DHF

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China patent No. 1458412

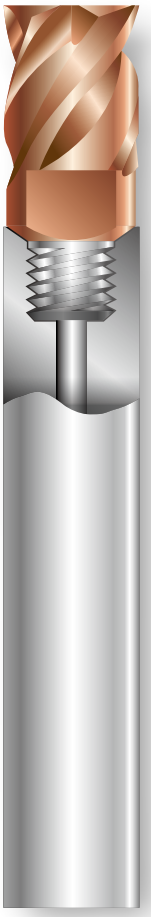
二代變形鎢鋼立銑刀2

EXCHANGEABLE HEAD ENDMILL 2

DESIGN . HONESTY . FUTURE

二代變形鎢鋼立銑刀 2

EXCHANGEABLE HEAD ENDMILL



全新改良型態．精益求精

精密度再升級．無與倫比

三線螺紋設計．強度革命

新增錐度配合．精度提高

二代變形鎢鋼立銑刀特長

1. 新型設計三螺紋刀頭與刀桿完美結合，裝配更容易，整體結構與剛性更加強化，加工效率更佳。
2. 加入新型錐度配合設計，抗折力相對提高，進而使精密度更高，同時將偏擺量縮小到±0.008mm以內，偏擺量小，則刀具壽命相對延長。
3. 基於「保護地球、愛護資源」的理念，全新三螺紋刀頭設計縮短製刀過程，材料更節省，更可達到降低客戶刀具成本的目的。
4. 可更換式鎢鋼刀頭和硬質合金刀桿的結合，可以做超大懸深的加工。
5. 特殊刀具角度設計及最新塗層，將切削硬度提升至HRc 62。

Features of the Second Generation Exchangeable Endmill Series

1. The combination of new model design of triple-thread head and shank, which makes it much easier to set up and strength the entire structure and rigidity. It is designed with the new taper, and will increase the strength of resistance. It not only has a higher transverse rupture strength but also a better performance while manufacturing.
2. The superior combination of the triple-thread head endmill controls the run out within ±0.008mm.
   The extremely high accuracy and slight run out relatively extend the tools' life.
3. For the sake of environmental protection and resource preservation, the triple-thread head endmill saves more design materials and shortens the producing process, which meets the purpose of reducing the cost for our customers.
4. The combination of the threaded head endmill and hard alloy shank determines the large depths of cutting.
5. A special angle design and the brand new coating enable to work in hardness up to HRc62.

Assembly
變形鎢鋼立銑刀的合體過程

步驟一 / STEP 1

請用空氣噴槍清潔刀頭與鎢鋼刀桿。
（請務必做好此一清潔步驟，其將影響變形鎢鋼立銑刀合體後的精密度。）

Clean the threaded solid carbide head and the solid carbide shank.
Note : Please complete this step otherwise it would affect the precision.

步驟二 / STEP 2

請戴手套，並把刀頭輕輕鎖在鎢鋼刀桿上。

2.1 Wear the gloves.
2.2 Lightly screw the threaded solid carbide head to the solid carbide shank.

步驟三 / STEP 3

將鎢鋼刀桿鎖在刀把上，然後將刀把置放在工具桌上的鎖刀架，再利用板手輕輕鎖緊。

3.1 Screw the shank to the holder.
3.2 Then place the holder on the Tool Holder Locking Device on the working desk. Use the spanner to screw it tight.

步驟四 / STEP 4

完成合體。

Assembly completed.

注意事項 / ATTENTION

鎢鋼刀頭非常銳利，在刀頭鎖上鎢鋼刀桿時，請特別小心拿取，以免刮傷手。
The threaded solid carbide head shall be extremely sharp. Pay attention while screwing the head to the shank for safety reason.

Operation Note
使用注意事項

A 當刀具組合完成，於加工使用前，需注意其偏擺值，因為偏擺值越小，刀具壽命越佳。
Be aware of the run-out before working. The smaller run-out stands for the longer tool life.

B 使用正確之切削數據：

1. 由於工作母機之廠牌不同、機型不同，因此其機器剛性與主軸扭力值亦不同，故切削條件亦有所差別，需視實際加工情況調整之。
2. 主軸轉速與進給速度，應同時、同一比例調整之。
3. 調整項次2之重點為當加工聲因愈小愈安靜，代表已接近理想之切削數值。
4. 同一把刀，因刀具之伸長量不同，其切削數據也不同，須調整之。
（如伸長量愈長、其切削條件需調降之）

Using the correct cutting parameter :

1. When the machines differ, the rigidity and the spindle torque differ. The cutting data is always adjusted according to real working condition.
2. Spindle speed and feed are always adjusted in the same ratio.
3. The sound of working gets lower, it's closer to an ideal cutting data.
4. The cutting data is always modified according to different tool extension even if the tool is the same.
(The cutting data should be lower when the tool extension is longer.)

C 使用高剛性強力型刀把，且刀具夾持部需在以下安全值內：
Using a high rigidity tool holder, the holding length must be controlled with in the safety range.

Ø8~Ø12	刀具夾持需在40mm以上 More than 40mm
Ø16~Ø25	刀具夾持需在50mm以上 More than 50mm
Ø32以上	刀具夾持需在60mm以上 More than 60mm

所有鎢鋼銑刀頭與抗震鎢鋼刀桿組合之後，其精密度可達±0.008mm以下。
The precision will reach ±0.008mm below after the threaded solid carbide head is combined with the solid carbide shank.

Regrinding
再生研磨

基於保護地球、愛護資源，德信發特別提出「大柄徑銑刀的再生研磨」，目前規劃變形鎢鋼銑刀有X-BTB-2T、X-UB-2T、X-UBT-2T、X-UOB等系列產品，並已開始接受再生研磨需求。

For the sake of environmental protection and resource preservation, DHF presents the regrinding service for big shank endmills. The service is available for **X-BTB-2T, X-UB-2T, X-UBT-2T** and **X-UOB** series.

刀具伸長量之要點：

所有切削刀具皆有其伸長量安全值，若超出規範值外，則會產生剛性不佳、切削震動之問題；造成刀具受損，縮短刀具壽命。

Tool extension :

When exceeding the extension safety range, the poor rigidity and vibration cause tool breakage and short tool life.

平刀與圓鼻刀伸長量規範安全值

Below is the safety range for square and corner radius endmills :

Ø8	50 mm以內	Below 50mm
Ø10	55 mm以內	Below 55mm
Ø12	70 mm以內	Below 70mm
Ø16	125 mm以內	Below 125mm
Ø20	170 mm以內	Below 170mm
Ø25	210 mm以內	Below 210mm
Ø32	260 mm以內	Below 260mm

球刀伸長量規範安全值

Below is the safety range for ball nose endmills :

Ø8	65 mm以內	Below 65mm
Ø10	70 mm以內	Below 70mm
Ø12	100 mm以內	Below 100mm
Ø16	145 mm以內	Below 145mm
Ø20	190 mm以內	Below 190mm
Ø25	240 mm以內	Below 240mm
Ø32	280 mm以內	Below 280mm

若因加工需求，需超出以上規範之伸長量，請調整切削數據並小心使用，因為上述之受損情況可能發生！

Under real working condition, if the extension exceeds the safety range, the cutting data must be carefully adjusted to avoid possible breakage!

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GUIDE LINE TO ICONS

圖示說明

鎢鋼種類 CARBIDE

MG
超微粒。
Micro grain.

Super MG
極超微粒。
Super micro grain.

顆粒大小 GRAIN SIZE

0.2 μm
粉末顆粒是0.2 μm
Grain size is 0.2 μm

0.4 μm
粉末顆粒是0.4 μm
Grain size is 0.4 μm

0.6 μm
粉末顆粒是0.6 μm
Grain size is 0.6 μm

螺 旋 角 HELIX ANGLE

螺旋角度–20°、0°、15°、20°、25°、30°、35°、40°、45°
Helix Angle is –20°、0°、15°、20°、25°、30°、35°、40°、45°.

圓 隅 角 CORNER R

R
圓隅角。
Corner Radius.

刃 數 FLUTE

齒 形 ROUGHING

Roughing
大粗齒
Big Roughing.

被切削材硬度 WORK MATERIAL HARDNESS

HRc 55 HRc 60 HRc 62 HRc 65

被切削工件硬度可達HRc55、60、62、65。
Work material hardness is up to HRc55、60、62、65.

鍍 層 COATING

G12
適用於高速、高硬度加工。乾式、油霧、溼式切削（乾溼兩用）。
Good at high speed cutting & high hard cutting. For Dry cutting, MQL and Wet cutting.

G10
適用於難切削材和含碳量高之材料（例：S45C/1.1210），油霧、溼式切削。
Good at difficult material and high carbon content (e.g., S45C/1.1210) ,for MQL & Wet cutting.

G15
適用於高速、高硬度切削。乾式、油霧切削。
Good at high speed cutting & high hard cutting. For Dry cutting and MQL.

T1
適用於各式切削，使用壽命長。
Genetally used on all kind of machining with benefit of long tool life.

T2
適用於高速加工。乾式切削。
Good at high speed cutting. For Dry cutting.

Diamond
適用於石墨加工。乾式切削。
Good at Graphite cutting. For Dry cutting.

球頭形狀 BALL NOSE SHAPE

S type
適用於3D曲面切削。
It is suitable for three-dimentional curved surface cutting.

鑽 頂 角 DRILL POINT HELIX

90°

切削性能 CUTTING PERFORMANCE

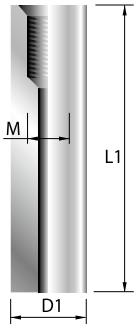
優 Excellent
良 Good
尚可 Acceptable
禁止 No

X-WDEX

FIT SHANK

抗震鎢鋼刀桿（内冷孔）

Solid Carbide Shank (Internal Coolant Hole)



柄徑 D1	柄徑公差值 D1 Tolerance
8.0	$^{0}_{-0.009}$
10.0	$^{0}_{-0.009}$
12.0	$^{0}_{-0.011}$
16.0	$^{0}_{-0.011}$
20.0	$^{0}_{-0.013}$
25.0	$^{0}_{-0.013}$
32.0	$^{0}_{-0.016}$

unit : mm

型號 Type No.	D1 柄徑 Shank Dia.	L1 全長 O.A.L.	M 螺牙 Thread Size
X-WDEX-080060	8.0	60	M 5 -3P
X-WDEX-080075	8.0	75	M 5 -3P
X-WDEX-080100	8.0	100	M 5 -3P
X-WDEX-100060	10.0	60	M 7 -3P
X-WDEX-100075	10.0	75	M 7 -3P
X-WDEX-100100	10.0	100	M 7 -3P
X-WDEX-100150	10.0	150	M 7 -3P
X-WDEX-120060	12.0	60	M 8 -3P
X-WDEX-120080	12.0	80	M 8 -3P
X-WDEX-120100	12.0	100	M 8 -3P
X-WDEX-120150	12.0	150	M 8 -3P
X-WDEX-160060	16.0	60	M10 -3P
X-WDEX-160080	16.0	80	M10 -3P
X-WDEX-160100	16.0	100	M10 -3P
X-WDEX-160150	16.0	150	M10 -3P
X-WDEX-160200	16.0	200	M10 -3P
X-WDEX-200060	20.0	60	M12 -3P

型號 Type No.	D1 柄徑 Shank Dia.	L1 全長 O.A.L.	M 螺牙 Thread Size
X-WDEX-200080	20.0	80	M12 -3P
X-WDEX-200100	20.0	100	M12 -3P
X-WDEX-200150	20.0	150	M12 -3P
X-WDEX-200200	20.0	200	M12 -3P
X-WDEX-200250	20.0	250	M12 -3P
X-WDEX-200300	20.0	300	M12 -3P
X-WDEX-250100	25.0	100	M16 -3P
X-WDEX-250150	25.0	150	M16 -3P
X-WDEX-250200	25.0	200	M16 -3P
X-WDEX-250250	25.0	250	M16 -3P
X-WDEX-250300	25.0	300	M16 -3P
X-WDEX-320100	32.0	100	M20 -3P
X-WDEX-320150	32.0	150	M20 -3P
X-WDEX-320200	32.0	200	M20 -3P
X-WDEX-320250	32.0	250	M20 -3P
X-WDEX-320300	32.0	300	M20 -3P

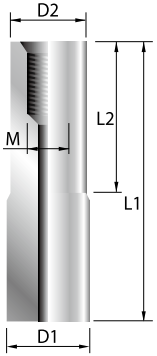
unit : mm

X-WHEX

FIT SHANK

抗震鎢鋼刀桿（内冷孔）

Solid Carbide Shank (Internal Coolant Hole)



柄徑 D1	柄徑公差值 D1 Tolerance
8.0	$^{0}_{-0.009}$
10.0	$^{0}_{-0.009}$
12.0	$^{0}_{-0.011}$
16.0	$^{0}_{-0.011}$
20.0	$^{0}_{-0.013}$
25.0	$^{0}_{-0.013}$
32.0	$^{0}_{-0.016}$

unit : mm

型號 Type No.	D2 頸徑 Neck Dia.	L1 全長 O.A.L.	L2 有效長 Effective Length	D1 柄徑 Shank Dia. (h6)	M 螺牙 Thread Size
X-WHEX-080060	7.8	60	15	8.0	M 5 -3P
X-WHEX-080075	7.8	75	20	8.0	M 5 -3P
X-WHEX-080100	7.8	100	20	8.0	M 5 -3P
X-WHEX-100060	9.8	60	15	10.0	M 7 -3P
X-WHEX-100075	9.8	75	20	10.0	M 7 -3P
X-WHEX-100100	9.8	100	20	10.0	M 7 -3P
X-WHEX-100150	9.8	150	40	10.0	M 7 -3P
X-WHEX-120060	11.7	60	15	12.0	M 8 -3P
X-WHEX-120080	11.7	80	20	12.0	M 8 -3P
X-WHEX-120100	11.7	100	60	12.0	M 8 -3P
X-WHEX-120150	11.7	150	90	12.0	M 8 -3P
X-WHEX-160060	15.6	60	15	16.0	M10 -3P
X-WHEX-160080	15.6	80	30	16.0	M10 -3P
X-WHEX-160100	15.6	100	60	16.0	M10 -3P
X-WHEX-160150	15.6	150	90	16.0	M10 -3P
X-WHEX-160200	15.6	200	120	16.0	M10 -3P
X-WHEX-200060	19.5	60	20	20.0	M12 -3P

型號 Type No.	D2 頸徑 Neck Dia.	L1 全長 O.A.L.	L2 有效長 Effective Length	D1 柄徑 Shank Dia. (h6)	M 螺牙 Thread Size
X-WHEX-200080	19.5	80	40	20.0	M12 -3P
X-WHEX-200100	19.5	100	60	20.0	M12 -3P
X-WHEX-200150	19.5	150	90	20.0	M12 -3P
X-WHEX-200200	19.5	200	120	20.0	M12 -3P
X-WHEX-200250	19.5	250	150	20.0	M12 -3P
X-WHEX-200300	19.5	300	180	20.0	M12 -3P
X-WHEX-250100	24.4	100	50	25.0	M16 -3P
X-WHEX-250150	24.4	150	90	25.0	M16 -3P
X-WHEX-250200	24.4	200	120	25.0	M16 -3P
X-WHEX-250250	24.4	250	150	25.0	M16 -3P
X-WHEX-250300	24.4	300	180	25.0	M16 -3P
X-WHEX-320100	31.2	100	50	32.0	M20 -3P
X-WHEX-320150	31.2	150	90	32.0	M20 -3P
X-WHEX-320200	31.2	200	120	32.0	M20 -3P
X-WHEX-320250	31.2	250	150	32.0	M20 -3P
X-WHEX-320300	31.2	300	180	32.0	M20 -3P

unit : mm

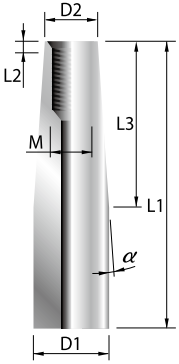
★ X-WHEX系列之L2可依客戶需求特別訂做。

X-WFEX

FIT SHANK

抗震鎢鋼刀桿（内冷孔）

Solid Carbide Shank (Internal Coolant Hole)



柄徑 D1	柄徑公差值 D1 Tolerance
12.0	$^{0}_{-0.011}$
16.0	$^{0}_{-0.011}$
20.0	$^{0}_{-0.013}$
25.0	$^{0}_{-0.013}$
32.0	$^{0}_{-0.016}$

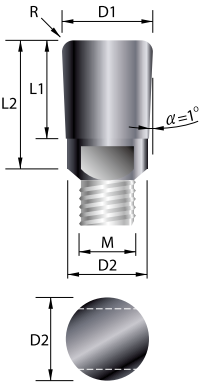
unit : mm

型號 Type No.	D2 頸徑 Neck Dia.	L1 全長 O.A.L.	L2 有效長 Effective Length	L3 斜頸長 T.A.L.	D1 柄徑 Shank Dia. (h6)	M 螺牙 Thread Size	α 斜角 Taper Angle
X-WFEX-120100	9.8	100	2	44	12.0	M 7 -3P	1.5
X-WFEX-120150	9.8	150	2	65	12.0	M 7 -3P	1.0
X-WFEX-160100	11.7	100	3	50	16.0	M 8 -3P	2.0
X-WFEX-160150	11.7	150	3	85	16.0	M 8 -3P	1.5
X-WFEX-160200	11.7	200	3	126	16.0	M 8 -3P	1.0
X-WFEX-200100	15.6	100	4	50	20.0	M10-3P	2.0
X-WFEX-200150	15.6	150	4	88	20.0	M10-3P	1.5
X-WFEX-200200	15.6	200	4	130	20.0	M10-3P	1.0
X-WFEX-250200	19.5	200	6	111	25.0	M12-3P	1.5
X-WFEX-250300	19.5	300	6	164	25.0	M12-3P	1.0
X-WFEX-320300	24.4	300	8	153	32.0	M16-3P	1.5

unit : mm

X-UOR

直刃圓鼻角立銑刀頭
End Mills



直徑 D1	R徑公差值 R Tolerance
8.0	$^{+0.02}_{0}$
10.0	$^{+0.02}_{0}$
12.0	$^{+0.02}_{0}$
16.0	$^{+0.02}_{0}$
20.0	$^{+0.02}_{0}$

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	R 圓鼻角 Corner R	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UOR0810	8.0	3.5	1.0	7.8	10.1	M 5 -3P	K08
X-UOR0820	8.0	3.5	2.0	7.8	10.1	M 5 -3P	K08
X-UOR1010	10.0	4.0	1.0	9.8	11.1	M 7 -3P	K10
X-UOR1020	10.0	4.0	2.0	9.8	11.1	M 7 -3P	K10
X-UOR1110	11.0	4.0	1.0	10.7	11.1	M 7 -3P	K10
X-UOR1120	11.0	4.0	2.0	10.7	11.1	M 7 -3P	K10
X-UOR1220	12.0	5.0	2.0	11.7	13.8	M 8 -3P	K12
X-UOR1230	12.0	5.0	3.0	11.7	13.8	M 8 -3P	K12
X-UOR1320	13.0	5.0	2.0	12.7	13.8	M 8 -3P	K12
X-UOR1330	13.0	5.0	3.0	12.7	13.8	M 8 -3P	K12
X-UOR1620	16.0	6.5	2.0	15.6	14.7	M10-3P	K16
X-UOR1630	16.0	6.5	3.0	15.6	14.7	M10-3P	K16
X-UOR1640	16.0	6.5	4.0	15.6	14.7	M10-3P	K16
X-UOR1720	17.0	6.5	2.0	16.6	14.7	M10-3P	K16
X-UOR1730	17.0	6.5	3.0	16.6	14.7	M10-3P	K16
X-UOR1740	17.0	6.5	4.0	16.6	14.7	M10-3P	K16
X-UOR2030	20.0	8.0	3.0	19.5	18.1	M12-3P	K20
X-UOR2050	20.0	8.0	5.0	19.5	18.1	M12-3P	K20

unit : mm

切削條件表 X-UOR MILLING CONDITIONS

被切削材 Work Material	合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2 (HRc23~32)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UOR0810	20	230	9200	12000~13000	0.15	4	粗銑 ROUGHING
X-UOR0810	20	230	9200	6000~7000	0.3	4	粗銑 ROUGHING
X-UOR0810	45	170	6800	6000~6500	0.15	4	粗銑 ROUGHING
X-UOR0810	45	170	6800	3800~4200	0.25	4	粗銑 ROUGHING
X-UOR0820	20	230	9200	12000~13000	0.15	3	粗銑 ROUGHING
X-UOR0820	20	230	9200	6000~7000	0.3	3	粗銑 ROUGHING
X-UOR0820	45	170	6800	6000~6500	0.15	3	粗銑 ROUGHING
X-UOR0820	45	170	6800	3800~4200	0.3	3	粗銑 ROUGHING
X-UOR1010	25	230	7300	12000~13000	0.15	6	粗銑 ROUGHING
X-UOR1010	25	230	7300	7000~8000	0.3	6	粗銑 ROUGHING
X-UOR1010	45	200	6400	7500~8500	0.15	6	粗銑 ROUGHING
X-UOR1010	45	150	4800	3800~4200	0.3	6	粗銑 ROUGHING
X-UOR1020	25	230	7300	12000~13000	0.15	5	粗銑 ROUGHING
X-UOR1020	25	230	7300	7000~8000	0.3	5	粗銑 ROUGHING
X-UOR1020	45	200	6400	7500~8500	0.15	5	粗銑 ROUGHING
X-UOR1020	45	150	4800	3800~4200	0.3	5	粗銑 ROUGHING
X-UOR1220	30	275	7300	12000~13000	0.25	7	粗銑 ROUGHING
X-UOR1220	30	275	7300	8000~9000	0.5	7	粗銑 ROUGHING
X-UOR1220	50	250	6600	10000~13000	0.25	7	粗銑 ROUGHING
X-UOR1220	50	250	6600	6000~7000	0.5	7	粗銑 ROUGHING
X-UOR1220	70	185	4900	6000~7000	0.25	7	粗銑 ROUGHING
X-UOR1220	70	150	4000	3500~4500	0.4	7	粗銑 ROUGHING
X-UOR1230	30	275	7300	12000~13000	0.25	5.8	粗銑 ROUGHING
X-UOR1230	30	275	7300	8000~9000	0.5	5.8	粗銑 ROUGHING
X-UOR1230	50	250	6600	10000~13000	0.25	5.8	粗銑 ROUGHING
X-UOR1230	50	250	6600	6000~7000	0.5	5.8	粗銑 ROUGHING
X-UOR1230	70	185	4900	6000~7000	0.25	5.8	粗銑 ROUGHING
X-UOR1230	70	150	4000	3500~4500	0.4	5.8	粗銑 ROUGHING
X-UOR1620	40	250	5000	9000~10000	0.25	10	粗銑 ROUGHING
X-UOR1620	40	250	5000	5000~6000	0.5	10	粗銑 ROUGHING
X-UOR1620	60	235	4650	6500~7500	0.25	10	粗銑 ROUGHING
X-UOR1620	60	175	3500	3000~3500	0.5	10	粗銑 ROUGHING
X-UOR1620	90	135	2700	2300~2800	0.25	10	粗銑 ROUGHING
X-UOR1630	40	250	5000	9000~10000	0.25	9	粗銑 ROUGHING
X-UOR1630	40	250	5000	5000~6000	0.5	9	粗銑 ROUGHING
X-UOR1630	60	235	4650	6500~7500	0.25	9	粗銑 ROUGHING
X-UOR1630	60	175	3500	3000~3500	0.5	9	粗銑 ROUGHING
X-UOR1630	90	135	2700	2300~2800	0.25	9	粗銑 ROUGHING
X-UOR1640	40	250	5000	9000~10000	0.25	7	粗銑 ROUGHING
X-UOR1640	40	250	5000	5000~6000	0.5	7	粗銑 ROUGHING
X-UOR1640	60	235	4650	6500~7500	0.25	7	粗銑 ROUGHING
X-UOR1640	60	175	3500	3000~3500	0.5	7	粗銑 ROUGHING
X-UOR1640	90	135	2700	2300~2800	0.25	7	粗銑 ROUGHING

被切削材 Work Material	合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* **P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2** (HRc23~32)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UOR2030	45	240	3800	6000~7000	0.3	12	粗銑 ROUGHING
X-UOR2030	45	215	3400	2500~3000	0.6	12	粗銑 ROUGHING
X-UOR2030	70	215	3400	4500~5500	0.3	12	粗銑 ROUGHING
X-UOR2030	70	215	3400	2300~2800	0.6	12	粗銑 ROUGHING
X-UOR2030	100	135	2150	1800~2300	0.25	12	粗銑 ROUGHING
X-UOR2050	45	240	3800	6000~7000	0.3	9	粗銑 ROUGHING
X-UOR2050	45	215	3400	2500~3000	0.6	9	粗銑 ROUGHING
X-UOR2050	70	215	3400	4500~5500	0.3	9	粗銑 ROUGHING
X-UOR2050	70	215	3400	2300~2800	0.6	9	粗銑 ROUGHING
X-UOR2050	100	135	2150	1800~2300	0.25	9	粗銑 ROUGHING

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels :* **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UOR0810	20	190	7600	9000~10000	0.15	4	粗銑 ROUGHING
X-UOR0810	20	160	6400	4500~5000	0.3	4	粗銑 ROUGHING
X-UOR0810	45	160	6400	4500~5000	0.15	4	粗銑 ROUGHING
X-UOR0810	45	160	6400	3200~3600	0.25	4	粗銑 ROUGHING
X-UOR0820	20	190	7600	9000~10000	0.15	5	粗銑 ROUGHING
X-UOR0820	20	160	6400	4500~5000	0.25	5	粗銑 ROUGHING
X-UOR0820	45	160	6400	4500~5000	0.15	5	粗銑 ROUGHING
X-UOR0820	45	160	6400	3200~3600	0.25	5	粗銑 ROUGHING
X-UOR1010	25	220	7000	11000~12000	0.15	6	粗銑 ROUGHING
X-UOR1010	25	220	7000	6500~7500	0.3	6	粗銑 ROUGHING
X-UOR1010	45	190	6000	7000~8000	0.15	6	粗銑 ROUGHING
X-UOR1010	45	150	4800	3400~3800	0.3	6	粗銑 ROUGHING
X-UOR1020	25	220	7000	11000~12000	0.15	5	粗銑 ROUGHING
X-UOR1020	25	220	7000	6500~7500	0.3	5	粗銑 ROUGHING
X-UOR1020	45	190	6000	7000~8000	0.15	5	粗銑 ROUGHING
X-UOR1020	45	150	4800	3400~3800	0.3	5	粗銑 ROUGHING
X-UOR1220	30	265	7000	9000~10000	0.25	7	粗銑 ROUGHING
X-UOR1220	30	265	7000	5500~6500	0.5	7	粗銑 ROUGHING
X-UOR1220	50	225	6000	7000~8500	0.25	7	粗銑 ROUGHING
X-UOR1220	50	225	6000	4000~5000	0.5	7	粗銑 ROUGHING
X-UOR1220	70	160	4200	4500~5500	0.25	7	粗銑 ROUGHING
X-UOR1220	70	145	3900	3500~4000	0.35	7	粗銑 ROUGHING
X-UOR1230	30	265	7000	9000~10000	0.25	5.8	粗銑 ROUGHING
X-UOR1230	30	265	7000	5500~6500	0.5	5.8	粗銑 ROUGHING
X-UOR1230	50	225	6000	7000~8500	0.25	5.8	粗銑 ROUGHING
X-UOR1230	50	225	6000	4000~5000	0.5	5.8	粗銑 ROUGHING
X-UOR1230	70	160	4200	4500~5500	0.25	5.8	粗銑 ROUGHING
X-UOR1230	70	145	3900	3500~4000	0.35	5.8	粗銑 ROUGHING

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UOR1620	40	250	5000	8000~9000	0.25	10	粗銑 ROUGHING
X-UOR1620	40	250	5000	4000~5000	0.5	10	粗銑 ROUGHING
X-UOR1620	60	235	4650	5000~6000	0.25	10	粗銑 ROUGHING
X-UOR1620	60	175	3500	2500~3000	0.5	10	粗銑 ROUGHING
X-UOR1620	90	135	2700	1700~2300	0.25	10	粗銑 ROUGHING
X-UOR1630	40	250	5000	8000~9000	0.25	9	粗銑 ROUGHING
X-UOR1630	40	250	5000	4000~5000	0.5	9	粗銑 ROUGHING
X-UOR1630	60	235	4650	5000~6000	0.25	9	粗銑 ROUGHING
X-UOR1630	60	175	3500	2500~3000	0.5	9	粗銑 ROUGHING
X-UOR1630	90	135	2700	1700~2300	0.25	9	粗銑 ROUGHING
X-UOR1640	40	250	5000	8000~9000	0.25	7	粗銑 ROUGHING
X-UOR1640	40	250	5000	4000~5000	0.5	7	粗銑 ROUGHING
X-UOR1640	60	235	4650	5000~6000	0.25	7	粗銑 ROUGHING
X-UOR1640	60	175	3500	2500~3000	0.5	7	粗銑 ROUGHING
X-UOR1640	90	135	2700	1700~2300	0.25	7	粗銑 ROUGHING
X-UOR2030	45	225	3600	3800~4500	0.3	12	粗銑 ROUGHING
X-UOR2030	45	215	3400	2000~2500	0.6	12	粗銑 ROUGHING
X-UOR2030	70	215	3400	3500~4500	0.3	12	粗銑 ROUGHING
X-UOR2030	70	215	3400	1800~2400	0.5	12	粗銑 ROUGHING
X-UOR2030	100	120	1900	1400~1800	0.25	12	粗銑 ROUGHING
X-UOR2050	45	225	3600	3800~4500	0.3	9	粗銑 ROUGHING
X-UOR2050	45	215	3400	2000~2500	0.6	9	粗銑 ROUGHING
X-UOR2050	70	215	3400	3500~4500	0.3	9	粗銑 ROUGHING
X-UOR2050	70	215	3400	1800~2400	0.5	9	粗銑 ROUGHING
X-UOR2050	100	120	1900	1400~1800	0.25	9	粗銑 ROUGHING

附註 Note

X-UOR刀法設計主要應用於高速加工(HSC)，適用材料範圍從HRc 30~HRc 52。
X-UOR is designed for High Speed Cutting(HSC). Good with the material from HRc 30~HRc 52

被切削材 Work Material	熱處理鋼 *Hardened Steels* **SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420** (HRc48~54)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UOR0810	20	160	6400	5500~6000	0.15	4	粗銑 ROUGHING
X-UOR0810	20	160	6400	2300~2700	0.3	4	粗銑 ROUGHING
X-UOR0810	45	145	5800	4500~5000	0.15	4	粗銑 ROUGHING
X-UOR0810	45	130	5100	2000~2400	0.25	4	粗銑 ROUGHING
X-UOR0820	20	160	6400	5500~6000	0.15	3	粗銑 ROUGHING
X-UOR0820	20	160	6400	2300~2700	0.3	3	粗銑 ROUGHING
X-UOR0820	45	145	5800	4500~5000	0.15	3	粗銑 ROUGHING
X-UOR0820	45	130	5100	2000~2400	0.25	3	粗銑 ROUGHING

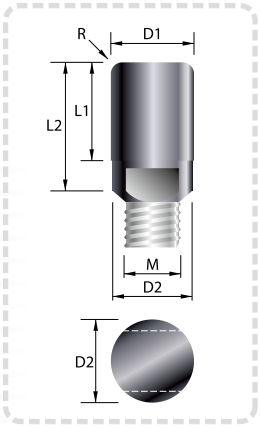
被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UOR1010	25	160	5200	5000~5500	0.15	5	粗銑 ROUGHING
X-UOR1010	25	160	5200	2400~2800	0.3	5	粗銑 ROUGHING
X-UOR1010	45	130	4150	4000~4500	0.15	5	粗銑 ROUGHING
X-UOR1010	45	130	4150	1800~2200	0.3	5	粗銑 ROUGHING
X-UOR1020	25	160	5200	5000~5500	0.15	5	粗銑 ROUGHING
X-UOR1020	25	160	5200	2400~2800	0.3	5	粗銑 ROUGHING
X-UOR1020	45	130	4150	4000~4500	0.15	5	粗銑 ROUGHING
X-UOR1020	45	130	4150	1800~2200	0.3	5	粗銑 ROUGHING
X-UOR1220	30	200	5300	6500~7000	0.2	6	粗銑 ROUGHING
X-UOR1220	30	185	4900	4000~4500	0.4	6	粗銑 ROUGHING
X-UOR1220	50	185	4900	5500~6000	0.2	6	粗銑 ROUGHING
X-UOR1220	50	185	4900	3500~4000	0.4	6	粗銑 ROUGHING
X-UOR1220	70	145	3850	3200~3600	0.2	6	粗銑 ROUGHING
X-UOR1220	70	125	3300	1600~2000	0.4	6	粗銑 ROUGHING
X-UOR1230	30	200	5300	6500~7000	0.2	5.8	粗銑 ROUGHING
X-UOR1230	30	185	4900	4000~4500	0.4	5.8	粗銑 ROUGHING
X-UOR1230	50	185	4900	5500~6000	0.2	5.8	粗銑 ROUGHING
X-UOR1230	50	185	4900	3500~4000	0.4	5.8	粗銑 ROUGHING
X-UOR1230	70	145	3850	3200~3600	0.2	5.8	粗銑 ROUGHING
X-UOR1230	70	125	3300	1600~2000	0.4	5.8	粗銑 ROUGHING
X-UOR1620	40	215	4300	3200~3600	0.25	8	粗銑 ROUGHING
X-UOR1620	40	215	4300	1600~2000	0.4	8	粗銑 ROUGHING
X-UOR1620	60	105	2100	2000~2400	0.2	8	粗銑 ROUGHING
X-UOR1620	60	105	2100	1400~1800	0.35	8	粗銑 ROUGHING
X-UOR1620	90	95	1900	1400~1800	0.2	8	粗銑 ROUGHING
X-UOR1630	40	215	4300	3200~3600	0.25	8	粗銑 ROUGHING
X-UOR1630	40	215	4300	1600~2000	0.4	8	粗銑 ROUGHING
X-UOR1630	60	105	2100	2000~2400	0.2	8	粗銑 ROUGHING
X-UOR1630	60	105	2100	1400~1800	0.35	8	粗銑 ROUGHING
X-UOR1630	90	95	1900	1400~1800	0.2	8	粗銑 ROUGHING
X-UOR1640	40	215	4300	3200~3600	0.25	7	粗銑 ROUGHING
X-UOR1640	40	215	4300	1600~2000	0.4	7	粗銑 ROUGHING
X-UOR1640	60	105	2100	2000~2400	0.2	7	粗銑 ROUGHING
X-UOR1640	60	105	2100	1400~1800	0.35	7	粗銑 ROUGHING
X-UOR1640	90	95	1900	1400~1800	0.2	7	粗銑 ROUGHING
X-UOR2030	45	215	3400	2800~3200	0.25	10	粗銑 ROUGHING
X-UOR2030	45	215	3400	1400~1800	0.4	10	粗銑 ROUGHING
X-UOR2030	70	105	1700	1800~2200	0.2	10	粗銑 ROUGHING
X-UOR2030	70	105	1700	1200~1600	0.35	10	粗銑 ROUGHING
X-UOR2030	100	95	1550	1200~1600	0.2	10	粗銑 ROUGHING
X-UOR2050	45	215	3400	2800~3200	0.25	9	粗銑 ROUGHING
X-UOR2050	45	215	3400	1400~1800	0.4	9	粗銑 ROUGHING
X-UOR2050	70	105	1700	1800~2200	0.2	9	粗銑 ROUGHING
X-UOR2050	70	105	1700	1200~1600	0.35	9	粗銑 ROUGHING
X-UOR2050	100	95	1550	1200~1600	0.2	9	粗銑 ROUGHING

X-UEYR

直刃圓鼻角立銑刀頭

End Mills



直徑 D1	R徑公差值 R Tolerance	直徑公差值 D1 Tolerance
8.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
10.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
12.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
16.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
20.0	$^{+0.02}_{0}$	$^{0}_{-0.03}$

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	R 圓鼻角 Corner R	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UEYR0810	8.0	3.5	1.0	7.8	10.1	M 5 -3P	K08
X-UEYR0820	8.0	3.5	2.0	7.8	10.1	M 5 -3P	K08
X-UEYR1010	10.0	4.0	1.0	9.8	11.1	M 7 -3P	K10
X-UEYR1020	10.0	4.0	2.0	9.8	11.1	M 7 -3P	K10
X-UEYR1220	12.0	5.0	2.0	11.7	13.8	M 8 -3P	K12
X-UEYR1230	12.0	5.0	3.0	11.7	13.8	M 8 -3P	K12
X-UEYR1620	16.0	6.5	2.0	15.6	14.7	M10-3P	K16
X-UEYR1630	16.0	6.5	3.0	15.6	14.7	M10-3P	K16
X-UEYR1640	16.0	6.5	4.0	15.6	14.7	M10-3P	K16
X-UEYR2030	20.0	8.0	3.0	19.5	18.1	M12-3P	K20
X-UEYR2050	20.0	8.0	5.0	19.5	18.1	M12-3P	K20

unit : mm

切削條件表 X-UEYR MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEYR0810	25	170	6800~7200	3000~3400	0.2~0.25	5~8	溝銑 SLOTTING
X-UEYR0810	25	170	6800~7200	4500~5000	0.2~0.25	0.2~0.25	3D銑 3D MILLING
X-UEYR0810	40	120	4800~5200	2400~2800	0.15~0.2	5~8	溝銑 SLOTTING
X-UEYR0810	40	120	4800~5200	3400~3800	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UEYR0810	60	55	2200~2600	1000~1200	0.1~0.15	5~8	溝銑 SLOTTING
X-UEYR0810	60	70	2800~3300	2800~3200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR0820	25	170	6800~7200	3000~3400	0.2~0.25	3~8	溝銑 SLOTTING
X-UEYR0820	25	170	6800~7200	4500~5000	0.2~0.25	0.2~0.25	3D銑 3D MILLING
X-UEYR0820	40	120	4800~5200	2400~2800	0.15~0.2	3~8	溝銑 SLOTTING
X-UEYR0820	40	120	4800~5200	3400~3800	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UEYR0820	60	55	2200~2600	1000~1200	0.1~0.15	3~8	溝銑 SLOTTING
X-UEYR0820	60	70	2800~3300	2800~3200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR1010	30	255	8000~8600	5500~6000	0.2~0.3	7~10	溝銑 SLOTTING
X-UEYR1010	30	205	6600~7000	3600~4000	0.2~0.3	7~10	溝銑 SLOTTING
X-UEYR1010	30	255	8000~8600	5500~6000	0.2~0.3	0.2~0.3	3D銑 3D MILLING
X-UEYR1010	30	205	6600~7000	4700~5200	0.2~0.3	0.2~0.3	3D銑 3D MILLING
X-UEYR1010	50	160	5000~5500	2200~2600	0.15~0.2	7~10	溝銑 SLOTTING
X-UEYR1010	50	160	5000~5500	3800~4200	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UEYR1010	70	115	3600~4000	1600~2000	0.1~0.15	7~10	溝銑 SLOTTING
X-UEYR1010	70	115	3600~4000	2600~3000	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR1020	30	255	8000~8600	5500~6000	0.2~0.3	5~10	溝銑 SLOTTING
X-UEYR1020	30	205	6600~7000	3600~4000	0.2~0.3	5~10	溝銑 SLOTTING
X-UEYR1020	30	255	8000~8600	5500~6000	0.2~0.3	0.2~0.3	3D銑 3D MILLING
X-UEYR1020	30	205	6600~7000	4700~5200	0.2~0.3	0.2~0.3	3D銑 3D MILLING
X-UEYR1020	50	160	5000~5500	2200~2600	0.15~0.2	5~10	溝銑 SLOTTING
X-UEYR1020	50	160	5000~5500	3800~4200	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UEYR1020	70	115	3600~4000	1600~2000	0.1~0.15	5~10	溝銑 SLOTTING
X-UEYR1020	70	115	3600~4000	2600~3000	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR1220	40	170	4500~5000	2800~3200	0.3~0.35	7~12	溝銑 SLOTTING
X-UEYR1220	40	190	5000~5500	3600~4000	0.3~0.35	0.3~0.35	3D銑 3D MILLING
X-UEYR1220	70	165	4400~4800	2200~2600	0.2~0.25	7~12	溝銑 SLOTTING
X-UEYR1220	70	120	3200~3600	2200~2600	0.2~0.25	0.2~0.25	3D銑 3D MILLING
X-UEYR1220	90	105	2700~3200	600~1000	0.05~0.1	7~12	溝銑 SLOTTING
X-UEYR1220	90	120	3200~3600	1000~1400	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1230	40	170	4500~5000	2800~3200	0.3~0.35	5~12	溝銑 SLOTTING
X-UEYR1230	40	190	5000~5500	3600~4000	0.3~0.35	0.3~0.35	3D銑 3D MILLING
X-UEYR1230	70	165	4400~4800	2200~2600	0.2~0.25	5~12	溝銑 SLOTTING
X-UEYR1230	70	120	3200~3600	2200~2600	0.2~0.25	0.2~0.25	3D銑 3D MILLING
X-UEYR1230	90	105	2700~3200	600~1000	0.05~0.1	5~12	溝銑 SLOTTING
X-UEYR1230	90	120	3200~3600	1000~1400	0.05~0.1	0.05~0.1	3D銑 3D MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEYR1620	60	170	3400~3800	1600~2000	0.3~0.35	11~16	溝銑 SLOTTING
X-UEYR1620	60	115	2300~2700	1400~1800	0.3~0.35	0.3~0.35	3D銑 3D MILLING
X-UEYR1620	90	120	2400~2800	1000~1200	0.2~0.25	11~16	溝銑 SLOTTING
X-UEYR1620	90	90	1800~2200	1000~1200	0.2~0.25	0.2~0.25	3D銑 3D MILLING
X-UEYR1620	120	90	1800~2200	800~1000	0.05~0.1	11~16	溝銑 SLOTTING
X-UEYR1620	120	90	1800~2200	1000~1200	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1630	60	170	3400~3800	1600~2000	0.3~0.35	9~16	溝銑 SLOTTING
X-UEYR1630	60	115	2300~2700	1400~1800	0.3~0.35	0.3~0.35	3D銑 3D MILLING
X-UEYR1630	90	120	2400~2800	1000~1200	0.2~0.25	9~16	溝銑 SLOTTING
X-UEYR1630	90	90	1800~2200	1000~1200	0.2~0.25	0.2~0.25	3D銑 3D MILLING
X-UEYR1630	120	90	1800~2200	800~1000	0.05~0.1	9~16	溝銑 SLOTTING
X-UEYR1630	120	90	1800~2200	1000~1200	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1640	60	170	3400~3800	1600~2000	0.3~0.35	7~16	溝銑 SLOTTING
X-UEYR1640	60	115	2300~2700	1400~1800	0.3~0.35	0.3~0.35	3D銑 3D MILLING
X-UEYR1640	90	120	2400~2800	1000~1200	0.2~0.25	7~16	溝銑 SLOTTING
X-UEYR1640	90	90	1800~2200	1000~1200	0.2~0.25	0.2~0.25	3D銑 3D MILLING
X-UEYR1640	120	90	1800~2200	800~1000	0.05~0.1	7~16	溝銑 SLOTTING
X-UEYR1640	120	90	1800~2200	1000~1200	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR2030	60	170	2500~2900	1300~1700	0.3~0.35	13~20	溝銑 SLOTTING
X-UEYR2030	60	120	1700~2100	1200~1600	0.3~0.35	0.3~0.35	3D銑 3D MILLING
X-UEYR2030	110	120	1700~2100	900~1100	0.2~0.25	13~20	溝銑 SLOTTING
X-UEYR2030	110	100	1400~1800	900~1100	0.2~0.25	0.2~0.25	3D銑 3D MILLING
X-UEYR2030	150	95	1300~1700	700~900	0.05~0.1	13~20	溝銑 SLOTTING
X-UEYR2030	150	95	1300~1700	900~1100	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR2050	60	170	2500~2900	1300~1700	0.3~0.35	9~20	溝銑 SLOTTING
X-UEYR2050	60	120	1700~2100	1200~1600	0.3~0.35	0.3~0.35	3D銑 3D MILLING
X-UEYR2050	110	120	1700~2100	900~1100	0.2~0.25	9~20	溝銑 SLOTTING
X-UEYR2050	110	100	1400~1800	900~1100	0.2~0.25	0.2~0.25	3D銑 3D MILLING
X-UEYR2050	150	95	1300~1700	700~900	0.05~0.1	9~20	溝銑 SLOTTING
X-UEYR2050	150	95	1300~1700	900~1100	0.05~0.1	0.05~0.1	3D銑 3D MILLING

