

Outstanding performance in tapping high hardness steels over 45HRC.





Characteristics

•Suitable for tapping SKD die steels and pre-hardened steels which hardness ranges in 50-60HRC(Maximum hardness 63HRC).

•As UH-CT has 5 pitch chamfer, the ideal threaded length is to be less than 1.5D.

[Tapping data]					
Tap size	M8×1.25				
Material	SKD die steel, heat-treated (60HRC)				
Bored hole size	6.9 mm				
Tapping length	16mm, through hole				
Machine	CNC rigid tapping machine				
Tapping speed	1.5m/min (60rpm)				
Lubricant	non-soluble cutting oil (with extreme pressure additive)				

Right graph shows Comparison data in tapping heat-treated SKD die steel by the standard carbide tap (CT-FC) and by the carbide tap for high hardness steel (UH-CT) Chipping occurred in 8th tapping with CT-FC.60 hole tappings were obtained with UH-CT.Note: It is necessary to change the drilles more earlier because the damage on the edge of drill is large when drilling high hardess steels

**Bored hole in this test was prepared by using a carbide drill under such condition as could cause no work-hardening (cutting speed 6m/min, feed 0.04mm/rev.).

Table of dimensions and sizes



TYPE:1



TYPE:2





unit: mm

										diffe film
size	class	L	l	Ds	к	l k	Number of flutes	recommended bored hole size	type	product code
M 3×0.5		56	11	3.5	2.7	6	4	2.55	1	TD3.0GBBWA5
M 4×0.7		63	13	4.5	3.4	6	4	3.4	1	TD4.0IBBWA5
M 5×0.8		70	16	6	4.9	8	4	4.3	1	TD5.0KBBWA5
M 6×1		80	19	6	4.9	8	5	5.1	1	TD6.0MBBWA5
M 8×1.25		90	22	8	6.2	9	5	6.9	2	TD8.0NBBWA5
M10×1.5	ISO2X	100	24	10	8	11	5	8.6	2	TD0100BBWA5
M12×1.75		110	29	9	7	10	5	10.4	3	TG012PBBWA5
$M14 \times 2$		110	30	11	9	12	6	12.2	3	TG014QBBWA5
M16×2		110	32	12	9	12	6	14.2	3	TG016QBBWA5
M18×2.5		125	34	14	11	14	6	15.7	3	TG018RBBWA5
$M20 \times 2.5$		140	34	16	12	15	6	17.7	3	TG020RBBWA5



Left graph shows the relation between the number of tapped holes and the load meter data of the machine on the tapping test up to 60 holes with UH-CT tap.Percentage of load meter figure tends to increase after tapping 50 holes.This is due to the damage on the tool's cutting edge operating at high speed.Then,tap breakage will happen if the load meter figure increases more and more.Thus for safety purposes, it is better to limit the number of tapping holes (tool life) when tapping high hardness steel materials.



Features

•Ultra fine grain carbide alloys with superior wear resistance and shock resistance are adopted. By using the tap blanks in which both the run-out tolerance and the shank concentricity are improved, the high accuracy in screw threads can be obtained. Recommended bored hole size is the maximum of 6H class's minor diameter.

Comparison graph



Table of dimensions and sizes

										unit: mm
size	class	L	l	Ds	к	lк	Number of flutes	recommended bored hole size	type	product code
M 3×0.5		56	11	3.5	2.7	6	4	2.55	1	TD3.0GBCWA5
M 4×0.7		63	13	4.5	3.4	6	4	3.4	1	TD4.0IBCWA5
M 5×0.8		70	16	6	4.9	8	4	4.3	1	TD5.0KBCWA5
M 6×1	ISO2X	80	19	6	4.9	8	5	5.1	1	TD6.0MBCWA5
M 8×1.25		90	22	8	6.2	9	5	6.9	2	TD8.0NBCWA5
M10×1.5		100	24	10	8	11	5	8.6	2	TD0100BCWA5
M12×1.75		110	29	9	7	10	5	10.4	3	TG012PBCWA5

Other data

torque line in the different bored hole size



EH-CT size:M8×1.25 material:DAC (equivalent to SKD61) 50HRC cutting speed:6m/min feed:rigid Lubricant:non-soluble oil

Enlarged bored hole size by 0.1mm can reduce the tapping resistance torque by 10%. In tapping the material of high hardness, it is recommendable to make the bored hole size as large as possible.



Applic	ation	<u>></u>				
Workpie	apping Speed	1m/	'min	3m/min	5m/min 6m/m	nin 15m/min
High	60HRC ↔ 55HRC		ИН-СТ			
materials	55HRC ŵ 45HRC			ЕН-СТ		
Heat treated materials Tool steels Alloy steels	45HRC 25HRC SKS∙SKD SCM∙SCr	*please mu rotation sy tapping att UH-CT/EH	ust use feedrate/ ynchronized achments for -CT.	EH-HT EH-PO		

Recommended bored hole size (for reference) * -standard size unit: mm recommended minor diam of JIS 6H class internal screw thread size Min toloro hored hole size May tolerance

	50100 11010 0120		
M2X0.4	1.65	1.679	1.567
M2.5X0.45	2.1	2.138	2.013
M2.6X0.45	2.2	2.238	2.113
M3X0.5	2.55	2.599	2.459
M4X0.7	3.4	3.422	3.242
M5X0.8	4.3	4.334	4.134
M6X1	5.1	5.153	4.917
M8X1.25	6.9	6.912	6.647
M10X1.5	8.6	8.676	8.376
M10X1.25	8.9	8.912	8.647

★●=standard size unit: mi								
	recommended	minor diam of JIS 6H class internal screw thread						
SIZE	bored hole size	Max tolerance	Min tolerance					
M12X1.75	10.4	10.441	10.106					
M12X1.5	10.6	10.676	10.376					
M12X1.25	10.9	10.912	10.647					
M14X2	12.2	12.210	11.835					
M14X1.5	12.6	12.676	12.376					
M16X2	14.2	14.210	13.835					
M16X1.5	14.6	14.676	14.376					
M18X2.5	15.7	15.744	15.294					
M18X1.5	16.6	16.676	16.376					
M20X2.5	17.7	17.744	17.294					
M20X1.5	18.6	18.676	18.376					

For control of bored hole size, please use check-pins for cutting taps.

Check pin for Cutting Taper HSS

CPC-T



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Warning

Head office

- Tool may shatter if broken. The wearing of eye protection glass is strongly advised in the vicinity of their use.
 The correct using conditions and handling of our tools are essential in securing maximum useful tool life and hazard free operation.
- The wearing of gloves is forbidden as the gloves may entangle with
- turning tools.
- •Tools may hurt the users' feet when falling off. The safety shoes should be put on at all times.

♦While fitting the tools to machine spindles and/or sleeves, care should be taken to avoid subjecting them to shock or impact.

- \blacklozenge Check that the workpieces are properly seated and securely held in the chuck before switching on machine power.
- ◆Do not use a tool whose cutting edges are worn-out or chipped severely. ◆Tools may generate extreme heat during use. Fire protection is strongly
- recommended.

Changes may occur without advance notice.





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