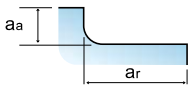
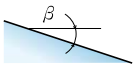
產品規格表 P276
Specification page

• KCRS 4 Flutes High Speed Milling Conditions 高速標準切削

Work material 被削材	Mild steels arbom steels, Cast iron SS400, S55c, FC250 (~750N/mm2) 一般構造用鋼、碳素鋼、鑄鐵		Alloy steels, Tool steels, SCM, KT,SKS,SKD ~HRC30 合金鋼、工具鋼		Hardened steels, Prehardened steels, (Free-cutting) SKT, SKD, NAK55, HPM1 調質鋼HRC30~38		Hardened steels, Stainless steels US304, SKD 調質鋼HRC38~45		Hardened steels, Titanium alloys, Heat resistant alloys steels, 調質鋼HRC45~55		Hardened steels, 調質鋼HRC55~60	
Mill DIA. (mm) 直徑	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度
D10×R2	6030	13300	6030	12060	6030	12060	4510	9070	4510	8170	3040	3610
D11×R2	5510	12060	5510	11020	5510	11020	4130	8260	4130	7410	2750	3320
D12×R3	5030	13300	5030	12060	5030	12060	3800	9070	3800	8170	2520	3610
D13×R3	4650	12250	4650	11210	4650	11210	3460	8360	3460	7550	2330	3370

加工深度 Depth of cut





a_a	a_r
0.1 x R	0.3D

	a_a	a_r
R≦2	0.1 x R	0.3D
2＜R	0.2mm	0.3D

	a_a	a_r
R≦2	0.05 x R	0.3D
2＜R	0.1mm	0.3D

▲ Caution

Sparks generated during operation or caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.The conditions below are for high speed/high precision machining centers.

1.Use a rigid and precise machine and holder.
2.These Milling conditions based on Milling with circular interpolation at corners. For Milling without circular interpolation（such as right angle corners）, reduce the speed to 50~70% and the cutting depth to 50~80% of the above conditions.
3.We recommend using an air blow or MQL(mist）.
4.Please adjust the speed, feed and cutting depth according to actual Cutting Conditions.
5.When KCRS enter in Z axis, reduce the feed speed to 30~60% of the above conditions with machining incline angle（β）≦2°.
6.These Milling conditions are for a tool extension length：less than 4×D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

▲ 注意事項

在操作或由於工具發熱而損壞所引起的火花易起火災。
請務必使用適當的防火措施。
以上條件適用於高速精密加工機器。

1.使用一台堅固且準確的機器和刀把。
2.這些研磨條件須以有R角的研磨為基礎，研磨無R角的角度（如90度垂直研磨），將使速度降低到50~70%及減低切割深度50~80%。
3.我們建議使用一種吹風或者油霧。
4.請根據實際切削條件調整速度，進給率及切削深度。
5.在上述條件下操作傾斜角度（β）≦2° 時，當KCRS進入Z軸裡，請降低進給速度30~60%。
6.這些研磨條件適用於工具延展長度：少於4×D。對於一個延展性長的工具來說，協調個別係數，降低速度、進給率和切削深度以防止吵雜聲。

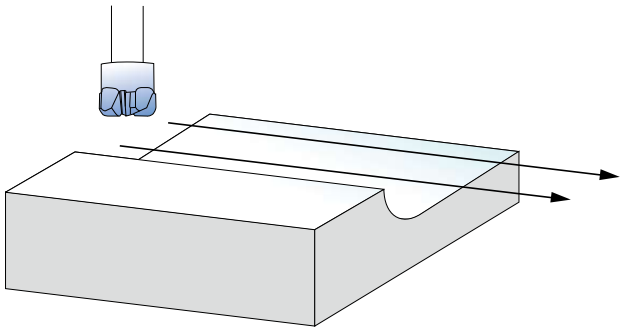
Tool extension coefficients 工具突出量係數

Overshank Length 工具突出量	Milling Speed 切削速度	a_a 軸方向切削	Feed Speed 進給速度
L/D≦4	100	100	100
L/D≦5	60~80	60~80	70~90
L/D≦6	40~60	40~60	60~80

Ultra-high speed conditions 超高速條件用

When milling flat areas with a stable load, the speed and the feed rate of the high-speed conditions can be further increased to 150-200%. The ultra-high speed conditions are for a tool extension length:less than 4xD. If the tool extension length is over 4 D, do not refer to it.