切削條件表 X-UEYR MILLING CONDITIONS

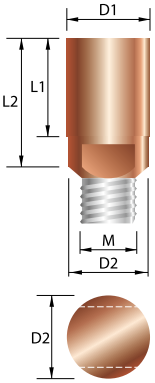
被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEYR0810	25	105	4200~4600	1800~2200	0.05~0.1	5~8	溝銑 SLOTTING
X-UEYR0810	25	105	4200~4600	1600~2000	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR0810	40	95	3800~4200	1000~1200	0.05~0.08	5~8	溝銑 SLOTTING
X-UEYR0810	40	90	3600~4000	1600~2000	0.05~0.08	0.05~0.08	3D銑 3D MILLING
X-UEYR0810	60	45	1800~2200	600~800	0.05~0.08	5~8	溝銑 SLOTTING
X-UEYR0810	60	65	2600~3000	1200~1600	0.05~0.08	0.05~0.08	3D銑 3D MILLING
X-UEYR0820	25	105	4200~4600	1800~2200	0.05~0.1	3~8	溝銑 SLOTTING
X-UEYR0820	25	105	4200~4600	1600~2000	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR0820	40	95	3800~4200	1000~1200	0.05~0.08	3~8	溝銑 SLOTTING
X-UEYR0820	40	90	3600~4000	1600~2000	0.05~0.08	0.05~0.08	3D銑 3D MILLING
X-UEYR0820	60	45	1800~2200	600~800	0.05~0.08	3~8	溝銑 SLOTTING
X-UEYR0820	60	65	2600~3000	1200~1600	0.05~0.08	0.05~0.08	3D銑 3D MILLING
X-UEYR1010	30	95	3000~3400	2000~2400	0.05~0.1	7~10	溝銑 SLOTTING
X-UEYR1010	30	100	3200~3600	2000~2400	0.05~0.1	0.07~0.1	3D銑 3D MILLING
X-UEYR1010	50	90	2800~3200	1400~1600	0.05~0.1	7~10	溝銑 SLOTTING
X-UEYR1010	50	75	2400~2800	1400~1600	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1010	70	60	1800~2200	800~1000	0.05~0.08	7~10	溝銑 SLOTTING
X-UEYR1010	70	60	1800~2200	1000~1400	0.05~0.08	0.05~0.08	3D銑 3D MILLING
X-UEYR1020	30	95	3000~3400	2000~2400	0.05~0.1	5~10	溝銑 SLOTTING
X-UEYR1020	30	100	3200~3600	2000~2400	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1020	50	90	2800~3200	1400~1600	0.05~0.1	5~10	溝銑 SLOTTING
X-UEYR1020	50	75	2400~2800	1400~1600	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1020	70	60	1800~2200	800~1000	0.05~0.08	5~10	溝銑 SLOTTING
X-UEYR1020	70	60	1800~2200	1000~1400	0.05~0.08	0.05~0.08	3D銑 3D MILLING
X-UEYR1220	40	105	2800~3200	1200~1600	0.1~0.15	7~12	溝銑 SLOTTING
X-UEYR1220	40	100	2600~3000	1600~2000	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR1220	70	75	2000~2400	800~1000	0.05~0.1	7~12	溝銑 SLOTTING
X-UEYR1220	70	85	2200~2600	1000~1400	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1220	90	70	1800~2200	600~800	0.05~0.1	7~12	溝銑 SLOTTING
X-UEYR1220	90	70	1800~2200	800~1000	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1230	40	105	2800~3200	1200~1600	0.1~0.15	5~12	溝銑 SLOTTING
X-UEYR1230	40	100	2600~3000	1600~2000	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR1230	70	75	2000~2400	800~1000	0.05~0.1	5~12	溝銑 SLOTTING
X-UEYR1230	70	85	2200~2600	1000~1400	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1230	90	70	1800~2200	600~800	0.05~0.1	5~12	溝銑 SLOTTING
X-UEYR1230	90	70	1800~2200	800~1000	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1620	60	120	2400~2800	800~1000	0.1~0.15	11~16	溝銑 SLOTTING
X-UEYR1620	60	130	2600~3000	1000~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR1620	90	90	1800~2200	600~800	0.05~0.1	11~16	溝銑 SLOTTING
X-UEYR1620	90	90	1800~2200	800~1000	0.05~0.1	0.05~0.1	3D銑 3D MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEYR1620	120	70	1400~1800	400~600	0.05~0.1	11~16	溝銑 SLOTTING
X-UEYR1620	120	80	1600~2000	600~800	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1630	60	120	2400~2800	800~1000	0.1~0.15	9~16	溝銑 SLOTTING
X-UEYR1630	60	130	2600~3000	1000~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR1630	90	90	1800~2200	600~800	0.05~0.1	9~16	溝銑 SLOTTING
X-UEYR1630	90	90	1800~2200	800~1000	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1630	120	70	1400~1800	400~600	0.05~0.1	9~16	溝銑 SLOTTING
X-UEYR1630	120	80	1600~2000	600~800	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1640	60	120	2400~2800	800~1000	0.1~0.15	7~16	溝銑 SLOTTING
X-UEYR1640	60	130	2600~3000	1000~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR1640	90	90	1800~2200	600~800	0.05~0.1	7~16	溝銑 SLOTTING
X-UEYR1640	90	90	1800~2200	800~1000	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR1640	120	70	1400~1800	400~600	0.05~0.1	7~16	溝銑 SLOTTING
X-UEYR1640	120	80	1600~2000	600~800	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR2030	60	120	1700~2100	800~1000	0.1~0.15	12~20	溝銑 SLOTTING
X-UEYR2030	60	130	1900~2300	1000~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR2030	110	90	1200~1600	600~800	0.05~0.1	12~20	溝銑 SLOTTING
X-UEYR2030	110	90	1200~1600	800~1000	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR2030	150	70	900~1300	400~600	0.05~0.1	12~20	溝銑 SLOTTING
X-UEYR2030	150	80	1000~1400	600~800	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR2050	60	120	1700~2100	800~1000	0.1~0.15	9~20	溝銑 SLOTTING
X-UEYR2050	60	130	1900~2300	1000~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEYR2050	110	90	1200~1600	600~800	0.05~0.1	9~20	溝銑 SLOTTING
X-UEYR2050	110	90	1200~1600	800~1000	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UEYR2050	150	70	900~1300	400~600	0.05~0.1	9~20	溝銑 SLOTTING
X-UEYR2050	150	80	1000~1400	600~800	0.05~0.1	0.05~0.1	3D銑 3D MILLING

X-UET

極超微粒立銑刀頭
End Mills



- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing

- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	直徑公差值 D1 Tolerance
8.0	$^{0}_{-0.02}$
10.0	$^{0}_{-0.02}$
12.0	$^{0}_{-0.02}$
16.0	$^{0}_{-0.02}$
20.0	$^{0}_{-0.03}$
25.0	$^{0}_{-0.04}$
32.0	$^{0}_{-0.04}$

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UET0804	8.0	8.0	7.8	12.1	M 5 -3P	K08
X-UET1004	10.0	10.0	9.8	16.1	M 7 -3P	K10
X-UET1204	12.0	12.0	11.7	20.3	M 8 -3P	K12
X-UET1604	16.0	16.0	15.6	25.7	M10-3P	K16
X-UET2004	20.0	20.0	19.5	31.1	M12-3P	K20
X-UET2504	25.0	25.0	24.4	39.3	M16-3P	K25
X-UET3204	32.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-UET MILLING CONDITIONS

被切削材 Work Material	合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2 (HRc23~32)
冷卻方式 Coolant Type	濕式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UET0804	25	105	5000~5500	1200~1600	0.15~0.3	6~8	溝銑 SLOTTING
X-UET0804	25	105	5000~5500	700~900	0.5~1	6~8	溝銑 SLOTTING
X-UET0804	25	105	5000~5500	800~1200	0.05~0.1	6~8	溝銑 SLOTTING
X-UET0804	25	105	5000~5500	1600~2000	8	0.15~0.3	側銑 SIDE MILLING
X-UET0804	25	105	5000~5500	1000~1400	8	0.5~1	側銑 SIDE MILLING
X-UET0804	25	105	5000~5500	800~1000	8	0.05~0.1	側銑 SIDE MILLING
X-UET0804	45	65	2500~2800	600~800	0.1~0.2	6~8	溝銑 SLOTTING
X-UET0804	45	100	3800~4200	600~800	0.05~0.1	6~8	溝銑 SLOTTING
X-UET0804	45	95	3600~4000	800~1000	8	0.1~0.2	側銑 SIDE MILLING
X-UET0804	45	100	3800~4200	600~800	8	0.05~0.1	側銑 SIDE MILLING
X-UET0804	60	50	1800~2200	300~500	0.05~0.1	6~8	溝銑 SLOTTING
X-UET0804	60	75	2700~3200	400~600	8	0.05~0.1	側銑 SIDE MILLING
X-UET1004	30	150	4500~5000	1400~1800	0.2~0.4	8~10	溝銑 SLOTTING
X-UET1004	30	150	4500~5000	800~1000	0.5~1	8~10	溝銑 SLOTTING
X-UET1004	30	150	4500~5000	800~1200	0.05~0.1	8~10	溝銑 SLOTTING
X-UET1004	30	150	4500~5000	2000~2400	10	0.2~0.4	側銑 SIDE MILLING
X-UET1004	30	150	4500~5000	1200~1600	10	0.5~1	側銑 SIDE MILLING
X-UET1004	30	150	4500~5000	800~1200	10	0.05~0.1	側銑 SIDE MILLING
X-UET1004	50	80	2400~2800	800~1200	0.1~0.25	8~10	溝銑 SLOTTING
X-UET1004	50	100	3000~3400	600~800	0.05~0.1	8~10	溝銑 SLOTTING
X-UET1004	50	120	3600~4000	800~1200	10	0.2~0.4	側銑 SIDE MILLING
X-UET1004	50	120	3600~4000	600~800	10	0.05~0.1	側銑 SIDE MILLING
X-UET1004	70	30	800~1200	300~500	0.05~0.1	8~10	溝銑 SLOTTING
X-UET1004	70	60	1800~2200	300~500	10	0.05~0.1	側銑 SIDE MILLING
X-UET1204	35	145	3600~4000	1800~2200	0.3~0.5	10~12	溝銑 SLOTTING
X-UET1204	35	135	3400~3800	800~1000	0.8~1.2	10~12	溝銑 SLOTTING
X-UET1204	35	145	3600~4000	800~1200	0.1~0.15	10~12	溝銑 SLOTTING
X-UET1204	35	145	3600~4000	2000~2400	12	0.3~0.5	側銑 SIDE MILLING
X-UET1204	35	145	3600~4000	1200~1600	12	0.8~1.2	側銑 SIDE MILLING
X-UET1204	35	145	3600~4000	800~1200	12	0.1~0.15	側銑 SIDE MILLING
X-UET1204	60	75	1800~2200	700~900	0.2~0.3	10~12	溝銑 SLOTTING
X-UET1204	60	135	3400~3800	600~800	0.1~0.15	10~12	溝銑 SLOTTING
X-UET1204	60	135	3400~3800	800~1200	12	0.2~0.3	側銑 SIDE MILLING
X-UET1204	60	135	3400~3800	600~800	12	0.1~0.15	側銑 SIDE MILLING
X-UET1204	80	75	1800~2200	300~500	0.1~0.15	10~12	溝銑 SLOTTING
X-UET1204	80	80	2000~2400	300~500	12	0.1~0.15	側銑 SIDE MILLING
X-UET1604	45	150	2700~3200	600~800	0.4~0.7	14~16	溝銑 SLOTTING
X-UET1604	45	150	2700~3200	700~900	0.1~0.15	14~16	溝銑 SLOTTING
X-UET1604	45	150	2700~3200	1200~1600	16	0.4~0.7	側銑 SIDE MILLING
X-UET1604	45	150	2700~3200	600~1000	16	0.8~1.2	側銑 SIDE MILLING

被切削材 Work Material	合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2 (HRc23~32)						
冷卻方式 Coolant Type	濕式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UET1604	45	150	2700~3200	700~900	16	0.1~0.15	側銑 SIDE MILLING
X-UET1604	70	120	2200~2600	800~1000	0.2~0.35	14~16	溝銑 SLOTTING
X-UET1604	70	130	2400~2700	600~800	0.1~0.15	14~16	溝銑 SLOTTING
X-UET1604	70	120	2200~2600	1000~1400	16	0.2~0.35	側銑 SIDE MILLING
X-UET1604	70	130	2400~2700	600~800	16	0.1~0.15	側銑 SIDE MILLING
X-UET1604	110	100	1800~2200	300~500	0.1~0.15	14~16	溝銑 SLOTTING
X-UET1604	110	60	1000~1400	300~500	16	0.1~0.15	側銑 SIDE MILLING
X-UET2004	60	150	2100~2600	500~700	0.5~1	18~20	溝銑 SLOTTING
X-UET2004	60	150	2100~2600	600~800	0.1~0.2	18~20	溝銑 SLOTTING
X-UET2004	60	150	2100~2600	800~1000	20	0.5~1	側銑 SIDE MILLING
X-UET2004	60	150	2100~2600	600~800	20	1~1.5	側銑 SIDE MILLING
X-UET2004	60	150	2100~2600	500~700	20	0.1~0.2	側銑 SIDE MILLING
X-UET2004	90	120	1700~2100	600~800	0.3~0.5	18~20	溝銑 SLOTTING
X-UET2004	90	130	1900~2300	500~700	0.1~0.2	18~20	溝銑 SLOTTING
X-UET2004	90	120	1700~2100	700~1000	20	0.3~0.5	側銑 SIDE MILLING
X-UET2004	90	130	1900~2300	400~600	20	0.1~0.2	側銑 SIDE MILLING
X-UET2004	120	100	1400~1800	400~600	0.1~0.2	18~20	溝銑 SLOTTING
X-UET2004	120	60	800~1200	300~500	20	0.1~0.2	側銑 SIDE MILLING
X-UET2504	60	140	1600~2000	500~700	0.5~1	23~25	溝銑 SLOTTING
X-UET2504	60	140	1600~2000	600~800	0.1~0.2	23~25	溝銑 SLOTTING
X-UET2504	60	140	1600~2000	700~900	25	0.5~1	側銑 SIDE MILLING
X-UET2504	60	140	1600~2000	600~800	25	1.2~1.7	側銑 SIDE MILLING
X-UET2504	60	140	1600~2000	600~800	25	0.1~0.2	側銑 SIDE MILLING
X-UET2504	100	120	1300~1700	600~800	0.4~0.7	23~25	溝銑 SLOTTING
X-UET2504	100	130	1500~1900	500~700	0.1~0.2	23~25	溝銑 SLOTTING
X-UET2504	100	120	1300~1700	800~1200	25	0.4~0.7	側銑 SIDE MILLING
X-UET2504	100	130	1500~1900	500~700	25	0.1~0.2	側銑 SIDE MILLING
X-UET2504	130	100	1100~1500	300~500	0.1~0.2	23~25	溝銑 SLOTTING
X-UET2504	130	60	600~1000	300~500	25	0.1~0.2	側銑 SIDE MILLING
X-UET3204	70	140	1200~1600	400~600	1~1.5	30~32	溝銑 SLOTTING
X-UET3204	70	140	1200~1600	450~650	0.1~0.2	30~32	溝銑 SLOTTING
X-UET3204	70	140	1200~1600	600~800	32	1~1.5	側銑 SIDE MILLING
X-UET3204	70	140	1200~1600	400~600	32	1.7~2.2	側銑 SIDE MILLING
X-UET3204	70	140	1200~1600	350~550	32	0.1~0.2	側銑 SIDE MILLING
X-UET3204	110	120	1000~1400	300~500	0.6~1	30~32	溝銑 SLOTTING
X-UET3204	110	120	1000~1400	400~600	0.1~0.2	30~32	溝銑 SLOTTING
X-UET3204	110	120	1000~1400	500~700	32	0.6~1	側銑 SIDE MILLING
X-UET3204	110	120	1000~1400	300~500	32	0.1~0.2	側銑 SIDE MILLING
X-UET3204	150	100	800~1100	250~450	0.1~0.2	30~32	溝銑 SLOTTING
X-UET3204	150	60	450~750	200~300	32	0.1~0.2	側銑 SIDE MILLING

切削條件表 X-UET MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	濕式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UET0804	25	105	5000~5500	1200~1600	0.15~0.3	6~8	溝銑 SLOTTING
X-UET0804	25	105	5000~5500	700~900	0.5~1	6~8	溝銑 SLOTTING
X-UET0804	25	105	5000~5500	800~1200	0.05~0.1	6~8	溝銑 SLOTTING
X-UET0804	25	105	5000~5500	1600~2000	8	0.15~0.3	側銑 SIDE MILLING
X-UET0804	25	105	5000~5500	1000~1400	8	0.5~1	側銑 SIDE MILLING
X-UET0804	25	105	5000~5500	800~1000	8	0.05~0.1	側銑 SIDE MILLING
X-UET0804	45	65	2500~2800	600~800	0.1~0.2	6~8	溝銑 SLOTTING
X-UET0804	45	100	3800~4200	600~800	0.05~0.1	6~8	溝銑 SLOTTING
X-UET0804	45	95	3600~4000	800~1000	8	0.1~0.2	側銑 SIDE MILLING
X-UET0804	45	100	3800~4200	600~800	8	0.05~0.1	側銑 SIDE MILLING
X-UET0804	60	50	1800~2200	300~500	0.05~0.1	6~8	溝銑 SLOTTING
X-UET0804	60	75	2700~3200	400~600	8	0.05~0.1	側銑 SIDE MILLING
X-UET1004	30	150	4500~5000	1400~1800	0.2~0.4	8~10	溝銑 SLOTTING
X-UET1004	30	150	4500~5000	800~1000	0.5~1	8~10	溝銑 SLOTTING
X-UET1004	30	150	4500~5000	800~1200	0.05~0.1	8~10	溝銑 SLOTTING
X-UET1004	30	150	4500~5000	2000~2400	10	0.2~0.4	側銑 SIDE MILLING
X-UET1004	30	150	4500~5000	1200~1600	10	0.5~1	側銑 SIDE MILLING
X-UET1004	30	150	4500~5000	800~1200	10	0.05~0.1	側銑 SIDE MILLING
X-UET1004	50	80	2400~2800	800~1200	0.1~0.25	8~10	溝銑 SLOTTING
X-UET1004	50	100	3000~3400	600~800	0.05~0.1	8~10	溝銑 SLOTTING
X-UET1004	50	120	3600~4000	800~1200	10	0.2~0.4	側銑 SIDE MILLING
X-UET1004	50	120	3600~4000	600~800	10	0.05~0.1	側銑 SIDE MILLING
X-UET1004	70	30	800~1200	300~500	0.05~0.1	8~10	溝銑 SLOTTING
X-UET1004	70	60	1800~2200	300~500	10	0.05~0.1	側銑 SIDE MILLING
X-UET1204	35	145	3600~4000	1800~2200	0.3~0.5	10~12	溝銑 SLOTTING
X-UET1204	35	135	3400~3800	800~1000	0.8~1.2	10~12	溝銑 SLOTTING
X-UET1204	35	145	3600~4000	800~1200	0.1~0.15	10~12	溝銑 SLOTTING
X-UET1204	35	145	3600~4000	2000~2400	12	0.3~0.5	側銑 SIDE MILLING
X-UET1204	35	145	3600~4000	1200~1600	12	0.8~1.2	側銑 SIDE MILLING
X-UET1204	35	145	3600~4000	800~1200	12	0.1~0.15	側銑 SIDE MILLING
X-UET1204	60	75	1800~2200	700~900	0.2~0.3	10~12	溝銑 SLOTTING
X-UET1204	60	135	3400~3800	600~800	0.1~0.15	10~12	溝銑 SLOTTING
X-UET1204	60	135	3400~3800	800~1200	12	0.2~0.3	側銑 SIDE MILLING
X-UET1204	60	135	3400~3800	600~800	12	0.1~0.15	側銑 SIDE MILLING
X-UET1204	80	75	1800~2200	300~500	0.1~0.15	10~12	溝銑 SLOTTING
X-UET1204	80	80	2000~2400	300~500	12	0.1~0.15	側銑 SIDE MILLING
X-UET1604	45	150	2700~3200	600~800	0.4~0.7	14~16	溝銑 SLOTTING
X-UET1604	45	150	2700~3200	700~900	0.1~0.15	14~16	溝銑 SLOTTING
X-UET1604	45	150	2700~3200	1200~1600	16	0.4~0.7	側銑 SIDE MILLING
X-UET1604	45	150	2700~3200	600~1000	16	0.8~1.2	側銑 SIDE MILLING

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)						
冷卻方式 Coolant Type	濕式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UET1604	45	150	2700~3200	700~900	16	0.1~0.15	側銑 SIDE MILLING
X-UET1604	70	120	2200~2600	800~1000	0.2~0.35	14~16	溝銑 SLOTTING
X-UET1604	70	130	2400~2700	600~800	0.1~0.15	14~16	溝銑 SLOTTING
X-UET1604	70	120	2200~2600	1000~1400	16	0.2~0.35	側銑 SIDE MILLING
X-UET1604	70	130	2400~2700	600~800	16	0.1~0.15	側銑 SIDE MILLING
X-UET1604	110	100	1800~2200	300~500	0.1~0.15	14~16	溝銑 SLOTTING
X-UET1604	110	60	1000~1400	300~500	16	0.1~0.15	側銑 SIDE MILLING
X-UET2004	60	150	2100~2600	500~700	0.5~1	18~20	溝銑 SLOTTING
X-UET2004	60	150	2100~2600	600~800	0.1~0.2	18~20	溝銑 SLOTTING
X-UET2004	60	150	2100~2600	800~1000	20	0.5~1	側銑 SIDE MILLING
X-UET2004	60	150	2100~2600	600~800	20	1~1.5	側銑 SIDE MILLING
X-UET2004	60	150	2100~2600	500~700	20	0.1~0.2	側銑 SIDE MILLING
X-UET2004	90	120	1700~2100	600~800	0.3~0.5	18~20	溝銑 SLOTTING
X-UET2004	90	130	1900~2300	500~700	0.1~0.2	18~20	溝銑 SLOTTING
X-UET2004	90	120	1700~2100	700~1000	20	0.3~0.5	側銑 SIDE MILLING
X-UET2004	90	130	1900~2300	400~600	20	0.1~0.2	側銑 SIDE MILLING
X-UET2004	120	100	1400~1800	400~600	0.1~0.2	18~20	溝銑 SLOTTING
X-UET2004	120	60	800~1200	300~500	20	0.1~0.2	側銑 SIDE MILLING
X-UET2504	60	140	1600~2000	500~700	0.5~1	23~25	溝銑 SLOTTING
X-UET2504	60	140	1600~2000	600~800	0.1~0.2	23~25	溝銑 SLOTTING
X-UET2504	60	140	1600~2000	700~900	25	0.5~1	側銑 SIDE MILLING
X-UET2504	60	140	1600~2000	600~800	25	1.2~1.7	側銑 SIDE MILLING
X-UET2504	60	140	1600~2000	600~800	25	0.1~0.2	側銑 SIDE MILLING
X-UET2504	100	120	1300~1700	600~800	0.4~0.7	23~25	溝銑 SLOTTING
X-UET2504	100	130	1500~1900	500~700	0.1~0.2	23~25	溝銑 SLOTTING
X-UET2504	100	120	1300~1700	800~1200	25	0.4~0.7	側銑 SIDE MILLING
X-UET2504	100	130	1500~1900	500~700	25	0.1~0.2	側銑 SIDE MILLING
X-UET2504	130	100	1100~1500	300~500	0.1~0.2	23~25	溝銑 SLOTTING
X-UET2504	130	60	600~1000	300~500	25	0.1~0.2	側銑 SIDE MILLING
X-UET3204	70	140	1200~1600	400~600	1~1.5	30~32	溝銑 SLOTTING
X-UET3204	70	140	1200~1600	450~650	0.1~0.2	30~32	溝銑 SLOTTING
X-UET3204	70	140	1200~1600	600~800	32	1~1.5	側銑 SIDE MILLING
X-UET3204	70	140	1200~1600	400~600	32	1.7~2.2	側銑 SIDE MILLING
X-UET3204	70	140	1200~1600	350~550	32	0.1~0.2	側銑 SIDE MILLING
X-UET3204	110	120	1000~1400	300~500	0.6~1	30~32	溝銑 SLOTTING
X-UET3204	110	120	1000~1400	400~600	0.1~0.2	30~32	溝銑 SLOTTING
X-UET3204	110	120	1000~1400	500~700	32	0.6~1	側銑 SIDE MILLING
X-UET3204	110	120	1000~1400	300~500	32	0.1~0.2	側銑 SIDE MILLING
X-UET3204	150	100	800~1100	250~450	0.1~0.2	30~32	溝銑 SLOTTING
X-UET3204	150	60	450~750	200~300	32	0.1~0.2	側銑 SIDE MILLING

切削條件表 X-UET MILLING CONDITIONS

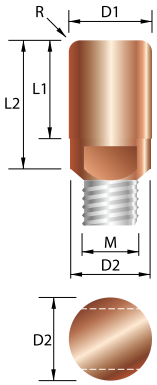
被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UET0804	25	80	3000~3400	800~1000	0.05~0.1	6~8	溝銑 SLOTTING
X-UET0804	25	65	2400~2800	400~600	8	0.05~0.1	側銑 SIDE MILLING
X-UET0804	25	130	5000~5500	800~1000	8	0.05~0.1	側銑 SIDE MILLING
X-UET0804	45	65	2400~2800	400~600	0.05~0.1	6~8	溝銑 SLOTTING
X-UET0804	45	55	2000~2400	400~600	8	0.05~0.1	側銑 SIDE MILLING
X-UET1004	30	80	2400~2800	600~800	0.05~0.1	8~10	溝銑 SLOTTING
X-UET1004	30	70	2000~2400	400~600	10	0.05~0.1	側銑 SIDE MILLING
X-UET1004	50	60	1800~2200	400~600	0.05~0.1	8~10	溝銑 SLOTTING
X-UET1004	50	60	1800~2200	400~600	10	0.05~0.1	側銑 SIDE MILLING
X-UET1004	70	55	1600~2000	200~400	0.05~0.1	8~10	溝銑 SLOTTING
X-UET1004	70	55	1600~2000	300~500	10	0.05~0.1	側銑 SIDE MILLING
X-UET1204	35	80	2000~2400	450~650	0.1~0.15	10~12	溝銑 SLOTTING
X-UET1204	35	80	2000~2400	400~600	12	0.1~0.15	側銑 SIDE MILLING
X-UET1204	60	75	1800~2200	300~500	0.1~0.15	10~12	溝銑 SLOTTING
X-UET1204	60	75	1800~2200	300~500	12	0.1~0.15	側銑 SIDE MILLING
X-UET1204	80	50	1200~1600	200~300	0.1~0.15	10~12	溝銑 SLOTTING
X-UET1204	80	70	1600~2000	300~400	12	0.1~0.15	側銑 SIDE MILLING
X-UET1604	45	80	1400~1800	300~500	0.1~0.15	14~16	溝銑 SLOTTING
X-UET1604	45	70	1300~1600	300~500	16	0.1~0.15	側銑 SIDE MILLING
X-UET1604	70	65	1200~1600	300~400	0.1~0.15	14~16	溝銑 SLOTTING
X-UET1604	70	65	1200~1600	300~400	16	0.1~0.15	側銑 SIDE MILLING
X-UET1604	110	50	800~1200	200~300	0.1~0.15	14~16	溝銑 SLOTTING
X-UET1604	110	50	800~1200	200~300	16	0.1~0.15	側銑 SIDE MILLING
X-UET2004	60	80	1100~1500	300~500	0.1~0.2	18~20	溝銑 SLOTTING
X-UET2004	60	70	1000~1300	300~500	20	0.1~0.2	側銑 SIDE MILLING
X-UET2004	90	65	900~1300	300~400	0.15~0.2	18~20	溝銑 SLOTTING
X-UET2004	90	65	900~1300	300~400	20	0.15~0.2	側銑 SIDE MILLING
X-UET2004	120	50	600~1000	200~300	0.15~0.2	18~20	溝銑 SLOTTING
X-UET2004	120	50	600~1000	200~300	20	0.15~0.2	側銑 SIDE MILLING
X-UET2504	60	80	800~1200	250~450	0.1~0.2	23~25	溝銑 SLOTTING
X-UET2504	60	70	700~1100	250~450	25	0.1~0.2	側銑 SIDE MILLING
X-UET2504	100	65	650~950	200~350	0.1~0.2	23~25	溝銑 SLOTTING
X-UET2504	100	65	650~950	200~350	25	0.1~0.2	側銑 SIDE MILLING
X-UET2504	130	50	500~800	150~250	0.1~0.2	23~25	溝銑 SLOTTING
X-UET2504	130	50	500~800	150~250	25	0.1~0.2	側銑 SIDE MILLING
X-UET3204	70	80	700~900	200~400	0.1~0.2	30~32	溝銑 SLOTTING
X-UET3204	70	70	600~800	200~400	32	0.1~0.2	側銑 SIDE MILLING
X-UET3204	110	65	500~800	150~300	0.1~0.2	30~32	溝銑 SLOTTING
X-UET3204	110	65	500~800	150~300	32	0.1~0.2	側銑 SIDE MILLING
X-UET3204	150	50	350~650	100~200	0.1~0.2	30~32	溝銑 SLOTTING
X-UET3204	150	50	350~650	100~200	32	0.1~0.2	側銑 SIDE MILLING

X-UXR

圓鼻角立銑刀頭
End Mills

Super MG | 0.4 μm | 35° | R | 4 Flutes | HRc 60 | G12



- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing

- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	R徑公差值 R Tolerance	直徑公差值 D1 Tolerance
8.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
10.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
12.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
16.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
20.0	$^{+0.02}_{0}$	$^{0}_{-0.03}$
25.0	$^{+0.02}_{0}$	$^{0}_{-0.04}$

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	R 圓鼻角 Corner R	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UXR0803	8.0	8.0	0.3	7.8	12.1	M 5 -3P	K08
X-UXR0805	8.0	8.0	0.5	7.8	12.1	M 5 -3P	K08
X-UXR0810	8.0	8.0	1.0	7.8	12.1	M 5 -3P	K08
X-UXR1005	10.0	10.0	0.5	9.8	16.1	M 7 -3P	K10
X-UXR1010	10.0	10.0	1.0	9.8	16.1	M 7 -3P	K10
X-UXR1205	12.0	12.0	0.5	11.7	20.3	M 8 -3P	K12
X-UXR1210	12.0	12.0	1.0	11.7	20.3	M 8 -3P	K12
X-UXR1605	16.0	16.0	0.5	15.6	25.7	M10-3P	K16
X-UXR1610	16.0	16.0	1.0	15.6	25.7	M10-3P	K16
X-UXR1620	16.0	16.0	2.0	15.6	25.7	M10-3P	K16
X-UXR2010	20.0	20.0	1.0	19.5	31.1	M12-3P	K20
X-UXR2020	20.0	20.0	2.0	19.5	31.1	M12-3P	K20
X-UXR2030	20.0	20.0	3.0	19.5	31.1	M12-3P	K20
X-UXR2530	25.0	25.0	3.0	24.4	39.3	M16-3P	K25
X-UXR2550	25.0	25.0	5.0	24.4	39.3	M16-3P	K25

unit : mm

切削條件表 X-UXR MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	濕式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UXR0803	30	210	8500~9000	2200~2600	0.15~0.2	7~8	溝銑 SLOTTING
X-UXR0803	30	210	8500~9000	1400~1800	0.08~0.11	7~8	溝銑 SLOTTING
X-UXR0803	30	210	8500~9000	3000~3400	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR0803	30	210	8500~9000	3200~3600	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UXR0803	50	140	5400~5600	1800~2200	0.15~0.2	7~8	溝銑 SLOTTING
X-UXR0803	50	140	5400~5600	700~1100	0.07~0.1	7~8	溝銑 SLOTTING
X-UXR0803	50	140	5400~5600	2600~3000	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR0803	50	140	5400~5600	1400~1800	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UXR0803	70	55	1700~2200	400~800	0.07~0.1	7~8	溝銑 SLOTTING
X-UXR0803	70	75	2500~3000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR0805	30	210	8500~9000	2200~2600	0.15~0.2	6~8	溝銑 SLOTTING
X-UXR0805	30	210	8500~9000	1400~1800	0.08~0.11	6~8	溝銑 SLOTTING
X-UXR0805	30	210	8500~9000	3000~3400	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR0805	30	210	8500~9000	3200~3600	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UXR0805	50	140	5400~5600	1800~2200	0.15~0.2	6~8	溝銑 SLOTTING
X-UXR0805	50	140	5400~5600	700~1100	0.07~0.1	6~8	溝銑 SLOTTING
X-UXR0805	50	140	5400~5600	2600~3000	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR0805	50	140	5400~5600	1400~1800	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UXR0805	70	55	1700~2200	400~800	0.07~0.1	6~8	溝銑 SLOTTING
X-UXR0805	70	75	2500~3000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR0810	30	210	8500~9000	2200~2600	0.15~0.2	5~8	溝銑 SLOTTING
X-UXR0810	30	210	8500~9000	1400~1800	0.08~0.11	5~8	溝銑 SLOTTING
X-UXR0810	30	210	8500~9000	3000~3400	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR0810	30	210	8500~9000	3200~3600	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UXR0810	50	140	5400~5600	1800~2200	0.15~0.2	5~8	溝銑 SLOTTING
X-UXR0810	50	140	5400~5600	700~1100	0.07~0.1	5~8	溝銑 SLOTTING
X-UXR0810	50	140	5400~5600	2600~3000	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR0810	50	140	5400~5600	1400~1800	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UXR0810	70	55	1700~2200	400~800	0.07~0.1	5~8	溝銑 SLOTTING
X-UXR0810	70	75	2500~3000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR1005	35	220	7000~7500	2000~2400	0.18~0.23	8~10	溝銑-中胚
X-UXR1005	35	220	7000~7500	1400~1800	0.08~0.13	8~10	溝銑-精銑
X-UXR1005	35	220	7000~7500	2800~3200	0.18~0.23	0.18~0.23	3D銑-中胚
X-UXR1005	35	220	7000~7500	3000~3500	0.08~0.13	0.08~0.13	3D銑-精銑
X-UXR1005	55	195	5700~6200	2000~2400	0.18~0.23	8~10	溝銑-中胚
X-UXR1005	55	195	5700~6200	1400~1800	0.08~0.13	8~10	溝銑-精銑
X-UXR1005	55	195	5700~6200	2200~2600	0.18~0.23	0.18~0.23	3D銑-中胚
X-UXR1005	55	195	5700~6200	2200~2600	0.08~0.13	0.08~0.13	3D銑-精銑
X-UXR1005	75	65	1600~2000	600~1000	0.07~0.11	8~10	溝銑 SLOTTING
X-UXR1005	75	100	2700~3200	800~1200	0.07~0.11	0.07~0.11	3D銑 3D MILLING
X-UXR1010	35	220	7000~7500	2000~2400	0.18~0.23	7~10	溝銑 SLOTTING
X-UXR1010	35	220	7000~7500	1400~1800	0.08~0.13	7~10	溝銑 SLOTTING
X-UXR1010	35	220	7000~7500	2800~3200	0.18~0.23	0.18~0.23	3D銑 3D MILLING

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)						
冷卻方式 Coolant Type	濕式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UXR1010	35	220	7000~7500	3000~3500	0.08~0.13	0.08~0.13	3D銑 3D MILLING
X-UXR1010	55	195	5700~6200	2000~2400	0.18~0.23	7~10	溝銑 SLOTTING
X-UXR1010	55	195	5700~6200	1400~1800	0.08~0.13	7~10	溝銑 SLOTTING
X-UXR1010	55	195	5700~6200	2200~2600	0.18~0.23	0.18~0.23	3D銑 3D MILLING
X-UXR1010	55	195	5700~6200	2200~2600	0.08~0.13	0.08~0.13	3D銑 3D MILLING
X-UXR1010	75	65	1600~2000	600~1000	0.07~0.11	7~10	溝銑 SLOTTING
X-UXR1010	75	100	2700~3200	800~1200	0.07~0.11	0.07~0.11	3D銑 3D MILLING
X-UXR1205	40	190	4500~5000	1400~1800	0.15~0.2	10~12	溝銑 SLOTTING
X-UXR1205	40	190	4500~5000	1200~1600	0.1~0.15	10~12	溝銑 SLOTTING
X-UXR1205	40	190	4500~5000	2200~2600	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR1205	40	190	4500~5000	2000~2400	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1205	60	180	4200~4700	1100~1500	0.1~0.15	10~12	溝銑 SLOTTING
X-UXR1205	60	180	4200~4700	1200~1600	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1205	100	90	2000~2400	600~900	0.07~0.1	10~12	溝銑 SLOTTING
X-UXR1205	100	85	1700~2200	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR1210	40	190	4500~5000	1400~1800	0.15~0.2	9~12	溝銑 SLOTTING
X-UXR1210	40	190	4500~5000	1200~1600	0.1~0.15	9~12	溝銑 SLOTTING
X-UXR1210	40	190	4500~5000	2200~2600	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR1210	40	190	4500~5000	2000~2400	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1210	60	180	4200~4700	1100~1500	0.1~0.15	9~12	溝銑 SLOTTING
X-UXR1210	60	180	4200~4700	1200~1600	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1210	100	90	2000~2400	600~900	0.07~0.1	9~12	溝銑 SLOTTING
X-UXR1210	100	85	1700~2200	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR1605	60	140	2400~2800	700~1100	0.25~0.3	14~16	溝銑 SLOTTING
X-UXR1605	60	200	3500~4000	800~1100	0.13~0.18	14~16	溝銑 SLOTTING
X-UXR1605	60	160	2700~3200	1600~2000	0.25~0.3	0.25~0.3	3D銑 3D MILLING
X-UXR1605	60	215	3700~4200	1400~1800	0.13~0.18	0.13~0.18	3D銑 3D MILLING
X-UXR1605	100	125	2000~2500	700~1000	0.1~0.15	14~16	溝銑 SLOTTING
X-UXR1605	100	120	2000~2400	800~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1605	130	90	1400~1800	400~700	0.1~0.15	14~16	溝銑 SLOTTING
X-UXR1605	130	100	1600~2000	700~1100	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1610	60	140	2400~2800	700~1100	0.25~0.3	13~16	溝銑 SLOTTING
X-UXR1610	60	200	3500~4000	800~1100	0.13~0.18	13~16	溝銑 SLOTTING
X-UXR1610	60	160	2700~3200	1600~2000	0.25~0.3	0.25~0.3	3D銑 3D MILLING
X-UXR1610	60	215	3700~4200	1400~1800	0.13~0.18	0.13~0.18	3D銑 3D MILLING
X-UXR1610	100	125	2000~2500	700~1000	0.1~0.15	13~16	溝銑 SLOTTING
X-UXR1610	100	120	2000~2400	800~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1610	130	90	1400~1800	400~700	0.1~0.15	13~16	溝銑 SLOTTING
X-UXR1610	130	100	1600~2000	700~1100	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1620	60	140	2400~2800	700~1100	0.25~0.3	11~16	溝銑 SLOTTING
X-UXR1620	60	200	3500~4000	800~1100	0.13~0.18	11~16	溝銑 SLOTTING
X-UXR1620	60	160	2700~3200	1600~2000	0.25~0.3	0.25~0.3	3D銑 3D MILLING
X-UXR1620	60	215	3700~4200	1400~1800	0.13~0.18	0.13~0.18	3D銑 3D MILLING

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)						
冷卻方式 Coolant Type	濕式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UXR1620	100	125	2000~2500	700~1000	0.1~0.15	11~16	溝銑 SLOTTING
X-UXR1620	100	120	2000~2400	800~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1620	130	90	1400~1800	400~700	0.1~0.15	11~16	溝銑 SLOTTING
X-UXR1620	130	100	1600~2000	700~1100	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR2010	70	140	2000~2500	600~900	0.35~0.45	17~20	溝銑 SLOTTING
X-UXR2010	70	190	2800~3300	700~1000	0.1~0.2	17~20	溝銑 SLOTTING
X-UXR2010	70	160	2300~2600	1400~1800	0.28~0.33	0.28~0.33	3D銑 3D MILLING
X-UXR2010	70	210	3100~3600	1400~1800	0.1~0.2	0.2~0.25	3D銑 3D MILLING
X-UXR2010	130	120	1700~2100	600~800	0.1~0.2	17~20	溝銑 SLOTTING
X-UXR2010	130	135	1900~2300	800~1200	0.1~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR2010	180	90	1300~1600	400~600	0.1~0.2	17~20	溝銑 SLOTTING
X-UXR2010	180	100	1400~1800	700~1000	0.1~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR2020	70	140	2000~2500	600~900	0.35~0.45	15~20	溝銑 SLOTTING
X-UXR2020	70	190	2800~3300	700~1000	0.1~0.2	15~20	溝銑 SLOTTING
X-UXR2020	70	160	2300~2600	1400~1800	0.28~0.33	0.28~0.33	3D銑 3D MILLING
X-UXR2020	70	210	3100~3600	1400~1800	0.1~0.2	0.2~0.25	3D銑 3D MILLING
X-UXR2020	130	120	1700~2100	600~800	0.1~0.2	15~20	溝銑 SLOTTING
X-UXR2020	130	135	1900~2300	800~1200	0.1~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR2020	180	90	1300~1600	400~600	0.1~0.2	15~20	溝銑 SLOTTING
X-UXR2020	180	100	1400~1800	700~1000	0.1~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR2030	70	140	2000~2500	600~900	0.35~0.45	13~20	溝銑 SLOTTING
X-UXR2030	70	190	2800~3300	700~1000	0.1~0.2	13~20	溝銑 SLOTTING
X-UXR2030	70	160	2300~2600	1400~1800	0.28~0.33	0.28~0.33	3D銑 3D MILLING
X-UXR2030	70	210	3100~3600	1400~1800	0.1~0.2	0.2~0.25	3D銑 3D MILLING
X-UXR2030	130	120	1700~2100	600~800	0.1~0.2	13~20	溝銑 SLOTTING
X-UXR2030	130	135	1900~2300	800~1200	0.1~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR2030	180	90	1300~1600	400~600	0.1~0.2	13~20	溝銑 SLOTTING
X-UXR2030	180	100	1400~1800	700~1000	0.1~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR2530	80	140	1600~2000	500~800	0.35~0.45	18~25	溝銑 SLOTTING
X-UXR2530	80	190	2200~2600	600~900	0.1~0.2	18~25	溝銑 SLOTTING
X-UXR2530	80	160	1800~2200	1200~1600	0.28~0.33	0.28~0.33	3D銑 3D MILLING
X-UXR2530	80	210	2400~2800	1200~1600	0.1~0.2	0.2~0.25	3D銑 3D MILLING
X-UXR2530	140	120	1300~1700	500~700	0.1~0.2	18~25	溝銑 SLOTTING
X-UXR2530	140	135	1500~1900	700~1100	0.1~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR2530	200	90	1000~1400	300~500	0.1~0.2	18~25	溝銑 SLOTTING
X-UXR2530	200	100	1100~1500	600~900	0.1~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR2550	80	140	1600~2000	500~800	0.35~0.45	14~25	溝銑 SLOTTING
X-UXR2550	80	190	2200~2600	600~900	0.1~0.2	14~25	溝銑 SLOTTING
X-UXR2550	80	160	1800~2200	1200~1600	0.28~0.33	0.28~0.33	3D銑 3D MILLING
X-UXR2550	80	210	2400~2800	1200~1600	0.1~0.2	0.2~0.25	3D銑 3D MILLING
X-UXR2550	140	120	1300~1700	500~700	0.1~0.2	14~25	溝銑 SLOTTING
X-UXR2550	140	135	1500~1900	700~1100	0.1~0.2	0.15~0.2	3D銑 3D MILLING
X-UXR2550	200	90	1000~1400	300~500	0.1~0.2	14~25	溝銑 SLOTTING
X-UXR2550	200	100	1100~1500	600~900	0.1~0.2	0.15~0.2	3D銑 3D MILLING

