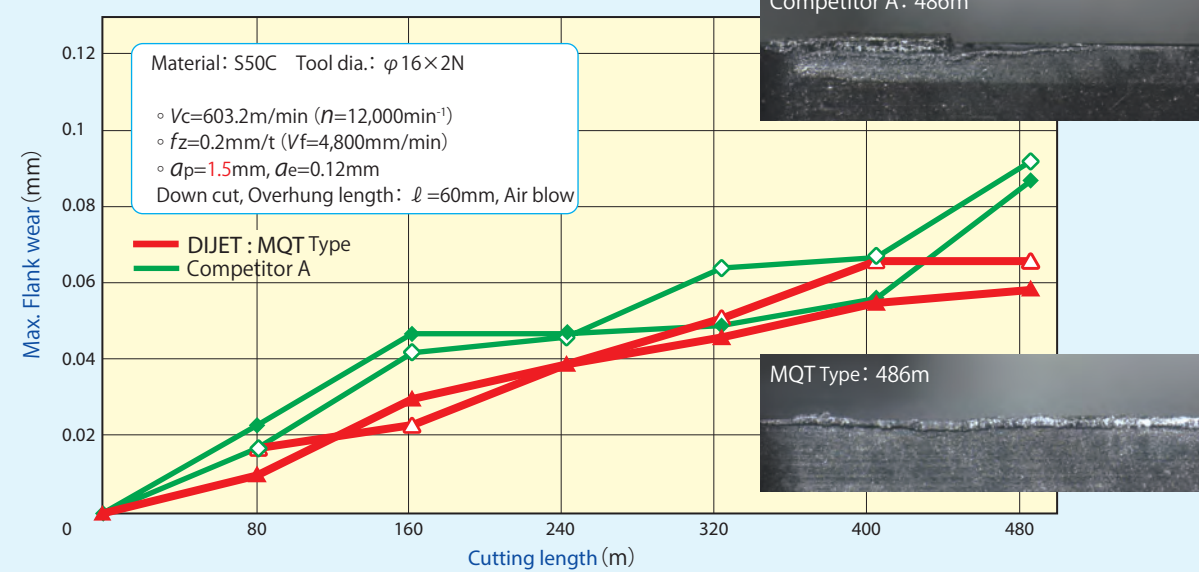
High precision QM MAX
Tuff Modular Heads System

- High precision QM Max MQT type improved balance of holder than conventional holders. Possible to adapt multi-machining machines such as 5 axis machines. Lined up high precision H grade inserts. High efficient machining is possible by adapting multi-blades specification.
 - Accuracy of tool dia. with master inserts $-0.02 \sim -0.05$ (XPHW/T tType inserts)
- Lineup holders with cutting edge angle $3^\circ, 5^\circ$. Complex shape machining with inclination is possible by 3 axis machine.
- Adopted 2 grades: PVD coated grade "JC8015" for general & mold steel, stainless steel and cast iron. Cermet grade "CX75" for improving surface roughness.



Cutting performance

1 Tool life comparison (5° tilted wall)



2 Surface roughness (After 486m machining) (Feed direction)

	XPHT100308ZER-R (JC8015)	Competitor A (PVD)
Photo of work surface		
Surface roughness (2N) Feed direction	 Ra=0.19 μm Rz=1.18 μm	 Ra=0.44 μm Rz=2.02 μm
Machining time	101.2min	101.2min

QM Max MQT type achieved good surface roughness and low cusp height even if $a_p = 1.5 \text{ mm}$. Flank wear also small.

Material: S50C Cutting conditions:
 Tool dia.: $\phi 16 \times 2N$ $V_c = 603.2 \text{ m/min}$ ($n = 12,000 \text{ min}^{-1}$)
 $f = 0.4 \text{ mm/rev}$ ($V_f = 4,800 \text{ mm/min}$)
 $a_p = 1.5 \text{ mm} \times 27 \text{ pass}$ (Effective), $a_e = 0.12 \text{ mm}$
 Down cut, Overhung length: $l = 60 \text{ mm}$

3 Cusp height (After 486m machining) (Vertical direction of feed)

	XPHT100308ZER-R (JC8015)	Competitor A (PVD)
Surface roughness (2N) Vertical direction of feed	 Cusp height H=4 μm	 Cusp height H=26 μm

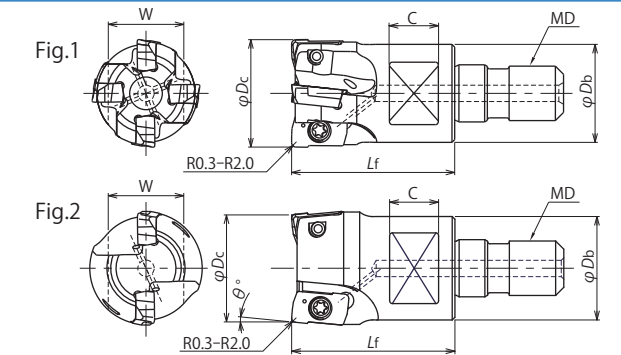
Material: S50C Cutting conditions:
 Tool dia.: $\phi 16 \times 2N$ $V_c = 603.2 \text{ m/min}$ ($n = 12,000 \text{ min}^{-1}$)
 $f = 0.4 \text{ mm/rev}$ ($V_f = 4,800 \text{ mm/min}$)
 $a_p = 1.5 \text{ mm}$, $a_e = 0.12 \text{ mm}$
 Down cut, Overhung length: $l = 60 \text{ mm}$