在高速及穩定負荷下研磨平坦區域，速度和進給率能更進一步增加150-200%。在高速條件適用於一個工具擴展長度：少於4XD。如果工具擴展長度是在4D上方，請勿參照該條件。



Unit/單位: mm

產品規格表 P276
Specification page

• KCRS 4 Flutes Low Speed, High Feed Milling 低轉速，高進給切削

Work material 被削材	Mild steels Carbon steels, Cast iron SS400, S55c, FC250 (~750N/mm2) 一般構造用鋼、碳素鋼、鑄鐵		Alloy steels, Tool steels, SCM, SKT,SKS,SKD ~HRC30 合金鋼、工具鋼		Hardened steels, Prehardened steels (Free-cutting) SKT, SKD, NAK55, HPM1 調質鋼HRC30~38		Hardened steels, Stainless steels SUS304, SKD 調質鋼HRC38~45		Hardened steels, Titanium alloys, Heat resistant alloys steels, 調質鋼HRC45~55		Hardened steels, 調質鋼HRC55~60	
Mill DIA. (mm) 直徑	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度	Speed (min^{-1}) 迴轉速度	Feed (mm/min) 進給速度
D8×R2	3800	6650	3800	6030	3040	4840	2660	4230	1900	2710	1140	1090
D9×R2	3370	5890	3370	5370	2710	4320	2370	3750	1660	2420	1000	950
D10×R2	3040	6650	3040	6030	2420	4840	2140	4230	1520	2710	910	1090
D11×R2	2750	6030	2750	5510	2180	4420	1950	3840	1380	2470	830	1000
D12×R3	2520	6650	2520	6030	2000	4840	1760	4230	1280	2710	750	1090
D13×R3	2330	6130	2330	5600	1850	4460	1610	3900	1140	2520	700	1000

加工深度 Depth of cut



	aa	ar
R≦2	0.2 x R	0.5D
2＜R	0.5mm	0.5D

	aa	ar
R≦2	0.2 x R	0.5D
2＜R	0.4mm	0.5D

	aa	ar
R≦2	0.1 x R	0.5D
2＜R	0.2mm	0.5D

▲ Caution

Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire-prevention measures.
The conditions below are for high speed/high precision machining centers.

1.Use a rigid and precise machine and holder.
2.These Milling conditions based on Milling with circular interpolation at corners. For Milling without circular interpolation (such as right angle corners) , reduce the speed to 50~70% and the cutting depth to 50~80% of the above conditions.
3.We recommend using an air blow or MQL(mist) .
4.Please adjust the speed, feed and cutting depth according to actual Cutting Conditions.
5.When KCRS enters in Z axis, reduce the feed speed to 30~60% of the above conditions with machining incline angle (β) ≦2° .
6.These Milling conditions are for a tool extension length：less than 4×D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with therespective coefficients, to prevent chattering.

▲ 注意事項

在操作或由於工具發熱而損壞所起的火花易起火災。
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以下條件適用於高速精密加工機器。

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2.這些研磨條件須以有R角的研磨為基礎，研磨無R角的角度（如90度垂直研磨）， 將使速度降低到50~70%及減低切割深度50~80%。
3.我們建議使用一種吹風或者油霧。
4.請根據實際切削條件調整速度，進給率及切削深度。
5.在上述條件下操作傾斜角度（β）≦2° 時，當KCRS進入Z軸裡，請降低進給速度30~60%。
6.這些研磨條件適用於工具延展長度：少於4×D。對於一個延展性長的工具來說，協調個別係數，降低速度、進給率和切削深度以防止吵雜聲。

Tool extension coefficients 工具突出量係數

Overshank Length 工具突出量	Milling Speed 切削速度	aa 軸方向切削	Feed Speed 進給速度
L/D≦4	100	100	100
L/D≦5	80~100	70~90	80~90
L/D≦6	60~80	50~70	60~80

Unit/單位: mm