切削條件表 X-UXR MILLING CONDITIONS

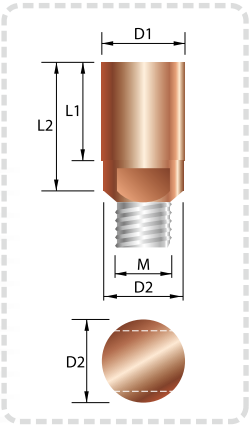
被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UXR0803	30	150	5500~6500	1200~1600	0.07~0.1	7~8	溝銑 SLOTTING
X-UXR0803	30	150	5500~6500	2200~2600	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR0803	50	125	4500~5000	600~1000	0.06~0.08	7~8	溝銑 SLOTTING
X-UXR0803	50	125	4500~5000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR0803	70	50	1600~2000	400~800	0.06~0.08	7~8	溝銑 SLOTTING
X-UXR0803	70	75	2500~3000	600~1000	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR0805	30	150	5500~6500	1200~1600	0.07~0.1	6~8	溝銑 SLOTTING
X-UXR0805	30	150	5500~6500	2200~2600	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR0805	50	125	4500~5000	600~1000	0.06~0.08	6~8	溝銑 SLOTTING
X-UXR0805	50	125	4500~5000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR0805	70	50	1600~2000	400~800	0.06~0.08	6~8	溝銑 SLOTTING
X-UXR0805	70	75	2500~3000	600~1000	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR0810	30	150	5500~6500	1200~1600	0.07~0.1	5~8	溝銑 SLOTTING
X-UXR0810	30	150	5500~6500	2200~2600	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR0810	50	125	4500~5000	600~1000	0.06~0.08	5~8	溝銑 SLOTTING
X-UXR0810	50	125	4500~5000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR0810	70	50	1600~2000	400~800	0.06~0.08	5~8	溝銑 SLOTTING
X-UXR0810	70	75	2500~3000	600~1000	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UXR1005	35	160	5000~5500	1400~1800	0.08~0.12	8~10	溝銑 SLOTTING
X-UXR1005	35	160	5000~5500	2600~3000	0.08~0.12	0.08~0.12	3D銑 3D MILLING
X-UXR1005	55	150	4700~5200	1200~1600	0.08~0.12	8~10	溝銑 SLOTTING
X-UXR1005	55	150	4700~5200	1400~1800	0.08~0.12	0.08~0.12	3D銑 3D MILLING
X-UXR1005	75	65	1600~2000	400~800	0.07~0.11	8~10	溝銑 SLOTTING
X-UXR1005	75	90	2400~2800	600~1000	0.07~0.11	0.07~0.11	3D銑 3D MILLING
X-UXR1010	35	160	5000~5500	1400~1800	0.08~0.12	7~10	溝銑 SLOTTING
X-UXR1010	35	160	5000~5500	2600~3000	0.08~0.12	0.08~0.12	3D銑 3D MILLING
X-UXR1010	55	150	4700~5200	1200~1600	0.08~0.12	7~10	溝銑 SLOTTING
X-UXR1010	55	150	4700~5200	1400~1800	0.08~0.12	0.08~0.12	3D銑 3D MILLING
X-UXR1010	75	65	1600~2000	400~800	0.07~0.11	7~10	溝銑 SLOTTING
X-UXR1010	75	90	2400~2800	600~1000	0.07~0.11	0.07~0.11	3D銑 3D MILLING
X-UXR1205	40	140	3500~4000	1200~1600	0.1~0.13	10~12	溝銑 SLOTTING
X-UXR1205	40	140	3500~4000	1600~2000	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UXR1205	60	120	2700~3200	800~1200	0.1~0.13	10~12	溝銑 SLOTTING
X-UXR1205	60	120	2700~3200	1000~1400	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UXR1205	100	90	2000~2400	400~800	0.06~0.08	10~12	溝銑 SLOTTING
X-UXR1205	100	75	1600~2000	600~1000	0.06~0.08	0.06~0.08	3D銑 3D MILLING
X-UXR1210	40	130	3000~3400	1200~1600	0.1~0.13	9~12	溝銑 SLOTTING
X-UXR1210	40	130	3000~3400	1600~2000	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UXR1210	60	120	2700~3200	800~1200	0.1~0.13	9~12	溝銑 SLOTTING
X-UXR1210	60	120	2700~3200	1000~1400	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UXR1210	100	90	2000~2400	400~800	0.06~0.08	9~12	溝銑 SLOTTING
X-UXR1210	100	75	1600~2000	600~1000	0.06~0.08	0.06~0.08	3D銑 3D MILLING
X-UXR1605	60	150	2500~3000	800~1100	0.12~0.16	14~16	溝銑 SLOTTING
X-UXR1605	60	150	2500~3000	1200~1600	0.12~0.16	0.12~0.16	3D銑 3D MILLING
X-UXR1605	100	110	1800~2200	600~1000	0.1~0.15	14~16	溝銑 SLOTTING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)						
冷卻方式 Coolant Type	乾式切削 Dry coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UXR1605	100	110	1800~2200	600~1000	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1605	130	90	1400~1800	400~700	0.08~0.12	14~16	溝銑 SLOTTING
X-UXR1605	130	90	1400~1800	400~700	0.08~0.12	0.08~0.12	3D銑 3D MILLING
X-UXR1610	60	150	2500~3000	800~1100	0.12~0.16	13~16	溝銑 SLOTTING
X-UXR1610	60	150	2500~3000	1200~1600	0.12~0.16	0.12~0.16	3D銑 3D MILLING
X-UXR1610	100	110	1800~2200	600~1000	0.1~0.15	13~16	溝銑 SLOTTING
X-UXR1610	100	110	1800~2200	600~1000	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1610	130	90	1400~1800	400~700	0.08~0.12	13~16	溝銑 SLOTTING
X-UXR1610	130	90	1400~1800	400~700	0.08~0.12	0.08~0.12	3D銑 3D MILLING
X-UXR1620	60	150	2500~3000	800~1100	0.12~0.16	11~16	溝銑 SLOTTING
X-UXR1620	60	150	2500~3000	1200~1600	0.12~0.16	0.12~0.16	3D銑 3D MILLING
X-UXR1620	100	110	1800~2200	600~900	0.1~0.15	11~16	溝銑 SLOTTING
X-UXR1620	100	110	1800~2200	600~1000	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UXR1620	130	90	1400~1800	400~600	0.08~0.12	11~16	溝銑 SLOTTING
X-UXR1620	130	90	1400~1800	400~700	0.08~0.12	0.08~0.12	3D銑 3D MILLING
X-UXR2010	70	175	2500~3000	500~700	0.1~0.2	17~20	溝銑 SLOTTING
X-UXR2010	70	175	2500~3000	1200~1600	0.1~0.2	0.17~0.2	3D銑 3D MILLING
X-UXR2010	130	110	1600~2000	400~600	0.1~0.2	17~20	溝銑 SLOTTING
X-UXR2010	130	120	1800~2200	600~1000	0.1~0.2	0.12~0.15	3D銑 3D MILLING
X-UXR2010	180	80	1100~1400	300~500	0.1~0.15	17~20	溝銑 SLOTTING
X-UXR2010	180	90	1300~1600	500~800	0.1~0.15	0.12~0.15	3D銑 3D MILLING
X-UXR2020	70	175	2500~3000	500~700	0.1~0.2	15~20	溝銑 SLOTTING
X-UXR2020	70	175	2500~3000	1200~1600	0.1~0.2	0.17~0.2	3D銑 3D MILLING
X-UXR2020	130	110	1600~2000	400~600	0.1~0.2	15~20	溝銑 SLOTTING
X-UXR2020	130	120	1800~2200	600~1000	0.1~0.2	0.12~0.15	3D銑 3D MILLING
X-UXR2020	180	80	1100~1400	300~500	0.1~0.15	15~20	溝銑 SLOTTING
X-UXR2020	180	90	1300~1600	500~800	0.1~0.15	0.12~0.15	3D銑 3D MILLING
X-UXR2030	70	175	2500~3000	500~700	0.1~0.2	13~20	溝銑 SLOTTING
X-UXR2030	70	175	2500~3000	1200~1600	0.1~0.2	0.17~0.2	3D銑 3D MILLING
X-UXR2030	130	110	1600~2000	400~600	0.1~0.2	13~20	溝銑 SLOTTING
X-UXR2030	130	120	1800~2200	600~1000	0.1~0.2	0.12~0.15	3D銑 3D MILLING
X-UXR2030	180	80	1100~1400	300~500	0.1~0.15	13~20	溝銑 SLOTTING
X-UXR2030	180	90	1300~1600	500~800	0.1~0.15	0.12~0.15	3D銑 3D MILLING
X-UXR2530	80	175	2000~2400	400~600	0.1~0.2	18~25	溝銑 SLOTTING
X-UXR2530	80	175	2000~2400	1100~1500	0.1~0.2	0.17~0.2	3D銑 3D MILLING
X-UXR2530	140	110	1200~1600	300~500	0.1~0.2	18~25	溝銑 SLOTTING
X-UXR2530	140	120	1300~1700	600~900	0.1~0.2	0.12~0.15	3D銑 3D MILLING
X-UXR2530	200	80	800~1200	300~400	0.1~0.15	18~25	溝銑 SLOTTING
X-UXR2530	200	90	1000~1400	400~700	0.1~0.15	0.12~0.15	3D銑 3D MILLING
X-UXR2550	80	175	2000~2400	400~600	0.1~0.2	14~25	溝銑 SLOTTING
X-UXR2550	80	175	2000~2400	1100~1500	0.1~0.2	0.17~0.2	3D銑 3D MILLING
X-UXR2550	140	110	1200~1600	300~500	0.1~0.2	14~25	溝銑 SLOTTING
X-UXR2550	140	120	1300~1700	600~900	0.1~0.2	0.12~0.15	3D銑 3D MILLING
X-UXR2550	200	80	800~1200	300~400	0.1~0.15	14~25	溝銑 SLOTTING
X-UXR2550	200	90	1000~1400	400~700	0.1~0.15	0.12~0.15	3D銑 3D MILLING

X-UPS

無敵高效能立銑刀頭
End Mills



- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing

- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	直徑公差值 D1 Tolerance
8.0	$^{0}_{-0.02}$
10.0	$^{0}_{-0.02}$
12.0	$^{0}_{-0.02}$
16.0	$^{0}_{-0.02}$
20.0	$^{0}_{-0.03}$
25.0	$^{0}_{-0.04}$
32.0	$^{0}_{-0.04}$

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UPS0804	8.0	8.0	7.8	12.1	M 5 -3P	K08
X-UPS1004	10.0	10.0	9.8	16.1	M 7 -3P	K10
X-UPS1204	12.0	12.0	11.7	20.3	M 8 -3P	K12
X-UPS1604	16.0	16.0	15.6	25.7	M10-3P	K16
X-UPS2004	20.0	20.0	19.5	31.1	M12-3P	K20
X-UPS2504	25.0	25.0	24.4	39.3	M16-3P	K25
X-UPS3204	32.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

X-UPS

切削條件表 MILLING CONDITIONS

被切削材 Work Material	碳素鋼 *Carbon Steels* : S50C / SS400 : 1.1210 / 1.0036 : 1050 / A570 Gr.45 (~HRc22)
冷卻方式 Coolant Type	濕式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPS0804	25	120	4600~5000	1200~1400	0~0.3	6~8	溝銑 SLOTTING
X-UPS0804	25	120	4600~5000	800~1000	1~2	6~8	溝銑 SLOTTING
X-UPS0804	25	120	4600~5000	800~1000	0.05~0.1	6~8	溝銑 SLOTTING
X-UPS0804	25	120	4600~5000	1200~1400	8	0~0.3	側銑 SIDE MILLING
X-UPS0804	25	120	4600~5000	700~900	8	1~2	側銑 SIDE MILLING
X-UPS0804	25	120	4600~5000	700~1000	8	0.05~0.1	側銑 SIDE MILLING
X-UPS0804	45	60	2200~2600	900~1100	0~0.2	6~8	溝銑 SLOTTING
X-UPS0804	45	70	2600~3000	500~700	0.05~0.1	6~8	溝銑 SLOTTING
X-UPS0804	45	70	2600~3000	300~500	8	0.05~0.1	側銑 SIDE MILLING
X-UPS0804	60	45	1500~2000	350~550	0.05~0.1	6~8	溝銑 SLOTTING
X-UPS0804	60	45	1500~2000	200~400	8	0.05~0.1	側銑 SIDE MILLING
X-UPS1004	30	110	3300~3700	1200~1400	0~0.4	8~10	溝銑 SLOTTING
X-UPS1004	30	110	3300~3700	600~800	1~2	8~10	溝銑 SLOTTING
X-UPS1004	30	120	3600~4000	700~900	0.05~0.1	8~10	溝銑 SLOTTING
X-UPS1004	30	110	3300~3700	1200~1400	10	0~0.4	側銑 SIDE MILLING
X-UPS1004	30	110	3300~3700	600~800	10	1~2	側銑 SIDE MILLING
X-UPS1004	30	110	3300~3700	600~800	10	0.05~0.1	側銑 SIDE MILLING
X-UPS1004	50	80	2400~2800	800~1000	0~0.2	8~10	溝銑 SLOTTING
X-UPS1004	50	75	2200~2600	250~400	0.05~0.1	8~10	溝銑 SLOTTING
X-UPS1004	50	80	2400~2800	800~1000	10	0~0.2	側銑 SIDE MILLING
X-UPS1004	50	75	2200~2600	400~600	10	0.05~0.1	側銑 SIDE MILLING
X-UPS1004	70	60	1700~2200	250~350	0.05~0.1	8~10	溝銑 SLOTTING
X-UPS1004	70	60	1700~2200	200~350	10	0.05~0.1	側銑 SIDE MILLING
X-UPS1204	35	120	3000~3400	1000~1200	0~0.5	10~12	溝銑 SLOTTING
X-UPS1204	35	110	2600~3000	400~600	2~3	10~12	溝銑 SLOTTING
X-UPS1204	35	120	3000~3400	600~800	0.1~0.15	10~12	溝銑 SLOTTING
X-UPS1204	35	120	3000~3400	1000~1200	12	0~0.5	側銑 SIDE MILLING
X-UPS1204	35	120	3000~3400	500~700	12	2~3	側銑 SIDE MILLING
X-UPS1204	35	120	3000~3400	500~700	12	0.1~0.15	側銑 SIDE MILLING
X-UPS1204	60	100	2400~2800	1000~1200	0~0.25	10~12	溝銑 SLOTTING
X-UPS1204	60	100	2400~2800	300~500	0.1~0.15	10~12	溝銑 SLOTTING
X-UPS1204	60	115	2800~3200	800~1200	12	0~0.25	側銑 SIDE MILLING
X-UPS1204	60	100	2400~2800	300~500	12	0.1~0.15	側銑 SIDE MILLING
X-UPS1204	80	50	1200~1600	400~500	0.05~0.1	10~12	溝銑 SLOTTING
X-UPS1204	80	50	1200~1600	400~500	12	0.05~0.1	側銑 SIDE MILLING
X-UPS1604	45	120	2200~2600	700~1000	0~0.5	14~16	溝銑 SLOTTING
X-UPS1604	45	120	2200~2600	400~500	1~1.5	14~16	溝銑 SLOTTING
X-UPS1604	45	120	2200~2600	500~700	0.1~0.15	14~16	溝銑 SLOTTING
X-UPS1604	45	120	2200~2600	600~800	16	0~0.5	側銑 SIDE MILLING
X-UPS1604	45	120	2200~2600	300~400	16	1~2	側銑 SIDE MILLING
X-UPS1604	45	120	2200~2600	450~650	16	0.1~0.15	側銑 SIDE MILLING
X-UPS1604	70	100	1800~2200	700~900	0~0.3	14~16	溝銑 SLOTTING

被切削材 Work Material	碳素鋼 *Carbon Steels* : S50C / SS400 : 1.1210 / 1.0036 : 1050 / A570 Gr.45 (~HRc22)						
冷卻方式 Coolant Type	濕式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPS1604	70	100	1800~2200	400~600	0.1~0.15	14~16	溝銑 SLOTTING
X-UPS1604	70	100	1800~2200	700~900	16	0~0.3	側銑 SIDE MILLING
X-UPS1604	70	90	1600~2000	300~500	16	0.1~0.15	側銑 SIDE MILLING
X-UPS1604	110	40	700~1000	250~350	0.1~0.15	14~16	溝銑 SLOTTING
X-UPS1604	110	40	700~1000	250~350	16	0.1~0.15	側銑 SIDE MILLING
X-UPS2004	50	125	1800~2200	700~900	0.5~1	18~20	溝銑 SLOTTING
X-UPS2004	50	125	1800~2200	400~500	2~3	18~20	溝銑 SLOTTING
X-UPS2004	50	125	1800~2200	600~800	0.15~0.2	18~20	溝銑 SLOTTING
X-UPS2004	50	125	1800~2200	700~900	20	0.5~1	側銑 SIDE MILLING
X-UPS2004	50	125	1800~2200	300~450	20	2~3	側銑 SIDE MILLING
X-UPS2004	50	125	1800~2200	400~600	20	0.1~0.2	側銑 SIDE MILLING
X-UPS2004	90	100	1400~1800	700~900	0.3~0.6	18~20	溝銑 SLOTTING
X-UPS2004	90	100	1400~1800	400~600	0.15~0.2	18~20	溝銑 SLOTTING
X-UPS2004	90	100	1400~1800	700~900	20	0.5~0.8	側銑 SIDE MILLING
X-UPS2004	90	100	1400~1800	300~500	20	0.15~0.2	側銑 SIDE MILLING
X-UPS2004	120	60	800~1100	250~400	0.15~0.2	18~20	溝銑 SLOTTING
X-UPS2004	120	50	600~900	200~300	20	0.15~0.2	側銑 SIDE MILLING
X-UPS2504	60	125	1400~1800	600~800	0.5~1	20~25	溝銑 SLOTTING
X-UPS2504	60	125	1400~1800	400~500	2~3	20~25	溝銑 SLOTTING
X-UPS2504	60	125	1400~1800	500~700	0.15~0.2	20~25	溝銑 SLOTTING
X-UPS2504	60	125	1400~1800	600~800	25	0.5~1	側銑 SIDE MILLING
X-UPS2504	60	125	1400~1800	400~500	25	2~3	側銑 SIDE MILLING
X-UPS2504	60	125	1400~1800	400~600	25	0.15~0.2	側銑 SIDE MILLING
X-UPS2504	100	100	1200~1500	600~800	0.5~1	23~25	溝銑 SLOTTING
X-UPS2504	100	100	1200~1500	300~500	0.15~0.2	23~25	溝銑 SLOTTING
X-UPS2504	100	100	1200~1500	600~800	25	0.5~1	側銑 SIDE MILLING
X-UPS2504	100	100	1200~1500	300~500	25	0.15~0.2	側銑 SIDE MILLING
X-UPS2504	140	60	600~900	200~350	0.15~0.2	23~25	溝銑 SLOTTING
X-UPS2504	140	50	500~800	150~250	25	0.15~0.2	側銑 SIDE MILLING
X-UPS3204	70	125	1100~1400	650~850	0.5~1	30~32	溝銑 SLOTTING
X-UPS3204	70	125	1100~1400	350~450	2~3	30~32	溝銑 SLOTTING
X-UPS3204	70	125	1100~1400	500~700	0.15~0.2	30~32	溝銑 SLOTTING
X-UPS3204	70	125	1100~1400	600~800	32	0.5~1	側銑 SIDE MILLING
X-UPS3204	70	125	1100~1400	350~500	32	2~3	側銑 SIDE MILLING
X-UPS3204	70	125	1100~1400	400~600	32	0.15~0.2	側銑 SIDE MILLING
X-UPS3204	110	100	900~1100	600~800	0.5~1	30~32	溝銑 SLOTTING
X-UPS3204	110	100	900~1100	300~500	0.15~0.2	30~32	溝銑 SLOTTING
X-UPS3204	110	100	900~1100	600~800	32	0.5~1	側銑 SIDE MILLING
X-UPS3204	110	100	900~1100	300~500	32	0.15~0.2	側銑 SIDE MILLING
X-UPS3204	150	60	500~800	200~300	0.15~0.2	30~32	溝銑 SLOTTING
X-UPS3204	150	60	500~800	150~250	32	0.15~0.2	側銑 SIDE MILLING

切削條件表 X-UPS MILLING CONDITIONS

被切削材 Work Material	合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2 (HRc23~32)
冷卻方式 Coolant Type	濕式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPS0804	25	105	4000~4500	1000~1200	0~0.3	6~8	溝銑 SLOTTING
X-UPS0804	25	105	4000~4500	800~1100	1~1.5	6~8	溝銑 SLOTTING
X-UPS0804	25	105	4000~4500	700~900	0.05~0.1	6~8	溝銑 SLOTTING
X-UPS0804	25	105	4000~4500	1000~1200	8	0~0.3	側銑 SIDE MILLING
X-UPS0804	25	105	4000~4500	600~800	8	1~1.5	側銑 SIDE MILLING
X-UPS0804	25	105	4000~4500	700~900	8	0.05~0.1	側銑 SIDE MILLING
X-UPS0804	45	55	2000~2400	800~1000	0~0.2	6~8	溝銑 SLOTTING
X-UPS0804	45	65	2400~2700	400~600	0.05~0.1	6~8	溝銑 SLOTTING
X-UPS0804	45	65	2400~2700	250~450	8	0.05~0.1	側銑 SIDE MILLING
X-UPS0804	60	40	1400~1800	300~500	0.05~0.1	6~8	溝銑 SLOTTING
X-UPS0804	60	45	1500~2000	200~400	8	0.05~0.1	側銑 SIDE MILLING
X-UPS1004	30	95	2800~3300	1000~1200	0~0.4	8~10	溝銑 SLOTTING
X-UPS1004	30	95	2800~3300	500~700	1~1.5	8~10	溝銑 SLOTTING
X-UPS1004	30	100	3000~3500	600~800	0.05~0.1	8~10	溝銑 SLOTTING
X-UPS1004	30	95	2800~3300	1200~1400	10	0~0.4	側銑 SIDE MILLING
X-UPS1004	30	95	2800~3300	500~700	10	1~1.5	側銑 SIDE MILLING
X-UPS1004	30	100	3000~3500	500~700	10	0.05~0.1	側銑 SIDE MILLING
X-UPS1004	50	80	2400~2800	800~1000	0~0.2	8~10	溝銑 SLOTTING
X-UPS1004	50	75	2200~2600	250~400	0.05~0.1	8~10	溝銑 SLOTTING
X-UPS1004	50	80	2400~2800	800~1000	10	0~0.2	側銑 SIDE MILLING
X-UPS1004	50	75	2200~2600	400~600	10	0.05~0.1	側銑 SIDE MILLING
X-UPS1004	70	50	1300~1700	200~300	0.05~0.1	8~10	溝銑 SLOTTING
X-UPS1004	70	60	1700~2200	200~350	10	0.05~0.1	側銑 SIDE MILLING
X-UPS1204	35	115	2800~3200	800~1000	0~0.5	10~12	溝銑 SLOTTING
X-UPS1204	35	100	2400~2800	300~500	2~3	10~12	溝銑 SLOTTING
X-UPS1204	35	115	2800~3200	500~700	0.1~0.15	10~12	溝銑 SLOTTING
X-UPS1204	35	115	2800~3200	1000~1200	12	0~0.5	側銑 SIDE MILLING
X-UPS1204	35	115	2800~3200	400~600	12	2~3	側銑 SIDE MILLING
X-UPS1204	35	115	2800~3200	400~600	12	0.1~0.15	側銑 SIDE MILLING
X-UPS1204	60	80	2000~2400	800~1000	0~0.25	10~12	溝銑 SLOTTING
X-UPS1204	60	100	2400~2800	300~500	0.1~0.15	10~12	溝銑 SLOTTING
X-UPS1204	60	115	2800~3200	800~1200	12	0~0.25	側銑 SIDE MILLING
X-UPS1204	60	100	2400~2800	300~500	12	0.1~0.15	側銑 SIDE MILLING
X-UPS1204	80	50	1200~1600	400~500	0.05~0.1	10~12	溝銑 SLOTTING
X-UPS1204	80	50	1200~1600	400~500	12	0.05~0.1	側銑 SIDE MILLING
X-UPS1604	45	110	2000~2400	600~800	0~0.5	14~16	溝銑 SLOTTING
X-UPS1604	45	110	2000~2400	300~400	1~1.5	14~16	溝銑 SLOTTING
X-UPS1604	45	110	2000~2400	500~700	0.1~0.15	14~16	溝銑 SLOTTING
X-UPS1604	45	110	2000~2400	600~800	16	0~0.5	側銑 SIDE MILLING
X-UPS1604	45	110	2000~2400	250~350	16	1~2	側銑 SIDE MILLING
X-UPS1604	45	110	2000~2400	400~600	16	0.1~0.15	側銑 SIDE MILLING
X-UPS1604	70	100	1800~2200	700~900	0~0.3	14~16	溝銑 SLOTTING

被切削材 Work Material	合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2 (HRc23~32)						
冷卻方式 Coolant Type	濕式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPS1604	70	90	1600~2000	350~550	0.1~0.15	14~16	溝銑 SLOTTING
X-UPS1604	70	100	1800~2200	700~900	16	0~0.3	側銑 SIDE MILLING
X-UPS1604	70	90	1600~2000	300~500	16	0.1~0.15	側銑 SIDE MILLING
X-UPS1604	110	40	700~1000	250~350	0.1~0.15	14~16	溝銑 SLOTTING
X-UPS1604	110	40	700~1000	250~350	16	0.1~0.15	側銑 SIDE MILLING
X-UPS2004	50	115	1600~2000	600~800	0.5~1	18~20	溝銑 SLOTTING
X-UPS2004	50	115	1600~2000	300~400	2~3	18~20	溝銑 SLOTTING
X-UPS2004	50	115	1600~2000	500~700	0.15~0.2	18~20	溝銑 SLOTTING
X-UPS2004	50	115	1600~2000	600~800	20	0.5~1	側銑 SIDE MILLING
X-UPS2004	50	115	1600~2000	300~450	20	2~3	側銑 SIDE MILLING
X-UPS2004	50	115	1600~2000	400~600	20	0.15~0.2	側銑 SIDE MILLING
X-UPS2004	90	90	1300~1600	700~900	0.3~0.6	18~20	溝銑 SLOTTING
X-UPS2004	90	90	1300~1600	350~550	0.15~0.2	18~20	溝銑 SLOTTING
X-UPS2004	90	90	1300~1600	700~900	20	0.5~0.8	側銑 SIDE MILLING
X-UPS2004	90	90	1300~1600	300~500	20	0.15~0.2	側銑 SIDE MILLING
X-UPS2004	120	60	800~1100	250~400	0.15~0.2	18~20	溝銑 SLOTTING
X-UPS2004	120	50	600~900	200~300	20	0.15~0.2	側銑 SIDE MILLING
X-UPS2504	60	110	1200~1600	600~800	0.5~1	20~25	溝銑 SLOTTING
X-UPS2504	60	110	1200~1600	300~400	2~3	20~25	溝銑 SLOTTING
X-UPS2504	60	110	1200~1600	500~700	0.15~0.2	20~25	溝銑 SLOTTING
X-UPS2504	60	110	1200~1600	600~800	25	0.5~1	側銑 SIDE MILLING
X-UPS2504	60	110	1200~1600	300~450	25	2~3	側銑 SIDE MILLING
X-UPS2504	60	110	1200~1600	300~500	25	0.15~0.2	側銑 SIDE MILLING
X-UPS2504	100	90	1000~1400	600~800	0.5~1	23~25	溝銑 SLOTTING
X-UPS2504	100	90	1000~1400	300~500	0.15~0.2	23~25	溝銑 SLOTTING
X-UPS2504	100	90	1000~1400	600~800	25	0.5~1	側銑 SIDE MILLING
X-UPS2504	100	90	1000~1400	300~500	25	0.15~0.2	側銑 SIDE MILLING
X-UPS2504	140	60	600~900	200~350	0.15~0.2	23~25	溝銑 SLOTTING
X-UPS2504	140	50	500~800	150~250	25	0.15~0.2	側銑 SIDE MILLING
X-UPS3204	70	115	1000~1300	500~700	0.5~1	30~32	溝銑 SLOTTING
X-UPS3204	70	115	1000~1300	300~400	2~3	30~32	溝銑 SLOTTING
X-UPS3204	70	115	1000~1300	400~600	0.15~0.2	30~32	溝銑 SLOTTING
X-UPS3204	70	115	1000~1300	500~700	32	0.5~1	側銑 SIDE MILLING
X-UPS3204	70	115	1000~1300	300~450	32	2~3	側銑 SIDE MILLING
X-UPS3204	70	115	1000~1300	300~500	32	0.15~0.2	側銑 SIDE MILLING
X-UPS3204	110	90	700~1000	500~700	0.5~1	30~32	溝銑 SLOTTING
X-UPS3204	110	90	700~1000	300~500	0.15~0.2	30~32	溝銑 SLOTTING
X-UPS3204	110	90	700~1000	500~700	32	0.5~1	側銑 SIDE MILLING
X-UPS3204	110	90	700~1000	250~450	32	0.15~0.2	側銑 SIDE MILLING
X-UPS3204	150	60	500~800	200~300	0.15~0.2	30~32	溝銑 SLOTTING
X-UPS3204	150	50	400~700	100~200	32	0.15~0.2	側銑 SIDE MILLING

切削條件表 X-UPS MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	濕式切削 Wet coolant

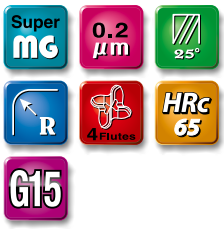
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPS0804	25	105	4000~4500	1000~1200	0~0.3	6~8	溝銑 SLOTTING
X-UPS0804	25	105	4000~4500	800~1100	1~1.5	6~8	溝銑 SLOTTING
X-UPS0804	25	105	4000~4500	700~900	0.05~0.1	6~8	溝銑 SLOTTING
X-UPS0804	25	105	4000~4500	1000~1200	8	0~0.3	側銑 SIDE MILLING
X-UPS0804	25	105	4000~4500	700~1000	8	1~1.5	側銑 SIDE MILLING
X-UPS0804	25	105	4000~4500	700~900	8	0.05~0.1	側銑 SIDE MILLING
X-UPS0804	45	55	2000~2400	800~1000	0~0.2	6~8	溝銑 SLOTTING
X-UPS0804	45	65	2400~2700	400~600	0.05~0.1	6~8	溝銑 SLOTTING
X-UPS0804	45	65	2400~2700	250~450	8	0.05~0.1	側銑 SIDE MILLING
X-UPS0804	60	40	1400~1800	300~500	0.05~0.1	6~8	溝銑 SLOTTING
X-UPS0804	60	45	1500~2000	200~400	8	0.05~0.1	側銑 SIDE MILLING
X-UPS1004	30	95	2800~3300	1000~1200	0~0.4	8~10	溝銑 SLOTTING
X-UPS1004	30	95	2800~3300	500~700	1~1.5	8~10	溝銑 SLOTTING
X-UPS1004	30	100	3000~3500	600~800	0.05~0.1	8~10	溝銑 SLOTTING
X-UPS1004	30	95	2800~3300	1200~1400	10	0~0.4	側銑 SIDE MILLING
X-UPS1004	30	95	2800~3300	500~700	10	1~1.5	側銑 SIDE MILLING
X-UPS1004	30	100	3000~3500	500~700	10	0.05~0.1	側銑 SIDE MILLING
X-UPS1004	50	80	2400~2800	800~1000	0~0.2	8~10	溝銑 SLOTTING
X-UPS1004	50	75	2200~2600	250~400	0.05~0.1	8~10	溝銑 SLOTTING
X-UPS1004	50	80	2400~2800	800~1000	10	0~0.2	側銑 SIDE MILLING
X-UPS1004	50	75	2200~2600	400~600	10	0.05~0.1	側銑 SIDE MILLING
X-UPS1004	70	50	1300~1700	200~300	0.05~0.1	8~10	溝銑 SLOTTING
X-UPS1004	70	60	1700~2200	200~350	10	0.05~0.1	側銑 SIDE MILLING
X-UPS1204	35	115	2800~3200	800~1000	0~0.5	10~12	溝銑 SLOTTING
X-UPS1204	35	100	2400~2800	300~500	2~3	10~12	溝銑 SLOTTING
X-UPS1204	35	115	2800~3200	500~700	0.1~0.15	10~12	溝銑 SLOTTING
X-UPS1204	35	115	2800~3200	1000~1200	12	0~0.5	側銑 SIDE MILLING
X-UPS1204	35	115	2800~3200	400~600	12	2~3	側銑 SIDE MILLING
X-UPS1204	35	115	2800~3200	400~600	12	0.1~0.15	側銑 SIDE MILLING
X-UPS1204	60	80	2000~2400	800~1000	0~0.25	10~12	溝銑 SLOTTING
X-UPS1204	60	100	2400~2800	300~500	0.1~0.15	10~12	溝銑 SLOTTING
X-UPS1204	60	115	2800~3200	800~1200	12	0~0.25	側銑 SIDE MILLING
X-UPS1204	60	100	2400~2800	300~500	12	0.1~0.15	側銑 SIDE MILLING
X-UPS1204	80	50	1200~1600	400~500	0.05~0.1	10~12	溝銑 SLOTTING
X-UPS1204	80	50	1200~1600	400~500	12	0.05~0.1	側銑 SIDE MILLING
X-UPS1604	45	110	2000~2400	600~800	0~0.5	14~16	溝銑 SLOTTING
X-UPS1604	45	110	2000~2400	300~400	1~1.5	14~16	溝銑 SLOTTING
X-UPS1604	45	110	2000~2400	500~700	0.1~0.15	14~16	溝銑 SLOTTING
X-UPS1604	45	110	2000~2400	600~800	16	0~0.5	側銑 SIDE MILLING
X-UPS1604	45	110	2000~2400	250~350	16	1~2	側銑 SIDE MILLING
X-UPS1604	45	110	2000~2400	400~600	16	0.1~0.15	側銑 SIDE MILLING
X-UPS1604	70	100	1800~2200	700~900	0~0.3	14~16	溝銑 SLOTTING

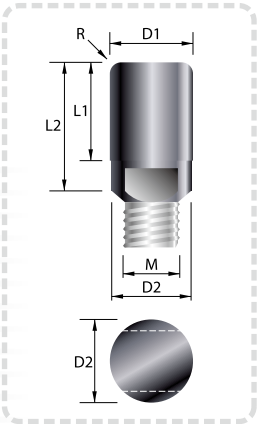
被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)						
冷卻方式 Coolant Type	濕式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPS1604	70	90	1600~2000	350~550	0.1~0.15	14~16	溝銑 SLOTTING
X-UPS1604	70	100	1800~2200	700~900	16	0~0.3	側銑 SIDE MILLING
X-UPS1604	70	90	1600~2000	300~500	16	0.1~0.15	側銑 SIDE MILLING
X-UPS1604	110	40	700~1000	250~350	0.1~0.15	14~16	溝銑 SLOTTING
X-UPS1604	110	40	700~1000	250~350	16	0.1~0.15	側銑 SIDE MILLING
X-UPS2004	50	115	1600~2000	600~800	0.5~1	18~20	溝銑 SLOTTING
X-UPS2004	50	115	1600~2000	300~400	2~3	18~20	溝銑 SLOTTING
X-UPS2004	50	115	1600~2000	500~700	0.15~0.2	18~20	溝銑 SLOTTING
X-UPS2004	50	115	1600~2000	600~800	20	0.5~1	側銑 SIDE MILLING
X-UPS2004	50	115	1600~2000	300~450	20	2~3	側銑 SIDE MILLING
X-UPS2004	50	115	1600~2000	400~600	20	0.15~0.2	側銑 SIDE MILLING
X-UPS2004	90	90	1300~1600	700~900	0.3~0.6	18~20	溝銑 SLOTTING
X-UPS2004	90	90	1300~1600	350~550	0.15~0.2	18~20	溝銑 SLOTTING
X-UPS2004	90	90	1300~1600	700~900	20	0.5~0.8	側銑 SIDE MILLING
X-UPS2004	90	90	1300~1600	300~500	20	0.15~0.2	側銑 SIDE MILLING
X-UPS2004	120	60	800~1100	250~400	0.15~0.2	18~20	溝銑 SLOTTING
X-UPS2004	120	50	600~900	200~300	20	0.15~0.2	側銑 SIDE MILLING
X-UPS2504	60	110	1200~1600	600~800	0.5~1	20~25	溝銑 SLOTTING
X-UPS2504	60	110	1200~1600	300~400	2~3	20~25	溝銑 SLOTTING
X-UPS2504	60	110	1200~1600	500~700	0.15~0.2	20~25	溝銑 SLOTTING
X-UPS2504	60	110	1200~1600	600~800	25	0.5~1	側銑 SIDE MILLING
X-UPS2504	60	110	1200~1600	300~450	25	2~3	側銑 SIDE MILLING
X-UPS2504	60	110	1200~1600	300~500	25	0.15~0.2	側銑 SIDE MILLING
X-UPS2504	100	90	1000~1400	600~800	0.5~1	23~25	溝銑 SLOTTING
X-UPS2504	100	90	1000~1400	300~500	0.15~0.2	23~25	溝銑 SLOTTING
X-UPS2504	100	90	1000~1400	600~800	25	0.5~1	側銑 SIDE MILLING
X-UPS2504	100	90	1000~1400	300~500	25	0.15~0.2	側銑 SIDE MILLING
X-UPS2504	140	60	600~900	200~350	0.15~0.2	23~25	溝銑 SLOTTING
X-UPS2504	140	50	500~800	150~250	25	0.15~0.2	側銑 SIDE MILLING
X-UPS3204	70	115	1000~1300	500~700	0.5~1	30~32	溝銑 SLOTTING
X-UPS3204	70	115	1000~1300	300~400	2~3	30~32	溝銑 SLOTTING
X-UPS3204	70	115	1000~1300	400~600	0.15~0.2	30~32	溝銑 SLOTTING
X-UPS3204	70	115	1000~1300	500~700	32	0.5~1	側銑 SIDE MILLING
X-UPS3204	70	115	1000~1300	300~450	32	2~3	側銑 SIDE MILLING
X-UPS3204	70	115	1000~1300	300~500	32	0.15~0.2	側銑 SIDE MILLING
X-UPS3204	110	90	700~1000	500~700	0.5~1	30~32	溝銑 SLOTTING
X-UPS3204	110	90	700~1000	300~500	0.15~0.2	30~32	溝銑 SLOTTING
X-UPS3204	110	90	700~1000	500~700	32	0.5~1	側銑 SIDE MILLING
X-UPS3204	110	90	700~1000	250~450	32	0.15~0.2	側銑 SIDE MILLING
X-UPS3204	150	60	500~800	200~300	0.15~0.2	30~32	溝銑 SLOTTING
X-UPS3204	150	50	400~700	100~200	32	0.15~0.2	側銑 SIDE MILLING

X-UPR

高硬度用圓鼻角立銑刀頭

End Mills





精銑 Finishing

中銑 Semi-finishing

粗銑 Roughing

乾式切削 Dry Machining

油霧切削 MQL (Mist)

水溶性切削 Emulsion Machining

油性切削 Oil Machining

直徑 D1	R徑公差值 R Tolerance	直徑公差值 D1 Tolerance
8.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
10.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
12.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
16.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
20.0	$^{+0.02}_{0}$	$^{0}_{-0.03}$
25.0	$^{+0.02}_{0}$	$^{0}_{-0.04}$
32.0	$^{+0.02}_{0}$	$^{0}_{-0.04}$