MQT TYPE

Modular head MQT type

Through coolant hole



Inclined angle θ°	Cat. No.	Stock	No. of inserts	Dimensions (mm)						Applicable inserts	Parts		Fig
				ϕD_c	Lf	ϕD_b	MD	C	W		Clamp screw	Wrench	
0°	MQT-2016A00-M8	●	2	16	23	14	M8	8	12	* YPHW1003* ZPMT1003*	TSW-2556H	A-08	1
	MQT-4020A00-M10	●	4	20	30	18	M10	9	14		TSW-2556H		
	MQT-5025A00-M12	●	5	25	35	22.5	M12	10	17		DSW-2563H		
3°	MQT-6035A00-M16	●	6	35	43	29	M16	12	22	* ZER-PL	DSW-2563H	A-08	2
	MQT-2016A03-M8	●	2	16	23	14	M8	8	12		TSW-2556H		
5°	MQT-2020A03-M10	●	2	20	30	18	M10	9	14	* 100308ZER-R * ZER-PL	TSW-2556H	A-08	2
	MQT-2016A05-M8	●	2	16	23	14	M8	8	12		TSW-2556H		
5°	MQT-2020A05-M10	●	2	20	30	18	M10	9	14	* 100308ZER-R * ZER-PL	TSW-2556H	A-08	2
	MQT-2016A05-M8	●	2	16	23	14	M8	8	12		TSW-2556H		

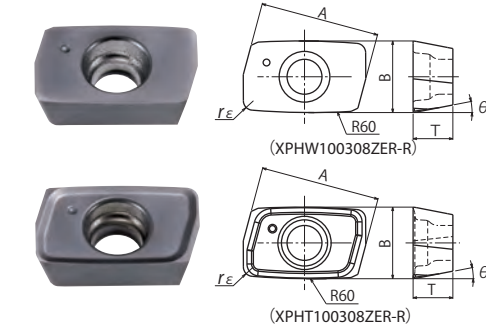
Note) 1. All cutters are supplied without inserts. 2. All cutters are supplied without wrench & MOLLY.

Clamp screw	Recommended torque (N·m)
TSW-2556H	1.1
DSW-2563H	1.1

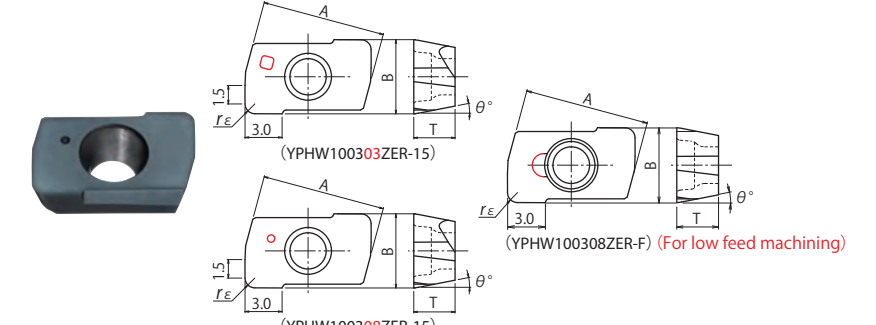
MQT TYPE

Inserts

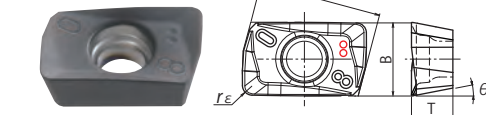
For tilted wall finishing (XPHW100308ZER-R) (XPHT100308ZER-R)



For finishing side face (YPHW1003* *ZER-15) (YPHW100308ZER-F) (YPHW100308ZTR-F1)



Shoulder milling insert (From semi-finishing to finishing) (ZPMT1003* *ZER-PL)



Type	Cat. No.	Tolerance	PVD coated			Cermet	Dimensions (mm)				
			JC8015	JC8118	DH102		CX75	A	T	B	r ϵ
NEW For tilted wall finishing	XPHW100308ZER-R	H	●			○	10.06	3.35	6	0.8	11°
	XPHT100308ZER-R	H	●			○	10.06	3.35	6	0.8	11°
	YPHW100303ZER-15	H	●		●	●	10.06	3.35	6	0.3	11°
For finishing side face	YPHW100308ZER-15	H			●	●	10.06	3.35	6	0.8	11°
	YPHW100308ZER-F	H	●				10.06	3.35	6	0.8	11°
NEW Shoulder milling insert (From semi-finishing to finishing)	ZPMT100304ZER-PL	M		○	○	○	10.08	3.4	6	0.4	11°
	ZPMT100308ZER-PL	M	○	○	●	●	10.08	3.4	6	0.8	11°
	ZPMT100320ZER-PL	M		○	○	○	10.08	3.4	6	2.0	11°

10 inserts per case.

● : Standard stock items ○ : Soon to be stocked ○ : Soon to be deleted