

BRAZED- CARBIDE END MILLS- Convex

Technical drawing of a double-flute drill bit. The drawing shows the bit from a perspective view. Dimensions are indicated as follows: $L1$ is the length of the cutting edge; Nd is the distance from the cutting edge to the start of the double-flute section; d is the diameter of the cutting edge; R is the radius of the cutting edge; NL is the length of the double-flute section; L is the total length of the bit; and $D(h6)$ is the diameter of the shank.



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SPECIAL

Carbide Special End Mills

鎢鋼成型銑刀系列

→ 技術資料
Technical Data

CARBIDE END MILLS- Dovetail- Flat Flute

A 3D perspective view of a tapered bolt. The bolt has a conical head with a taper angle δ° and a diameter d . The length of the conical part is $L1$, and the length of the cylindrical part is NL . The total length of the bolt is L . The diameter of the cylindrical part is $D(h6)$. A force Nd is applied to the head. A watermark 'TUM' is visible on the cylindrical part.



角度(單邊)	公差 Tolerance
δ°	$\pm 1^\circ$



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※ 螺旋刃依需求生產。
Helix Flute is on request.

[illegible]

➡ 切削條件表 P.557
Cutting Condition

→ 技術資料 P.622
Technical Data

Table 45

鎢鋼T型銑刀 / 外圓槽銑刀 / 鳩尾槽銑刀 / 等角鳩尾槽銑刀 切削條件表

SOLID CARBIDE END MILLS- CUTTING CONDITION TABLE

加工材質 Material	碳素鋼 Carbon Steels		不銹鋼 Stainless Steels		鋁合金 Aluminum Alloys	
工件料號 Material Code	S35C, S45C, S50C		SUS304		Al 5052 / 6061 / 7075	
硬度 Hardness	HRC<20		—		—	
切削速度 Vc	25m/min		15m/min		60m/min	
外徑 Diameter	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)
4mm	1,990	80	1,190	50	4,780	80
6mm	1,330	80	800	50	3,180	80
8mm	980	90	600	60	2,400	90
10mm	790	70	480	50	1,900	90
12mm	670	70	400	50	1,600	90
14mm	580	70	330	50	1,360	90
16mm	500	70	300	50	1,200	100
18mm	450	70	260	50	1,060	100
20mm	400	60	240	40	950	80
25mm	320	60	190	40	760	80
30mm	270	60	160	40	640	80
40mm	200	60	120	30	480	80
備註 Remarks						

※ 切削公式 Cutting Formula : $S(\text{主軸轉速}) = Vc(\text{切削速度}) \times 1000 / D(\text{外徑}) / \pi (3.14)$ $F(\text{進給速度}) = fz(\text{每刃進給量}) \times Z(\text{刃數}) \times S(\text{主軸轉速})$

Table 46

鎢鋼倒角兼用銑刀- 2刃(鍍膜) 切削條件表

SOLID CARBIDE END MILLS- CUTTING CONDITION TABLE

加工材質 Material	碳素鋼 Carbon Steels			合金鋼 Alloy Steels			不銹鋼 Stainless Steels			鋁合金 Aluminum Alloys		
工件料號 Material Code	S35C, S45C, S50C			SCM, SKT, SKD			SUS304			Al 5052 / 6061 / 7075		
硬度 Hardness	HRC<20			HRC20~30			—			—		
切削速度 Vc	60m/min			50m/min			40m/min			50m/min		
外徑 Diameter	S (rpm)	縱向 F Vertical (mm/min)	橫向 F Horizontal (mm/min)	S (rpm)	縱向 F Vertical (mm/min)	橫向 F Horizontal (mm/min)	S (rpm)	縱向 F Vertical (mm/min)	橫向 F Horizontal (mm/min)	S (rpm)	縱向 F Vertical (mm/min)	橫向 F Horizontal (mm/min)
3mm	6,400	25	50	5,300	20	40	4,200	20	40	5,300	40	80
4mm	4,800	25	55	4,000	20	45	3,200	20	45	4,000	40	85
6mm	3,200	25	60	2,650	20	50	2,100	20	50	2,650	40	90
8mm	2,400	25	65	2,000	20	55	1,600	20	55	2,000	40	110
10mm	1,900	25	70	1,600	20	60	1,300	20	60	1,600	40	110
12mm	1,600	25	70	1,350	20	60	1,050	20	60	1,350	40	120
16mm	1,200	30	80	1,000	25	65	800	25	65	1,000	50	120
20mm	950	30	80	800	25	65	640	25	65	800	50	110
備註 Remarks	※ 先端角=120°，可將進給量增加30%。 Tip Angle=120°，might increase 30% Feed Speed.											

※ 切削公式 Cutting Formula : $S(\text{主軸轉速}) = Vc(\text{切削速度}) \times 1000 / D(\text{外徑}) / \pi (3.14)$ $F(\text{進給速度}) = fz(\text{每刃進給量}) \times Z(\text{刃數}) \times S(\text{主軸轉速})$

1. 當加工聲音尖銳時，請調降主軸轉速(S) (10~40%)。When the sound is piercing, please lower the spindle speed(S) (10~40%).
2. 當機台震動太大時，請調降進給速度(F) (10~40%)。When the machine is vibrating, please decrease the feed rate(F) (10~40%).
3. 當主軸負載太大時，請調降進給速度(F) (10~40%)。When the spindle load is high, please decrease the feed rate(F) (10~40%).
4. 以上數據為建議值，適當的條件仍需視機台狀況，夾治具品質，潤滑冷卻系統...等而改變。

These are recommended values which depend on the condition of the machine, fixture, lubricating & cooling systems... etc. They may have to be adapted.