unit : mm

型號 Type No.	*D1* 直徑 Diameter	*L1* 刃長 Flute Length	*R* 圓鼻角 Corner R	*D2* 頸徑 Neck Dia.	*L2* 全長 O.A.L.	*M* 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UPR0805	8.0	8.0	0.5	7.8	12.1	M 5 -3P	K08
X-UPR0810	8.0	8.0	1.0	7.8	12.1	M 5 -3P	K08
X-UPR1005	10.0	10.0	0.5	9.8	16.1	M 7 -3P	K10
X-UPR1010	10.0	10.0	1.0	9.8	16.1	M 7 -3P	K10
X-UPR1210	12.0	12.0	1.0	11.7	20.3	M 8 -3P	K12
X-UPR1220	12.0	12.0	2.0	11.7	20.3	M 8 -3P	K12
X-UPR1610	16.0	16.0	1.0	15.6	25.7	M10-3P	K16
X-UPR1620	16.0	16.0	2.0	15.6	25.7	M10-3P	K16
X-UPR1630	16.0	16.0	3.0	15.6	25.7	M10-3P	K16
X-UPR2010	20.0	20.0	1.0	19.5	31.1	M12-3P	K20
X-UPR2020	20.0	20.0	2.0	19.5	31.1	M12-3P	K20
X-UPR2030	20.0	20.0	3.0	19.5	31.1	M12-3P	K20
X-UPR2050	20.0	20.0	5.0	19.5	31.1	M12-3P	K20
X-UPR2510	25.0	25.0	1.0	24.4	39.3	M16-3P	K25
X-UPR2520	25.0	25.0	2.0	24.4	39.3	M16-3P	K25
X-UPR2530	25.0	25.0	3.0	24.4	39.3	M16-3P	K25
X-UPR2550	25.0	25.0	5.0	24.4	39.3	M16-3P	K25
X-UPR3210	32.0	32.0	1.0	31.2	48.0	M20-3P	K32
X-UPR3230	32.0	32.0	3.0	31.2	48.0	M20-3P	K32
X-UPR3250	32.0	32.0	5.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-UPR MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPR0805	25	150	5700~6200	1100~1400	0.05~0.1	6~8	溝銑 SLOTTING
X-UPR0805	25	130	5000~5400	3200~3800	0.1	6~8	溝銑 SLOTTING
X-UPR0805	25	130	5000~5400	700~900	8	0~0.1	側銑 SIDE MILLING
X-UPR0805	25	130	5000~5400	3000~3500	8	0.1	側銑 SIDE MILLING
X-UPR0805	25	120	4600~5000	1300~1600	8	0.3~0.5	側銑 SIDE MILLING
X-UPR0805	45	120	4600~5000	900~1200	0.05~0.1	6~8	溝銑 SLOTTING
X-UPR0805	45	100	3800~4200	2500~3000	0.1	6~8	溝銑 SLOTTING
X-UPR0805	45	85	3200~3600	500~700	8	0~0.1	側銑 SIDE MILLING
X-UPR0805	45	100	3800~4200	2500~3000	8	0.1	側銑 SIDE MILLING
X-UPR0805	45	100	3800~4200	1300~1600	8	0.2~0.35	側銑 SIDE MILLING
X-UPR0810	25	150	5700~6200	1100~1400	0.05~0.1	5~8	溝銑 SLOTTING
X-UPR0810	25	130	5000~5400	3200~3800	0.1	5~8	溝銑 SLOTTING
X-UPR0810	25	130	5000~5400	700~900	8	0~0.1	側銑 SIDE MILLING
X-UPR0810	25	130	5000~5400	3000~3500	8	0.1	側銑 SIDE MILLING
X-UPR0810	25	120	4600~5000	1300~1600	8	0.3~0.5	側銑 SIDE MILLING
X-UPR0810	45	120	4600~5000	900~1200	0.05~0.1	5~8	溝銑 SLOTTING
X-UPR0810	45	100	3800~4200	2500~3000	0.1	5~8	溝銑 SLOTTING
X-UPR0810	45	85	3200~3600	500~700	8	0~0.1	側銑 SIDE MILLING
X-UPR0810	45	100	3800~4200	2500~3000	8	0.1	側銑 SIDE MILLING
X-UPR0810	45	100	3800~4200	1300~1600	8	0.2~0.35	側銑 SIDE MILLING
X-UPR1005	30	155	4800~5200	900~1200	0~0.15	8~10	溝銑 SLOTTING
X-UPR1005	30	155	4800~5200	2800~3300	0.15	8~10	溝銑 SLOTTING
X-UPR1005	30	130	4000~4400	650~850	10	0~0.15	側銑 SIDE MILLING
X-UPR1005	30	155	4800~5200	2800~3200	10	0.15	側銑 SIDE MILLING
X-UPR1005	30	115	3400~3800	1000~1300	10	0.4~0.6	側銑 SIDE MILLING
X-UPR1005	55	120	3600~4000	900~1100	0~0.15	7~10	溝銑 SLOTTING
X-UPR1005	55	125	3800~4200	1800~2200	0.15	7~10	溝銑 SLOTTING
X-UPR1005	55	75	2200~2600	400~600	10	0~0.1	側銑 SIDE MILLING
X-UPR1005	55	90	2600~3000	1600~2000	10	0.15	側銑 SIDE MILLING
X-UPR1005	55	85	2400~2800	1200~1600	10	0.2~0.4	側銑 SIDE MILLING
X-UPR1010	30	155	4800~5200	900~1200	0~0.15	8	溝銑 SLOTTING
X-UPR1010	30	155	4800~5200	3300~3800	0.15	8	溝銑 SLOTTING
X-UPR1010	30	155	4800~5200	3300~3800	0.15	10	溝銑 SLOTTING
X-UPR1010	30	130	4000~4400	650~850	10	0~0.15	側銑 SIDE MILLING
X-UPR1010	30	155	4800~5200	2800~3200	10	0.15	側銑 SIDE MILLING
X-UPR1010	30	115	3400~3800	1000~1300	10	0.4~0.6	側銑 SIDE MILLING
X-UPR1010	55	120	3600~4000	900~1100	0~0.15	7	溝銑 SLOTTING
X-UPR1010	55	125	3800~4200	2500~3000	0.15	7	溝銑 SLOTTING
X-UPR1010	55	125	3800~4200	1800~2200	0.15	10	溝銑 SLOTTING
X-UPR1010	55	75	2200~2600	400~600	10	0~0.1	側銑 SIDE MILLING
X-UPR1010	55	90	2600~3000	1600~2000	10	0.15	側銑 SIDE MILLING
X-UPR1010	55	85	2400~2800	1200~1600	10	0.2~0.4	側銑 SIDE MILLING
X-UPR1210	35	135	3400~3800	800~1000	0~0.15	8	溝銑 SLOTTING
X-UPR1210	35	150	3800~4200	3000~3500	0.15	8	溝銑 SLOTTING
X-UPR1210	35	130	3200~3600	2500~3000	0.15	12	溝銑 SLOTTING
X-UPR1210	35	130	3200~3600	650~850	12	0~0.15	側銑 SIDE MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPR1210	35	150	3800~4200	3000~3500	12	0.1	側銑 SIDE MILLING
X-UPR1210	35	135	3300~3700	700~1000	12	0.5~0.7	側銑 SIDE MILLING
X-UPR1210	70	120	3000~3400	800~1000	0~0.15	8	溝銑 SLOTTING
X-UPR1210	70	90	2200~2600	1800~2200	0.15	8	溝銑 SLOTTING
X-UPR1210	70	65	1500~1900	1000~1200	0.15	12	溝銑 SLOTTING
X-UPR1210	70	80	1900~2300	400~600	12	0.1	側銑 SIDE MILLING
X-UPR1210	70	55	1200~1600	500~700	12	0.2	側銑 SIDE MILLING
X-UPR1220	35	135	3400~3800	800~1000	0~0.15	8	溝銑 SLOTTING
X-UPR1220	35	150	3800~4200	3000~3500	0.15	8	溝銑 SLOTTING
X-UPR1220	35	130	3200~3600	2500~3000	0.15	12	溝銑 SLOTTING
X-UPR1220	35	130	3200~3600	650~850	12	0.1	側銑 SIDE MILLING
X-UPR1220	35	150	3800~4200	3000~3500	12	0.1	側銑 SIDE MILLING
X-UPR1220	35	135	3300~3700	700~1000	12	0.5~0.7	側銑 SIDE MILLING
X-UPR1220	70	120	3000~3400	800~1000	0~0.15	8	溝銑 SLOTTING
X-UPR1220	70	90	2200~2600	1800~2200	0.15	8	溝銑 SLOTTING
X-UPR1220	70	65	1500~1900	1000~1200	0.15	12	溝銑 SLOTTING
X-UPR1220	70	80	1900~2300	400~600	12	0.1	側銑 SIDE MILLING
X-UPR1220	70	55	1200~1600	500~700	12	0.2	側銑 SIDE MILLING
X-UPR1610	55	165	3100~3500	700~900	0~0.15	10	溝銑 SLOTTING
X-UPR1610	55	165	3100~3500	1600~2000	0.15	10	溝銑 SLOTTING
X-UPR1610	55	140	2600~3000	1200~1600	0.15	16	溝銑 SLOTTING
X-UPR1610	55	85	1500~1800	300~500	16	0~0.15	側銑 SIDE MILLING
X-UPR1610	55	85	1500~1800	800~1200	16	0.15	側銑 SIDE MILLING
X-UPR1610	90	100	1800~2100	500~700	0~0.15	10	溝銑 SLOTTING
X-UPR1610	90	85	1500~1800	1000~1300	0.15	10	溝銑 SLOTTING
X-UPR1610	90	70	1200~1500	800~1000	0.15	16	溝銑 SLOTTING
X-UPR1610	90	55	1000~1300	300~450	16	0~0.15	側銑 SIDE MILLING
X-UPR1610	90	55	1000~1300	600~800	16	0.2	側銑 SIDE MILLING
X-UPR1620	55	165	3100~3500	700~900	0~0.15	10	溝銑 SLOTTING
X-UPR1620	55	165	3100~3500	1600~2000	0.15	10	溝銑 SLOTTING
X-UPR1620	55	140	2600~3000	1200~1600	0.15	16	溝銑 SLOTTING
X-UPR1620	55	85	1500~1800	300~500	16	0~0.15	側銑 SIDE MILLING
X-UPR1620	55	85	1500~1800	800~1200	16	0.15	側銑 SIDE MILLING
X-UPR1620	90	100	1800~2100	500~700	0~0.15	10	溝銑 SLOTTING
X-UPR1620	90	85	1500~1800	1000~1300	0.15	10	溝銑 SLOTTING
X-UPR1620	90	70	1200~1500	800~1000	0.15	16	溝銑 SLOTTING
X-UPR1620	90	55	1000~1300	300~450	16	0~0.15	側銑 SIDE MILLING
X-UPR1620	90	55	1000~1300	600~800	16	0.2	側銑 SIDE MILLING
X-UPR1630	55	165	3100~3500	700~900	0~0.15	10	溝銑 SLOTTING
X-UPR1630	55	165	3100~3500	1600~2000	0.15	10	溝銑 SLOTTING
X-UPR1630	55	140	2600~3000	1200~1600	0.15	16	溝銑 SLOTTING
X-UPR1630	55	85	1500~1800	300~500	16	0~0.15	側銑 SIDE MILLING
X-UPR1630	55	85	1500~1800	800~1200	16	0.15	側銑 SIDE MILLING
X-UPR1630	90	100	1800~2100	500~700	0~0.15	10	溝銑 SLOTTING
X-UPR1630	90	85	1500~1800	1000~1300	0.15	10	溝銑 SLOTTING
X-UPR1630	90	70	1200~1500	800~1000	0.15	16	溝銑 SLOTTING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPR1630	90	55	1000~1300	300~450	16	0~0.15	側銑 SIDE MILLING
X-UPR1630	90	55	1000~1300	600~800	16	0.2	側銑 SIDE MILLING
X-UPR2010	75	170	2500~2900	500~700	0~0.2	12	溝銑 SLOTTING
X-UPR2010	75	120	1800~2200	800~1100	0.2	12	溝銑 SLOTTING
X-UPR2010	75	120	1800~2200	1100~1400	0.2	20	溝銑 SLOTTING
X-UPR2010	75	70	1000~1300	200~400	20	0~0.2	側銑 SIDE MILLING
X-UPR2010	75	70	1000~1300	600~800	20	0.2	側銑 SIDE MILLING
X-UPR2010	120	120	1800~2200	400~600	0~0.2	12	溝銑 SLOTTING
X-UPR2010	120	120	1800~2200	700~900	0.2	12	溝銑 SLOTTING
X-UPR2010	120	120	1800~2200	900~1200	0.15	20	溝銑 SLOTTING
X-UPR2020	75	170	2500~2900	500~700	0~0.2	12	溝銑 SLOTTING
X-UPR2020	75	120	1800~2200	800~1100	0.2	12	溝銑 SLOTTING
X-UPR2020	75	120	1800~2200	1100~1400	0.2	20	溝銑 SLOTTING
X-UPR2020	75	70	1000~1300	200~400	20	0~0.2	側銑 SIDE MILLING
X-UPR2020	75	70	1000~1300	600~800	20	0.2	側銑 SIDE MILLING
X-UPR2020	120	120	1800~2200	400~600	0~0.2	12	溝銑 SLOTTING
X-UPR2020	120	120	1800~2200	700~900	0.2	12	溝銑 SLOTTING
X-UPR2020	120	120	1800~2200	900~1200	0.15	20	溝銑 SLOTTING
X-UPR2030	75	170	2500~2900	500~700	0~0.2	12	溝銑 SLOTTING
X-UPR2030	75	120	1800~2200	800~1100	0.2	12	溝銑 SLOTTING
X-UPR2030	75	120	1800~2200	1100~1400	0.2	20	溝銑 SLOTTING
X-UPR2030	75	70	1000~1300	200~400	20	0~0.2	側銑 SIDE MILLING
X-UPR2030	75	70	1000~1300	600~800	20	0.2	側銑 SIDE MILLING
X-UPR2030	120	120	1800~2200	400~600	0~0.2	12	溝銑 SLOTTING
X-UPR2030	120	120	1800~2200	700~900	0.2	12	溝銑 SLOTTING
X-UPR2030	120	120	1800~2200	900~1200	0.15	20	溝銑 SLOTTING
X-UPR2050	75	170	2500~2900	500~700	0~0.2	12	溝銑 SLOTTING
X-UPR2050	75	120	1800~2200	800~1100	0.2	12	溝銑 SLOTTING
X-UPR2050	75	120	1800~2200	1100~1400	0.2	20	溝銑 SLOTTING
X-UPR2050	75	70	1000~1300	200~400	20	0~0.2	側銑 SIDE MILLING
X-UPR2050	75	70	1000~1300	600~800	20	0.2	側銑 SIDE MILLING
X-UPR2050	120	120	1800~2200	400~600	0~0.2	12	溝銑 SLOTTING
X-UPR2050	120	120	1800~2200	700~900	0.2	12	溝銑 SLOTTING
X-UPR2050	120	120	1800~2200	900~1200	0.15	20	溝銑 SLOTTING
X-UPR2510	90	170	2000~2300	400~600	0~0.2	14	溝銑 SLOTTING
X-UPR2510	90	120	1300~1600	600~900	0.2	14	溝銑 SLOTTING
X-UPR2510	90	120	1300~1600	600~900	0.2	25	溝銑 SLOTTING
X-UPR2510	90	70	800~1100	150~300	25	0~0.2	側銑 SIDE MILLING
X-UPR2510	90	70	800~1100	300~500	25	0.2	側銑 SIDE MILLING
X-UPR2510	130	120	1300~1600	300~500	0~0.2	14	溝銑 SLOTTING
X-UPR2510	130	120	1300~1600	500~800	0.2	14	溝銑 SLOTTING
X-UPR2510	130	120	1300~1600	500~800	0.15	25	溝銑 SLOTTING
X-UPR2520	90	170	2000~2300	400~600	0~0.2	14	溝銑 SLOTTING
X-UPR2520	90	120	1300~1600	600~900	0.2	14	溝銑 SLOTTING
X-UPR2520	90	120	1300~1600	600~900	0.2	25	溝銑 SLOTTING
X-UPR2520	90	70	800~1100	150~300	25	0~0.2	側銑 SIDE MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPR2520	90	70	800~1100	300~500	25	0.2	側銑 SIDE MILLING
X-UPR2520	130	120	1300~1600	300~500	0~0.2	14	溝銑 SLOTTING
X-UPR2520	130	120	1300~1600	500~800	0.2	14	溝銑 SLOTTING
X-UPR2520	130	120	1300~1600	500~800	0.15	25	溝銑 SLOTTING
X-UPR2530	90	170	2000~2300	400~600	0~0.2	14	溝銑 SLOTTING
X-UPR2530	90	120	1300~1600	600~900	0.2	14	溝銑 SLOTTING
X-UPR2530	90	120	1300~1600	600~900	0.2	25	溝銑 SLOTTING
X-UPR2530	90	70	800~1100	150~300	25	0~0.2	側銑 SIDE MILLING
X-UPR2530	90	70	800~1100	300~500	25	0.2	側銑 SIDE MILLING
X-UPR2530	130	120	1300~1600	300~500	0~0.2	14	溝銑 SLOTTING
X-UPR2530	130	120	1300~1600	500~800	0.2	14	溝銑 SLOTTING
X-UPR2530	130	120	1300~1600	500~800	0.15	25	溝銑 SLOTTING
X-UPR2550	90	170	2000~2300	400~600	0~0.2	14	溝銑 SLOTTING
X-UPR2550	90	120	1300~1600	600~900	0.2	14	溝銑 SLOTTING
X-UPR2550	90	120	1300~1600	600~900	0.2	25	溝銑 SLOTTING
X-UPR2550	90	70	800~1100	150~300	25	0~0.2	側銑 SIDE MILLING
X-UPR2550	90	70	800~1100	300~500	25	0.2	側銑 SIDE MILLING
X-UPR2550	130	120	1300~1600	300~500	0~0.2	14	溝銑 SLOTTING
X-UPR2550	130	120	1300~1600	500~800	0.2	14	溝銑 SLOTTING
X-UPR2550	130	120	1300~1600	500~800	0.15	25	溝銑 SLOTTING
X-UPR3210	110	170	1500~1800	300~500	0~0.2	20	溝銑 SLOTTING
X-UPR3210	110	120	1100~1400	400~700	0.2	20	溝銑 SLOTTING
X-UPR3210	110	120	1100~1400	400~700	0.2	32	溝銑 SLOTTING
X-UPR3210	110	70	600~800	100~200	32	0~0.2	側銑 SIDE MILLING
X-UPR3210	110	70	600~800	200~400	32	0.2	側銑 SIDE MILLING
X-UPR3210	170	120	1100~1400	200~400	0~0.2	20	溝銑 SLOTTING
X-UPR3210	170	120	1100~1400	300~500	0.2	20	溝銑 SLOTTING
X-UPR3210	170	120	1100~1400	300~500	0.15	32	溝銑 SLOTTING
X-UPR3230	110	170	1500~1800	300~500	0~0.2	20	溝銑 SLOTTING
X-UPR3230	110	120	1100~1400	400~700	0.2	20	溝銑 SLOTTING
X-UPR3230	110	120	1100~1400	400~700	0.2	32	溝銑 SLOTTING
X-UPR3230	110	70	600~800	100~200	32	0~0.2	側銑 SIDE MILLING
X-UPR3230	110	70	600~800	200~400	32	0.2	側銑 SIDE MILLING
X-UPR3230	170	120	1100~1400	200~400	0~0.2	20	溝銑 SLOTTING
X-UPR3230	170	120	1100~1400	300~500	0.2	20	溝銑 SLOTTING
X-UPR3230	170	120	1100~1400	300~500	0.15	32	溝銑 SLOTTING
X-UPR3250	110	170	1500~1800	300~500	0~0.2	20	溝銑 SLOTTING
X-UPR3250	110	120	1100~1400	400~700	0.2	20	溝銑 SLOTTING
X-UPR3250	110	120	1100~1400	400~700	0.2	32	溝銑 SLOTTING
X-UPR3250	110	70	600~800	100~200	32	0~0.2	側銑 SIDE MILLING
X-UPR3250	110	70	600~800	200~400	32	0.2	側銑 SIDE MILLING
X-UPR3250	170	120	1100~1400	200~400	0~0.2	20	溝銑 SLOTTING
X-UPR3250	170	120	1100~1400	300~500	0.2	20	溝銑 SLOTTING
X-UPR3250	170	120	1100~1400	300~500	0.15	32	溝銑 SLOTTING

切削條件表 X-UPR MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPR0805	25	85	3200~3600	750~950	0~0.1	5~8	溝銑 SLOTTING
X-UPR0805	25	75	2800~3200	700~900	0.5	0.1	溝銑 SLOTTING
X-UPR0805	25	70	2600~3000	500~700	8	0.1	側銑 SIDE MILLING
X-UPR0805	45	65	2400~2800	600~800	0~0.1	5~8	溝銑 SLOTTING
X-UPR0805	45	55	2000~2400	600~800	0.5	0.1	溝銑 SLOTTING
X-UPR0805	45	55	2000~2400	400~600	8	0.1	側銑 SIDE MILLING
X-UPR1005	30	65	1800~2200	500~700	0~0.1	7	溝銑 SLOTTING
X-UPR1005	30	55	1500~1900	500~700	1	0.1	溝銑 SLOTTING
X-UPR1005	30	70	2000~2400	400~550	10	0.1	側銑 SIDE MILLING
X-UPR1005	55	55	1600~2000	450~650	0~0.1	7	溝銑 SLOTTING
X-UPR1005	55	50	1400~1800	500~700	0.5	0.1	溝銑 SLOTTING
X-UPR1005	55	45	1300~1600	300~450	10	0.1	側銑 SIDE MILLING
X-UPR1010	30	65	1800~2200	500~700	0~0.1	7	溝銑 SLOTTING
X-UPR1010	30	55	1500~1900	500~700	1	0.1	溝銑 SLOTTING
X-UPR1010	30	70	2000~2400	400~550	10	0.1	側銑 SIDE MILLING
X-UPR1010	55	55	1600~2000	450~650	0~0.1	7	溝銑 SLOTTING
X-UPR1010	55	50	1400~1800	500~700	0.5	0.1	溝銑 SLOTTING
X-UPR1010	55	45	1300~1600	300~450	10	0.1	側銑 SIDE MILLING
X-UPR1210	35	65	1500~1900	500~700	0~0.1	8	溝銑 SLOTTING
X-UPR1210	35	60	1400~1800	600~800	1	0.1	溝銑 SLOTTING
X-UPR1210	35	55	1300~1700	300~450	12	0.1	側銑 SIDE MILLING
X-UPR1210	70	50	1200~1500	400~600	0~0.1	8	溝銑 SLOTTING
X-UPR1210	70	55	1300~1700	600~800	1	0.1	溝銑 SLOTTING
X-UPR1210	70	45	1000~1400	300~450	12	0.1	側銑 SIDE MILLING
X-UPR1220	35	65	1500~1900	500~700	0~0.1	7	溝銑 SLOTTING
X-UPR1220	35	60	1400~1800	600~800	1	0.1	溝銑 SLOTTING
X-UPR1220	35	55	1300~1700	300~450	12	0.1	側銑 SIDE MILLING
X-UPR1220	70	50	1200~1500	400~600	0~0.1	7	溝銑 SLOTTING
X-UPR1220	70	55	1300~1700	600~800	1	0.1	溝銑 SLOTTING
X-UPR1220	70	45	1000~1400	300~450	12	0.1	側銑 SIDE MILLING
X-UPR1610	55	65	1200~1600	500~700	0~0.15	9	溝銑 SLOTTING
X-UPR1610	55	65	1200~1600	700~900	1	0.1	溝銑 SLOTTING
X-UPR1610	55	60	1100~1500	250~450	16	0.1	側銑 SIDE MILLING
X-UPR1610	90	60	1100~1500	400~600	0~0.1	9	溝銑 SLOTTING
X-UPR1610	90	55	1000~1300	600~800	1	0.1	溝銑 SLOTTING
X-UPR1610	90	50	900~1200	200~350	16	0.1	側銑 SIDE MILLING
X-UPR1620	55	65	1200~1600	500~700	0~0.15	9	溝銑 SLOTTING
X-UPR1620	55	65	1200~1600	700~900	1	0.1	溝銑 SLOTTING
X-UPR1620	55	60	1100~1500	250~450	16	0.1	側銑 SIDE MILLING
X-UPR1620	90	60	1100~1500	400~600	0~0.1	9	溝銑 SLOTTING
X-UPR1620	90	55	1000~1300	600~800	1	0.1	溝銑 SLOTTING
X-UPR1620	90	50	900~1200	200~350	16	0.1	側銑 SIDE MILLING
X-UPR1630	55	65	1200~1600	500~700	0~0.15	9	溝銑 SLOTTING
X-UPR1630	55	65	1200~1600	700~900	1	0.1	溝銑 SLOTTING
X-UPR1630	55	60	1100~1500	250~450	16	0.1	側銑 SIDE MILLING
X-UPR1630	90	60	1100~1500	400~600	0~0.1	9	溝銑 SLOTTING
X-UPR1630	90	55	1000~1300	600~800	1	0.1	溝銑 SLOTTING
X-UPR1630	90	50	900~1200	200~350	16	0.1	側銑 SIDE MILLING
X-UPR2010	75	75	1000~1400	300~500	0~0.15	12	溝銑 SLOTTING
X-UPR2010	75	70	900~1300	600~800	1	0.1	溝銑 SLOTTING
X-UPR2010	75	65	800~1200	200~400	20	0.1	側銑 SIDE MILLING
X-UPR2010	120	70	900~1300	300~500	0~0.1	12	溝銑 SLOTTING

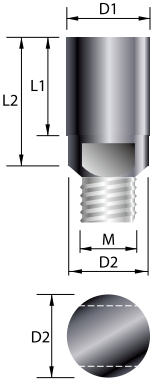
被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UPR2010	120	55	700~1100	500~700	1	0.1	溝銑 SLOTTING
X-UPR2020	75	75	1000~1400	300~500	0~0.15	12	溝銑 SLOTTING
X-UPR2020	75	70	900~1300	600~800	1	0.1	溝銑 SLOTTING
X-UPR2020	75	65	800~1200	200~400	20	0.1	側銑 SIDE MILLING
X-UPR2020	120	70	900~1300	300~500	0~0.1	12	溝銑 SLOTTING
X-UPR2020	120	55	700~1100	500~700	1	0.1	溝銑 SLOTTING
X-UPR2030	75	75	1000~1400	300~500	0~0.15	12	溝銑 SLOTTING
X-UPR2030	75	70	900~1300	600~800	1	0.1	溝銑 SLOTTING
X-UPR2030	75	65	800~1200	200~400	20	0.1	側銑 SIDE MILLING
X-UPR2030	120	70	900~1300	300~500	0~0.1	12	溝銑 SLOTTING
X-UPR2030	120	55	700~1100	500~700	1	0.1	溝銑 SLOTTING
X-UPR2050	75	75	1000~1400	300~500	0~0.15	12	溝銑 SLOTTING
X-UPR2050	75	70	900~1300	600~800	1	0.1	溝銑 SLOTTING
X-UPR2050	75	65	800~1200	200~400	20	0.1	側銑 SIDE MILLING
X-UPR2050	120	70	900~1300	300~500	0~0.1	12	溝銑 SLOTTING
X-UPR2050	120	55	700~1100	500~700	1	0.1	溝銑 SLOTTING
X-UPR2510	90	75	800~1100	250~450	0~0.15	14	溝銑 SLOTTING
X-UPR2510	90	70	750~1050	500~700	1	0.1	溝銑 SLOTTING
X-UPR2510	90	65	700~900	200~300	25	0.1	側銑 SIDE MILLING
X-UPR2510	130	65	700~900	200~400	0~0.1	14	溝銑 SLOTTING
X-UPR2510	130	65	700~900	450~650	1	0.1	溝銑 SLOTTING
X-UPR2520	90	75	800~1100	250~450	0~0.15	14	溝銑 SLOTTING
X-UPR2520	90	70	750~1050	500~700	1	0.1	溝銑 SLOTTING
X-UPR2520	90	65	700~900	200~300	25	0.1	側銑 SIDE MILLING
X-UPR2520	130	65	700~900	200~400	0~0.1	14	溝銑 SLOTTING
X-UPR2520	130	65	700~900	450~650	1	0.1	溝銑 SLOTTING
X-UPR2530	90	75	800~1100	250~450	0~0.15	14	溝銑 SLOTTING
X-UPR2530	90	70	750~1050	500~700	1	0.1	溝銑 SLOTTING
X-UPR2530	90	65	700~900	200~300	25	0.1	側銑 SIDE MILLING
X-UPR2530	130	65	700~900	200~400	0~0.1	14	溝銑 SLOTTING
X-UPR2530	130	65	700~900	450~650	1	0.1	溝銑 SLOTTING
X-UPR2550	90	75	800~1100	250~450	0~0.15	14	溝銑 SLOTTING
X-UPR2550	90	70	750~1050	500~700	1	0.1	溝銑 SLOTTING
X-UPR2550	90	65	700~900	200~300	25	0.1	側銑 SIDE MILLING
X-UPR2550	130	65	700~900	200~400	0~0.1	14	溝銑 SLOTTING
X-UPR2550	130	65	700~900	450~650	1	0.1	溝銑 SLOTTING
X-UPR3210	110	75	600~900	200~400	0~0.15	18	溝銑 SLOTTING
X-UPR3210	110	70	600~800	400~600	1	0.1	溝銑 SLOTTING
X-UPR3210	110	65	550~750	150~250	32	0.1	側銑 SIDE MILLING
X-UPR3210	170	65	550~750	150~350	0~0.1	18	溝銑 SLOTTING
X-UPR3210	170	65	550~750	350~550	1	0.1	溝銑 SLOTTING
X-UPR3230	110	75	600~900	200~400	0~0.15	18	溝銑 SLOTTING
X-UPR3230	110	70	600~800	400~600	1	0.1	溝銑 SLOTTING
X-UPR3230	110	65	550~750	150~250	32	0.1	側銑 SIDE MILLING
X-UPR3230	170	65	550~750	150~350	0~0.1	18	溝銑 SLOTTING
X-UPR3230	170	65	550~750	350~550	1	0.1	溝銑 SLOTTING
X-UPR3250	110	75	600~900	200~400	0~0.15	18	溝銑 SLOTTING
X-UPR3250	110	70	600~800	400~600	1	0.1	溝銑 SLOTTING
X-UPR3250	110	65	550~750	150~250	32	0.1	側銑 SIDE MILLING
X-UPR3250	170	65	550~750	150~350	0~0.1	18	溝銑 SLOTTING
X-UPR3250	170	65	550~750	350~550	1	0.1	溝銑 SLOTTING

X-UEX

無敵高效能立銑刀頭
End Mills

Super MG | 0.2 μm | 45° | 4 Flutes | HRc 65 | G15



- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing

- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	直徑公差值 D1 Tolerance
8.0	$^{0}_{-0.02}$
10.0	$^{0}_{-0.02}$
12.0	$^{0}_{-0.02}$
16.0	$^{0}_{-0.02}$
20.0	$^{0}_{-0.03}$
25.0	$^{0}_{-0.04}$
32.0	$^{0}_{-0.04}$

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UEX0804	8.0	8.0	7.8	12.1	M 5 -3P	K08
X-UEX1004	10.0	10.0	9.8	16.1	M 7 -3P	K10
X-UEX1204	12.0	12.0	11.7	20.3	M 8 -3P	K12
X-UEX1604	16.0	16.0	15.6	25.7	M10-3P	K16
X-UEX2004	20.0	20.0	19.5	31.1	M12-3P	K20
X-UEX2504	25.0	25.0	24.4	39.3	M16-3P	K25
X-UEX3204	32.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-UEX MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEX0804	24	95	3600~4000	1000~1400	0.1~0.2	6~8	溝銑 SLOTTING
X-UEX0804	24	95	3600~4000	800~1000	0.05~0.1	6~8	溝銑 SLOTTING
X-UEX0804	24	80	3000~3400	900~1300	8	0.2~0.4	側銑 SIDE MILLING
X-UEX0804	24	80	3000~3400	500~700	8	0.05~0.15	側銑 SIDE MILLING
X-UEX0804	40	80	3000~3400	800~1200	0~0.1	6~8	溝銑 SLOTTING
X-UEX0804	40	80	3000~3400	400~600	0.05~0.1	6~8	溝銑 SLOTTING
X-UEX0804	40	75	2800~3200	400~600	8	0.1~0.2	側銑 SIDE MILLING
X-UEX0804	40	75	2800~3200	400~600	8	0.05~0.1	側銑 SIDE MILLING
X-UEX0804	55	60	2200~2600	300~400	0.05~0.1	6~8	溝銑 SLOTTING
X-UEX0804	55	60	2200~2600	300~400	8	0.05~0.1	側銑 SIDE MILLING
X-UEX1004	30	95	2800~3200	900~1200	0.1~0.2	8~10	溝銑 SLOTTING
X-UEX1004	30	95	2800~3200	800~1000	0.05~0.1	8~10	溝銑 SLOTTING
X-UEX1004	30	65	1900~2200	900~1300	10	0.3~0.5	側銑 SIDE MILLING
X-UEX1004	30	80	2500~2800	450~600	10	0.05~0.15	側銑 SIDE MILLING
X-UEX1004	40	70	2000~2400	800~1000	0~0.1	8~10	溝銑 SLOTTING
X-UEX1004	40	75	2200~2600	500~700	0.05~0.1	8~10	溝銑 SLOTTING
X-UEX1004	40	70	2000~2400	400~600	10	0.2~0.3	側銑 SIDE MILLING
X-UEX1004	40	75	2200~2600	400~600	10	0.05~0.1	側銑 SIDE MILLING
X-UEX1004	60	60	1800~2200	300~500	0.05~0.1	8~10	溝銑 SLOTTING
X-UEX1004	60	60	1800~2200	300~500	10	0.05~0.1	側銑 SIDE MILLING
X-UEX1204	35	105	2600~3000	800~1000	0.1~0.2	10~12	溝銑 SLOTTING
X-UEX1204	35	100	2400~2800	500~700	0.05~0.15	10~12	溝銑 SLOTTING
X-UEX1204	35	75	1800~2200	600~800	12	0.3~0.5	側銑 SIDE MILLING
X-UEX1204	35	100	2400~2800	500~700	12	0.05~0.15	側銑 SIDE MILLING
X-UEX1204	60	80	2000~2400	600~800	0.1~0.15	10~12	溝銑 SLOTTING
X-UEX1204	60	80	2000~2400	300~500	0.05~0.15	10~12	溝銑 SLOTTING
X-UEX1204	60	75	1800~2200	400~600	12	0.2~0.3	側銑 SIDE MILLING
X-UEX1204	60	80	2000~2400	300~500	12	0.05~0.15	側銑 SIDE MILLING
X-UEX1204	80	75	1800~2200	300~500	0.05~0.1	10~12	溝銑 SLOTTING
X-UEX1204	80	70	1600~2000	300~400	12	0.05~0.1	側銑 SIDE MILLING
X-UEX1604	45	90	1700~2000	500~700	0.1~0.2	14~16	溝銑 SLOTTING
X-UEX1604	45	100	1800~2200	400~600	0.05~0.15	14~16	溝銑 SLOTTING
X-UEX1604	45	80	1400~1800	600~800	16	0.4~0.6	側銑 SIDE MILLING
X-UEX1604	45	90	1600~2000	400~600	16	0.05~0.15	側銑 SIDE MILLING
X-UEX1604	70	70	1200~1600	400~600	0.1~0.15	14~16	溝銑 SLOTTING
X-UEX1604	70	70	1200~1600	300~500	0.05~0.15	14~16	溝銑 SLOTTING
X-UEX1604	70	50	900~1200	300~500	16	0.2~0.35	側銑 SIDE MILLING
X-UEX1604	70	80	1400~1800	300~400	16	0.05~0.15	側銑 SIDE MILLING
X-UEX1604	100	60	1000~1300	300~400	0.05~0.1	14~16	溝銑 SLOTTING
X-UEX1604	100	60	1000~1300	250~350	16	0.05~0.1	側銑 SIDE MILLING

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEX2004	50	95	1400~1600	500~700	0.15~0.25	18~20	溝銑 SLOTTING
X-UEX2004	50	95	1400~1600	400~600	0.05~0.15	18~20	溝銑 SLOTTING
X-UEX2004	50	75	1100~1300	500~700	20	0.4~0.7	側銑 SIDE MILLING
X-UEX2004	50	80	1200~1400	300~500	20	0.05~0.2	側銑 SIDE MILLING
X-UEX2004	80	70	1000~1300	350~550	0.15~0.25	18~20	溝銑 SLOTTING
X-UEX2004	80	70	1000~1300	300~400	0.05~0.15	18~20	溝銑 SLOTTING
X-UEX2004	80	55	700~1000	300~450	20	0.2~0.4	側銑 SIDE MILLING
X-UEX2004	80	80	1200~1400	300~400	20	0.05~0.2	側銑 SIDE MILLING
X-UEX2004	110	60	800~1100	300~400	0.05~0.15	18~20	溝銑 SLOTTING
X-UEX2004	110	60	800~1100	200~350	20	0.05~0.2	側銑 SIDE MILLING
X-UEX2504	60	95	1100~1400	400~650	0.15~0.25	20~25	溝銑 SLOTTING
X-UEX2504	60	95	1100~1400	300~500	0.05~0.15	20~25	溝銑 SLOTTING
X-UEX2504	60	75	800~1100	400~600	25	0.4~0.7	側銑 SIDE MILLING
X-UEX2504	60	80	900~1200	250~350	25	0.05~0.2	側銑 SIDE MILLING
X-UEX2504	100	70	800~1000	350~550	0.15~0.25	20~25	溝銑 SLOTTING
X-UEX2504	100	70	800~1000	300~400	0.05~0.15	20~25	溝銑 SLOTTING
X-UEX2504	100	60	600~900	300~450	25	0.2~0.4	側銑 SIDE MILLING
X-UEX2504	100	70	800~1000	250~350	25	0.05~0.2	側銑 SIDE MILLING
X-UEX2504	130	60	600~900	250~350	0.05~0.15	20~25	溝銑 SLOTTING
X-UEX2504	130	60	600~900	200~350	25	0.05~0.2	側銑 SIDE MILLING
X-UEX3204	70	95	800~1100	300~500	0.15~0.25	25~32	溝銑 SLOTTING
X-UEX3204	70	95	800~1100	250~400	0.05~0.15	25~32	溝銑 SLOTTING
X-UEX3204	70	75	600~900	300~500	32	0.4~0.7	側銑 SIDE MILLING
X-UEX3204	70	80	700~1000	250~400	32	0.05~0.2	側銑 SIDE MILLING
X-UEX3204	110	70	600~800	250~450	0.15~0.25	25~32	溝銑 SLOTTING
X-UEX3204	110	70	600~800	200~300	0.05~0.15	25~32	溝銑 SLOTTING
X-UEX3204	110	60	500~700	250~400	32	0.2~0.4	側銑 SIDE MILLING
X-UEX3204	110	70	600~800	200~350	32	0.05~0.2	側銑 SIDE MILLING
X-UEX3204	150	60	500~700	150~250	0.05~0.15	25~32	溝銑 SLOTTING
X-UEX3204	150	60	500~700	150~250	32	0.05~0.2	側銑 SIDE MILLING

切削條件表 X-UEX MILLING CONDITIONS

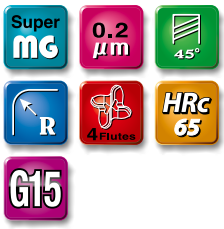
被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

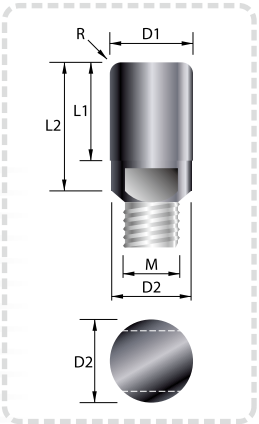
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEX0804	24	95	3600~4000	1000~1400	0.1~0.2	6~8	溝銑 SLOTTING
X-UEX0804	24	95	3600~4000	800~1000	0.05~0.1	6~8	溝銑 SLOTTING
X-UEX0804	24	80	3000~3400	900~1300	8	0.2~0.4	側銑 SIDE MILLING
X-UEX0804	24	80	3000~3400	500~700	8	0.05~0.15	側銑 SIDE MILLING
X-UEX0804	40	80	3000~3400	800~1200	0~0.1	6~8	溝銑 SLOTTING
X-UEX0804	40	80	3000~3400	400~600	0.05~0.1	6~8	溝銑 SLOTTING
X-UEX0804	40	75	2800~3200	400~600	8	0.1~0.2	側銑 SIDE MILLING
X-UEX0804	40	75	2800~3200	400~600	8	0.05~0.1	側銑 SIDE MILLING
X-UEX0804	55	60	2200~2600	300~400	0.05~0.1	6~8	溝銑 SLOTTING
X-UEX0804	55	60	2200~2600	300~400	8	0.05~0.1	側銑 SIDE MILLING
X-UEX1004	30	95	2800~3200	900~1200	0.1~0.2	8~10	溝銑 SLOTTING
X-UEX1004	30	95	2800~3200	800~1000	0.05~0.1	8~10	溝銑 SLOTTING
X-UEX1004	30	65	1900~2200	900~1300	10	0.3~0.5	側銑 SIDE MILLING
X-UEX1004	30	80	2500~2800	450~600	10	0.05~0.15	側銑 SIDE MILLING
X-UEX1004	40	70	2000~2400	800~1000	0~0.1	8~10	溝銑 SLOTTING
X-UEX1004	40	75	2200~2600	500~700	0.05~0.1	8~10	溝銑 SLOTTING
X-UEX1004	40	70	2000~2400	400~600	10	0.2~0.3	側銑 SIDE MILLING
X-UEX1004	40	75	2200~2600	400~600	10	0.05~0.1	側銑 SIDE MILLING
X-UEX1004	60	60	1800~2200	300~500	0.05~0.1	8~10	溝銑 SLOTTING
X-UEX1004	60	60	1800~2200	300~500	10	0.05~0.1	側銑 SIDE MILLING
X-UEX1204	35	105	2600~3000	800~1000	0.1~0.2	10~12	溝銑 SLOTTING
X-UEX1204	35	100	2400~2800	500~700	0.05~0.15	10~12	溝銑 SLOTTING
X-UEX1204	35	75	1800~2200	600~800	12	0.3~0.5	側銑 SIDE MILLING
X-UEX1204	35	100	2400~2800	500~700	12	0.05~0.15	側銑 SIDE MILLING
X-UEX1204	60	80	2000~2400	600~800	0.1~0.15	10~12	溝銑 SLOTTING
X-UEX1204	60	80	2000~2400	300~500	0.05~0.15	10~12	溝銑 SLOTTING
X-UEX1204	60	75	1800~2200	400~600	12	0.2~0.3	側銑 SIDE MILLING
X-UEX1204	60	80	2000~2400	300~500	12	0.05~0.15	側銑 SIDE MILLING
X-UEX1204	80	75	1800~2200	300~500	0.05~0.1	10~12	溝銑 SLOTTING
X-UEX1204	80	70	1600~2000	300~400	12	0.05~0.1	側銑 SIDE MILLING
X-UEX1604	45	90	1700~2000	500~700	0.1~0.2	14~16	溝銑 SLOTTING
X-UEX1604	45	100	1800~2200	400~600	0.05~0.15	14~16	溝銑 SLOTTING
X-UEX1604	45	80	1400~1800	600~800	16	0.4~0.6	側銑 SIDE MILLING
X-UEX1604	45	90	1600~2000	400~600	16	0.05~0.15	側銑 SIDE MILLING
X-UEX1604	70	70	1200~1600	400~600	0.1~0.15	14~16	溝銑 SLOTTING
X-UEX1604	70	70	1200~1600	300~500	0.05~0.15	14~16	溝銑 SLOTTING
X-UEX1604	70	50	900~1200	300~500	16	0.2~0.35	側銑 SIDE MILLING
X-UEX1604	70	80	1400~1800	300~400	16	0.05~0.15	側銑 SIDE MILLING
X-UEX1604	100	60	1000~1300	300~400	0.05~0.1	14~16	溝銑 SLOTTING
X-UEX1604	100	60	1000~1300	250~350	16	0.05~0.1	側銑 SIDE MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEX2004	50	95	1400~1600	500~700	0.15~0.25	18~20	溝銑 SLOTTING
X-UEX2004	50	95	1400~1600	400~600	0.05~0.15	18~20	溝銑 SLOTTING
X-UEX2004	50	75	1100~1300	500~700	20	0.4~0.7	側銑 SIDE MILLING
X-UEX2004	50	80	1200~1400	300~500	20	0.05~0.2	側銑 SIDE MILLING
X-UEX2004	80	70	1000~1300	350~550	0.15~0.25	18~20	溝銑 SLOTTING
X-UEX2004	80	70	1000~1300	300~400	0.05~0.15	18~20	溝銑 SLOTTING
X-UEX2004	80	55	700~1000	300~450	20	0.2~0.4	側銑 SIDE MILLING
X-UEX2004	80	80	1200~1400	300~400	20	0.05~0.2	側銑 SIDE MILLING
X-UEX2004	110	60	800~1100	300~400	0.05~0.15	18~20	溝銑 SLOTTING
X-UEX2004	110	60	800~1100	200~350	20	0.05~0.2	側銑 SIDE MILLING
X-UEX2504	60	95	1100~1400	400~650	0.15~0.25	20~25	溝銑 SLOTTING
X-UEX2504	60	95	1100~1400	300~500	0.05~0.15	20~25	溝銑 SLOTTING
X-UEX2504	60	75	800~1100	400~600	25	0.4~0.7	側銑 SIDE MILLING
X-UEX2504	60	80	900~1200	250~350	25	0.05~0.2	側銑 SIDE MILLING
X-UEX2504	100	70	800~1000	350~550	0.15~0.25	20~25	溝銑 SLOTTING
X-UEX2504	100	70	800~1000	300~400	0.05~0.15	20~25	溝銑 SLOTTING
X-UEX2504	100	60	600~900	300~450	25	0.2~0.4	側銑 SIDE MILLING
X-UEX2504	100	70	800~1000	250~350	25	0.05~0.2	側銑 SIDE MILLING
X-UEX2504	130	60	600~900	250~350	0.05~0.15	20~25	溝銑 SLOTTING
X-UEX2504	130	60	600~900	200~350	25	0.05~0.2	側銑 SIDE MILLING
X-UEX3204	70	95	800~1100	300~500	0.15~0.25	25~32	溝銑 SLOTTING
X-UEX3204	70	95	800~1100	250~400	0.05~0.15	25~32	溝銑 SLOTTING
X-UEX3204	70	75	600~900	300~500	32	0.4~0.7	側銑 SIDE MILLING
X-UEX3204	70	80	700~1000	250~400	32	0.05~0.2	側銑 SIDE MILLING
X-UEX3204	110	70	600~800	250~450	0.15~0.25	25~32	溝銑 SLOTTING
X-UEX3204	110	70	600~800	200~300	0.05~0.15	25~32	溝銑 SLOTTING
X-UEX3204	110	60	500~700	250~400	32	0.2~0.4	側銑 SIDE MILLING
X-UEX3204	110	70	600~800	200~350	32	0.05~0.2	側銑 SIDE MILLING
X-UEX3204	150	60	500~700	150~250	0.05~0.15	25~32	溝銑 SLOTTING
X-UEX3204	150	60	500~700	150~250	32	0.05~0.2	側銑 SIDE MILLING

X-UEXR

無敵高效能立銑刀頭
End Mills





- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing

- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	R徑公差值 R Tolerance	直徑公差值 D1 Tolerance
8.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
10.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
12.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
16.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
20.0	$^{+0.02}_{0}$	$^{0}_{-0.03}$
25.0	$^{+0.02}_{0}$	$^{0}_{-0.04}$
32.0	$^{+0.02}_{0}$	$^{0}_{-0.04}$

unit : mm

型號 Type No.	*D1* 直徑 Diameter	*L1* 刃長 Flute Length	*R* 圓鼻角 Corner R	*D2* 頸徑 Neck Dia.	*L2* 全長 O.A.L.	*M* 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UEXR0803	8.0	8.0	0.3	7.8	12.1	M 5 -3P	K08
X-UEXR0805	8.0	8.0	0.5	7.8	12.1	M 5 -3P	K08
X-UEXR0810	8.0	8.0	1.0	7.8	12.1	M 5 -3P	K08
X-UEXR1005	10.0	10.0	0.5	9.8	16.1	M 7 -3P	K10
X-UEXR1010	10.0	10.0	1.0	9.8	16.1	M 7 -3P	K10
X-UEXR1205	12.0	12.0	0.5	11.7	20.3	M 8 -3P	K12
X-UEXR1210	12.0	12.0	1.0	11.7	20.3	M 8 -3P	K12
X-UEXR1220	12.0	12.0	2.0	11.7	20.3	M 8 -3P	K12
X-UEXR1610	16.0	16.0	1.0	15.6	25.7	M10-3P	K16
X-UEXR1620	16.0	16.0	2.0	15.6	25.7	M10-3P	K16
X-UEXR1630	16.0	16.0	3.0	15.6	25.7	M10-3P	K16
X-UEXR2010	20.0	20.0	1.0	19.5	31.1	M12-3P	K20
X-UEXR2020	20.0	20.0	2.0	19.5	31.1	M12-3P	K20
X-UEXR2030	20.0	20.0	3.0	19.5	31.1	M12-3P	K20
X-UEXR2510	25.0	25.0	1.0	24.4	39.3	M16-3P	K25
X-UEXR2530	25.0	25.0	3.0	24.4	39.3	M16-3P	K25
X-UEXR2550	25.0	25.0	5.0	24.4	39.3	M16-3P	K25
X-UEXR3230	32.0	32.0	3.0	31.2	48.0	M20-3P	K32
X-UEXR3250	32.0	32.0	5.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-UEXR MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEXR0803	30	200	7700~8200	2400~2800	0.15~0.18	7~8	溝銑 SLOTTING
X-UEXR0803	30	200	7700~8200	1200~1600	0.08~0.11	7~8	溝銑 SLOTTING
X-UEXR0803	30	200	7700~8200	2600~3000	0.15~0.18	0.15~0.18	3D銑 3D MILLING
X-UEXR0803	30	200	7700~8200	2600~3000	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UEXR0803	50	150	5500~6000	600~1000	0.07~0.1	7~8	溝銑 SLOTTING
X-UEXR0803	50	150	5500~6000	1200~1600	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UEXR0803	70	70	2400~2700	400~800	0.07~0.1	7~8	溝銑 SLOTTING
X-UEXR0803	70	90	3000~3500	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UEXR0805	30	200	7700~8200	2400~2800	0.15~0.18	6~8	溝銑 SLOTTING
X-UEXR0805	30	200	7700~8200	1200~1600	0.08~0.11	6~8	溝銑 SLOTTING
X-UEXR0805	30	200	7700~8200	2600~3000	0.15~0.18	0.15~0.18	3D銑 3D MILLING
X-UEXR0805	30	200	7700~8200	2600~3000	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UEXR0805	50	150	5500~6000	600~1000	0.07~0.1	6~8	溝銑 SLOTTING
X-UEXR0805	50	150	5500~6000	1200~1600	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UEXR0805	70	70	2400~2700	400~800	0.07~0.1	6~8	溝銑 SLOTTING
X-UEXR0805	70	90	3000~3500	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UEXR0810	30	200	7700~8200	2400~2800	0.15~0.18	5~8	溝銑 SLOTTING
X-UEXR0810	30	200	7700~8200	1200~1600	0.08~0.11	5~8	溝銑 SLOTTING
X-UEXR0810	30	200	7700~8200	2600~3000	0.15~0.18	0.15~0.18	3D銑 3D MILLING
X-UEXR0810	30	200	7700~8200	2600~3000	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UEXR0810	50	150	5500~6000	600~1000	0.07~0.1	5~8	溝銑 SLOTTING
X-UEXR0810	50	150	5500~6000	1200~1600	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UEXR0810	70	70	2400~2700	400~800	0.07~0.1	5~8	溝銑 SLOTTING
X-UEXR0810	70	90	3000~3500	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UEXR1005	35	200	6000~6500	1800~2200	0.15~0.18	8~10	溝銑 SLOTTING
X-UEXR1005	35	200	6000~6500	1000~1400	0.08~0.11	8~10	溝銑 SLOTTING
X-UEXR1005	35	200	6000~6500	2400~2800	0.15~0.18	0.15~0.18	3D銑 3D MILLING
X-UEXR1005	35	200	6000~6500	2400~2800	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UEXR1005	50	145	4000~4500	800~1200	0.08~0.11	8~10	溝銑 SLOTTING
X-UEXR1005	50	145	4000~4500	1400~1800	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UEXR1005	70	100	2700~3200	600~1000	0.07~0.11	8~10	溝銑 SLOTTING
X-UEXR1005	70	100	2700~3200	800~1200	0.07~0.11	0.07~0.11	3D銑 3D MILLING
X-UEXR1010	35	200	6000~6500	1800~2200	0.15~0.18	7~10	溝銑 SLOTTING
X-UEXR1010	35	200	6000~6500	1000~1400	0.08~0.11	7~10	溝銑 SLOTTING
X-UEXR1010	35	200	6000~6500	2400~2800	0.15~0.18	0.15~0.18	3D銑 3D MILLING
X-UEXR1010	35	200	6000~6500	2400~2800	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UEXR1010	50	145	4000~4500	800~1200	0.08~0.11	7~10	溝銑 SLOTTING
X-UEXR1010	50	145	4000~4500	1400~1800	0.08~0.11	0.08~0.11	3D銑 3D MILLING
X-UEXR1010	70	100	2700~3200	600~1000	0.07~0.11	7~10	溝銑 SLOTTING
X-UEXR1010	70	100	2700~3200	800~1200	0.07~0.11	0.07~0.11	3D銑 3D MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)						
冷卻方式 Coolant Type	乾式切削 Dry coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEXR1205	40	130	3000~3400	1400~1800	0.15~0.2	10~12	溝銑 SLOTTING
X-UEXR1205	40	170	4000~4500	1000~1400	0.1~0.13	10~12	溝銑 SLOTTING
X-UEXR1205	40	130	3000~3400	2000~2400	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UEXR1205	40	170	4000~4500	1400~1800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1205	60	120	2700~3200	800~1200	0.1~0.13	10~12	溝銑 SLOTTING
X-UEXR1205	60	120	2700~3200	1000~1400	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1205	100	85	1700~2200	600~1000	0.07~0.1	10~12	溝銑 SLOTTING
X-UEXR1205	100	85	1700~2200	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UEXR1210	40	130	3000~3400	1400~1800	0.15~0.2	9~12	溝銑 SLOTTING
X-UEXR1210	40	170	4000~4500	1000~1400	0.1~0.13	9~12	溝銑 SLOTTING
X-UEXR1210	40	130	3000~3400	2000~2400	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UEXR1210	40	170	4000~4500	1400~1800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1210	60	120	2700~3200	800~1200	0.1~0.13	9~12	溝銑 SLOTTING
X-UEXR1210	60	120	2700~3200	1000~1400	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1210	100	85	1700~2200	600~1000	0.07~0.1	9~12	溝銑 SLOTTING
X-UEXR1210	100	85	1700~2200	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UEXR1220	40	130	3000~3400	1400~1800	0.15~0.2	7~12	溝銑 SLOTTING
X-UEXR1220	40	170	4000~4500	1000~1400	0.1~0.13	7~12	溝銑 SLOTTING
X-UEXR1220	40	130	3000~3400	2000~2400	0.15~0.2	0.15~0.2	3D銑 3D MILLING
X-UEXR1220	40	170	4000~4500	1400~1800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1220	60	120	2700~3200	800~1200	0.1~0.13	7~12	溝銑 SLOTTING
X-UEXR1220	60	120	2700~3200	1000~1400	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1220	100	85	1700~2200	600~1000	0.07~0.1	7~12	溝銑 SLOTTING
X-UEXR1220	100	85	1700~2200	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UEXR1610	60	160	2700~3200	1600~2000	0.18~0.23	13~16	溝銑 SLOTTING
X-UEXR1610	60	160	2700~3200	800~1200	0.12~0.15	13~16	溝銑 SLOTTING
X-UEXR1610	60	160	2700~3200	1600~2000	0.18~0.23	0.18~0.23	3D銑 3D MILLING
X-UEXR1610	60	160	2700~3200	1400~1800	0.12~0.15	0.12~0.15	3D銑 3D MILLING
X-UEXR1610	100	110	1800~2200	600~1000	0.1~0.15	13~16	溝銑 SLOTTING
X-UEXR1610	100	110	1800~2200	800~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEXR1610	130	90	1400~1800	400~700	0.08~0.12	13~16	溝銑 SLOTTING
X-UEXR1610	130	90	1400~1800	600~800	0.08~0.12	0.08~0.12	3D銑 3D MILLING
X-UEXR1620	60	160	2700~3200	1600~2000	0.18~0.23	11~16	溝銑 SLOTTING
X-UEXR1620	60	160	2700~3200	800~1200	0.12~0.15	11~16	溝銑 SLOTTING
X-UEXR1620	60	160	2700~3200	1600~2000	0.18~0.23	0.18~0.23	3D銑 3D MILLING
X-UEXR1620	60	160	2700~3200	1400~1800	0.12~0.15	0.12~0.15	3D銑 3D MILLING
X-UEXR1620	100	110	1800~2200	600~1000	0.1~0.15	11~16	溝銑 SLOTTING
X-UEXR1620	100	110	1800~2200	800~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEXR1620	130	90	1400~1800	400~800	0.08~0.12	11~16	溝銑 SLOTTING
X-UEXR1620	130	90	1400~1800	600~800	0.08~0.12	0.08~0.12	3D銑 3D MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)						
冷卻方式 Coolant Type	乾式切削 Dry coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEXR1630	60	160	2700~3200	1600~2000	0.18~0.23	9~16	溝銑 SLOTTING
X-UEXR1630	60	160	2700~3200	800~1200	0.1~0.15	9~16	溝銑 SLOTTING
X-UEXR1630	60	160	2700~3200	1600~2000	0.18~0.23	0.18~0.23	3D銑 3D MILLING
X-UEXR1630	60	160	2700~3200	1400~1800	0.12~0.15	0.12~0.15	3D銑 3D MILLING
X-UEXR1630	100	110	1800~2200	600~1000	0.1~0.15	9~16	溝銑 SLOTTING
X-UEXR1630	100	110	1800~2200	800~1200	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEXR1630	130	90	1400~1800	400~700	0.08~0.12	9~16	溝銑 SLOTTING
X-UEXR1630	130	90	1400~1800	600~800	0.08~0.12	0.08~0.12	3D銑 3D MILLING
X-UEXR2010	70	175	2500~3000	1200~1600	0.18~0.23	17~20	溝銑 SLOTTING
X-UEXR2010	70	175	2500~3000	800~1200	0.1~0.15	17~20	溝銑 SLOTTING
X-UEXR2010	70	175	2500~3000	1400~1800	0.15~0.23	0.15~0.23	3D銑 3D MILLING
X-UEXR2010	70	175	2500~3000	1200~1600	0.1~0.15	0.17~0.2	3D銑 3D MILLING
X-UEXR2010	120	110	1600~2000	600~1000	0.1~0.2	17~20	溝銑 SLOTTING
X-UEXR2010	120	120	1800~2200	800~1000	0.1~0.2	0.1~0.15	3D銑 3D MILLING
X-UEXR2010	170	80	1100~1400	400~700	0.1~0.15	17~20	溝銑 SLOTTING
X-UEXR2010	170	90	1300~1600	600~800	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEXR2020	70	175	2500~3000	1200~1600	0.18~0.23	15~20	溝銑 SLOTTING
X-UEXR2020	70	175	2500~3000	800~1200	0.1~0.15	15~20	溝銑 SLOTTING
X-UEXR2020	70	175	2500~3000	1400~1800	0.15~0.23	0.15~0.23	3D銑 3D MILLING
X-UEXR2020	70	175	2500~3000	1200~1600	0.1~0.15	0.17~0.2	3D銑 3D MILLING
X-UEXR2020	120	110	1600~2000	600~1000	0.1~0.2	15~20	溝銑 SLOTTING
X-UEXR2020	120	120	1800~2200	800~1000	0.1~0.2	0.1~0.15	3D銑 3D MILLING
X-UEXR2020	170	80	1100~1400	400~700	0.1~0.15	15~20	溝銑 SLOTTING
X-UEXR2020	170	90	1300~1600	600~800	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEXR2030	70	175	2500~3000	1200~1600	0.18~0.23	13~20	溝銑 SLOTTING
X-UEXR2030	70	175	2500~3000	800~1200	0.1~0.15	13~20	溝銑 SLOTTING
X-UEXR2030	70	175	2500~3000	1400~1800	0.15~0.23	0.15~0.23	3D銑 3D MILLING
X-UEXR2030	70	175	2500~3000	1200~1600	0.1~0.15	0.17~0.2	3D銑 3D MILLING
X-UEXR2030	120	110	1600~2000	600~1000	0.1~0.2	13~20	溝銑 SLOTTING
X-UEXR2030	120	120	1800~2200	800~1000	0.1~0.2	0.1~0.15	3D銑 3D MILLING
X-UEXR2030	170	80	1100~1400	400~700	0.1~0.15	13~20	溝銑 SLOTTING
X-UEXR2030	170	90	1300~1600	600~800	0.1~0.15	0.1~0.15	3D銑 3D MILLING
X-UEXR2510	80	175	2000~2400	800~1200	0.15~0.25	22~25	溝銑 SLOTTING
X-UEXR2510	80	175	2000~2400	600~1000	0.1~0.15	22~25	溝銑 SLOTTING
X-UEXR2510	80	175	2000~2400	1000~1400	0.15~0.25	0.15~0.25	3D銑 3D MILLING
X-UEXR2510	80	175	2000~2400	1000~1400	0.1~0.2	0.17~0.2	3D銑 3D MILLING
X-UEXR2510	130	110	1200~1600	400~600	0.1~0.15	22~25	溝銑 SLOTTING
X-UEXR2510	130	120	1300~1700	700~900	0.1~0.2	0.12~0.15	3D銑 3D MILLING
X-UEXR2510	180	80	800~1200	300~400	0.1~0.15	22~25	溝銑 SLOTTING
X-UEXR2510	180	90	1000~1400	500~700	0.1~0.15	0.12~0.15	3D銑 3D MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)						
冷卻方式 Coolant Type	乾式切削 Dry coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEXR2530	80	175	2000~2400	800~1200	0.15~0.25	18~25	溝銑 SLOTTING
X-UEXR2530	80	175	2000~2400	600~1000	0.1~0.15	18~25	溝銑 SLOTTING
X-UEXR2530	80	175	2000~2400	1000~1400	0.15~0.25	0.15~0.25	3D銑 3D MILLING
X-UEXR2530	80	175	2000~2400	1000~1400	0.1~0.2	0.17~0.2	3D銑 3D MILLING
X-UEXR2530	130	110	1200~1600	400~600	0.1~0.15	18~25	溝銑 SLOTTING
X-UEXR2530	130	120	1300~1700	700~900	0.1~0.2	0.12~0.15	3D銑 3D MILLING
X-UEXR2530	180	80	800~1200	300~400	0.1~0.15	18~25	溝銑 SLOTTING
X-UEXR2530	180	90	1000~1400	500~700	0.1~0.15	0.12~0.15	3D銑 3D MILLING
X-UEXR2550	80	175	2000~2400	800~1200	0.15~0.25	14~25	溝銑 SLOTTING
X-UEXR2550	80	175	2000~2400	600~1000	0.1~0.15	14~25	溝銑 SLOTTING
X-UEXR2550	80	175	2000~2400	1000~1400	0.15~0.25	0.15~0.25	3D銑 3D MILLING
X-UEXR2550	80	175	2000~2400	1000~1400	0.1~0.2	0.17~0.2	3D銑 3D MILLING
X-UEXR2550	130	110	1200~1600	400~600	0.1~0.15	14~25	溝銑 SLOTTING
X-UEXR2550	130	120	1300~1700	700~900	0.1~0.2	0.12~0.15	3D銑 3D MILLING
X-UEXR2550	180	80	800~1200	300~400	0.1~0.15	14~25	溝銑 SLOTTING
X-UEXR2550	180	90	1000~1400	500~700	0.1~0.15	0.12~0.15	3D銑 3D MILLING
X-UEXR3230	80	175	1600~2000	600~1000	0.15~0.25	25~32	溝銑 SLOTTING
X-UEXR3230	80	175	1600~2000	500~800	0.1~0.15	25~32	溝銑 SLOTTING
X-UEXR3230	80	175	1600~2000	800~1100	0.15~0.25	0.15~0.25	3D銑 3D MILLING
X-UEXR3230	80	175	1600~2000	800~1100	0.1~0.2	0.17~0.2	3D銑 3D MILLING
X-UEXR3230	140	110	900~1300	300~500	0.1~0.15	25~32	溝銑 SLOTTING
X-UEXR3230	140	120	1000~1400	600~800	0.1~0.2	0.12~0.15	3D銑 3D MILLING
X-UEXR3230	200	80	700~1000	250~400	0.1~0.15	25~32	溝銑 SLOTTING
X-UEXR3230	200	90	800~1100	400~600	0.1~0.15	0.12~0.15	3D銑 3D MILLING
X-UEXR3250	80	175	1600~2000	600~1000	0.15~0.25	21~32	溝銑 SLOTTING
X-UEXR3250	80	175	1600~2000	500~800	0.1~0.15	21~32	溝銑 SLOTTING
X-UEXR3250	80	175	1600~2000	800~1100	0.15~0.25	0.15~0.25	3D銑 3D MILLING
X-UEXR3250	80	175	1600~2000	800~1100	0.1~0.2	0.17~0.2	3D銑 3D MILLING
X-UEXR3250	140	110	900~1300	300~500	0.1~0.15	21~32	溝銑 SLOTTING
X-UEXR3250	140	120	1000~1400	600~800	0.1~0.2	0.12~0.15	3D銑 3D MILLING
X-UEXR3250	200	80	700~1000	250~400	0.1~0.15	21~32	溝銑 SLOTTING
X-UEXR3250	200	90	800~1100	400~600	0.1~0.15	0.12~0.15	3D銑 3D MILLING

切削條件表 X-UEXR MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* : SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2 (HRc55~62)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEXR0803	30	125	4500~5000	1000~1400	0.07~0.09	7~8	溝銑 SLOTTING
X-UEXR0803	30	125	4500~5000	1600~2000	0.07~0.09	0.07~0.09	3D銑 3D MILLING
X-UEXR0803	50	80	2700~3200	600~1000	0.06~0.08	7~8	溝銑 SLOTTING
X-UEXR0803	50	80	2700~3200	1000~1400	0.06~0.08	0.06~0.08	3D銑 3D MILLING
X-UEXR0803	70	55	1800~2200	400~800	0.06~0.08	7~8	溝銑 SLOTTING
X-UEXR0803	70	55	1800~2200	600~1000	0.06~0.08	0.06~0.08	3D銑 3D MILLING
X-UEXR0805	30	125	4500~5000	1000~1400	0.07~0.09	6~8	溝銑 SLOTTING
X-UEXR0805	30	125	4500~5000	1600~2000	0.07~0.09	0.07~0.09	3D銑 3D MILLING
X-UEXR0805	50	80	2700~3200	600~1000	0.06~0.08	6~8	溝銑 SLOTTING
X-UEXR0805	50	80	2700~3200	1000~1400	0.06~0.08	0.06~0.08	3D銑 3D MILLING
X-UEXR0805	70	55	1800~2200	400~800	0.06~0.08	6~8	溝銑 SLOTTING
X-UEXR0805	70	55	1800~2200	600~1000	0.06~0.08	0.06~0.08	3D銑 3D MILLING
X-UEXR0810	30	125	4500~5000	1000~1400	0.07~0.09	5~8	溝銑 SLOTTING
X-UEXR0810	30	125	4500~5000	1600~2000	0.07~0.09	0.07~0.09	3D銑 3D MILLING
X-UEXR0810	50	80	2700~3200	600~1000	0.06~0.08	5~8	溝銑 SLOTTING
X-UEXR0810	50	80	2700~3200	1000~1400	0.06~0.08	0.06~0.08	3D銑 3D MILLING
X-UEXR0810	70	55	1800~2200	400~800	0.06~0.08	5~8	溝銑 SLOTTING
X-UEXR0810	70	55	1800~2200	600~1000	0.06~0.08	0.06~0.08	3D銑 3D MILLING
X-UEXR1005	35	110	3000~3400	1000~1400	0.07~0.09	8~10	溝銑 SLOTTING
X-UEXR1005	35	110	3000~3400	1000~1400	0.07~0.09	0.07~0.09	3D銑 3D MILLING
X-UEXR1005	50	100	2700~3200	800~1200	0.07~0.09	8~10	溝銑 SLOTTING
X-UEXR1005	50	100	2700~3200	800~1200	0.07~0.09	0.07~0.09	3D銑 3D MILLING
X-UEXR1005	70	70	1700~2200	400~800	0.07~0.09	8~10	溝銑 SLOTTING
X-UEXR1005	70	70	1700~2200	600~1000	0.07~0.09	0.07~0.09	3D銑 3D MILLING
X-UEXR1010	35	110	3000~3400	1000~1400	0.07~0.09	7~10	溝銑 SLOTTING
X-UEXR1010	35	110	3000~3400	1000~1400	0.07~0.09	0.07~0.09	3D銑 3D MILLING
X-UEXR1010	50	100	2700~3200	800~1200	0.07~0.09	7~10	溝銑 SLOTTING
X-UEXR1010	50	100	2700~3200	800~1200	0.07~0.09	0.07~0.09	3D銑 3D MILLING
X-UEXR1010	70	70	1700~2200	400~800	0.07~0.09	7~10	溝銑 SLOTTING
X-UEXR1010	70	70	1700~2200	600~1000	0.07~0.09	0.07~0.09	3D銑 3D MILLING
X-UEXR1205	40	120	2700~3200	1000~1400	0.09~0.11	10~12	溝銑 SLOTTING
X-UEXR1205	40	120	2700~3200	1000~1400	0.09~0.11	0.09~0.11	3D銑 3D MILLING
X-UEXR1205	60	105	2300~2800	600~1000	0.09~0.11	10~12	溝銑 SLOTTING
X-UEXR1205	60	105	2300~2800	800~1200	0.09~0.11	0.09~0.11	3D銑 3D MILLING
X-UEXR1205	100	85	1700~2200	400~700	0.07~0.1	10~12	溝銑 SLOTTING
X-UEXR1205	100	85	1700~2200	600~1000	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UEXR1210	40	120	2700~3200	1000~1400	0.09~0.11	9~12	溝銑 SLOTTING
X-UEXR1210	40	120	2700~3200	1000~1400	0.09~0.11	0.09~0.11	3D銑 3D MILLING
X-UEXR1210	60	105	2300~2800	600~1000	0.09~0.11	9~12	溝銑 SLOTTING
X-UEXR1210	60	105	2300~2800	800~1200	0.09~0.11	0.09~0.11	3D銑 3D MILLING

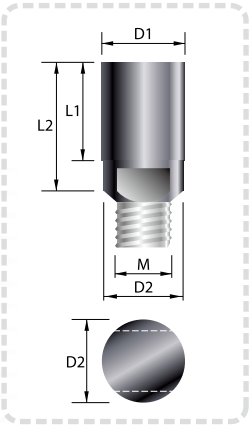
被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)						
冷卻方式 Coolant Type	乾式切削 Dry coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEXR1210	100	85	1700~2200	400~700	0.07~0.1	9~12	溝銑 SLOTTING
X-UEXR1210	100	85	1700~2200	600~1000	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UEXR1220	40	120	2700~3200	1000~1400	0.09~0.11	7~12	溝銑 SLOTTING
X-UEXR1220	40	120	2700~3200	1000~1400	0.09~0.11	0.09~0.11	3D銑 3D MILLING
X-UEXR1220	60	105	2300~2800	600~1000	0.09~0.11	7~12	溝銑 SLOTTING
X-UEXR1220	60	105	2300~2800	800~1200	0.09~0.11	0.09~0.11	3D銑 3D MILLING
X-UEXR1220	100	85	1700~2200	400~700	0.07~0.1	7~12	溝銑 SLOTTING
X-UEXR1220	100	85	1700~2200	600~1000	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UEXR1610	60	120	2000~2400	600~1000	0.1~0.13	13~16	溝銑 SLOTTING
X-UEXR1610	60	140	2400~2800	800~1200	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1610	100	100	1700~2100	600~800	0.1~0.13	13~16	溝銑 SLOTTING
X-UEXR1610	100	100	1700~2100	600~1000	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1610	130	90	1400~1800	400~700	0.1~0.13	13~16	溝銑 SLOTTING
X-UEXR1610	130	90	1400~1800	400~700	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1620	60	120	2000~2400	600~1000	0.1~0.13	11~16	溝銑 SLOTTING
X-UEXR1620	60	140	2400~2800	800~1200	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1620	100	100	1700~2100	600~800	0.1~0.13	11~16	溝銑 SLOTTING
X-UEXR1620	100	100	1700~2100	600~1000	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1620	130	90	1400~1800	400~700	0.1~0.13	11~16	溝銑 SLOTTING
X-UEXR1620	130	90	1400~1800	400~700	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1630	60	120	2000~2400	600~1000	0.1~0.13	9~16	溝銑 SLOTTING
X-UEXR1630	60	140	2400~2800	800~1200	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1630	100	100	1700~2100	600~800	0.1~0.13	9~16	溝銑 SLOTTING
X-UEXR1630	100	100	1700~2100	600~1000	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR1630	130	90	1400~1800	400~700	0.1~0.13	9~16	溝銑 SLOTTING
X-UEXR1630	130	90	1400~1800	400~700	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2010	70	120	1800~2100	600~800	0.1~0.13	17~20	溝銑 SLOTTING
X-UEXR2010	70	140	2000~2400	800~1200	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2010	120	100	1500~1800	400~600	0.1~0.13	17~20	溝銑 SLOTTING
X-UEXR2010	120	100	1500~1800	600~800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2010	170	70	1000~1300	300~500	0.1~0.13	17~20	溝銑 SLOTTING
X-UEXR2010	170	70	1000~1300	500~700	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2020	70	120	1800~2100	600~800	0.1~0.13	15~20	溝銑 SLOTTING
X-UEXR2020	70	140	2000~2400	800~1200	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2020	120	100	1500~1800	400~600	0.1~0.13	15~20	溝銑 SLOTTING
X-UEXR2020	120	100	1500~1800	600~800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2020	170	70	1000~1300	300~500	0.1~0.13	15~20	溝銑 SLOTTING
X-UEXR2020	170	70	1000~1300	500~700	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2030	70	120	1800~2100	600~800	0.1~0.13	13~20	溝銑 SLOTTING
X-UEXR2030	70	140	2000~2400	800~1200	0.1~0.13	0.1~0.13	3D銑 3D MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)						
冷卻方式 Coolant Type	乾式切削 Dry coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UEXR2030	120	100	1500~1800	400~600	0.1~0.13	13~20	溝銑 SLOTTING
X-UEXR2030	120	100	1500~1800	600~800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2030	170	70	1000~1300	300~500	0.1~0.13	13~20	溝銑 SLOTTING
X-UEXR2030	170	70	1000~1300	500~700	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2510	80	120	1400~1700	500~700	0.1~0.13	22~25	溝銑 SLOTTING
X-UEXR2510	80	140	1600~2000	600~1000	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2510	130	100	1100~1500	300~500	0.1~0.13	22~25	溝銑 SLOTTING
X-UEXR2510	130	100	1100~1500	500~800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2510	180	70	700~1100	250~350	0.1~0.13	22~25	溝銑 SLOTTING
X-UEXR2510	180	70	700~1100	400~600	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2530	80	120	1400~1700	500~700	0.1~0.13	18~25	溝銑 SLOTTING
X-UEXR2530	80	140	1600~2000	600~1000	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2530	130	100	1100~1500	300~500	0.1~0.13	18~25	溝銑 SLOTTING
X-UEXR2530	130	100	1100~1500	500~800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2530	180	70	700~1100	250~350	0.1~0.13	18~25	溝銑 SLOTTING
X-UEXR2530	180	70	700~1100	400~600	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2550	80	120	1400~1700	500~700	0.1~0.13	14~25	溝銑 SLOTTING
X-UEXR2550	80	140	1600~2000	600~1000	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2550	130	100	1100~1500	300~500	0.1~0.13	14~25	溝銑 SLOTTING
X-UEXR2550	130	100	1100~1500	500~800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR2550	180	70	700~1100	250~350	0.1~0.13	14~25	溝銑 SLOTTING
X-UEXR2550	180	70	700~1100	400~600	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR3230	80	120	1000~1300	400~600	0.1~0.13	25~32	溝銑 SLOTTING
X-UEXR3230	80	140	1200~1500	600~800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR3230	140	100	800~1200	300~400	0.1~0.13	25~32	溝銑 SLOTTING
X-UEXR3230	140	100	800~1200	500~700	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR3230	200	70	600~900	200~350	0.1~0.13	25~32	溝銑 SLOTTING
X-UEXR3230	200	70	600~900	300~500	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR3250	80	120	1000~1300	400~600	0.1~0.13	21~32	溝銑 SLOTTING
X-UEXR3250	80	140	1200~1500	600~800	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR3250	140	100	800~1200	300~400	0.1~0.13	21~32	溝銑 SLOTTING
X-UEXR3250	140	100	800~1200	500~700	0.1~0.13	0.1~0.13	3D銑 3D MILLING
X-UEXR3250	200	70	600~900	200~350	0.1~0.13	21~32	溝銑 SLOTTING
X-UEXR3250	200	70	600~900	300~500	0.1~0.13	0.1~0.13	3D銑 3D MILLING

X-UVT

高硬度用立銑刀頭
End Mills

Super MG | 0.2 μm | 45° | 6 Flutes | HRc 65 | G15



- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing

- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	直徑公差值 D1 Tolerance
8.0	$^{0}_{-0.02}$
10.0	$^{0}_{-0.02}$
12.0	$^{0}_{-0.02}$
16.0	$^{0}_{-0.02}$
20.0	$^{0}_{-0.03}$
25.0	$^{0}_{-0.04}$
32.0	$^{0}_{-0.04}$

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UVT0806	8.0	8.0	7.8	12.1	M 5 -3P	K08
X-UVT1006	10.0	10.0	9.8	16.1	M 7 -3P	K10
X-UVT1206	12.0	12.0	11.7	20.3	M 8 -3P	K12
X-UVT1606	16.0	16.0	15.6	25.7	M10-3P	K16
X-UVT2006	20.0	20.0	19.5	31.1	M12-3P	K20
X-UVT2506	25.0	25.0	24.4	39.3	M16-3P	K25
X-UVT3206	32.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

X-UVT

切削條件表 MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVT0806	25	95	3600~4000	1000~1400	0.1~0.2	6~8	溝銑 SLOTTING
X-UVT0806	25	95	3600~4000	800~1000	0.05~0.1	6~8	溝銑 SLOTTING
X-UVT0806	25	70	2600~3000	1000~1400	8	0.2~0.4	側銑 SIDE MILLING
X-UVT0806	25	85	3300~3600	600~800	8	0.05~0.15	側銑 SIDE MILLING
X-UVT0806	40	80	3000~3400	500~700	0.05~0.1	6~8	溝銑 SLOTTING
X-UVT0806	40	55	2200~2600	450~650	8	0.05~0.15	側銑 SIDE MILLING
X-UVT0806	60	60	2200~2600	300~500	0.05~0.1	6~8	溝銑 SLOTTING
X-UVT0806	60	60	2200~2600	350~500	8	0.05~0.1	側銑 SIDE MILLING
X-UVT1006	30	95	2800~3200	1000~1200	0.1~0.2	8~10	溝銑 SLOTTING
X-UVT1006	30	95	2800~3200	800~1000	0.05~0.1	8~10	溝銑 SLOTTING
X-UVT1006	30	95	2800~3200	900~1300	10	0.3~0.5	側銑 SIDE MILLING
X-UVT1006	30	95	2800~3200	500~700	10	0.05~0.15	側銑 SIDE MILLING
X-UVT1006	50	75	2200~2600	600~800	0.05~0.1	8~10	溝銑 SLOTTING
X-UVT1006	50	75	2200~2600	450~650	10	0.05~0.15	側銑 SIDE MILLING
X-UVT1006	70	60	1800~2200	300~500	0.05~0.1	8~10	溝銑 SLOTTING
X-UVT1006	70	60	1800~2200	350~550	10	0.05~0.1	側銑 SIDE MILLING
X-UVT1206	35	100	2400~2800	800~1000	0.1~0.2	10~12	溝銑 SLOTTING
X-UVT1206	35	135	3400~3800	600~800	0.05~0.1	10~12	溝銑 SLOTTING
X-UVT1206	35	115	2800~3200	800~1200	12	0.3~0.5	側銑 SIDE MILLING
X-UVT1206	35	115	2800~3200	600~800	12	0.05~0.15	側銑 SIDE MILLING
X-UVT1206	55	115	2800~3200	400~600	0.05~0.1	10~12	溝銑 SLOTTING
X-UVT1206	55	80	2000~2400	400~600	12	0.05~0.15	側銑 SIDE MILLING
X-UVT1206	80	80	2000~2400	300~500	0.05~0.1	10~12	溝銑 SLOTTING
X-UVT1206	80	75	1800~2200	350~450	12	0.05~0.1	側銑 SIDE MILLING
X-UVT1606	50	110	2000~2400	700~1000	0.1~0.2	14~16	溝銑 SLOTTING
X-UVT1606	50	120	2200~2600	600~800	0.05~0.15	14~16	溝銑 SLOTTING
X-UVT1606	50	100	1800~2200	900~1300	16	0.3~0.5	側銑 SIDE MILLING
X-UVT1606	50	100	1800~2200	450~650	16	0.05~0.2	側銑 SIDE MILLING
X-UVT1606	70	100	1800~2200	400~600	0.05~0.1	14~16	溝銑 SLOTTING
X-UVT1606	70	70	1200~1600	300~450	16	0.05~0.15	側銑 SIDE MILLING
X-UVT1606	100	80	1400~1800	300~500	0.05~0.1	14~16	溝銑 SLOTTING
X-UVT1606	100	50	800~1100	250~400	16	0.05~0.1	側銑 SIDE MILLING
X-UVT2006	50	110	1600~1900	700~1000	0.15~0.25	18~20	溝銑 SLOTTING
X-UVT2006	50	120	1800~2100	600~800	0.05~0.15	18~20	溝銑 SLOTTING
X-UVT2006	50	100	1400~1800	600~900	20	0.4~0.6	側銑 SIDE MILLING
X-UVT2006	50	100	1400~1800	400~600	20	0.05~0.2	側銑 SIDE MILLING
X-UVT2006	80	110	1600~1900	400~600	0.05~0.15	18~20	溝銑 SLOTTING
X-UVT2006	80	70	1000~1400	300~450	20	0.05~0.2	側銑 SIDE MILLING
X-UVT2006	110	80	1100~1500	300~500	0.05~0.1	18~20	溝銑 SLOTTING
X-UVT2006	110	50	600~1000	250~350	20	0.1~0.15	側銑 SIDE MILLING

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVT2506	70	110	1200~1600	600~900	0.15~0.25	23~25	溝銑 SLOTTING
X-UVT2506	70	120	1300~1700	500~700	0.05~0.15	23~25	溝銑 SLOTTING
X-UVT2506	70	100	1100~1500	600~900	25	0.4~0.6	側銑 SIDE MILLING
X-UVT2506	70	100	1100~1500	400~600	25	0.05~0.2	側銑 SIDE MILLING
X-UVT2506	100	110	1200~1600	400~600	0.05~0.15	23~25	溝銑 SLOTTING
X-UVT2506	100	70	800~1200	300~400	25	0.05~0.2	側銑 SIDE MILLING
X-UVT2506	130	80	800~1200	300~500	0.05~0.1	23~25	溝銑 SLOTTING
X-UVT2506	130	60	600~900	250~400	25	0.1~0.15	側銑 SIDE MILLING
X-UVT3206	80	110	900~1300	500~700	0.15~0.25	25~32	溝銑 SLOTTING
X-UVT3206	80	120	1000~1400	300~500	0.05~0.15	25~32	溝銑 SLOTTING
X-UVT3206	80	100	800~1200	500~700	32	0.4~0.6	側銑 SIDE MILLING
X-UVT3206	80	100	800~1200	300~480	32	0.05~0.2	側銑 SIDE MILLING
X-UVT3206	110	110	900~1300	300~500	0.05~0.15	25~32	溝銑 SLOTTING
X-UVT3206	110	70	600~800	240~380	32	0.05~0.2	側銑 SIDE MILLING
X-UVT3206	150	80	700~900	300~400	0.05~0.1	25~32	溝銑 SLOTTING
X-UVT3206	150	60	500~700	180~280	32	0.1~0.15	側銑 SIDE MILLING

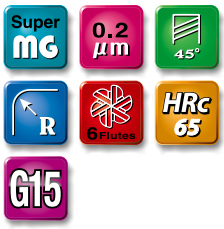
被切削材 Work Material	熱處理鋼 *Hardened Steels* **SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420** (HRc48~54)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVT0806	25	95	3600~4000	1000~1400	0.1~0.2	6~8	溝銑 SLOTTING
X-UVT0806	25	95	3600~4000	800~1000	0.05~0.1	6~8	溝銑 SLOTTING
X-UVT0806	25	70	2600~3000	1000~1400	8	0.2~0.4	側銑 SIDE MILLING
X-UVT0806	25	85	3300~3600	600~800	8	0.05~0.15	側銑 SIDE MILLING
X-UVT0806	40	80	3000~3400	500~700	0.05~0.1	6~8	溝銑 SLOTTING
X-UVT0806	40	55	2200~2600	450~650	8	0.05~0.15	側銑 SIDE MILLING
X-UVT0806	60	60	2200~2600	300~500	0.05~0.1	6~8	溝銑 SLOTTING
X-UVT0806	60	60	2200~2600	350~500	8	0.05~0.1	側銑 SIDE MILLING
X-UVT1006	30	95	2800~3200	1000~1200	0.1~0.2	8~10	溝銑 SLOTTING
X-UVT1006	30	95	2800~3200	800~1000	0.05~0.1	8~10	溝銑 SLOTTING
X-UVT1006	30	95	2800~3200	900~1300	10	0.3~0.5	側銑 SIDE MILLING
X-UVT1006	30	95	2800~3200	500~700	10	0.05~0.15	側銑 SIDE MILLING
X-UVT1006	50	75	2200~2600	600~800	0.05~0.1	8~10	溝銑 SLOTTING
X-UVT1006	50	75	2200~2600	450~650	10	0.05~0.15	側銑 SIDE MILLING
X-UVT1006	70	60	1800~2200	300~500	0.05~0.1	8~10	溝銑 SLOTTING
X-UVT1006	70	60	1800~2200	350~550	10	0.05~0.1	側銑 SIDE MILLING

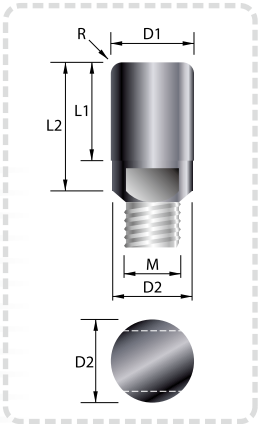
被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVT1206	35	100	2400~2800	800~1000	0.1~0.2	10~12	溝銑 SLOTTING
X-UVT1206	35	135	3400~3800	600~800	0.05~0.1	10~12	溝銑 SLOTTING
X-UVT1206	35	115	2800~3200	800~1200	12	0.3~0.5	側銑 SIDE MILLING
X-UVT1206	35	115	2800~3200	600~800	12	0.05~0.15	側銑 SIDE MILLING
X-UVT1206	55	115	2800~3200	400~600	0.05~0.1	10~12	溝銑 SLOTTING
X-UVT1206	55	80	2000~2400	400~600	12	0.05~0.15	側銑 SIDE MILLING
X-UVT1206	80	80	2000~2400	300~500	0.05~0.1	10~12	溝銑 SLOTTING
X-UVT1206	80	75	1800~2200	350~450	12	0.05~0.1	側銑 SIDE MILLING
X-UVT1606	50	110	2000~2400	700~1000	0.1~0.2	14~16	溝銑 SLOTTING
X-UVT1606	50	120	2200~2600	600~800	0.05~0.15	14~16	溝銑 SLOTTING
X-UVT1606	50	100	1800~2200	900~1300	16	0.3~0.5	側銑 SIDE MILLING
X-UVT1606	50	100	1800~2200	450~650	16	0.05~0.2	側銑 SIDE MILLING
X-UVT1606	70	100	1800~2200	400~600	0.05~0.1	14~16	溝銑 SLOTTING
X-UVT1606	70	70	1200~1600	300~450	16	0.05~0.15	側銑 SIDE MILLING
X-UVT1606	100	80	1400~1800	300~500	0.05~0.1	14~16	溝銑 SLOTTING
X-UVT1606	100	50	800~1100	250~400	16	0.05~0.1	側銑 SIDE MILLING
X-UVT2006	50	110	1600~1900	700~1000	0.15~0.25	18~20	溝銑 SLOTTING
X-UVT2006	50	120	1800~2100	600~800	0.05~0.15	18~20	溝銑 SLOTTING
X-UVT2006	50	100	1400~1800	600~900	20	0.4~0.6	側銑 SIDE MILLING
X-UVT2006	50	100	1400~1800	400~600	20	0.05~0.2	側銑 SIDE MILLING
X-UVT2006	80	110	1600~1900	400~600	0.05~0.15	18~20	溝銑 SLOTTING
X-UVT2006	80	70	1000~1400	300~450	20	0.05~0.2	側銑 SIDE MILLING
X-UVT2006	110	80	1100~1500	300~500	0.05~0.1	18~20	溝銑 SLOTTING
X-UVT2006	110	50	600~1000	250~350	20	0.1~0.15	側銑 SIDE MILLING
X-UVT2506	70	110	1200~1600	600~900	0.15~0.25	23~25	溝銑 SLOTTING
X-UVT2506	70	120	1300~1700	500~700	0.05~0.15	23~25	溝銑 SLOTTING
X-UVT2506	70	100	1100~1500	600~900	25	0.4~0.6	側銑 SIDE MILLING
X-UVT2506	70	100	1100~1500	400~600	25	0.05~0.2	側銑 SIDE MILLING
X-UVT2506	100	110	1200~1600	400~600	0.05~0.15	23~25	溝銑 SLOTTING
X-UVT2506	100	70	800~1200	300~400	25	0.05~0.2	側銑 SIDE MILLING
X-UVT2506	130	80	800~1200	300~500	0.05~0.1	23~25	溝銑 SLOTTING
X-UVT2506	130	60	600~900	250~400	25	0.1~0.15	側銑 SIDE MILLING
X-UVT3206	80	110	900~1300	500~700	0.15~0.25	25~32	溝銑 SLOTTING
X-UVT3206	80	120	1000~1400	300~500	0.05~0.15	25~32	溝銑 SLOTTING
X-UVT3206	80	100	800~1200	500~700	32	0.4~0.6	側銑 SIDE MILLING
X-UVT3206	80	100	800~1200	300~480	32	0.05~0.2	側銑 SIDE MILLING
X-UVT3206	110	110	900~1300	300~500	0.05~0.15	25~32	溝銑 SLOTTING
X-UVT3206	110	70	600~800	240~380	32	0.05~0.2	側銑 SIDE MILLING
X-UVT3206	150	80	700~900	300~400	0.05~0.1	25~32	溝銑 SLOTTING
X-UVT3206	150	60	500~700	180~280	32	0.1~0.15	側銑 SIDE MILLING

X-UVTR

高硬度圓鼻立銑刀頭
End Mills





直徑 D1	R徑公差值 R Tolerance	直徑公差值 D1 Tolerance
8.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
10.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
12.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
16.0	$^{+0.02}_{0}$	$^{0}_{-0.02}$
20.0	$^{+0.02}_{0}$	$^{0}_{-0.03}$
25.0	$^{+0.02}_{0}$	$^{0}_{-0.04}$

unit : mm

型號 Type No.	*D1* 直徑 Diameter	*L1* 刃長 Flute Length	*R* 圓鼻角 Corner R	*D2* 頸徑 Neck Dia.	*L2* 全長 O.A.L.	*M* 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UVTR0805	8.0	8.0	0.5	7.8	12.1	M 5 -3P	K08
X-UVTR0810	8.0	8.0	1.0	7.8	12.1	M 5 -3P	K08
X-UVTR1005	10.0	10.0	0.5	9.8	16.1	M 7 -3P	K10
X-UVTR1010	10.0	10.0	1.0	9.8	16.1	M 7 -3P	K10
X-UVTR1205	12.0	12.0	0.5	11.7	20.3	M 8 -3P	K12
X-UVTR1210	12.0	12.0	1.0	11.7	20.3	M 8 -3P	K12
X-UVTR1605	16.0	16.0	0.5	15.6	25.7	M10-3P	K16
X-UVTR1610	16.0	16.0	1.0	15.6	25.7	M10-3P	K16
X-UVTR1620	16.0	16.0	2.0	15.6	25.7	M10-3P	K16
X-UVTR2010	20.0	20.0	1.0	19.5	31.1	M12-3P	K20
X-UVTR2020	20.0	20.0	2.0	19.5	31.1	M12-3P	K20
X-UVTR2030	20.0	20.0	3.0	19.5	31.1	M12-3P	K20
X-UVTR2530	25.0	25.0	3.0	24.4	39.3	M16-3P	K25
X-UVTR2550	25.0	25.0	5.0	24.4	39.3	M16-3P	K25

unit : mm

切削條件表 X-UVTR MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVTR0805	25	115	4500~5000	1400~1600	0.2~0.3	6~8	溝銑 SLOTTING
X-UVTR0805	25	150	5500~6500	1000~1400	0.05~0.1	6~8	溝銑 SLOTTING
X-UVTR0805	25	65	2600~3000	1000~1400	8	0.2~0.3	側銑 SIDE MILLING
X-UVTR0805	25	85	3300~3600	600~800	8	0.05~0.15	側銑 SIDE MILLING
X-UVTR0805	25	150	5500~6000	2000~2400	0.2~0.3	0.2~0.3	3D銑 3D MILLING
X-UVTR0805	25	175	7000~8000	3000~3400	0.05~0.15	0.05~0.1	3D銑 3D MILLING
X-UVTR0805	40	130	5000~5500	800~1000	0.05~0.1	6~8	溝銑 SLOTTING
X-UVTR0805	40	55	2200~2600	400~600	8	0.05~0.15	側銑 SIDE MILLING
X-UVTR0805	40	140	5500~6300	2000~2400	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR0805	60	75	3000~3500	600~800	0.05~0.1	6~8	溝銑 SLOTTING
X-UVTR0805	60	75	3000~3500	1200~1600	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR0810	25	115	4500~5000	1400~1600	0.2~0.3	5~8	溝銑 SLOTTING
X-UVTR0810	25	150	5500~6500	1000~1400	0.05~0.1	5~8	溝銑 SLOTTING
X-UVTR0810	25	65	2600~3000	1000~1400	8	0.05~0.15	側銑 SIDE MILLING
X-UVTR0810	25	85	3300~3600	600~800	8	0.05~0.15	側銑 SIDE MILLING
X-UVTR0810	25	150	5500~6000	2000~2400	0.2~0.3	0.2~0.3	3D銑 3D MILLING
X-UVTR0810	25	175	7000~8000	3000~3400	0.05~0.15	0.05~0.1	3D銑 3D MILLING
X-UVTR0810	40	130	5000~5500	800~1000	0.05~0.1	5~8	溝銑 SLOTTING
X-UVTR0810	40	55	2200~2600	400~600	8	0.05~0.15	側銑 SIDE MILLING
X-UVTR0810	40	140	5500~6300	2000~2400	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR0810	60	75	3000~3500	600~800	0.05~0.1	5.5	溝銑 SLOTTING
X-UVTR0810	60	75	3000~3500	1200~1600	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR1005	35	135	4300~4800	1400~1800	0.2~0.3	8~10	溝銑 SLOTTING
X-UVTR1005	35	140	4200~4700	800~1200	0.05~0.15	8~10	溝銑 SLOTTING
X-UVTR1005	35	100	3200~3600	1000~1400	10	0.3~0.5	側銑 SIDE MILLING
X-UVTR1005	35	120	3800~4200	600~800	10	0.05~0.15	側銑 SIDE MILLING
X-UVTR1005	35	145	4500~5000	1800~2200	0.2~0.3	0.2~0.3	3D銑 3D MILLING
X-UVTR1005	35	190	6000~7000	2800~3200	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1005	50	125	4000~4500	800~1000	0.05~0.15	8~10	溝銑 SLOTTING
X-UVTR1005	50	65	2000~2400	400~600	10	0.05~0.15	側銑 SIDE MILLING
X-UVTR1005	50	125	4000~4500	1400~1800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1005	70	60	1800~2200	400~600	0.05~0.15	8~10	溝銑 SLOTTING
X-UVTR1005	70	50	1600~2000	1000~1400	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1010	35	135	4300~4800	1400~1800	0.2~0.3	7~10	溝銑 SLOTTING
X-UVTR1010	35	140	4200~4700	800~1200	0.05~0.15	7~10	溝銑 SLOTTING
X-UVTR1010	35	100	3200~3600	1000~1400	10	0.3~0.5	側銑 SIDE MILLING
X-UVTR1010	35	120	3800~4200	600~800	10	0.05~0.15	側銑 SIDE MILLING
X-UVTR1010	35	145	4500~5000	1800~2200	0.2~0.3	0.2~0.3	3D銑 3D MILLING
X-UVTR1010	35	190	6000~7000	2800~3200	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1010	50	115	3600~4000	800~1000	0.05~0.15	7~10	溝銑 SLOTTING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVTR1010	50	65	2000~2400	400~600	10	0.05~0.15	側銑 SIDE MILLING
X-UVTR1010	50	125	4000~4500	1400~1800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1010	70	60	1800~2200	400~600	0.05~0.15	7~10	溝銑 SLOTTING
X-UVTR1010	70	50	1600~2000	1000~1400	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1205	40	105	2700~3200	1000~1400	0.2~0.3	9~12	溝銑 SLOTTING
X-UVTR1205	40	170	4500~5000	800~1000	0.05~0.15	10~12	溝銑 SLOTTING
X-UVTR1205	40	115	3000~3400	1000~1400	12	0.3~0.5	側銑 SIDE MILLING
X-UVTR1205	40	115	3000~3400	600~800	12	0.05~0.15	側銑 SIDE MILLING
X-UVTR1205	40	105	2700~3200	1000~1400	0.2~0.3	0.2~0.3	3D銑 3D MILLING
X-UVTR1205	40	180	4700~5200	2200~2600	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1205	60	115	3000~3400	600~800	0.05~0.15	10~12	溝銑 SLOTTING
X-UVTR1205	60	75	2000~2400	400~600	12	0.05~0.15	側銑 SIDE MILLING
X-UVTR1205	60	150	4000~4500	1400~1800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1205	100	75	2000~2400	400~600	0.05~0.15	10~12	溝銑 SLOTTING
X-UVTR1205	100	65	1700~2200	800~1200	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1210	40	105	2700~3200	1000~1400	0.2~0.3	9~12	溝銑 SLOTTING
X-UVTR1210	40	170	4500~5000	800~1000	0.05~0.15	9~12	溝銑 SLOTTING
X-UVTR1210	40	115	3000~3400	1000~1400	12	0.3~0.5	側銑 SIDE MILLING
X-UVTR1210	40	115	3000~3400	600~800	12	0.05~0.15	側銑 SIDE MILLING
X-UVTR1210	40	105	2700~3200	1000~1400	0.2~0.3	0.2~0.3	3D銑 3D MILLING
X-UVTR1210	40	180	4700~5200	2200~2600	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1210	60	115	3000~3400	600~800	0.05~0.15	9~12	溝銑 SLOTTING
X-UVTR1210	60	75	2000~2400	400~600	12	0.05~0.15	側銑 SIDE MILLING
X-UVTR1210	60	150	4000~4500	1400~1800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1210	100	75	2000~2400	400~600	0.05~0.15	9~12	溝銑 SLOTTING
X-UVTR1210	100	65	1700~2200	800~1200	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1605	60	100	2000~2500	500~700	0.25~0.35	14~16	溝銑 SLOTTING
X-UVTR1605	60	185	3700~4200	1000~1200	0.05~0.15	14~16	溝銑 SLOTTING
X-UVTR1605	60	90	1800~2200	1000~1400	16	0.3~0.5	側銑 SIDE MILLING
X-UVTR1605	60	90	1800~2200	500~700	16	0.05~0.2	側銑 SIDE MILLING
X-UVTR1605	60	135	2700~3200	1600~2000	0.25~0.35	0.25~0.35	3D銑 3D MILLING
X-UVTR1605	60	185	3700~4200	1800~2200	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR1605	100	120	2400~2800	600~800	0.05~0.15	14~16	溝銑 SLOTTING
X-UVTR1605	100	50	1000~1400	300~500	16	0.05~0.2	側銑 SIDE MILLING
X-UVTR1605	100	100	2000~2400	800~1200	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR1605	130	170	3400~3600	400~600	0.05~0.15	14~16	溝銑 SLOTTING
X-UVTR1605	130	80	1600~2000	600~800	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR1610	60	100	2000~2500	500~700	0.25~0.35	13~16	溝銑 SLOTTING
X-UVTR1610	60	185	3700~4200	1000~1200	0.05~0.15	13~16	溝銑 SLOTTING
X-UVTR1610	60	90	1800~2200	1000~1400	16	0.3~0.5	側銑 SIDE MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVTR1610	60	90	1800~2200	500~700	16	0.05~0.2	側銑 SIDE MILLING
X-UVTR1610	60	135	2700~3200	1600~2000	0.25~0.35	0.25~0.35	3D銑 3D MILLING
X-UVTR1610	60	185	3700~4200	1800~2200	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR1610	100	120	2400~2800	600~800	0.05~0.15	13~16	溝銑 SLOTTING
X-UVTR1610	100	50	1000~1400	300~500	16	0.05~0.2	側銑 SIDE MILLING
X-UVTR1610	100	100	2000~2400	800~1200	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR1610	130	170	3400~3600	400~600	0.05~0.15	13~16	溝銑 SLOTTING
X-UVTR1610	130	80	1600~2000	600~800	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR1620	60	100	2000~2500	500~700	0.25~0.35	11~16	溝銑 SLOTTING
X-UVTR1620	60	185	3700~4200	1000~1200	0.05~0.15	11~16	溝銑 SLOTTING
X-UVTR1620	60	90	1800~2200	1000~1400	16	0.3~0.5	側銑 SIDE MILLING
X-UVTR1620	60	90	1800~2200	500~700	16	0.05~0.2	側銑 SIDE MILLING
X-UVTR1620	60	135	2700~3200	1600~2000	0.25~0.35	0.25~0.35	3D銑 3D MILLING
X-UVTR1620	60	185	3700~4200	1800~2200	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR1620	100	120	2400~2800	600~800	0.05~0.15	11~16	溝銑 SLOTTING
X-UVTR1620	100	50	1000~1400	300~500	16	0.05~0.2	側銑 SIDE MILLING
X-UVTR1620	100	100	2000~2400	800~1200	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR1620	130	170	3400~3600	400~600	0.05~0.15	11~16	溝銑 SLOTTING
X-UVTR1620	130	80	1600~2000	600~800	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2010	80	100	1600~2000	400~600	0.3~0.4	17~20	溝銑 SLOTTING
X-UVTR2010	80	200	3000~3500	800~1200	0.05~0.2	17~20	溝銑 SLOTTING
X-UVTR2010	80	50	800~1000	400~600	20	0.5~0.6	側銑 SIDE MILLING
X-UVTR2010	80	50	800~1100	300~500	20	0.05~0.2	側銑 SIDE MILLING
X-UVTR2010	80	115	1800~2200	800~1200	0.3~0.4	0.3~0.4	3D銑 3D MILLING
X-UVTR2010	80	285	4500~5000	1600~2000	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2010	130	190	3000~3500	600~800	0.05~0.2	17~20	溝銑 SLOTTING
X-UVTR2010	130	170	2700~3200	1000~1400	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2010	180	135	2100~2300	400~600	0.05~0.2	17~20	溝銑 SLOTTING
X-UVTR2010	180	125	2000~2400	600~800	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2020	80	100	1600~2000	400~600	0.3~0.4	15~20	溝銑 SLOTTING
X-UVTR2020	80	200	3000~3500	800~1200	0.05~0.2	15~20	溝銑 SLOTTING
X-UVTR2020	80	50	800~1000	400~600	20	0.5~0.6	側銑 SIDE MILLING
X-UVTR2020	80	50	800~1100	400~600	20	0.05~0.2	側銑 SIDE MILLING
X-UVTR2020	80	115	1800~2200	800~1200	0.3~0.4	0.3~0.4	3D銑 3D MILLING
X-UVTR2020	80	285	4500~5000	1600~2000	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2020	130	190	3000~3500	600~800	0.05~0.2	15~20	溝銑 SLOTTING
X-UVTR2020	130	170	2700~3200	1000~1400	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2020	180	135	2100~2300	400~600	0.05~0.2	15~20	溝銑 SLOTTING
X-UVTR2020	180	125	2000~2400	600~800	0.05~0.2	0.05~0.2	3D銑 3D MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVTR2030	80	100	1600~2000	400~600	0.3~0.4	13~20	溝銑 SLOTTING
X-UVTR2030	80	200	3000~3500	800~1200	0.05~0.2	13~20	溝銑 SLOTTING
X-UVTR2030	80	50	800~1000	400~600	20	0.5~0.6	側銑 SIDE MILLING
X-UVTR2030	80	50	800~1100	300~500	20	0.05~0.2	側銑 SIDE MILLING
X-UVTR2030	80	115	1800~2200	800~1200	0.3~0.4	0.3~0.4	3D銑 3D MILLING
X-UVTR2030	80	285	4500~5000	1600~2000	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2030	130	190	3000~3500	600~800	0.05~0.2	13~20	溝銑 SLOTTING
X-UVTR2030	130	170	2700~3200	1000~1400	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2030	180	135	2100~2300	400~600	0.05~0.2	13.5	溝銑 SLOTTING
X-UVTR2030	180	125	2000~2400	600~800	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2530	90	100	1100~1500	300~500	0.3~0.4	13~25	溝銑 SLOTTING
X-UVTR2530	90	200	2500~3000	700~1100	0.05~0.25	18~25	溝銑 SLOTTING
X-UVTR2530	90	50	600~800	180~280	25	0.5~0.6	側銑 SIDE MILLING
X-UVTR2530	90	50	600~800	180~280	25	0.05~0.2	側銑 SIDE MILLING
X-UVTR2530	90	115	1300~1700	600~1000	0.3~0.4	0.3~0.4	3D銑 3D MILLING
X-UVTR2530	90	215	2700~3200	1000~1400	0.05~0.25	0.05~0.25	3D銑 3D MILLING
X-UVTR2530	140	160	2000~2400	600~1000	0.05~0.25	18~25	溝銑 SLOTTING
X-UVTR2530	140	165	2100~2500	800~1200	0.05~0.25	0.05~0.25	3D銑 3D MILLING
X-UVTR2530	200	90	1100~1500	500~800	0.05~0.25	18~25	溝銑 SLOTTING
X-UVTR2530	200	95	1200~1600	600~900	0.05~0.25	0.05~0.25	3D銑 3D MILLING
X-UVTR2550	90	100	1100~1500	300~500	0.3~0.4	13~25	溝銑 SLOTTING
X-UVTR2550	90	200	2500~3000	700~1100	0.05~0.25	13~25	溝銑 SLOTTING
X-UVTR2550	90	50	600~800	180~280	25	0.5~0.6	側銑 SIDE MILLING
X-UVTR2550	90	50	600~800	180~280	25	0.05~0.2	側銑 SIDE MILLING
X-UVTR2550	90	115	1300~1700	600~1000	0.3~0.4	0.3~0.4	3D銑 3D MILLING
X-UVTR2550	90	215	2700~3200	1000~1400	0.05~0.25	0.05~0.25	3D銑 3D MILLING
X-UVTR2550	140	160	2000~2400	600~1000	0.05~0.25	13~25	溝銑 SLOTTING
X-UVTR2550	140	165	2100~2500	800~1200	0.05~0.25	0.05~0.25	3D銑 3D MILLING
X-UVTR2550	200	90	1100~1500	500~800	0.05~0.25	13~25	溝銑 SLOTTING
X-UVTR2550	200	95	1200~1600	600~900	0.05~0.25	0.05~0.25	3D銑 3D MILLING

切削條件表 X-UVTR MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* : SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2 (HRc55~62)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

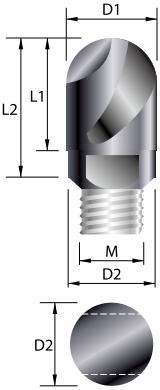
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVTR0805	25	115	4500~5500	800~1000	0.05~0.1	4~6	溝銑 SLOTTING
X-UVTR0805	25	70	2800~3300	400~600	8	0.05~0.1	側銑 SIDE MILLING
X-UVTR0805	25	115	4500~5500	1800~2200	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR0805	40	95	3700~4200	500~700	0.05~0.1	4~6	溝銑 SLOTTING
X-UVTR0805	40	40	1600~2000	300~500	8	0.05~0.1	側銑 SIDE MILLING
X-UVTR0805	40	85	3300~3800	1200~1600	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR0805	60	70	2700~3200	300~500	0.05~0.1	4~6	溝銑 SLOTTING
X-UVTR0805	60	70	2700~3200	800~1200	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR0810	25	115	4500~5500	800~1000	0.05~0.1	4~6	溝銑 SLOTTING
X-UVTR0810	25	70	2800~3300	400~600	8	0.05~0.1	側銑 SIDE MILLING
X-UVTR0810	25	115	4500~5500	1800~2200	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR0810	40	95	3700~4200	500~700	0.05~0.1	4~6	溝銑 SLOTTING
X-UVTR0810	40	40	1600~2000	300~500	8	0.05~0.1	側銑 SIDE MILLING
X-UVTR0810	40	85	3300~3800	1200~1600	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR0810	60	70	2700~3200	300~500	0.05~0.1	4~6	溝銑 SLOTTING
X-UVTR0810	60	70	2700~3200	800~1200	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR1005	35	95	3000~4000	500~700	0.05~0.1	6~8	溝銑 SLOTTING
X-UVTR1005	35	85	2600~3000	400~600	10	0.05~0.1	側銑 SIDE MILLING
X-UVTR1005	35	95	3000~4000	1000~1400	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR1005	50	85	2700~3200	400~600	0.05~0.1	6~8	溝銑 SLOTTING
X-UVTR1005	50	50	1600~2000	300~500	10	0.05~0.1	側銑 SIDE MILLING
X-UVTR1005	50	80	2500~3000	1000~1400	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR1005	70	55	1700~2200	300~500	0.05~0.1	6~8	溝銑 SLOTTING
X-UVTR1005	70	55	1700~2200	800~1200	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR1010	35	95	3000~4000	500~700	0.05~0.11	5~7	溝銑 SLOTTING
X-UVTR1010	35	85	2600~3000	400~600	10	0.05~0.11	側銑 SIDE MILLING
X-UVTR1010	35	95	3000~4000	1000~1400	0.05~0.11	0.05~0.11	3D銑 3D MILLING
X-UVTR1010	50	85	2700~3200	400~600	0.05~0.1	5~7	溝銑 SLOTTING
X-UVTR1010	50	50	1600~2000	300~500	10	0.05~0.1	側銑 SIDE MILLING
X-UVTR1010	50	80	2500~3000	1000~1400	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR1010	70	55	1700~2200	300~500	0.05~0.1	5~7	溝銑 SLOTTING
X-UVTR1010	70	55	1700~2200	800~1200	0.05~0.1	0.05~0.1	3D銑 3D MILLING
X-UVTR1205	40	105	2700~3200	500~700	0.05~0.15	8~10	溝銑 SLOTTING
X-UVTR1205	40	75	2000~2400	400~600	12	0.05~0.15	側銑 SIDE MILLING
X-UVTR1205	40	105	2700~3200	1000~1400	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1205	60	90	2300~2800	400~600	0.05~0.15	8~10	溝銑 SLOTTING
X-UVTR1205	60	55	1400~1800	300~500	12	0.05~0.15	側銑 SIDE MILLING
X-UVTR1205	60	90	2300~2800	800~1200	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1205	100	65	1700~2200	300~500	0.05~0.15	8~10	溝銑 SLOTTING
X-UVTR1205	100	65	1700~2200	600~800	0.05~0.1	0.05~0.1	3D銑 3D MILLING

被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVTR1210	40	105	2700~3200	500~700	0.05~0.15	7~9	溝銑 SLOTTING
X-UVTR1210	40	75	2000~2400	400~600	12	0.05~0.15	側銑 SIDE MILLING
X-UVTR1210	40	105	2700~3200	1000~1400	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1210	60	90	2300~2800	400~600	0.05~0.15	7~9	溝銑 SLOTTING
X-UVTR1210	60	55	1400~1800	300~500	12	0.05~0.15	側銑 SIDE MILLING
X-UVTR1210	60	90	2300~2800	800~1200	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1210	100	65	1700~2200	300~500	0.05~0.15	7~9	溝銑 SLOTTING
X-UVTR1210	100	65	1700~2200	600~800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1605	60	120	2400~2800	600~800	0.05~0.15	12~14	溝銑 SLOTTING
X-UVTR1605	60	70	1400~1800	400~600	16	0.05~0.15	側銑 SIDE MILLING
X-UVTR1605	60	100	2000~2400	800~1200	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1605	100	100	2000~2400	500~700	0.05~0.15	12~14	溝銑 SLOTTING
X-UVTR1605	100	40	800~1100	200~400	16	0.05~0.15	側銑 SIDE MILLING
X-UVTR1605	100	90	1800~2200	600~800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1605	130	80	1600~2000	300~500	0.05~0.15	12~14	溝銑 SLOTTING
X-UVTR1605	130	70	1400~1800	300~500	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1610	60	120	2400~2800	600~800	0.05~0.15	11~13	溝銑 SLOTTING
X-UVTR1610	60	70	1400~1800	400~600	16	0.05~0.15	側銑 SIDE MILLING
X-UVTR1610	60	100	2000~2400	800~1200	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1610	100	100	2000~2400	500~700	0.05~0.15	11~13	溝銑 SLOTTING
X-UVTR1610	100	40	800~1100	200~400	16	0.05~0.15	側銑 SIDE MILLING
X-UVTR1610	100	90	1800~2200	600~800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1610	130	80	1600~2000	300~500	0.05~0.15	11~13	溝銑 SLOTTING
X-UVTR1610	130	70	1400~1800	300~500	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1620	60	120	2400~2800	600~800	0.05~0.15	9~11	溝銑 SLOTTING
X-UVTR1620	60	70	1400~1800	400~600	16	0.05~0.15	側銑 SIDE MILLING
X-UVTR1620	60	100	2000~2400	800~1200	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1620	100	100	2000~2400	500~700	0.05~0.15	9~11	溝銑 SLOTTING
X-UVTR1620	100	40	800~1100	200~400	16	0.05~0.15	側銑 SIDE MILLING
X-UVTR1620	100	90	1800~2200	600~800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR1620	130	80	1600~2000	300~500	0.05~0.15	9~11	溝銑 SLOTTING
X-UVTR1620	130	70	1400~1800	300~500	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR2010	80	150	2400~2800	600~800	0.05~0.15	15~17	溝銑 SLOTTING
X-UVTR2010	80	50	800~1000	150~300	20	0.05~0.15	側銑 SIDE MILLING
X-UVTR2010	80	150	2400~2800	600~1000	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR2010	130	125	2000~2400	400~600	0.05~0.15	15~17	溝銑 SLOTTING
X-UVTR2010	130	125	2000~2400	600~800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR2010	180	90	1400~1800	300~500	0.05~0.15	15~17	溝銑 SLOTTING
X-UVTR2010	180	90	1400~1800	400~600	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR2020	80	150	2400~2800	600~800	0.05~0.15	13~15	溝銑 SLOTTING

被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UVTR2020	80	50	800~1000	150~300	20	0.05~0.15	側銑 SIDE MILLING
X-UVTR2020	80	150	2400~2800	600~1000	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR2020	130	125	2000~2400	400~600	0.05~0.15	13~15	溝銑 SLOTTING
X-UVTR2020	130	125	2000~2400	600~800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR2020	180	90	1400~1800	300~500	0.05~0.15	13~15	溝銑 SLOTTING
X-UVTR2020	180	90	1400~1800	400~600	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR2030	80	150	2400~2800	600~800	0.05~0.15	11~13	溝銑 SLOTTING
X-UVTR2030	80	50	800~1000	150~300	20	0.05~0.15	側銑 SIDE MILLING
X-UVTR2030	80	150	2400~2800	600~1000	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR2030	130	125	2000~2400	400~600	0.05~0.15	11~13	溝銑 SLOTTING
X-UVTR2030	130	125	2000~2400	600~800	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR2030	180	90	1400~1800	300~500	0.05~0.15	11~13	溝銑 SLOTTING
X-UVTR2030	180	90	1400~1800	400~600	0.05~0.15	0.05~0.15	3D銑 3D MILLING
X-UVTR2530	90	160	2000~2400	600~800	0.05~0.2	16~18	溝銑 SLOTTING
X-UVTR2530	90	45	500~700	160~260	25	0.05~0.15	側銑 SIDE MILLING
X-UVTR2530	90	160	2000~2400	700~1000	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2530	140	135	1700~2100	400~600	0.05~0.2	16~18	溝銑 SLOTTING
X-UVTR2530	140	135	1700~2100	600~900	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2530	200	70	900~1300	300~500	0.05~0.2	16~18	溝銑 SLOTTING
X-UVTR2530	200	70	900~1300	400~700	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2550	90	160	2000~2400	600~800	0.05~0.2	12~14	溝銑 SLOTTING
X-UVTR2550	90	45	500~700	160~260	25	0.05~0.15	側銑 SIDE MILLING
X-UVTR2550	90	160	2000~2400	700~1000	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2550	140	135	1700~2100	400~600	0.05~0.2	12~14	溝銑 SLOTTING
X-UVTR2550	140	135	1700~2100	600~900	0.05~0.2	0.05~0.2	3D銑 3D MILLING
X-UVTR2550	200	70	900~1300	300~500	0.05~0.2	12~14	溝銑 SLOTTING
X-UVTR2550	200	70	900~1300	400~700	0.05~0.2	0.05~0.2	3D銑 3D MILLING

X-BTB

超微粒圓頭立銑刀頭
Ball Nose End Mills / 2 Flute



- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing

- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02
R16.0	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-BTB0802	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-BTB1002	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-BTB1202	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-BTB1602	R 8.0	16.0	15.6	25.7	M10-3P	K16
X-BTB2002	R10.0	20.0	19.5	31.1	M12-3P	K20
X-BTB2502	R12.5	25.0	24.4	39.3	M16-3P	K25
X-BTB3202	R16.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-BTB 2T MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BTB0802	30	280	10000~11000	2200~2600	0.18~0.23	0.36~0.46	3D銑 3D MILLING
X-BTB0802	30	330	12000~13000	3600~4000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-BTB0802	50	185	6700~7300	1400~1800	0.15~0.2	0.3~0.4	3D銑 3D MILLING
X-BTB0802	50	225	8300~8800	2000~2400	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-BTB0802	70	175	6000~7000	1400~1800	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-BTB1002	40	290	8700~9200	2200~2600	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB1002	40	290	8700~9200	3200~3600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB1002	60	290	8700~9200	1600~2000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB1002	60	290	8700~9200	2000~2400	0.06~0.1	0.12~0.2	3D銑 3D MILLING
X-BTB1002	100	195	5700~6200	1000~1200	0.1~0.14	0.2~0.28	3D銑 3D MILLING
X-BTB1002	100	260	7700~8200	1200~1500	0.06~0.1	0.12~0.2	3D銑 3D MILLING
X-BTB1202	40	325	8200~8600	2100~2500	0.28~0.3	0.56~0.6	3D銑 3D MILLING
X-BTB1202	40	325	8200~8600	2800~3200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB1202	60	325	8200~8600	1600~2000	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-BTB1202	60	325	8200~8600	2200~2600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB1202	100	220	5300~5800	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB1602	60	230	4000~4500	1600~2000	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB1602	60	305	5500~6000	2600~3000	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB1602	100	175	3000~3500	1400~1800	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB1602	100	230	4000~4500	2000~2400	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB1602	140	140	2300~2800	1200~1500	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB2002	80	330	4700~5200	1600~2000	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB2002	80	380	5500~6000	2000~2400	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB2002	130	160	2000~2500	1100~1400	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-BTB2002	130	220	3000~3500	1200~1600	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB2002	180	140	1800~2200	1000~1300	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB2502	80	330	3500~4000	1300~1700	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB2502	80	350	4000~4500	1800~2200	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB2502	130	220	2400~2800	1000~1400	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-BTB2502	130	300	3400~3800	1300~1700	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB2502	180	240	2500~3000	1100~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB3202	80	330	2700~3200	1100~1500	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB3202	80	370	3500~4000	1500~1900	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB3202	140	280	2400~2800	900~1300	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-BTB3202	140	340	3200~3700	1200~1600	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB3202	200	220	1800~2200	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING

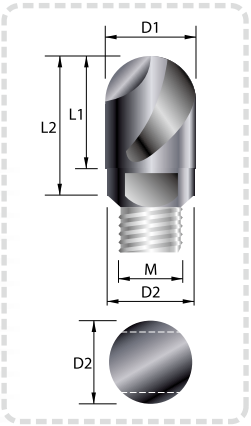
附註 Note

1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

X-BTB

超微粒圓頭立銑刀頭
Ball Nose End Mills / 3 Flute



精銑 Finishing

中銑 Semi-finishing

粗銑 Roughing

乾式切削 Dry Machining

油霧切削 MQL (Mist)

水溶性切削 Emulsion Machining

油性切削 Oil Machining

直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02
R16.0	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-BTB0803	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-BTB1003	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-BTB1203	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-BTB1603	R 8.0	16.0	15.6	25.7	M10-3P	K16
X-BTB2003	R10.0	20.0	19.5	31.1	M12-3P	K20
X-BTB2503	R12.5	25.0	24.4	39.3	M16-3P	K25
X-BTB3203	R16.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-BTB 3T MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BTB0803	30	280	10000~11000	2200~2600	0.18~0.23	0.36~0.46	3D銑 3D MILLING
X-BTB0803	30	330	12000~13000	3600~4000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-BTB0803	50	185	6700~7300	1400~1800	0.15~0.2	0.3~0.4	3D銑 3D MILLING
X-BTB0803	50	225	8300~8800	2000~2400	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-BTB0803	70	175	6000~7000	1400~1800	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-BTB1003	40	290	8700~9200	2200~2600	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB1003	40	290	8700~9200	3200~3600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB1003	60	290	8700~9200	1600~2000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB1003	60	290	8700~9200	2000~2400	0.06~0.1	0.12~0.2	3D銑 3D MILLING
X-BTB1003	100	195	5700~6200	1000~1200	0.1~0.14	0.2~0.28	3D銑 3D MILLING
X-BTB1003	100	260	7700~8200	1200~1500	0.06~0.1	0.12~0.2	3D銑 3D MILLING
X-BTB1203	40	325	8200~8600	2100~2500	0.28~0.3	0.56~0.6	3D銑 3D MILLING
X-BTB1203	40	325	8200~8600	2800~3200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB1203	60	325	8200~8600	1600~2000	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-BTB1203	60	325	8200~8600	2200~2600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB1203	100	220	5300~5800	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB1603	60	230	4000~4500	1600~2000	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB1603	60	305	5500~6000	2600~3000	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB1603	100	175	3000~3500	1400~1800	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB1603	100	230	4000~4500	2000~2400	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB1603	140	140	2300~2800	1200~1500	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB2003	80	330	4700~5200	1600~2000	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB2003	80	380	5500~6000	2000~2400	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB2003	130	160	2000~2500	1100~1400	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-BTB2003	130	220	3000~3500	1200~1600	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB2003	180	140	1800~2200	1000~1300	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB2503	80	330	3500~4000	1300~1700	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB2503	80	350	4000~4500	1800~2200	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB2503	130	220	2400~2800	1000~1400	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-BTB2503	130	300	3400~3800	1300~1700	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB2503	180	240	2500~3000	1100~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-BTB3203	80	330	2700~3200	1100~1500	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-BTB3203	80	370	3500~4000	1500~1900	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB3203	140	280	2400~2800	900~1300	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-BTB3203	140	340	3200~3700	1200~1600	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-BTB3203	200	220	1800~2200	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

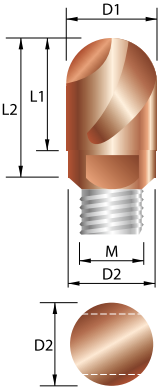
1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

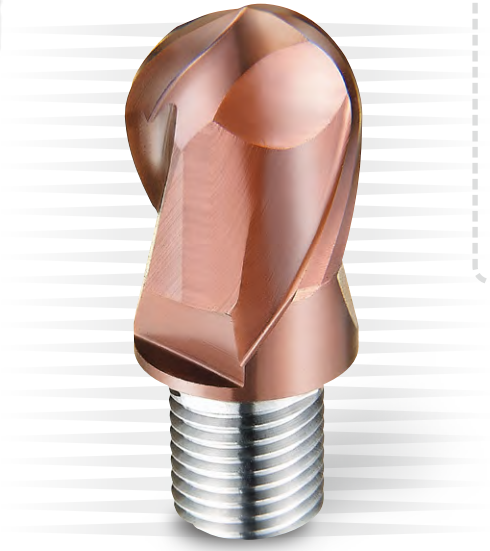
1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

X-UB

極超微粒圓頭立銑刀頭

Ball Nose End Mills / 2 Flute





直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02
R16.0	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UB0802	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-UB1002	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-UB1202	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-UB1602	R 8.0	16.0	15.6	25.7	M10-3P	K16
X-UB2002	R10.0	20.0	19.5	31.1	M12-3P	K20
X-UB2502	R12.5	25.0	24.4	39.3	M16-3P	K25
X-UB3202	R16.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-UB 2T MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	溼式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UB0802	25	280	10000~11000	2000~2400	0.18~0.23	0.36~0.46	3D銑 3D MILLING
X-UB0802	25	330	12000~13000	3800~4200	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB0802	45	185	6700~7300	1200~1600	0.15~0.2	0.3~0.4	3D銑 3D MILLING
X-UB0802	45	225	8300~8800	1800~2200	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UB0802	65	175	6000~7000	1200~1600	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UB1002	40	290	8700~9200	2600~3000	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-UB1002	40	290	8700~9200	3600~4000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1002	60	290	8700~9200	1800~2200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1002	60	290	8700~9200	2200~2600	0.06~0.1	0.12~0.2	3D銑 3D MILLING
X-UB1002	100	195	5700~6200	1100~1300	0.1~0.14	0.2~0.28	3D銑 3D MILLING
X-UB1002	100	260	7700~8200	1400~1700	0.06~0.1	0.12~0.2	3D銑 3D MILLING
X-UB1202	40	325	8200~8600	2200~2600	0.28~0.3	0.56~0.6	3D銑 3D MILLING
X-UB1202	40	325	8200~8600	3000~3400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1202	60	325	8200~8600	1600~2000	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-UB1202	60	325	8200~8600	2200~2600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1202	100	220	5300~5800	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1602	60	230	4000~4500	1400~1800	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-UB1602	60	305	5500~6000	2800~3200	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB1602	100	175	3000~3500	1200~1600	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-UB1602	100	230	4000~4500	2200~2600	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB1602	140	140	2300~2800	1300~1600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2002	80	360	5200~5700	1400~1800	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-UB2002	80	380	5500~6000	2400~2800	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB2002	130	190	2500~3000	900~1200	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-UB2002	130	220	3000~3500	1600~2000	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB2002	180	140	1700~2200	1000~1300	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2502	80	330	3500~4000	1300~1700	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-UB2502	80	350	4000~4500	1800~2200	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB2502	130	220	2400~2800	1000~1400	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-UB2502	130	300	3400~3800	1300~1700	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB2502	180	240	2500~3000	1100~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB3202	80	330	2700~3200	1100~1500	0.23~0.28	0.46~0.56	3D銑 3D MILLING
X-UB3202	80	370	3500~4000	1500~1900	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB3202	140	280	2400~2800	900~1300	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-UB3202	140	340	3200~3700	1200~1600	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB3202	200	220	1800~2200	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

切削條件表 X-UB 2T MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UB0802	25	280	10000~11000	2600~3000	0.06~0.09	0.12~0.18	3D銑 3D MILLING
X-UB0802	45	145	5400~5800	1600~2000	0.06~0.08	0.12~0.16	3D銑 3D MILLING
X-UB0802	65	130	4700~5200	1200~1600	0.06~0.08	0.12~0.16	3D銑 3D MILLING
X-UB1002	40	260	7700~8200	2600~3000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB1002	60	230	6700~7200	1400~1800	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB1002	80	185	5300~5800	1000~1200	0.07~0.1	0.16~0.2	3D銑 3D MILLING
X-UB1202	40	305	7500~8000	1800~2200	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB1202	60	290	7200~7700	1200~1600	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB1202	100	220	5300~5800	800~1100	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB1602	60	215	3800~4200	2000~2400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1602	100	160	2800~3200	1600~2000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1602	130	115	2000~2300	800~1200	0.1~0.12	0.2~0.24	3D銑 3D MILLING
X-UB2002	80	315	4500~5000	1200~1600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2002	130	190	2500~3000	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2002	180	140	1700~2200	800~1000	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UB2502	80	315	3500~4000	1300~1700	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2502	130	240	2500~3000	1000~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2502	180	200	2000~2500	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB3202	80	330	3200~3700	1300~1700	0.12~0.17	0.2~0.3	3D銑 3D MILLING
X-UB3202	140	260	2700~3200	1000~1400	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB3202	200	200	1600~2000	700~1100	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

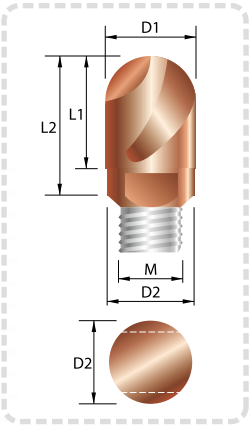
1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。
3. **X-UB1002**在HRc52伸長量100mm時，條件非常差。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.
3. When **X-UB1002** of extension is 100mm in HRc52, the cutting data is not good.

X-UB

極超微粒圓頭立銑刀頭

Ball Nose End Mills / 4 Flute



直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02
R16.0	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UB0804	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-UB1004	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-UB1204	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-UB1604	R 8.0	16.0	15.6	25.7	M10-3P	K16
X-UB2004	R10.0	20.0	19.5	31.1	M12-3P	K20
X-UB2504	R12.5	25.0	24.4	39.3	M16-3P	K25
X-UB3204	R16.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-UB 4T MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	溼式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UB0804	25	330	12000~13000	4000~4400	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB0804	45	225	8300~8800	2000~2400	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UB0804	65	175	6000~7000	1200~1600	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UB1004	40	290	8700~9200	3600~4000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1004	60	290	8700~9200	2400~2800	0.06~0.1	0.12~0.2	3D銑 3D MILLING
X-UB1004	100	260	7700~8200	1400~1700	0.06~0.1	0.12~0.2	3D銑 3D MILLING
X-UB1204	40	325	8200~8600	3200~3600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1204	60	325	8200~8600	2400~2800	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1204	100	220	5300~5800	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1604	60	305	5500~6000	2800~3200	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB1604	100	230	4000~4500	2200~2600	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB1604	140	140	2300~2800	1300~1600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2004	80	380	5500~6000	2800~3200	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB2004	130	220	3000~3500	1600~2000	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB2004	180	140	1700~2200	1000~1300	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2504	80	350	4000~4500	2000~2400	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB2504	130	300	3400~3800	1300~1700	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB2504	180	240	2500~3000	1100~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB3204	80	370	3500~4000	1600~2000	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB3204	140	340	3200~3700	1200~1600	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB3204	200	220	1800~2200	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

切削條件表 X-UB 4T MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UB0804	25	280	10000~11000	2800~3200	0.06~0.09	0.12~0.18	3D銑 3D MILLING
X-UB0804	45	145	5400~5800	1800~2200	0.06~0.08	0.12~0.16	3D銑 3D MILLING
X-UB0804	65	130	4700~5200	1200~1600	0.06~0.08	0.12~0.16	3D銑 3D MILLING
X-UB1004	40	260	7700~8200	2600~3000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB1004	60	230	6700~7200	1600~2000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB1004	80	185	5300~5800	1000~1200	0.07~0.1	0.16~0.2	3D銑 3D MILLING
X-UB1204	40	305	7500~8000	2200~2600	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB1204	60	290	7200~7700	1400~1800	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB1204	100	220	5300~5800	800~1100	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UB1604	60	215	3800~4200	2000~2400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1604	100	160	2800~3200	1600~2000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB1604	130	115	2000~2300	800~1200	0.1~0.12	0.2~0.24	3D銑 3D MILLING
X-UB2004	80	315	4500~5000	1400~1800	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2004	130	190	2500~3000	900~1300	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2004	180	140	1700~2200	800~1000	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UB2504	80	315	3500~4000	1400~1800	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2504	130	240	2500~3000	1100~1500	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB2504	180	200	2000~2500	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UB3204	80	330	3200~3700	1400~1800	0.12~0.17	0.2~0.3	3D銑 3D MILLING
X-UB3204	140	260	2700~3200	1000~1400	0.12~0.17	0.24~0.34	3D銑 3D MILLING
X-UB3204	200	200	1600~2000	700~1100	0.1~0.15	0.2~0.3	3D銑 3D MILLING

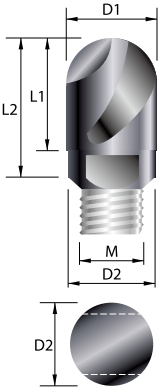
附註 Note

1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

X-UBT

高硬度用圓頭立銑刀頭
Ball Nose End Mills / 2 Flute



精銑 Finishing
中銑 Semi-finishing
粗銑 Roughing

乾式切削 Dry Machining
油霧切削 MQL (Mist)
水溶性切削 Emulsion Machining
油性切削 Oil Machining

直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UBT0802	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-UBT1002	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-UBT1202	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-UBT1602	R 8.0	16.0	15.6	25.7	M10-3P	K16
X-UBT2002	R10.0	20.0	19.5	31.1	M12-3P	K20
X-UBT2502	R12.5	25.0	24.4	39.3	M16-3P	K25

unit : mm

切削條件表 X-UBT 2T MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry / MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UBT0802	25	280	10000~11000	1800~2000	0.15~0.2	0.3~0.4	3D銑 3D MILLING
X-UBT0802	25	280	10000~11000	3000~3400	0.07~0.1	0.14~0.2	3D銑 3D MILLING
X-UBT0802	45	145	5400~5800	1600~2000	0.06~0.08	0.12~0.16	3D銑 3D MILLING
X-UBT0802	65	130	4700~5200	1200~1600	0.06~0.08	0.12~0.16	3D銑 3D MILLING
X-UBT1002	40	280	8700~9200	1600~2000	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-UBT1002	40	280	8700~9200	2600~3000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UBT1002	60	215	6700~7200	1600~2000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UBT1002	80	175	5500~6000	1000~1200	0.07~0.1	0.14~0.2	3D銑 3D MILLING
X-UBT1202	40	300	7800~8200	2200~2600	0.25~0.3	0.5~0.6	3D銑 3D MILLING
X-UBT1202	40	300	7800~8200	2600~3000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT1202	60	225	5800~6300	1200~1600	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-UBT1202	60	280	7200~7700	2000~2400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT1202	100	160	4000~4500	1100~1300	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT1602	60	200	3800~4200	1600~2000	0.2~0.25	0.4~0.5	3D銑 3D MILLING
X-UBT1602	60	200	3800~4200	2000~2400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT1602	100	170	3200~3700	1400~1700	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT1602	130	135	2500~3000	1000~1200	0.1~0.12	0.2~0.24	3D銑 3D MILLING
X-UBT2002	80	325	5000~5500	1400~1800	0.2~0.23	0.4~0.46	3D銑 3D MILLING
X-UBT2002	80	355	5500~6000	2000~2400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2002	130	220	3200~3700	800~1000	0.2~0.23	0.4~0.46	3D銑 3D MILLING
X-UBT2002	130	315	4700~5200	1400~1800	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2002	180	140	1700~2200	800~1000	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UBT2502	80	300	3200~3700	1000~1400	0.2~0.25	0.35~0.5	3D銑 3D MILLING
X-UBT2502	80	315	3500~4000	1300~1700	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2502	130	240	2500~3000	1000~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2502	180	200	2000~2500	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

切削條件表 X-UBT 2T MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)
冷卻方式 Coolant Type	乾式/油霧切削 Dry / MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UBT0802	25	210	7800~8300	2000~2400	0.07~0.1	0.14~0.2	3D銑 3D MILLING
X-UBT0802	45	125	4500~5000	1300~1700	0.05~0.08	0.1~0.16	3D銑 3D MILLING
X-UBT0802	65	90	3000~3500	700~900	0.05~0.08	0.1~0.16	3D銑 3D MILLING
X-UBT1002	40	155	4700~5200	1400~1800	0.1~0.13	0.2~0.26	3D銑 3D MILLING
X-UBT1002	60	125	3700~4200	1200~1600	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UBT1002	80	45	1400~1700	600~800	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UBT1202	40	240	6200~6700	1600~2000	0.1~0.13	0.2~0.26	3D銑 3D MILLING
X-UBT1202	60	185	4700~5200	800~1200	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UBT1202	100	95	2200~2700	500~700	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UBT1602	60	150	2700~3200	800~1200	0.1~0.15	0.15~0.25	3D銑 3D MILLING
X-UBT1602	100	90	1500~2000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UBT1602	130	90	1500~2000	600~1000	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UBT2002	80	110	1500~2000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UBT2002	130	100	1500~1700	600~800	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UBT2502	80	150	1800~2300	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2502	130	120	1300~1700	700~1000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2502	180	100	1100~1400	600~900	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

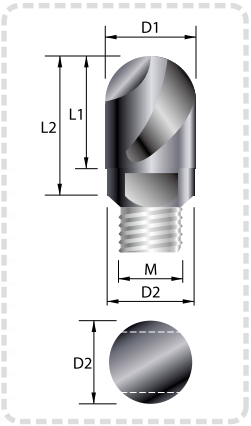
1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

X-UBT

高硬度用圓頭立銑刀頭

Ball Nose End Mills / 4 Flute



精銑 Finishing

中銑 Semi-finishing

---- 粗銑 Roughing

乾式切削 Dry Machining

油霧切削 MQL (Mist)

水溶性切削 Emulsion Machining

油性切削 Oil Machining

直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UBT0804	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-UBT1004	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-UBT1204	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-UBT1604	R 8.0	16.0	15.6	25.7	M10-3P	K16
X-UBT2004	R10.0	20.0	19.5	31.1	M12-3P	K20
X-UBT2504	R12.5	25.0	24.4	39.3	M16-3P	K25

unit : mm

切削條件表 X-UBT 4T MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry / MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UBT0804	25	280	10000~11000	3600~4000	0.07~0.1	0.14~0.2	3D銑 3D MILLING
X-UBT0804	45	145	5400~5800	1800~2200	0.06~0.08	0.12~0.16	3D銑 3D MILLING
X-UBT0804	65	130	4700~5200	1200~1600	0.06~0.08	0.12~0.16	3D銑 3D MILLING
X-UBT1004	40	300	9200~9700	2800~3200	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UBT1004	60	220	6700~7200	1800~2200	0.08~0.13	0.16~0.26	3D銑 3D MILLING
X-UBT1004	80	140	4200~4700	1100~1300	0.07~0.1	0.14~0.2	3D銑 3D MILLING
X-UBT1204	40	300	7800~8200	2800~3200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT1204	60	280	7200~7700	2200~2600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT1204	80	115	2800~3200	1100~1300	0.08~0.12	0.16~0.24	3D銑 3D MILLING
X-UBT1604	60	200	3800~4200	2000~2400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT1604	100	175	3200~3700	1400~1700	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT1604	130	135	2500~3000	1000~1200	0.1~0.12	0.2~0.24	3D銑 3D MILLING
X-UBT2004	80	355	5500~6000	2200~2600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2004	130	305	4700~5200	1400~1800	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2004	180	175	2700~3000	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2504	80	315	3500~4000	1600~2000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2504	130	240	2500~3000	1100~1500	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2504	180	200	2000~2500	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

切削條件表 X-UBT 4T MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)
冷卻方式 Coolant Type	乾式/油霧切削 Dry / MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UBT0804	25	210	7800~8300	2600~3000	0.07~0.1	0.14~0.2	3D銑 3D MILLING
X-UBT0804	45	125	4500~5000	1400~1800	0.05~0.08	0.1~0.16	3D銑 3D MILLING
X-UBT0804	65	90	3000~3500	700~900	0.05~0.08	0.1~0.16	3D銑 3D MILLING
X-UBT1004	40	155	4700~5200	1400~1800	0.1~0.13	0.2~0.26	3D銑 3D MILLING
X-UBT1004	60	125	3700~4200	1200~1600	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UBT1004	80	50	1400~1700	600~800	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UBT1204	40	240	6200~6700	1800~2200	0.1~0.13	0.2~0.26	3D銑 3D MILLING
X-UBT1204	60	185	4700~5200	800~1200	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UBT1204	80	105	2500~3000	600~800	0.08~0.1	0.16~0.2	3D銑 3D MILLING
X-UBT1604	60	150	2700~3200	800~1200	0.1~0.15	0.15~0.25	3D銑 3D MILLING
X-UBT1604	100	90	1500~2000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UBT1604	130	90	1500~2000	600~1000	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UBT2004	80	115	1500~2000	800~1200	0.07~0.1	0.14~0.2	3D銑 3D MILLING
X-UBT2004	130	100	1500~1700	600~800	0.07~0.1	0.07~0.1	3D銑 3D MILLING
X-UBT2004	180	75	1000~1300	400~600	0.06~0.08	0.06~0.08	3D銑 3D MILLING
X-UBT2504	80	150	1800~2300	900~1300	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2504	130	120	1300~1700	800~1000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBT2504	180	100	1100~1400	600~900	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

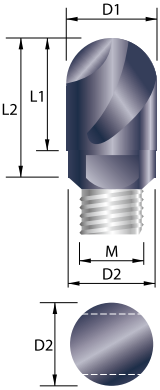
1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

專利型號

X-BMW

粗齒圓頭立銑刀頭

Ball Nose End Mills



精銑 Finishing

中銑 Semi-finishing

粗銑 Roughing

乾式切削 Dry Machining

油霧切削 MQL (Mist)

水溶性切削 Emulsion Machining

油性切削 Oil Machining

直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02
R15.0	±0.02
R16.0	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-BMW0804	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-BMW1004	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-BMW1204	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-BMW1604	R 8.0	16.0	15.6	25.7	M10-3P	K16
X-BMW2004	R10.0	20.0	19.5	31.1	M12-3P	K20
X-BMW2504	R12.5	25.0	24.4	39.3	M16-3P	K25
X-BMW3004	R15.0	32.0	29.2	48.0	M20-3P	K30
X-BMW3204	R16.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-BMW MILLING CONDITIONS

被切削材 Work Material	碳素鋼 *Carbon Steels* : S50C / SS400 : 1.1210 / 1.0036 : 1050 / A570 Gr.45 (~HRc22)
冷卻方式 Coolant Type	乾式/油霧切削 Dry / MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BMW0804	25	250	9500~10500	4500~5000	0.15~0.25	0.3~0.5	3D銑 3D MILLING
X-BMW0804	25	210	8200~8700	2400~2800	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-BMW0804	25	195	7600~8000	700~900	0.6~0.8	1~1.2	3D銑 3D MILLING
X-BMW0804	40	175	6800~7200	3200~3600	0.15~0.25	0.3~0.5	3D銑 3D MILLING
X-BMW0804	40	145	5500~6000	1800~2200	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-BMW0804	60	125	4800~5200	1600~2000	0.15~0.25	0.3~0.5	3D銑 3D MILLING
X-BMW0804	60	100	3800~4200	800~1000	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-BMW1004	30	280	8700~9200	6000~6500	0.15~0.25	0.5~0.7	3D銑 3D MILLING
X-BMW1004	30	260	8000~8500	3200~3600	0.3~0.4	0.8~1	3D銑 3D MILLING
X-BMW1004	30	260	8000~8500	800~1100	0.6~0.8	1.2~1.6	3D銑 3D MILLING
X-BMW1004	50	205	6300~6800	3600~4000	0.15~0.25	0.5~0.7	3D銑 3D MILLING
X-BMW1004	50	195	6000~6400	1000~1400	0.3~0.4	0.8~1	3D銑 3D MILLING
X-BMW1004	70	130	4000~4500	1200~1600	0.15~0.25	0.5~0.7	3D銑 3D MILLING
X-BMW1004	70	95	2800~3300	600~900	0.3~0.4	0.8~1	3D銑 3D MILLING
X-BMW1204	35	315	8200~8600	4000~4500	0.2~0.3	0.6~0.8	3D銑 3D MILLING
X-BMW1204	35	255	6600~7000	2200~2600	0.35~0.5	1~1.2	3D銑 3D MILLING
X-BMW1204	35	235	6000~6500	800~1100	0.7~1	1.5~1.8	3D銑 3D MILLING
X-BMW1204	55	240	6200~6700	2200~2600	0.2~0.3	0.6~0.8	3D銑 3D MILLING
X-BMW1204	55	190	4800~5300	1100~1500	0.35~0.5	1~1.2	3D銑 3D MILLING
X-BMW1204	80	150	3700~4200	1400~1800	0.2~0.3	0.6~0.8	3D銑 3D MILLING
X-BMW1204	80	115	2800~3200	600~800	0.35~0.5	1~1.2	3D銑 3D MILLING
X-BMW1604	50	290	5500~6000	3700~4200	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW1604	50	250	4700~5200	2500~3000	0.4~0.6	1.2~1.6	3D銑 3D MILLING
X-BMW1604	50	240	4500~5000	1200~1500	0.8~1	1.5~2	3D銑 3D MILLING
X-BMW1604	90	200	3700~4200	1800~2200	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW1604	90	150	2800~3200	1200~1600	0.4~0.6	1.2~1.6	3D銑 3D MILLING
X-BMW1604	130	130	2400~2800	1000~1400	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW1604	130	95	1700~2100	600~800	0.4~0.6	1.2~1.6	3D銑 3D MILLING
X-BMW2004	60	260	4000~4400	2200~2600	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW2004	60	225	3400~3800	1400~1800	0.4~0.6	1.2~1.6	3D銑 3D MILLING
X-BMW2004	60	185	2700~3200	700~900	0.8~1	1.5~2	3D銑 3D MILLING
X-BMW2004	100	225	3400~3800	1400~1800	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW2004	100	165	2400~2800	700~1000	0.4~0.6	1.2~1.6	3D銑 3D MILLING
X-BMW2004	150	125	1800~2200	800~1100	0.2~0.35	0.7~1	3D銑 3D MILLING
X-BMW2504	60	260	3200~3600	2000~2400	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW2504	60	225	2700~3100	1200~1600	0.5~0.7	1.4~1.6	3D銑 3D MILLING
X-BMW2504	60	185	2100~2500	700~900	0.8~1.1	1.7~2	3D銑 3D MILLING
X-BMW2504	100	225	2700~3100	1200~1600	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW2504	100	165	1900~2300	700~900	0.5~0.7	1.4~1.6	3D銑 3D MILLING
X-BMW2504	150	125	1400~1800	700~900	0.3~0.4	1~1.2	3D銑 3D MILLING
X-BMW3004	80	260	2600~3000	1800~2200	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3004	80	225	2200~2600	1100~1500	0.5~0.7	1.4~1.6	3D銑 3D MILLING

被切削材 Work Material	碳素鋼 *Carbon Steels* : **S50C / SS400 : 1.1210 / 1.0036 : 1050 / A570 Gr.45** (~HRc22)
冷卻方式 Coolant Type	乾式/油霧切削 Dry / MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BMW3004	80	185	1800~2200	700~900	0.8~1.1	1.7~2	3D銑 3D MILLING
X-BMW3004	120	225	2200~2600	1100~1500	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3004	120	165	1600~2000	700~900	0.5~0.7	1.4~1.6	3D銑 3D MILLING
X-BMW3004	170	125	1100~1500	700~900	0.3~0.4	1~1.2	3D銑 3D MILLING
X-BMW3204	80	260	2400~2800	1800~2200	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3204	80	225	2000~2400	1100~1500	0.5~0.7	1.4~1.6	3D銑 3D MILLING
X-BMW3204	80	185	1600~2000	700~900	0.8~1.1	1.7~2	3D銑 3D MILLING
X-BMW3204	120	225	2000~2400	1100~1500	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3204	120	165	1400~1800	700~900	0.5~0.7	1.4~1.6	3D銑 3D MILLING
X-BMW3204	170	125	1000~1400	700~900	0.3~0.4	1~1.2	3D銑 3D MILLING

被切削材 Work Material	合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* **P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2** (HRc23~32)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BMW0804	25	220	8500~9000	3800~4200	0.15~0.25	0.3~0.5	3D銑 3D MILLING
X-BMW0804	25	190	7200~7700	2200~2600	0.3~0.4	0.6~0.7	3D銑 3D MILLING
X-BMW0804	25	175	6700~7200	800~1100	0.4~0.5	0.8~1	3D銑 3D MILLING
X-BMW0804	40	160	6200~6700	2600~3000	0.15~0.25	0.3~0.5	3D銑 3D MILLING
X-BMW0804	40	135	5200~5700	1200~1600	0.3~0.4	0.6~0.7	3D銑 3D MILLING
X-BMW0804	60	110	4200~4700	1000~1400	0.1~0.2	0.2~0.4	3D銑 3D MILLING
X-BMW1004	30	230	7200~7600	4600~5000	0.15~0.25	0.5~0.6	3D銑 3D MILLING
X-BMW1004	30	210	6400~6800	2000~2400	0.3~0.4	0.7~0.8	3D銑 3D MILLING
X-BMW1004	30	175	5400~5800	800~1100	0.5~0.6	1~1.2	3D銑 3D MILLING
X-BMW1004	50	170	5200~5700	2000~2400	0.15~0.25	0.5~0.6	3D銑 3D MILLING
X-BMW1004	50	160	4800~5200	800~1100	0.3~0.4	0.7~0.8	3D銑 3D MILLING
X-BMW1004	70	130	4000~4500	1800~2200	0.1~0.2	0.2~0.4	3D銑 3D MILLING
X-BMW1004	70	90	2700~3200	800~1100	0.15~0.25	0.5~0.6	3D銑 3D MILLING
X-BMW1204	35	280	7200~7600	3000~3400	0.2~0.3	0.6~0.7	3D銑 3D MILLING
X-BMW1204	35	230	6000~6400	1600~2000	0.35~0.5	0.8~1	3D銑 3D MILLING
X-BMW1204	35	205	5200~5700	800~1200	0.6~0.7	1.2~1.4	3D銑 3D MILLING
X-BMW1204	55	190	4800~5300	1800~2200	0.2~0.3	0.6~0.7	3D銑 3D MILLING
X-BMW1204	55	160	4000~4400	800~1200	0.35~0.5	0.8~1	3D銑 3D MILLING
X-BMW1204	80	150	3700~4200	1800~2200	0.1~0.2	0.3~0.5	3D銑 3D MILLING
X-BMW1204	80	135	3400~3800	800~1200	0.2~0.3	0.6~0.7	3D銑 3D MILLING
X-BMW1604	50	240	4500~5000	3000~3500	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW1604	50	210	4000~4500	1200~1600	0.4~0.5	1.2~1.5	3D銑 3D MILLING
X-BMW1604	50	210	4000~4500	800~1300	0.6~0.8	1.5~1.7	3D銑 3D MILLING
X-BMW1604	80	190	3600~4000	1200~1600	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW1604	80	160	3000~3400	900~1300	0.35~0.45	1~1.3	3D銑 3D MILLING

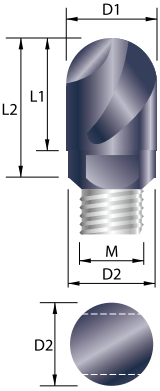
被切削材 Work Material	合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* **P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2** (HRc23~32)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BMW1604	110	200	3800~4200	1600~2000	0.1~0.2	0.3~0.5	3D銑 3D MILLING
X-BMW1604	110	140	2600~3000	800~1100	0.2~0.35	0.6~0.8	3D銑 3D MILLING
X-BMW2004	60	250	3800~4200	2000~2400	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW2004	60	240	3600~4000	1200~1600	0.4~0.5	1.2~1.5	3D銑 3D MILLING
X-BMW2004	60	175	2600~3000	700~1000	0.6~0.8	1.5~1.7	3D銑 3D MILLING
X-BMW2004	90	225	3400~3800	1200~1600	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW2004	90	155	2200~2700	700~1000	0.35~0.45	1~1.3	3D銑 3D MILLING
X-BMW2004	130	150	2200~2600	700~1000	0.2~0.35	0.6~0.8	3D銑 3D MILLING
X-BMW2504	60	250	3000~3400	1800~2200	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW2504	60	235	2800~3200	1000~1400	0.5~0.6	1.4~1.5	3D銑 3D MILLING
X-BMW2504	60	170	2000~2400	600~800	0.8~1	1.5~1.8	3D銑 3D MILLING
X-BMW2504	100	225	2700~3100	1000~1400	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW2504	100	150	1700~2100	700~900	0.4~0.5	1.2~1.5	3D銑 3D MILLING
X-BMW2504	150	150	1700~2100	700~900	0.2~0.35	0.7~1	3D銑 3D MILLING
X-BMW3004	80	250	2400~2800	1600~2000	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3004	80	235	2300~2700	1000~1300	0.5~0.6	1.4~1.5	3D銑 3D MILLING
X-BMW3004	80	170	1600~2000	600~800	0.8~1	1.5~1.8	3D銑 3D MILLING
X-BMW3004	120	225	2200~2600	1000~1400	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3004	120	150	1400~1800	600~800	0.4~0.5	1.2~1.5	3D銑 3D MILLING
X-BMW3004	170	150	1400~1800	700~900	0.2~0.35	0.7~1	3D銑 3D MILLING
X-BMW3204	80	250	2300~2700	1800~2200	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3204	80	235	2100~2500	1100~1500	0.5~0.6	1.4~1.5	3D銑 3D MILLING
X-BMW3204	80	170	1500~1900	700~900	0.8~1	1.5~1.8	3D銑 3D MILLING
X-BMW3204	120	225	2000~2400	1100~1500	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3204	120	150	1300~1700	600~800	0.4~0.5	1.2~1.5	3D銑 3D MILLING
X-BMW3204	170	150	1300~1700	600~800	0.2~0.35	0.7~1	3D銑 3D MILLING

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels :* **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BMW0804	25	220	8500~9000	3400~3800	0.15~0.25	0.3~0.5	3D銑 3D MILLING
X-BMW0804	25	190	7200~7700	1800~2200	0.3~0.4	0.6~0.7	3D銑 3D MILLING
X-BMW0804	25	175	6700~7200	700~1000	0.4~0.5	0.8~1	3D銑 3D MILLING
X-BMW0804	40	160	6200~6700	2200~2600	0.15~0.25	0.3~0.5	3D銑 3D MILLING
X-BMW0804	40	135	5200~5700	1000~1400	0.3~0.4	0.6~0.7	3D銑 3D MILLING
X-BMW0804	60	110	4200~4700	800~1200	0.1~0.2	0.2~0.4	3D銑 3D MILLING
X-BMW1004	30	230	7200~7600	4200~4600	0.15~0.25	0.5~0.6	3D銑 3D MILLING
X-BMW1004	30	210	6400~6800	1600~2000	0.3~0.4	0.7~0.8	3D銑 3D MILLING
X-BMW1004	30	175	5400~5800	700~1000	0.5~0.6	1~1.2	3D銑 3D MILLING

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)						
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BMW1004	50	170	5200~5700	1800~2200	0.15~0.25	0.5~0.6	3D銑 3D MILLING
X-BMW1004	50	160	4800~5200	700~1000	0.3~0.4	0.7~0.8	3D銑 3D MILLING
X-BMW1004	70	130	4000~4500	1600~2000	0.1~0.2	0.2~0.4	3D銑 3D MILLING
X-BMW1004	70	90	2700~3200	600~900	0.15~0.25	0.5~0.6	3D銑 3D MILLING
X-BMW1204	35	280	7200~7600	3000~3400	0.2~0.3	0.6~0.7	3D銑 3D MILLING
X-BMW1204	35	230	6000~6400	1400~1800	0.35~0.5	0.8~1	3D銑 3D MILLING
X-BMW1204	35	205	5200~5700	700~1100	0.6~0.7	1.2~1.4	3D銑 3D MILLING
X-BMW1204	55	190	4800~5300	1400~1800	0.2~0.3	0.6~0.7	3D銑 3D MILLING
X-BMW1204	55	160	4000~4400	800~1100	0.35~0.5	0.8~1	3D銑 3D MILLING
X-BMW1204	80	150	3800~4200	1400~1800	0.1~0.2	0.3~0.5	3D銑 3D MILLING
X-BMW1204	80	135	3400~3800	700~1000	0.2~0.3	0.6~0.7	3D銑 3D MILLING
X-BMW1604	50	240	4500~5000	3000~3500	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW1604	50	210	4000~4500	1100~1500	0.4~0.5	1.2~1.5	3D銑 3D MILLING
X-BMW1604	50	210	4000~4500	800~1100	0.6~0.8	1.5~1.7	3D銑 3D MILLING
X-BMW1604	80	190	3600~4000	1100~1500	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW1604	80	160	3000~3400	800~1100	0.35~0.45	1~1.3	3D銑 3D MILLING
X-BMW1604	110	200	3800~4200	1400~1800	0.1~0.2	0.3~0.5	3D銑 3D MILLING
X-BMW1604	110	140	2600~3000	700~900	0.2~0.35	0.6~0.8	3D銑 3D MILLING
X-BMW2004	60	250	3800~4200	2000~2400	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW2004	60	240	3600~4000	1100~1500	0.4~0.5	1.2~1.5	3D銑 3D MILLING
X-BMW2004	60	175	2600~3000	600~900	0.6~0.8	1.5~1.7	3D銑 3D MILLING
X-BMW2004	90	225	3400~3800	1000~1400	0.2~0.35	0.7~1.2	3D銑 3D MILLING
X-BMW2004	90	155	2200~2700	600~800	0.35~0.45	1~1.3	3D銑 3D MILLING
X-BMW2004	130	150	2200~2600	600~900	0.2~0.35	0.6~0.8	3D銑 3D MILLING
X-BMW2504	60	250	3000~3400	1600~2000	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW2504	60	235	2800~3200	1000~1200	0.5~0.6	1.4~1.5	3D銑 3D MILLING
X-BMW2504	60	170	2000~2400	500~700	0.8~1	1.5~1.8	3D銑 3D MILLING
X-BMW2504	100	225	2700~3100	1000~1200	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW2504	100	150	1700~2100	600~800	0.4~0.5	1.2~1.5	3D銑 3D MILLING
X-BMW2504	150	150	1700~2100	600~800	0.2~0.35	0.7~1	3D銑 3D MILLING
X-BMW3004	80	250	2400~2800	1400~1800	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3004	80	235	2300~2700	900~1100	0.5~0.6	1.4~1.5	3D銑 3D MILLING
X-BMW3004	80	170	1600~2000	600~800	0.7~0.9	1.5~1.8	3D銑 3D MILLING
X-BMW3004	120	225	2200~2600	900~1200	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3004	120	150	1400~1800	500~700	0.4~0.5	1.2~1.5	3D銑 3D MILLING
X-BMW3004	170	150	1400~1800	700~900	0.2~0.35	0.7~1	3D銑 3D MILLING
X-BMW3204	80	250	2300~2700	1600~2000	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3204	80	235	2100~2500	1000~1300	0.5~0.6	1.4~1.5	3D銑 3D MILLING
X-BMW3204	80	170	1500~1900	700~900	0.7~0.9	1.5~1.8	3D銑 3D MILLING
X-BMW3204	120	225	2000~2400	1000~1300	0.3~0.4	1~1.4	3D銑 3D MILLING
X-BMW3204	120	150	1300~1700	500~700	0.4~0.5	1.2~1.5	3D銑 3D MILLING
X-BMW3204	170	150	1300~1700	500~700	0.2~0.35	0.7~1	3D銑 3D MILLING

X-UBY

極超微粒圓頭立銑刀頭
Ball Nose End Mills



直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02
R15.0	±0.02
R16.0	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-UBY0804	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-UBY1004	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-UBY1204	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-UBY1604	R 8.0	16.0	15.6	25.7	M10-3P	K16
X-UBY2004	R10.0	20.0	19.5	31.1	M12-3P	K20
X-UBY2504	R12.5	25.0	24.4	39.3	M16-3P	K25
X-UBY3004	R15.0	32.0	29.2	48.0	M20-3P	K30
X-UBY3204	R16.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-UBY MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UBY0804	25	270	10500~11500	2200~2600	0.15~0.25	0.3~0.5	3D銑 3D MILLING
X-UBY0804	25	315	12000~13000	2200~2600	0.05~0.1	0.05~0.2	3D銑 3D MILLING
X-UBY0804	40	195	7500~8000	1600~2000	0.15~0.25	0.3~0.5	3D銑 3D MILLING
X-UBY0804	40	240	9000~10000	1600~2000	0.05~0.1	0.05~0.2	3D銑 3D MILLING
X-UBY0804	60	105	4000~4500	1400~1800	0.1~0.2	0.3~0.4	3D銑 3D MILLING
X-UBY0804	60	115	4300~4800	800~1100	0.05~0.1	0.05~0.15	3D銑 3D MILLING
X-UBY1004	30	280	8700~9200	2000~2400	0.15~0.25	0.4~0.6	3D銑 3D MILLING
X-UBY1004	30	300	9000~10000	2800~3200	0.05~0.15	0.1~0.25	3D銑 3D MILLING
X-UBY1004	50	230	7000~7500	1400~1800	0.15~0.25	0.4~0.6	3D銑 3D MILLING
X-UBY1004	50	245	7600~8000	2200~2600	0.05~0.15	0.1~0.25	3D銑 3D MILLING
X-UBY1004	70	125	3800~4200	1000~1400	0.15~0.25	0.4~0.5	3D銑 3D MILLING
X-UBY1004	70	190	5800~6300	1000~1400	0.05~0.15	0.1~0.2	3D銑 3D MILLING
X-UBY1204	35	280	7200~7700	2200~2600	0.2~0.3	0.4~0.6	3D銑 3D MILLING
X-UBY1204	35	280	7200~7700	2400~2800	0.05~0.15	0.2~0.3	3D銑 3D MILLING
X-UBY1204	55	260	6700~7200	1800~2200	0.2~0.3	0.4~0.6	3D銑 3D MILLING
X-UBY1204	55	280	7200~7700	1800~2200	0.05~0.15	0.2~0.3	3D銑 3D MILLING
X-UBY1204	80	230	5800~6300	1200~1600	0.2~0.3	0.4~0.6	3D銑 3D MILLING
X-UBY1204	80	255	6500~7000	1400~1800	0.05~0.15	0.15~0.25	3D銑 3D MILLING
X-UBY1604	50	230	4300~4800	1800~2200	0.2~0.35	0.6~0.8	3D銑 3D MILLING
X-UBY1604	50	280	5300~5800	2200~2600	0.05~0.2	0.2~0.35	3D銑 3D MILLING
X-UBY1604	90	200	3700~4200	1200~1600	0.2~0.35	0.6~0.8	3D銑 3D MILLING
X-UBY1604	90	240	4500~5000	1600~2000	0.05~0.2	0.2~0.35	3D銑 3D MILLING
X-UBY1604	130	120	2200~2600	700~1100	0.2~0.35	0.6~0.7	3D銑 3D MILLING
X-UBY1604	130	140	2600~3000	800~1200	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY2004	60	225	3400~3800	1600~2000	0.3~0.4	0.8~1	3D銑 3D MILLING
X-UBY2004	60	275	4200~4600	2000~2400	0.05~0.2	0.2~0.35	3D銑 3D MILLING
X-UBY2004	100	200	3000~3400	1200~1600	0.3~0.4	0.8~1	3D銑 3D MILLING
X-UBY2004	100	240	3600~4000	1600~2000	0.05~0.2	0.2~0.35	3D銑 3D MILLING
X-UBY2004	150	120	1700~2100	700~1100	0.3~0.4	0.7~0.9	3D銑 3D MILLING
X-UBY2004	150	140	2000~2400	800~1200	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY2504	70	225	2600~3000	1600~2000	0.3~0.4	0.8~1	3D銑 3D MILLING
X-UBY2504	70	275	3300~3700	1800~2200	0.05~0.2	0.2~0.35	3D銑 3D MILLING
X-UBY2504	110	200	2200~2700	1100~1400	0.3~0.4	0.8~1	3D銑 3D MILLING
X-UBY2504	110	240	2800~3200	1400~1800	0.05~0.2	0.2~0.35	3D銑 3D MILLING
X-UBY2504	160	120	1300~1700	700~1000	0.3~0.4	0.7~0.9	3D銑 3D MILLING
X-UBY2504	160	140	1600~2000	800~1100	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY3004	80	225	2200~2600	1400~1800	0.3~0.4	0.8~1	3D銑 3D MILLING
X-UBY3004	80	275	2700~3100	1600~2000	0.05~0.2	0.2~0.35	3D銑 3D MILLING
X-UBY3004	120	200	1800~2200	900~1200	0.3~0.4	0.8~1	3D銑 3D MILLING
X-UBY3004	120	220	2000~2400	1200~1500	0.05~0.2	0.2~0.35	3D銑 3D MILLING
X-UBY3004	170	120	1100~1500	600~900	0.3~0.4	0.7~0.9	3D銑 3D MILLING
X-UBY3004	170	140	1200~1600	700~1000	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY3204	80	225	2000~2400	1200~1600	0.3~0.4	0.8~1	3D銑 3D MILLING
X-UBY3204	80	275	2500~2900	1400~1800	0.05~0.2	0.2~0.35	3D銑 3D MILLING
X-UBY3204	120	200	1800~2200	800~1100	0.3~0.4	0.8~1	3D銑 3D MILLING
X-UBY3204	120	220	2000~2400	1000~1300	0.05~0.2	0.2~0.35	3D銑 3D MILLING
X-UBY3204	170	120	1000~1400	600~900	0.3~0.4	0.7~0.9	3D銑 3D MILLING
X-UBY3204	170	140	1200~1400	600~900	0.05~0.2	0.2~0.3	3D銑 3D MILLING

切削條件表 X-UBY MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UBY0804	25	220	8500~9000	2000~2400	0.1~0.2	0.3~0.4	3D銑 3D MILLING
X-UBY0804	25	240	9000~10000	1800~2200	0.05~0.1	0.05~0.2	3D銑 3D MILLING
X-UBY0804	40	180	7000~7500	1400~1800	0.1~0.2	0.3~0.4	3D銑 3D MILLING
X-UBY0804	40	195	7500~8000	1400~1800	0.05~0.1	0.05~0.2	3D銑 3D MILLING
X-UBY0804	60	100	3800~4300	1000~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
X-UBY0804	60	110	4200~4700	700~1000	0.05~0.1	0.05~0.15	3D銑 3D MILLING
X-UBY1004	30	240	7500~8000	1800~2200	0.15~0.25	0.35~0.45	3D銑 3D MILLING
X-UBY1004	30	280	8700~9200	2200~2600	0.05~0.15	0.1~0.25	3D銑 3D MILLING
X-UBY1004	50	220	6700~7200	1300~1700	0.15~0.25	0.35~0.45	3D銑 3D MILLING
X-UBY1004	50	220	6700~7200	1600~2000	0.05~0.15	0.1~0.25	3D銑 3D MILLING
X-UBY1004	70	120	3600~4000	800~1200	0.1~0.2	0.3~0.4	3D銑 3D MILLING
X-UBY1004	70	155	4700~5200	800~1200	0.05~0.15	0.1~0.2	3D銑 3D MILLING
X-UBY1204	35	255	6500~7000	2200~2600	0.15~0.25	0.4~0.5	3D銑 3D MILLING
X-UBY1204	35	260	6700~7200	2000~2400	0.05~0.15	0.1~0.25	3D銑 3D MILLING
X-UBY1204	55	225	5700~6200	1400~1800	0.15~0.25	0.4~0.5	3D銑 3D MILLING
X-UBY1204	55	260	6700~7200	1600~2000	0.05~0.15	0.1~0.25	3D銑 3D MILLING
X-UBY1204	80	170	4300~4800	1200~1600	0.1~0.2	0.3~0.4	3D銑 3D MILLING
X-UBY1204	80	140	3600~4000	800~1200	0.05~0.15	0.1~0.2	3D銑 3D MILLING
X-UBY1604	50	200	3800~4200	1400~1800	0.2~0.35	0.5~0.7	3D銑 3D MILLING
X-UBY1604	50	270	5200~5700	1800~2200	0.05~0.2	0.15~0.3	3D銑 3D MILLING
X-UBY1604	90	180	3400~3800	1000~1400	0.2~0.35	0.5~0.7	3D銑 3D MILLING
X-UBY1604	90	210	4000~4500	1400~1800	0.05~0.2	0.15~0.3	3D銑 3D MILLING
X-UBY1604	130	100	1800~2200	700~1000	0.2~0.3	0.4~0.6	3D銑 3D MILLING
X-UBY1604	130	130	2400~2800	800~1100	0.05~0.15	0.15~0.25	3D銑 3D MILLING
X-UBY2004	60	200	3000~3400	1400~1800	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-UBY2004	60	270	4100~4500	1600~2000	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY2004	100	180	2700~3100	1000~1400	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-UBY2004	100	210	3200~3600	1400~1800	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY2004	150	100	1400~1800	700~1000	0.3~0.4	0.5~0.7	3D銑 3D MILLING
X-UBY2004	150	130	1900~2300	800~1100	0.05~0.15	0.15~0.25	3D銑 3D MILLING
X-UBY2504	70	200	2200~2700	1200~1600	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-UBY2504	70	270	3200~3600	1400~1800	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY2504	110	180	2100~2500	900~1200	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-UBY2504	110	210	2400~2800	1200~1600	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY2504	160	100	1000~1400	600~900	0.3~0.4	0.5~0.7	3D銑 3D MILLING
X-UBY2504	160	130	1400~1800	700~1000	0.05~0.15	0.15~0.25	3D銑 3D MILLING
X-UBY3004	80	200	1900~2300	1000~1400	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-UBY3004	80	270	2600~3000	1200~1600	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY3004	120	180	1700~2100	700~1000	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-UBY3004	120	210	2000~2400	1000~1400	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY3004	170	100	800~1200	500~800	0.3~0.4	0.5~0.7	3D銑 3D MILLING
X-UBY3004	170	130	1200~1600	600~900	0.05~0.15	0.15~0.25	3D銑 3D MILLING
X-UBY3204	80	200	1800~2200	1000~1300	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-UBY3204	80	270	2400~2800	1200~1500	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY3204	120	180	1600~2000	700~900	0.3~0.4	0.6~0.8	3D銑 3D MILLING
X-UBY3204	120	210	1700~2100	900~1200	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY3204	170	100	800~1200	500~700	0.3~0.4	0.5~0.7	3D銑 3D MILLING
X-UBY3204	170	130	1000~1400	500~800	0.05~0.15	0.15~0.25	3D銑 3D MILLING

切削條件表 X-UBY MILLING CONDITIONS

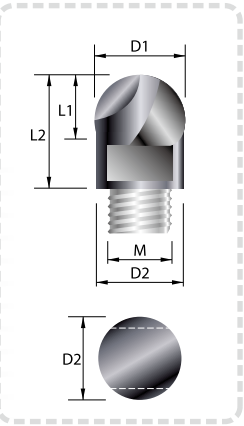
被切削材 Work Material	熱處理鋼 *Hardened Steels* : SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2 (HRc55~62)
冷卻方式 Coolant Type	乾式/油霧切削 Dry/MQL coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-UBY0804	25	190	7200~7700	1400~1800	0.05~0.1	0.1~0.2	3D銑 3D MILLING
X-UBY0804	40	140	5400~5800	1000~1400	0.05~0.1	0.1~0.2	3D銑 3D MILLING
X-UBY0804	60	90	3400~3800	600~900	0.05~0.1	0.05~0.15	3D銑 3D MILLING
X-UBY1004	30	175	6700~7200	1800~2200	0.05~0.15	0.1~0.25	3D銑 3D MILLING
X-UBY1004	50	140	4200~4700	1200~1600	0.05~0.15	0.1~0.25	3D銑 3D MILLING
X-UBY1004	70	100	3000~3400	700~1100	0.05~0.1	0.1~0.2	3D銑 3D MILLING
X-UBY1204	35	230	5800~6300	1600~2000	0.05~0.15	0.1~0.25	3D銑 3D MILLING
X-UBY1204	55	150	3700~4200	1000~1400	0.05~0.15	0.1~0.25	3D銑 3D MILLING
X-UBY1204	80	100	2400~2800	600~800	0.05~0.1	0.1~0.2	3D銑 3D MILLING
X-UBY1604	50	190	3600~4000	1200~1600	0.05~0.2	0.15~0.3	3D銑 3D MILLING
X-UBY1604	90	150	2700~3200	700~1000	0.05~0.2	0.15~0.3	3D銑 3D MILLING
X-UBY1604	130	105	1900~2300	600~800	0.05~0.15	0.15~0.25	3D銑 3D MILLING
X-UBY2004	60	190	2800~3200	1000~1400	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY2004	100	145	2100~2500	700~1000	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY2004	150	105	1500~1900	600~800	0.05~0.15	0.15~0.25	3D銑 3D MILLING
X-UBY2504	70	190	2200~2600	900~1200	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY2504	110	145	1600~2000	600~900	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY2504	160	105	1100~1500	500~700	0.05~0.15	0.15~0.25	3D銑 3D MILLING
X-UBY3004	80	190	1800~2200	800~1100	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY3004	120	145	1300~1700	500~800	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY3004	170	105	900~1300	400~600	0.05~0.15	0.15~0.25	3D銑 3D MILLING
X-UBY3204	80	190	1700~2100	800~1100	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY3204	120	145	1200~1600	500~800	0.05~0.2	0.2~0.3	3D銑 3D MILLING
X-UBY3204	170	105	800~1200	400~600	0.05~0.15	0.15~0.25	3D銑 3D MILLING

Xs-BTB

爆丸球刀頭
Ball Nose End Mills

MG | 0.6 μm | 2 Flutes | HRc 55 | T2



- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing
- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
Xs-BTB0802	R 4.0	6.0	7.8	10.1	M 5 -3P	K08
Xs-BTB1002	R 5.0	7.0	9.8	11.1	M 7 -3P	K10
Xs-BTB1202	R 6.0	9.0	11.7	13.8	M 8 -3P	K12
Xs-BTB1602	R 8.0	10.0	15.6	14.7	M10-3P	K16
Xs-BTB2002	R10.0	12.0	19.5	18.1	M12-3P	K20
Xs-BTB2502	R12.5	16.0	24.4	22.3	M16-3P	K25

unit : mm

切削條件表 Xs-BTB MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
Xs-BTB0802	30	280	10000~11000	2200~2600	0.18~0.23	0.36~0.46	3D銑 3D MILLING
Xs-BTB0802	30	330	12000~13000	3600~4000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
Xs-BTB0802	50	185	6700~7300	1400~1800	0.15~0.2	0.3~0.4	3D銑 3D MILLING
Xs-BTB0802	50	225	8300~8800	2000~2400	0.08~0.1	0.16~0.2	3D銑 3D MILLING
Xs-BTB0802	70	175	6000~7000	1400~1800	0.08~0.1	0.16~0.2	3D銑 3D MILLING
Xs-BTB1002	40	290	8700~9200	2200~2600	0.23~0.28	0.46~0.56	3D銑 3D MILLING
Xs-BTB1002	40	290	8700~9200	3200~3600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-BTB1002	60	290	8700~9200	1600~2000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-BTB1002	60	290	8700~9200	2000~2400	0.06~0.1	0.12~0.2	3D銑 3D MILLING
Xs-BTB1002	100	195	5700~6200	1000~1200	0.1~0.14	0.2~0.28	3D銑 3D MILLING
Xs-BTB1002	100	260	7700~8200	1200~1500	0.06~0.1	0.12~0.2	3D銑 3D MILLING
Xs-BTB1202	40	325	8200~8600	2100~2500	0.28~0.3	0.56~0.6	3D銑 3D MILLING
Xs-BTB1202	40	325	8200~8600	2800~3200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-BTB1202	60	325	8200~8600	1600~2000	0.2~0.25	0.4~0.5	3D銑 3D MILLING
Xs-BTB1202	60	325	8200~8600	2200~2600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-BTB1202	100	220	5300~5800	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-BTB1602	60	230	4000~4500	1600~2000	0.23~0.28	0.46~0.56	3D銑 3D MILLING
Xs-BTB1602	60	305	5500~6000	2600~3000	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-BTB1602	100	175	3000~3500	1400~1800	0.23~0.28	0.46~0.56	3D銑 3D MILLING
Xs-BTB1602	100	230	4000~4500	2000~2400	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-BTB1602	140	140	2300~2800	1200~1500	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-BTB2002	80	330	4700~5200	1600~2000	0.23~0.28	0.46~0.56	3D銑 3D MILLING
Xs-BTB2002	80	380	5500~6000	2000~2400	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-BTB2002	130	160	2000~2500	1100~1400	0.2~0.25	0.4~0.5	3D銑 3D MILLING
Xs-BTB2002	130	220	3000~3500	1200~1600	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-BTB2002	180	140	1800~2200	1000~1300	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-BTB2502	80	330	3500~4000	1300~1700	0.23~0.28	0.46~0.56	3D銑 3D MILLING
Xs-BTB2502	80	350	4000~4500	1800~2200	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-BTB2502	130	220	2400~2800	1000~1400	0.2~0.25	0.4~0.5	3D銑 3D MILLING
Xs-BTB2502	130	300	3400~3800	1300~1700	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-BTB2502	180	240	2500~3000	1100~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

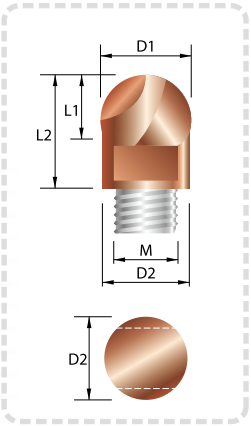
1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

Xs-UB

爆丸球刀頭
Ball Nose End Mills

Super MG | 0.4 μm | 2 Flutes | HRc 62 | G12 | S type



- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing

- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
Xs-UB0802	R 4.0	6.0	7.8	10.1	M 5 -3P	K08
Xs-UB1002	R 5.0	7.0	9.8	11.1	M 7 -3P	K10
Xs-UB1202	R 6.0	9.0	11.7	13.8	M 8 -3P	K12
Xs-UB1602	R 8.0	10.0	15.6	14.7	M10-3P	K16
Xs-UB2002	R10.0	12.0	19.5	18.1	M12-3P	K20
Xs-UB2502	R12.5	16.0	24.4	22.3	M16-3P	K25

unit : mm

切削條件表 Xs-UB MILLING CONDITIONS

被切削材 Work Material	調質鋼/預硬鋼 *Prehardened Steels* : **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)
冷卻方式 Coolant Type	溼式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
Xs-UB0802	25	280	10000~11000	2000~2400	0.18~0.23	0.36~0.46	3D銑 3D MILLING
Xs-UB0802	25	330	12000~13000	3800~4200	0.08~0.13	0.16~0.26	3D銑 3D MILLING
Xs-UB0802	45	185	6700~7300	1200~1600	0.15~0.2	0.3~0.4	3D銑 3D MILLING
Xs-UB0802	45	225	8300~8800	1800~2200	0.08~0.1	0.16~0.2	3D銑 3D MILLING
Xs-UB0802	65	175	6000~7000	1200~1600	0.08~0.1	0.16~0.2	3D銑 3D MILLING
Xs-UB1002	40	290	8700~9200	2600~3000	0.23~0.28	0.46~0.56	3D銑 3D MILLING
Xs-UB1002	40	290	8700~9200	3600~4000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB1002	60	290	8700~9200	1800~2200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB1002	60	290	8700~9200	2200~2600	0.06~0.1	0.12~0.2	3D銑 3D MILLING
Xs-UB1002	100	195	5700~6200	1100~1300	0.1~0.14	0.2~0.28	3D銑 3D MILLING
Xs-UB1002	100	260	7700~8200	1400~1700	0.06~0.1	0.12~0.2	3D銑 3D MILLING
Xs-UB1202	40	325	8200~8600	2200~2600	0.28~0.3	0.56~0.6	3D銑 3D MILLING
Xs-UB1202	40	325	8200~8600	3000~3400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB1202	60	325	8200~8600	1600~2000	0.2~0.25	0.4~0.5	3D銑 3D MILLING
Xs-UB1202	60	325	8200~8600	2200~2600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB1202	100	220	5300~5800	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB1602	60	230	4000~4500	1400~1800	0.23~0.28	0.46~0.56	3D銑 3D MILLING
Xs-UB1602	60	305	5500~6000	2800~3200	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-UB1602	100	175	3000~3500	1200~1600	0.23~0.28	0.46~0.56	3D銑 3D MILLING
Xs-UB1602	100	230	4000~4500	2200~2600	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-UB1602	140	140	2300~2800	1300~1600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB2002	80	360	5200~5700	1400~1800	0.23~0.28	0.46~0.56	3D銑 3D MILLING
Xs-UB2002	80	380	5500~6000	2400~2800	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-UB2002	130	190	2500~3000	900~1200	0.2~0.25	0.4~0.5	3D銑 3D MILLING
Xs-UB2002	130	220	3000~3500	1600~2000	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-UB2002	180	140	1700~2200	1000~1300	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB2502	80	330	3500~4000	1300~1700	0.23~0.28	0.46~0.56	3D銑 3D MILLING
Xs-UB2502	80	350	4000~4500	1800~2200	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-UB2502	130	220	2400~2800	1000~1400	0.2~0.25	0.4~0.5	3D銑 3D MILLING
Xs-UB2502	130	300	3400~3800	1300~1700	0.12~0.17	0.24~0.34	3D銑 3D MILLING
Xs-UB2502	180	240	2500~3000	1100~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

切削條件表 Xs-UB MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
Xs-UB0802	25	280	10000~11000	2600~3000	0.06~0.09	0.12~0.18	3D銑 3D MILLING
Xs-UB0802	45	145	5400~5800	1600~2000	0.06~0.08	0.12~0.16	3D銑 3D MILLING
Xs-UB0802	65	130	4700~5200	1200~1600	0.06~0.08	0.12~0.16	3D銑 3D MILLING
Xs-UB1002	40	260	7700~8200	2600~3000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
Xs-UB1002	60	230	6700~7200	1400~1800	0.08~0.13	0.16~0.26	3D銑 3D MILLING
Xs-UB1002	80	185	5300~5800	1000~1200	0.07~0.1	0.16~0.2	3D銑 3D MILLING
Xs-UB1202	40	305	7500~8000	1800~2200	0.08~0.13	0.16~0.26	3D銑 3D MILLING
Xs-UB1202	60	290	7200~7700	1200~1600	0.08~0.13	0.16~0.26	3D銑 3D MILLING
Xs-UB1202	100	220	5300~5800	800~1100	0.08~0.13	0.16~0.26	3D銑 3D MILLING
Xs-UB1602	60	215	3800~4200	2000~2400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB1602	100	160	2800~3200	1600~2000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB1602	130	115	2000~2300	800~1200	0.1~0.12	0.2~0.24	3D銑 3D MILLING
Xs-UB2002	80	315	4500~5000	1200~1600	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB2002	130	190	2500~3000	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB2002	180	140	1700~2200	800~1000	0.08~0.1	0.16~0.2	3D銑 3D MILLING
Xs-UB2502	80	315	3500~4000	1300~1700	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB2502	130	240	2500~3000	1000~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UB2502	180	200	2000~2500	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

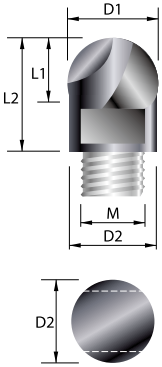
1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。
3. **Xs-UB1002**在HRc52伸長量100mm時，條件非常差。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.
3. When **Xs-UB1002** of extension is 100mm in HRc52, the cutting data is not good.

Xs-UBT

爆丸球刀頭
Ball Nose End Mills

Super MG | 0.2 μm | 2 Flutes | HRc 65 | G15



- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing

- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
Xs-UBT0802	R 4.0	6.0	7.8	10.1	M 5 -3P	K08
Xs-UBT1002	R 5.0	7.0	9.8	11.1	M 7 -3P	K10
Xs-UBT1202	R 6.0	9.0	11.7	13.8	M 8 -3P	K12
Xs-UBT1602	R 8.0	10.0	15.6	14.7	M10-3P	K16
Xs-UBT2002	R10.0	12.0	19.5	18.1	M12-3P	K20
Xs-UBT2502	R12.5	16.0	24.4	22.3	M16-3P	K25

unit : mm

切削條件表 Xs-UBT MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
Xs-UBT0802	25	280	10000~11000	1800~2000	0.15~0.2	0.3~0.4	3D銑 3D MILLING
Xs-UBT0802	25	280	10000~11000	3000~3400	0.07~0.1	0.14~0.2	3D銑 3D MILLING
Xs-UBT0802	45	145	5400~5800	1600~2000	0.06~0.08	0.12~0.16	3D銑 3D MILLING
Xs-UBT0802	65	130	4700~5200	1200~1600	0.06~0.08	0.12~0.16	3D銑 3D MILLING
Xs-UBT1002	40	280	8700~9200	1600~2000	0.2~0.25	0.4~0.5	3D銑 3D MILLING
Xs-UBT1002	40	280	8700~9200	2600~3000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
Xs-UBT1002	60	215	6700~7200	1600~2000	0.08~0.13	0.16~0.26	3D銑 3D MILLING
Xs-UBT1002	80	175	5500~6000	1000~1200	0.07~0.1	0.14~0.2	3D銑 3D MILLING
Xs-UBT1202	40	300	7800~8200	2200~2600	0.25~0.3	0.5~0.6	3D銑 3D MILLING
Xs-UBT1202	40	300	7800~8200	2600~3000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT1202	60	225	5800~6300	1200~1600	0.2~0.25	0.4~0.5	3D銑 3D MILLING
Xs-UBT1202	60	280	7200~7700	2000~2400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT1202	100	160	4000~4500	1100~1300	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT1602	60	200	3800~4200	1600~2000	0.2~0.25	0.4~0.5	3D銑 3D MILLING
Xs-UBT1602	60	200	3800~4200	2000~2400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT1602	100	170	3200~3700	1400~1700	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT1602	130	135	2500~3000	1000~1200	0.1~0.12	0.2~0.24	3D銑 3D MILLING
Xs-UBT2002	80	325	5000~5500	1400~1800	0.2~0.23	0.4~0.46	3D銑 3D MILLING
Xs-UBT2002	80	355	5500~6000	2000~2400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT2002	130	220	3200~3700	800~1000	0.2~0.23	0.4~0.46	3D銑 3D MILLING
Xs-UBT2002	130	315	4700~5200	1400~1800	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT2002	180	140	1700~2200	800~1000	0.08~0.1	0.16~0.2	3D銑 3D MILLING
Xs-UBT2502	80	300	3200~3700	1000~1400	0.2~0.25	0.35~0.5	3D銑 3D MILLING
Xs-UBT2502	80	315	3500~4000	1300~1700	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT2502	130	240	2500~3000	1000~1400	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT2502	180	200	2000~2500	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING

附註 Note

1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

切削條件表 Xs-UBT MILLING CONDITIONS

被切削材 Work Material	熱處理鋼 *Hardened Steels* : **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
Xs-UBT0802	25	210	7800~8300	2000~2400	0.07~0.1	0.14~0.2	3D銑 3D MILLING
Xs-UBT0802	45	125	4500~5000	1300~1700	0.05~0.08	0.1~0.16	3D銑 3D MILLING
Xs-UBT0802	65	90	3000~3500	700~900	0.05~0.08	0.1~0.16	3D銑 3D MILLING
Xs-UBT1002	40	155	4700~5200	1400~1800	0.1~0.13	0.2~0.26	3D銑 3D MILLING
Xs-UBT1002	60	125	3700~4200	1200~1600	0.08~0.1	0.16~0.2	3D銑 3D MILLING
Xs-UBT1002	80	45	1400~1700	600~800	0.08~0.1	0.16~0.2	3D銑 3D MILLING
Xs-UBT1202	40	240	6200~6700	1600~2000	0.1~0.13	0.2~0.26	3D銑 3D MILLING
Xs-UBT1202	60	185	4700~5200	800~1200	0.08~0.1	0.16~0.2	3D銑 3D MILLING
Xs-UBT1202	100	95	2200~2700	500~700	0.08~0.1	0.16~0.2	3D銑 3D MILLING
Xs-UBT1602	60	150	2700~3200	800~1200	0.1~0.15	0.15~0.25	3D銑 3D MILLING
Xs-UBT1602	100	90	1500~2000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
Xs-UBT1602	130	90	1500~2000	600~1000	0.07~0.1	0.07~0.1	3D銑 3D MILLING
Xs-UBT2002	80	110	1500~2000	800~1200	0.07~0.1	0.07~0.1	3D銑 3D MILLING
Xs-UBT2002	130	100	1500~1700	600~800	0.07~0.1	0.07~0.1	3D銑 3D MILLING
Xs-UBT2502	80	150	1800~2300	800~1200	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT2502	130	120	1300~1700	700~1000	0.1~0.15	0.2~0.3	3D銑 3D MILLING
Xs-UBT2502	180	100	1100~1400	600~900	0.1~0.15	0.2~0.3	3D銑 3D MILLING

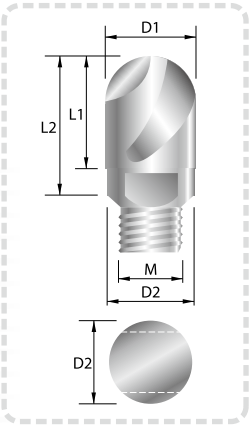
附註 Note

1. 由於機器剛性及主軸扭力不同，加工時若有尖銳聲音，請調降轉速(S)及進給(F)。
2. 使用BT50 (SK50/HSK100A) 刀把夾持之機器，可視情況調高轉速(S)及進給(F)。

1. Due to spindle torque and the rigidity of machine differs, please lower the Speed(S) and Feed(F) if hearing sharp voices while milling.
2. For the machine use with holder of BT50(SK50/HSK100A), please higher Speed(S) and Feed(F) according to the cutting condition.

X-BTC

銅鋁用圓頭立銑刀頭
Ball Nose End Mills



直徑 D1	球頭公差值 R Tolerance
R4.0	±0.02
R5.0	±0.02
R6.0	±0.02
R8.0	±0.02
R10.0	±0.02
R12.5	±0.02
R16.0	±0.02

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-BTC0802	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-BTC1002	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-BTC1202	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-BTC1602	R 8.0	16.0	15.6	25.7	M10-3P	K16
X-BTC2002	R10.0	20.0	19.5	31.1	M12-3P	K20
X-BTC2502	R12.5	25.0	24.4	39.3	M16-3P	K25
X-BTC3202	R16.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

X-BTC

切削條件表 MILLING CONDITIONS

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075
冷卻方式 Coolant Type	溼式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BTC0802	30	200	8000~8500	1400~1800	0.7~1	2~2.5	3D銑 3D MILLING
X-BTC0802	30	200	8000~8500	2600~3000	0.25~0.3	0.5~0.6	3D銑 3D MILLING
X-BTC0802	30	230	9000~9500	3200~3600	0.08~0.13	0.15~0.2	3D銑 3D MILLING
X-BTC0802	50	200	8000~8500	2000~2400	0.25~0.3	0.5~0.6	3D銑 3D MILLING
X-BTC0802	50	230	9000~9500	3200~3600	0.08~0.13	0.15~0.2	3D銑 3D MILLING
X-BTC0802	70	120	4700~5200	2000~2400	0.25~0.3	0.5~0.6	3D銑 3D MILLING
X-BTC0802	70	230	9000~9500	3000~3400	0.08~0.13	0.15~0.2	3D銑 3D MILLING
X-BTC1002	40	255	8000~8500	1800~2200	0.8~1.3	2~2.5	3D銑 3D MILLING
X-BTC1002	40	255	8000~8500	3600~4000	0.3~0.35	0.7~0.8	3D銑 3D MILLING
X-BTC1002	40	285	9000~9500	3000~3400	0.1~0.15	0.15~0.23	3D銑 3D MILLING
X-BTC1002	60	255	8000~8500	3600~4000	0.3~0.35	0.7~0.8	3D銑 3D MILLING
X-BTC1002	60	285	9000~9500	3000~3400	0.1~0.15	0.18~0.23	3D銑 3D MILLING
X-BTC1002	100	125	4000~4400	1200~1600	0.1~0.15	0.18~0.23	3D銑 3D MILLING
X-BTC1002	100	285	9000~9500	3000~3400	0.1~0.15	0.18~0.23	3D銑 3D MILLING
X-BTC1202	40	290	7700~8200	1600~2000	1~1.5	2.5~3.5	3D銑 3D MILLING
X-BTC1202	40	290	7700~8200	3000~3400	0.35~0.4	0.8~1	3D銑 3D MILLING
X-BTC1202	40	290	7700~8200	3800~4200	0.13~0.16	0.2~0.25	3D銑 3D MILLING
X-BTC1202	60	290	7700~8200	3000~3400	0.35~0.4	0.8~1	3D銑 3D MILLING
X-BTC1202	60	290	7700~8200	3000~3400	0.13~0.16	0.2~0.25	3D銑 3D MILLING
X-BTC1202	100	85	2000~2400	800~1000	0.35~0.4	0.8~1	3D銑 3D MILLING
X-BTC1202	100	150	3700~4200	1800~2200	0.13~0.16	0.2~0.25	3D銑 3D MILLING
X-BTC1602	60	390	7700~8200	2200~2600	1~2	3~4	3D銑 3D MILLING
X-BTC1602	60	390	7700~8200	3800~4200	0.4~0.45	0.9~1.3	3D銑 3D MILLING
X-BTC1602	60	390	7700~8200	3200~3600	0.15~0.18	0.22~0.27	3D銑 3D MILLING
X-BTC1602	100	285	5600~6200	1800~2200	0.4~0.45	0.9~1.3	3D銑 3D MILLING
X-BTC1602	100	335	6600~7200	3200~3600	0.15~0.18	0.22~0.27	3D銑 3D MILLING
X-BTC1602	140	100	2000~2400	600~800	0.4~0.45	0.9~1.3	3D銑 3D MILLING
X-BTC1602	140	215	4200~4600	2200~2600	0.15~0.18	0.22~0.27	3D銑 3D MILLING
X-BTC2002	80	475	7500~8200	1000~1400	1~2	3~4	3D銑 3D MILLING
X-BTC2002	80	505	7500~8500	2200~2600	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC2002	80	505	7500~8500	3200~3600	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC2002	130	475	7500~8500	2000~2400	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC2002	130	475	7500~8500	2800~3200	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC2002	180	125	2000~2500	500~800	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC2002	180	255	3800~4600	2200~2600	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC2502	90	400	4800~5300	800~1200	1~2	3~4	3D銑 3D MILLING
X-BTC2502	90	400	4800~5300	2000~2400	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC2502	90	400	4800~5300	2600~3000	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC2502	150	350	4400~4800	1600~2000	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC2502	150	350	4400~4800	2000~2400	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC2502	200	250	2800~3200	1600~2000	0.15~0.25	0.3~0.4	3D銑 3D MILLING

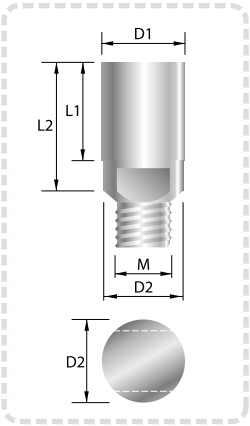
被切削材 Work Material	鋁合金 *Aluminum Alloy* : **5052 / 6061 / 7075**						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BTC3202	100	400	3700~4200	800~1200	1~2	3~4	3D銑 3D MILLING
X-BTC3202	100	400	3700~4200	1600~2000	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC3202	100	400	3700~4200	2000~2400	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC3202	170	350	3200~3700	1200~1600	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC3202	170	350	3200~3700	1600~2000	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC3202	220	250	2200~2700	1200~1600	0.15~0.25	0.3~0.4	3D銑 3D MILLING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : **5052 / 6061 / 7075**						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BTC0802	30	330	13000~14000	2000~2400	0.7~1	2~2.5	3D銑 3D MILLING
X-BTC0802	30	330	13000~14000	3600~4000	0.25~0.3	0.5~0.6	3D銑 3D MILLING
X-BTC0802	30	330	13000~14000	4200~4600	0.08~0.13	0.15~0.2	3D銑 3D MILLING
X-BTC0802	50	305	12000~13000	2400~2800	0.25~0.3	0.5~0.6	3D銑 3D MILLING
X-BTC0802	50	305	12000~13000	4200~4600	0.08~0.13	0.15~0.2	3D銑 3D MILLING
X-BTC0802	70	120	4700~5200	2000~2400	0.25~0.3	0.5~0.6	3D銑 3D MILLING
X-BTC0802	70	305	12000~13000	3400~3800	0.08~0.13	0.15~0.2	3D銑 3D MILLING
X-BTC1002	40	315	10000~11000	2000~2400	0.8~1.3	2~2.5	3D銑 3D MILLING
X-BTC1002	40	380	12000~13000	4000~4400	0.3~0.35	0.7~0.8	3D銑 3D MILLING
X-BTC1002	40	380	12000~13000	3800~4200	0.1~0.15	0.18~0.23	3D銑 3D MILLING
X-BTC1002	60	255	8000~8500	3600~4000	0.3~0.35	0.7~0.8	3D銑 3D MILLING
X-BTC1002	60	345	11000~12000	3800~4200	0.1~0.15	0.18~0.23	3D銑 3D MILLING
X-BTC1002	100	125	4000~4400	1200~1600	0.1~0.15	0.18~0.23	3D銑 3D MILLING
X-BTC1002	100	285	9000~9500	3000~3400	0.1~0.15	0.18~0.23	3D銑 3D MILLING
X-BTC1202	40	415	11000~12000	2400~2800	1~1.5	2.5~3.5	3D銑 3D MILLING
X-BTC1202	40	415	11000~12000	3800~4200	0.35~0.4	0.8~1	3D銑 3D MILLING
X-BTC1202	40	415	11000~12000	4200~4600	0.13~0.16	0.2~0.25	3D銑 3D MILLING
X-BTC1202	60	290	7700~8200	3000~3400	0.35~0.4	0.8~1	3D銑 3D MILLING
X-BTC1202	60	380	10000~11000	3800~4200	0.13~0.16	0.2~0.25	3D銑 3D MILLING
X-BTC1202	100	85	2000~2400	800~1000	0.35~0.4	0.8~1	3D銑 3D MILLING
X-BTC1202	100	150	3700~4200	1800~2200	0.13~0.16	0.2~0.25	3D銑 3D MILLING
X-BTC1602	60	480	9500~10500	3000~3400	1~2	3~4	3D銑 3D MILLING
X-BTC1602	60	480	9500~10500	4500~5500	0.4~0.45	0.9~1.3	3D銑 3D MILLING
X-BTC1602	60	480	9500~10500	3600~4000	0.15~0.18	0.22~0.27	3D銑 3D MILLING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : **5052 / 6061 / 7075**						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-BTC1602	100	285	5600~6200	1800~2200	0.4~0.45	0.9~1.3	3D銑 3D MILLING
X-BTC1602	100	335	6600~7200	3200~3600	0.15~0.18	0.22~0.27	3D銑 3D MILLING
X-BTC1602	140	100	2000~2400	600~800	0.4~0.45	0.9~1.3	3D銑 3D MILLING
X-BTC1602	140	215	4200~4600	2200~2600	0.15~0.18	0.22~0.27	3D銑 3D MILLING
X-BTC2002	80	475	7500~8200	1000~1400	1~2	3~4	3D銑 3D MILLING
X-BTC2002	80	505	7500~8500	2200~2600	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC2002	80	505	7500~8500	3200~3600	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC2002	130	475	7500~8500	2000~2400	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC2002	130	475	7500~8500	2800~3200	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC2002	180	125	2000~2500	500~800	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC2002	180	255	3800~4600	2200~2600	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC2502	90	400	4800~5300	800~1200	1~2	3~4	3D銑 3D MILLING
X-BTC2502	90	400	4800~5300	2000~2400	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC2502	90	400	4800~5300	2600~3000	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC2502	150	350	4400~4800	1600~2000	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC2502	150	350	4400~4800	2000~2400	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC2502	200	250	2800~3200	1600~2000	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC3202	100	400	3700~4200	800~1200	1~2	3~4	3D銑 3D MILLING
X-BTC3202	100	400	3700~4200	1600~2000	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC3202	100	400	3700~4200	2000~2400	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC3202	170	350	3200~3700	1200~1600	0.55~0.65	1.2~1.7	3D銑 3D MILLING
X-BTC3202	170	350	3200~3700	1600~2000	0.15~0.25	0.3~0.4	3D銑 3D MILLING
X-BTC3202	220	250	2200~2700	1200~1600	0.15~0.25	0.3~0.4	3D銑 3D MILLING

X-AEW

彩虹立銑刀頭
End Mills / 3 Flute



---- 精銑 Finishing

中銑 Semi-finishing

粗銑 Roughing

乾式切削 Dry Machining

油霧切削 MQL (Mist)

水溶性切削 Emulsion Machining

油性切削 Oil Machining

直徑 D1	直徑公差值 D1 Tolerance
8.0	$^{0}_{-0.02}$
10.0	$^{0}_{-0.02}$
12.0	$^{0}_{-0.02}$
16.0	$^{0}_{-0.02}$
20.0	$^{0}_{-0.03}$
25.0	$^{0}_{-0.04}$
32.0	$^{0}_{-0.04}$

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-AEW0803	8.0	8.0	7.8	12.1	M 5 -3P	K08
X-AEW1003	10.0	10.0	9.8	16.1	M 7 -3P	K10
X-AEW1203	12.0	12.0	11.7	20.3	M 8 -3P	K12
X-AEW1603	16.0	16.0	15.6	25.7	M10-3P	K16
X-AEW2003	20.0	20.0	19.5	31.1	M12-3P	K20
X-AEW2503	25.0	25.0	24.4	39.3	M16-3P	K25
X-AEW3203	32.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-AEW MILLING CONDITIONS

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075
冷卻方式 Coolant Type	溼式切削 Wet coolant

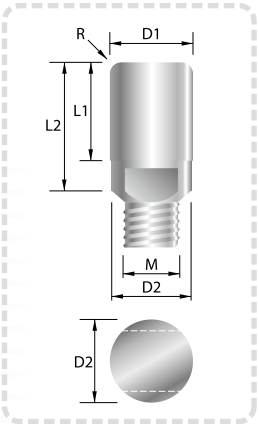
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AEW0803	23	220	8500~9000	6000~6500	0~1.5	6~8	溝銑 SLOTTING
X-AEW0803	23	220	8500~9000	4000~4500	2~4	6~8	溝銑 SLOTTING
X-AEW0803	23	220	8500~9000	3000~3500	5~6	6~8	溝銑 SLOTTING
X-AEW0803	23	220	8500~9000	6000~6500	8	0~2	側銑 SIDE MILLING
X-AEW0803	23	220	8500~9000	4500~5000	8	3~5	側銑 SIDE MILLING
X-AEW0803	23	220	8500~9000	3000~3500	8	5~6	側銑 SIDE MILLING
X-AEW0803	23	390	15000~16000	7500~8500	0~1.5	6~8	溝銑 SLOTTING
X-AEW0803	23	390	15000~16000	4500~5000	2~4	6~8	溝銑 SLOTTING
X-AEW0803	23	390	15000~16000	5500~6500	5~6	6~8	溝銑 SLOTTING
X-AEW0803	23	390	15000~16000	9000~10000	8	0~2	側銑 SIDE MILLING
X-AEW0803	23	390	15000~16000	6500~7500	8	3~5	側銑 SIDE MILLING
X-AEW0803	23	390	15000~16000	5000~5500	8	5~6	側銑 SIDE MILLING
X-AEW0803	35	195	7500~8000	4000~4500	0~1.5	8	溝銑 SLOTTING
X-AEW0803	35	195	7500~8000	2300~2800	2~4	8	溝銑 SLOTTING
X-AEW0803	35	195	7500~8000	1000~1500	5~6	8	溝銑 SLOTTING
X-AEW0803	35	195	7500~8000	4000~4500	8	0~2	側銑 SIDE MILLING
X-AEW0803	35	195	7500~8000	2300~2800	8	3~5	側銑 SIDE MILLING
X-AEW0803	35	195	7500~8000	1000~1500	8	5~6	側銑 SIDE MILLING
X-AEW0803	45	130	5000~5500	1400~1800	4~5	8	溝銑 SLOTTING
X-AEW0803	45	130	5000~5500	1400~1800	8	4~5	側銑 SIDE MILLING
X-AEW1003	26	250	7800~8300	5000~5500	0~2	8~10	溝銑 SLOTTING
X-AEW1003	26	250	7800~8300	4000~4500	3~5	8~10	溝銑 SLOTTING
X-AEW1003	26	250	7800~8300	3000~3500	6~8	8~10	溝銑 SLOTTING
X-AEW1003	26	250	7800~8300	5500~6000	10	0~2	側銑 SIDE MILLING
X-AEW1003	26	250	7800~8300	4000~4500	10	3~5	側銑 SIDE MILLING
X-AEW1003	26	250	7800~8300	3000~3500	10	6~8	側銑 SIDE MILLING
X-AEW1003	26	390	12000~13000	7000~7500	0~2	8~10	溝銑 SLOTTING
X-AEW1003	26	390	12000~13000	6500~7000	3~5	8~10	溝銑 SLOTTING
X-AEW1003	26	390	12000~13000	6000~6500	6~8	8~10	溝銑 SLOTTING
X-AEW1003	26	485	15000~16000	7500~8500	10	0~2	側銑 SIDE MILLING
X-AEW1003	26	485	15000~16000	8500~9000	10	3~5	側銑 SIDE MILLING
X-AEW1003	26	485	15000~16000	5000~5500	10	6~8	側銑 SIDE MILLING
X-AEW1003	45	140	4300~4800	2000~2500	0~2	8~10	溝銑 SLOTTING
X-AEW1003	45	155	4700~5200	1800~2300	3~5	8~10	溝銑 SLOTTING
X-AEW1003	45	155	4700~5200	1000~1500	6~8	8~10	溝銑 SLOTTING
X-AEW1003	45	230	7000~7500	4000~4500	10	0~2	側銑 SIDE MILLING
X-AEW1003	45	190	5800~6300	2700~3200	10	3~5	側銑 SIDE MILLING
X-AEW1003	45	190	5800~6300	1300~1800	10	6~8	側銑 SIDE MILLING
X-AEW1003	60	130	4000~4500	1000~1400	5~6	8~10	溝銑 SLOTTING
X-AEW1003	60	130	4000~4500	1000~1400	10	5~6	側銑 SIDE MILLING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AEW1203	30	290	7500~8000	4500~5000	0~2	10~12	溝銑 SLOTTING
X-AEW1203	30	290	7500~8000	3000~3500	5~6	10~12	溝銑 SLOTTING
X-AEW1203	30	290	7500~8000	2500~3000	8~10	10~12	溝銑 SLOTTING
X-AEW1203	30	290	7500~8000	3500~4000	12	0~2	側銑 SIDE MILLING
X-AEW1203	30	290	7500~8000	3000~3500	12	5~6	側銑 SIDE MILLING
X-AEW1203	30	290	7500~8000	2500~3000	12	8~10	側銑 SIDE MILLING
X-AEW1203	30	395	10000~11000	7000~7500	0~2	10~12	溝銑 SLOTTING
X-AEW1203	30	395	10000~11000	5500~6000	5~6	10~12	溝銑 SLOTTING
X-AEW1203	30	395	10000~11000	5500~6000	8~10	10~12	溝銑 SLOTTING
X-AEW1203	30	395	10000~11000	8000~8500	12	0~2	側銑 SIDE MILLING
X-AEW1203	30	395	10000~11000	4500~5000	12	5~6	側銑 SIDE MILLING
X-AEW1203	30	395	10000~11000	4500~5000	12	8~10	側銑 SIDE MILLING
X-AEW1203	55	180	4500~5000	2000~2500	0~2	10~12	溝銑 SLOTTING
X-AEW1203	55	180	4500~5000	1800~2300	5~6	10~12	溝銑 SLOTTING
X-AEW1203	55	180	4500~5000	1500~2000	8~10	10~12	溝銑 SLOTTING
X-AEW1203	55	180	4500~5000	2000~2500	12	0~2	側銑 SIDE MILLING
X-AEW1203	55	180	4500~5000	1800~2300	12	5~6	側銑 SIDE MILLING
X-AEW1203	55	180	4500~5000	1500~2000	12	8~10	側銑 SIDE MILLING
X-AEW1203	70	140	3500~4000	1000~1400	5~6	10~12	溝銑 SLOTTING
X-AEW1203	70	140	3500~4000	1000~1400	12	5~6	側銑 SIDE MILLING
X-AEW1603	40	340	6500~7000	2500~3000	3~4	14~16	溝銑 SLOTTING
X-AEW1603	40	340	6500~7000	1700~2200	6~8	14~16	溝銑 SLOTTING
X-AEW1603	40	340	6500~7000	1500~2000	10~12	14~16	溝銑 SLOTTING
X-AEW1603	40	340	6500~7000	4000~4500	16	0~2	側銑 SIDE MILLING
X-AEW1603	40	340	6500~7000	2700~3200	16	6~8	側銑 SIDE MILLING
X-AEW1603	40	340	6500~7000	2200~2700	16	10~12	側銑 SIDE MILLING
X-AEW1603	55	320	6200~6700	2500~3000	3~4	14~16	溝銑 SLOTTING
X-AEW1603	55	320	6200~6700	1700~2200	6~8	14~16	溝銑 SLOTTING
X-AEW1603	55	320	6200~6700	1500~2000	10~12	14~16	溝銑 SLOTTING
X-AEW1603	55	320	6200~6700	4000~4500	16	0~2	側銑 SIDE MILLING
X-AEW1603	55	320	6200~6700	2700~3200	16	6~8	側銑 SIDE MILLING
X-AEW1603	55	320	6200~6700	2200~2700	16	10~12	側銑 SIDE MILLING
X-AEW1603	80	150	2800~3300	900~1300	6~8	14~16	溝銑 SLOTTING
X-AEW1603	80	150	2800~3300	900~1300	16	6~8	側銑 SIDE MILLING
X-AEW2003	50	340	5200~5700	2200~2700	3~4	18~20	溝銑 SLOTTING
X-AEW2003	50	340	5200~5700	1400~1900	6~8	18~20	溝銑 SLOTTING
X-AEW2003	50	340	5200~5700	1100~1500	10~12	18~20	溝銑 SLOTTING
X-AEW2003	50	340	5200~5700	3000~3500	20	0~2	側銑 SIDE MILLING
X-AEW2003	50	340	5200~5700	2000~2500	20	6~8	側銑 SIDE MILLING
X-AEW2003	50	340	5200~5700	1500~2000	20	10~12	側銑 SIDE MILLING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : **5052 / 6061 / 7075**						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AEW2003	70	320	4700~5200	2000~2500	3~4	18~20	溝銑 SLOTTING
X-AEW2003	70	320	4700~5200	1400~1900	6~8	18~20	溝銑 SLOTTING
X-AEW2003	70	320	4700~5200	1100~1500	10~12	18~20	溝銑 SLOTTING
X-AEW2003	70	320	4700~5200	3000~3500	20	0~2	側銑 SIDE MILLING
X-AEW2003	70	320	4700~5200	2000~2500	20	6~8	側銑 SIDE MILLING
X-AEW2003	70	320	4700~5200	1500~2000	20	10~12	側銑 SIDE MILLING
X-AEW2003	90	170	2500~3000	800~1200	8~9	18~20	溝銑 SLOTTING
X-AEW2003	90	170	2500~3000	800~1200	20	8~9	側銑 SIDE MILLING
X-AEW2503	60	340	4000~4500	1600~2000	3~4	20~25	溝銑 SLOTTING
X-AEW2503	60	340	4000~4500	1200~1600	6~8	20~25	溝銑 SLOTTING
X-AEW2503	60	340	4000~4500	1000~1400	10~12	20~25	溝銑 SLOTTING
X-AEW2503	60	340	4000~4500	1600~2000	25	3~4	側銑 SIDE MILLING
X-AEW2503	60	340	4000~4500	1200~1600	25	6~8	側銑 SIDE MILLING
X-AEW2503	60	340	4000~4500	1000~1400	25	10~12	側銑 SIDE MILLING
X-AEW2503	80	300	3500~4000	1400~1800	3~4	20~25	溝銑 SLOTTING
X-AEW2503	80	300	3500~4000	1000~1400	6~8	20~25	溝銑 SLOTTING
X-AEW2503	80	300	3500~4000	800~1200	10~12	20~25	溝銑 SLOTTING
X-AEW2503	80	300	3500~4000	1400~1800	25	3~4	側銑 SIDE MILLING
X-AEW2503	80	300	3500~4000	1000~1400	25	6~8	側銑 SIDE MILLING
X-AEW2503	80	300	3500~4000	800~1200	25	10~12	側銑 SIDE MILLING
X-AEW2503	100	180	2000~2500	600~1000	10~12	20~25	溝銑 SLOTTING
X-AEW2503	100	180	2000~2500	600~1000	25	10~12	側銑 SIDE MILLING
X-AEW3203	70	300	2700~3200	1200~1600	3~4	25~32	溝銑 SLOTTING
X-AEW3203	70	300	2700~3200	900~1300	6~8	25~32	溝銑 SLOTTING
X-AEW3203	70	300	2700~3200	700~1100	10~12	25~32	溝銑 SLOTTING
X-AEW3203	70	300	2700~3200	1200~1600	32	3~4	側銑 SIDE MILLING
X-AEW3203	70	300	2700~3200	900~1300	32	6~8	側銑 SIDE MILLING
X-AEW3203	70	300	2700~3200	700~1100	32	10~12	側銑 SIDE MILLING
X-AEW3203	90	250	2200~2700	900~1300	3~4	25~32	溝銑 SLOTTING
X-AEW3203	90	250	2200~2700	700~1100	6~8	25~32	溝銑 SLOTTING
X-AEW3203	90	250	2200~2700	500~900	10~12	25~32	溝銑 SLOTTING
X-AEW3203	90	250	2200~2700	900~1300	32	3~4	側銑 SIDE MILLING
X-AEW3203	90	250	2200~2700	700~1100	32	6~8	側銑 SIDE MILLING
X-AEW3203	90	250	2200~2700	500~900	32	10~12	側銑 SIDE MILLING
X-AEW3203	110	180	1600~2000	500~700	10~12	25~32	溝銑 SLOTTING
X-AEW3203	110	180	1600~2000	500~700	32	10~12	側銑 SIDE MILLING

X-AEWR

彩虹立銑刀頭
End Mills



精銑 Finishing

中銑 Semi-finishing

粗銑 Roughing

乾式切削 Dry Machining

油霧切削 MQL (Mist)

水溶性切削 Emulsion Machining

油性切削 Oil Machining

直徑 D1	R徑公差值 R Tolerance	直徑公差值 D1 Tolerance
8.0	+0.02 0	0 -0.02
10.0	+0.02 0	0 -0.02
12.0	+0.02 0	0 -0.02
16.0	+0.02 0	0 -0.02
20.0	+0.02 0	0 -0.03
25.0	+0.02 0	0 -0.04
32.0	+0.02 0	0 -0.04

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	R 圓鼻角 Corner R	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-AEWR0805	8.0	8.0	0.5	7.8	12.1	M 5 -3P	K08
X-AEWR0810	8.0	8.0	1.0	7.8	12.1	M 5 -3P	K08
X-AEWR1005	10.0	10.0	0.5	9.8	16.1	M 7 -3P	K10
X-AEWR1010	10.0	10.0	1.0	9.8	16.1	M 7 -3P	K10
X-AEWR1205	12.0	12.0	0.5	11.7	20.3	M 8 -3P	K12
X-AEWR1210	12.0	12.0	1.0	11.7	20.3	M 8 -3P	K12
X-AEWR1610	16.0	16.0	1.0	15.6	25.7	M10-3P	K16
X-AEWR1620	16.0	16.0	2.0	15.6	25.7	M10-3P	K16
X-AEWR1630	16.0	16.0	3.0	15.6	25.7	M10-3P	K16
X-AEWR2010	20.0	20.0	1.0	19.5	31.1	M12-3P	K20
X-AEWR2020	20.0	20.0	2.0	19.5	31.1	M12-3P	K20
X-AEWR2030	20.0	20.0	3.0	19.5	31.1	M12-3P	K20
X-AEWR2510	25.0	25.0	1.0	24.4	39.3	M16-3P	K25
X-AEWR2530	25.0	25.0	3.0	24.4	39.3	M16-3P	K25
X-AEWR3230	32.0	32.0	3.0	31.2	48.0	M20-3P	K32
X-AEWR3250	32.0	32.0	5.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-AEWR MILLING CONDITIONS

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075
冷卻方式 Coolant Type	溼式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AEWR0805	25	220	8500~9000	5000~5500	0~1.5	6~8	溝銑 SLOTTING
X-AEWR0805	25	220	8500~9000	3000~3500	2~4	6~8	溝銑 SLOTTING
X-AEWR0805	25	220	8500~9000	2000~2500	5~6	6~8	溝銑 SLOTTING
X-AEWR0805	25	220	8500~9000	5000~5500	8	0~2	側銑 SIDE MILLING
X-AEWR0805	25	220	8500~9000	3000~3500	8	3~4	側銑 SIDE MILLING
X-AEWR0805	25	220	8500~9000	1800~2300	8	5~6	側銑 SIDE MILLING
X-AEWR0805	35	200	7800~8200	4000~4500	0~1.5	6~8	溝銑 SLOTTING
X-AEWR0805	35	200	7800~8200	2500~3000	2~4	6~8	溝銑 SLOTTING
X-AEWR0805	35	200	7800~8200	1500~2000	5~6	6~8	溝銑 SLOTTING
X-AEWR0805	35	200	7800~8200	4000~4500	8	0~2	側銑 SIDE MILLING
X-AEWR0805	35	200	7800~8200	2500~3000	8	3~4	側銑 SIDE MILLING
X-AEWR0805	35	200	7800~8200	1500~2000	8	5~6	側銑 SIDE MILLING
X-AEWR0805	45	160	6000~6500	1100~1500	4~5	6~8	溝銑 SLOTTING
X-AEWR0805	45	160	6000~6500	2200~2700	8	0~1.5	側銑 SIDE MILLING
X-AEWR0805	45	160	6000~6500	1800~2300	8	2~3	側銑 SIDE MILLING
X-AEWR0805	45	160	6000~6500	1400~1800	8	3~4	側銑 SIDE MILLING
X-AEWR0810	25	220	8500~9000	4500~5000	0~1.5	6~8	溝銑 SLOTTING
X-AEWR0810	25	220	8500~9000	2700~3200	2~4	6~8	溝銑 SLOTTING
X-AEWR0810	25	220	8500~9000	1800~2300	5~6	6~8	溝銑 SLOTTING
X-AEWR0810	25	220	8500~9000	4500~5000	8	0~2	側銑 SIDE MILLING
X-AEWR0810	25	220	8500~9000	2700~3200	8	3~4	側銑 SIDE MILLING
X-AEWR0810	25	220	8500~9000	1800~2300	8	5~6	側銑 SIDE MILLING
X-AEWR0810	35	200	7800~8200	3500~4000	0~1.5	6~8	溝銑 SLOTTING
X-AEWR0810	35	200	7800~8200	2000~2500	2~4	6~8	溝銑 SLOTTING
X-AEWR0810	35	200	7800~8200	1300~1800	5~6	6~8	溝銑 SLOTTING
X-AEWR0810	35	200	7800~8200	3500~4000	8	0~2	側銑 SIDE MILLING
X-AEWR0810	35	200	7800~8200	2000~2500	8	3~4	側銑 SIDE MILLING
X-AEWR0810	35	200	7800~8200	1300~1800	8	5~6	側銑 SIDE MILLING
X-AEWR0810	45	160	6000~6500	1000~1400	4~5	6~8	溝銑 SLOTTING
X-AEWR0810	45	160	6000~6500	2000~2500	8	0~1.5	側銑 SIDE MILLING
X-AEWR0810	45	160	6000~6500	1500~1900	8	2~3	側銑 SIDE MILLING
X-AEWR0810	45	160	6000~6500	1200~1600	8	3~4	側銑 SIDE MILLING
X-AEWR1005	30	250	7800~8300	4000~4500	0~2	8~10	溝銑 SLOTTING
X-AEWR1005	30	250	7800~8300	3000~3500	3~5	8~10	溝銑 SLOTTING
X-AEWR1005	30	250	7800~8300	2000~2500	6~8	8~10	溝銑 SLOTTING
X-AEWR1005	30	250	7800~8300	4000~4500	10	0~2	側銑 SIDE MILLING
X-AEWR1005	30	250	7800~8300	3000~3500	10	3~5	側銑 SIDE MILLING
X-AEWR1005	30	250	7800~8300	1800~2300	10	6~8	側銑 SIDE MILLING
X-AEWR1005	40	250	7800~8300	3500~4000	0~2	8~10	溝銑 SLOTTING
X-AEWR1005	40	250	7800~8300	3000~3500	3~5	8~10	溝銑 SLOTTING
X-AEWR1005	40	250	7800~8300	2000~2500	6~8	8~10	溝銑 SLOTTING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AEWR1005	40	250	7800~8300	3500~4000	10	0~2	側銑 SIDE MILLING
X-AEWR1005	40	250	7800~8300	3000~3500	10	3~5	側銑 SIDE MILLING
X-AEWR1005	40	250	7800~8300	1800~2300	10	6~8	側銑 SIDE MILLING
X-AEWR1005	50	140	4300~4800	1800~2300	5~7	8~10	溝銑 SLOTTING
X-AEWR1005	50	240	7300~7800	3000~3500	10	0~2	側銑 SIDE MILLING
X-AEWR1005	50	175	5300~5800	2500~3000	10	2~4	側銑 SIDE MILLING
X-AEWR1005	50	175	5300~5800	1800~2300	10	6~7	側銑 SIDE MILLING
X-AEWR1010	30	250	7800~8300	4000~4500	0~2	7~10	溝銑 SLOTTING
X-AEWR1010	30	250	7800~8300	3000~3500	3~5	7~10	溝銑 SLOTTING
X-AEWR1010	30	250	7800~8300	2000~2500	6~8	7~10	溝銑 SLOTTING
X-AEWR1010	30	250	7800~8300	4000~4500	10	0~2	側銑 SIDE MILLING
X-AEWR1010	30	250	7800~8300	3000~3500	10	3~5	側銑 SIDE MILLING
X-AEWR1010	30	250	7800~8300	1800~2300	10	6~8	側銑 SIDE MILLING
X-AEWR1010	40	250	7800~8300	3000~3500	0~2	7~10	溝銑 SLOTTING
X-AEWR1010	40	250	7800~8300	2500~3000	3~5	7~10	溝銑 SLOTTING
X-AEWR1010	40	250	7800~8300	1600~2000	6~8	7~10	溝銑 SLOTTING
X-AEWR1010	40	250	7800~8300	3000~3500	10	0~2	側銑 SIDE MILLING
X-AEWR1010	40	250	7800~8300	2500~3000	10	3~5	側銑 SIDE MILLING
X-AEWR1010	40	250	7800~8300	1600~2000	10	6~8	側銑 SIDE MILLING
X-AEWR1010	50	140	4300~4800	1600~2000	5~7	7~10	溝銑 SLOTTING
X-AEWR1010	50	240	7300~7800	2500~3000	10	0~2	側銑 SIDE MILLING
X-AEWR1010	50	175	5300~5800	2000~2500	10	2~4	側銑 SIDE MILLING
X-AEWR1010	50	175	5300~5800	1600~2000	10	6~7	側銑 SIDE MILLING
X-AEWR1205	30	345	9000~9500	4500~5000	0~2	10~12	溝銑 SLOTTING
X-AEWR1205	30	345	9000~9500	3000~3500	4~6	10~12	溝銑 SLOTTING
X-AEWR1205	30	345	9000~9500	2700~3200	8~9	10~12	溝銑 SLOTTING
X-AEWR1205	30	345	9000~9500	4500~5000	12	0~2	側銑 SIDE MILLING
X-AEWR1205	30	345	9000~9500	3000~3500	12	4~6	側銑 SIDE MILLING
X-AEWR1205	30	345	9000~9500	2700~3200	12	8~9	側銑 SIDE MILLING
X-AEWR1205	40	290	7500~8000	4000~4500	0~2	10~12	溝銑 SLOTTING
X-AEWR1205	40	290	7500~8000	2500~3000	4~6	10~12	溝銑 SLOTTING
X-AEWR1205	40	290	7500~8000	2000~2500	7~8	10~12	溝銑 SLOTTING
X-AEWR1205	40	290	7500~8000	4000~4500	12	0~2	側銑 SIDE MILLING
X-AEWR1205	40	290	7500~8000	2500~3000	12	4~6	側銑 SIDE MILLING
X-AEWR1205	40	290	7500~8000	2000~2500	12	7~8	側銑 SIDE MILLING
X-AEWR1205	50	180	4500~5000	1700~2200	6~8	12	溝銑 SLOTTING
X-AEWR1205	50	255	6500~7000	4000~4500	12	0~2	側銑 SIDE MILLING
X-AEWR1205	50	255	6500~7000	3000~3500	12	3~4	側銑 SIDE MILLING
X-AEWR1205	50	235	6000~6500	1700~2200	12	7~8	側銑 SIDE MILLING
X-AEWR1205	60	105	2500~3000	1200~1600	6	12	溝銑 SLOTTING
X-AEWR1205	60	135	3300~3800	2000~2500	12	0~2	側銑 SIDE MILLING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AEWR1205	60	135	3300~3800	1600~2000	12	5~6	側銑 SIDE MILLING
X-AEWR1205	60	105	2500~3000	1200~1600	12	7~8	側銑 SIDE MILLING
X-AEWR1210	30	345	9000~9500	4500~5000	0~2	10~12	溝銑 SLOTTING
X-AEWR1210	30	345	9000~9500	3000~3500	4~6	10~12	溝銑 SLOTTING
X-AEWR1210	30	345	9000~9500	2700~3200	8~9	10~12	溝銑 SLOTTING
X-AEWR1210	30	345	9000~9500	4500~5000	12	0~2	側銑 SIDE MILLING
X-AEWR1210	30	345	9000~9500	3000~3500	12	4~6	側銑 SIDE MILLING
X-AEWR1210	30	345	9000~9500	2700~3200	12	8~9	側銑 SIDE MILLING
X-AEWR1210	40	290	7500~8000	4000~4500	0~2	10~12	溝銑 SLOTTING
X-AEWR1210	40	290	7500~8000	2500~3000	4~6	10~12	溝銑 SLOTTING
X-AEWR1210	40	290	7500~8000	2000~2500	7~8	10~12	溝銑 SLOTTING
X-AEWR1210	40	290	7500~8000	4000~4500	12	0~2	側銑 SIDE MILLING
X-AEWR1210	40	290	7500~8000	2500~3000	12	4~6	側銑 SIDE MILLING
X-AEWR1210	40	290	7500~8000	2000~2500	12	7~8	側銑 SIDE MILLING
X-AEWR1210	50	180	4500~5000	1500~2000	6~8	12	溝銑 SLOTTING
X-AEWR1210	50	255	6500~7000	3500~4000	12	0~2	側銑 SIDE MILLING
X-AEWR1210	50	255	6500~7000	2500~3000	12	3~4	側銑 SIDE MILLING
X-AEWR1210	50	235	6000~6500	1500~2000	12	7~8	側銑 SIDE MILLING
X-AEWR1210	60	105	2500~3000	1000~1400	6	12	溝銑 SLOTTING
X-AEWR1210	60	135	3300~3800	1700~2200	12	0~2	側銑 SIDE MILLING
X-AEWR1210	60	135	3300~3800	1400~1800	12	5~6	側銑 SIDE MILLING
X-AEWR1210	60	105	2500~3000	1000~1400	12	7~8	側銑 SIDE MILLING
X-AEWR1610	55	340	6500~7000	2000~2500	3~4	14~16	溝銑 SLOTTING
X-AEWR1610	55	340	6500~7000	1200~1700	6~8	14~16	溝銑 SLOTTING
X-AEWR1610	55	340	6500~7000	1100~1600	9~10	14~16	溝銑 SLOTTING
X-AEWR1610	55	340	6500~7000	3200~3700	16	0~2	側銑 SIDE MILLING
X-AEWR1610	55	340	6500~7000	2000~2500	16	6~8	側銑 SIDE MILLING
X-AEWR1610	55	340	6500~7000	1400~1900	16	9~10	側銑 SIDE MILLING
X-AEWR1610	80	260	5000~5500	1100~1500	8~9	14~16	溝銑 SLOTTING
X-AEWR1610	80	260	5000~5500	2500~3000	16	0~2	側銑 SIDE MILLING
X-AEWR1610	80	260	5000~5500	1700~2200	16	5~6	側銑 SIDE MILLING
X-AEWR1610	80	260	5000~5500	1100~1500	16	8~9	側銑 SIDE MILLING
X-AEWR1620	55	340	6500~7000	1800~2300	3~4	14~16	溝銑 SLOTTING
X-AEWR1620	55	340	6500~7000	1000~1500	6~8	14~16	溝銑 SLOTTING
X-AEWR1620	55	340	6500~7000	1000~1400	9~10	14~16	溝銑 SLOTTING
X-AEWR1620	55	340	6500~7000	2800~3300	16	0~2	側銑 SIDE MILLING
X-AEWR1620	55	340	6500~7000	1800~2300	16	6~8	側銑 SIDE MILLING
X-AEWR1620	55	340	6500~7000	1200~1700	16	9~10	側銑 SIDE MILLING
X-AEWR1620	80	260	5000~5500	1000~1400	8~9	14~16	溝銑 SLOTTING
X-AEWR1620	80	260	5000~5500	2200~2600	16	0~2	側銑 SIDE MILLING
X-AEWR1620	80	260	5000~5500	1500~2000	16	5~6	側銑 SIDE MILLING

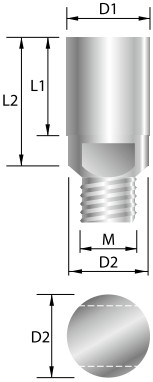
被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AEWR1620	80	260	5000~5500	1000~1400	16	8~9	側銑 SIDE MILLING
X-AEWR1630	55	340	6500~7000	1600~2000	3~4	14~16	溝銑 SLOTTING
X-AEWR1630	55	340	6500~7000	900~1300	6~8	14~16	溝銑 SLOTTING
X-AEWR1630	55	340	6500~7000	800~1100	9~10	14~16	溝銑 SLOTTING
X-AEWR1630	55	340	6500~7000	2300~2700	16	0~2	側銑 SIDE MILLING
X-AEWR1630	55	340	6500~7000	1600~2000	16	6~8	側銑 SIDE MILLING
X-AEWR1630	55	340	6500~7000	1000~1400	16	9~10	側銑 SIDE MILLING
X-AEWR1630	80	260	5000~5500	800~1100	8~9	14~16	溝銑 SLOTTING
X-AEWR1630	80	260	5000~5500	1800~2300	16	0~2	側銑 SIDE MILLING
X-AEWR1630	80	260	5000~5500	1300~1700	16	5~6	側銑 SIDE MILLING
X-AEWR1630	80	260	5000~5500	800~1100	16	8~9	側銑 SIDE MILLING
X-AEWR2010	60	315	4800~5300	1700~2200	3~4	18~20	溝銑 SLOTTING
X-AEWR2010	60	315	4800~5300	1000~1400	6~8	18~20	溝銑 SLOTTING
X-AEWR2010	60	315	4800~5300	900~1200	9~10	18~20	溝銑 SLOTTING
X-AEWR2010	60	315	4800~5300	2500~3000	20	0~2	側銑 SIDE MILLING
X-AEWR2010	60	315	4800~5300	1600~2000	20	6~8	側銑 SIDE MILLING
X-AEWR2010	60	315	4800~5300	1100~1500	20	9~10	側銑 SIDE MILLING
X-AEWR2010	90	205	3000~3500	700~1000	9~10	18~20	溝銑 SLOTTING
X-AEWR2010	90	205	3000~3500	1700~2200	20	0~2	側銑 SIDE MILLING
X-AEWR2010	90	205	3000~3500	1100~1500	20	6~8	側銑 SIDE MILLING
X-AEWR2010	90	205	3000~3500	800~1100	20	9~10	側銑 SIDE MILLING
X-AEWR2020	60	315	4800~5300	1700~2200	3~4	18~20	溝銑 SLOTTING
X-AEWR2020	60	315	4800~5300	1000~1400	6~8	18~20	溝銑 SLOTTING
X-AEWR2020	60	315	4800~5300	900~1200	9~10	18~20	溝銑 SLOTTING
X-AEWR2020	60	315	4800~5300	2500~3000	20	0~2	側銑 SIDE MILLING
X-AEWR2020	60	315	4800~5300	1600~2000	20	6~8	側銑 SIDE MILLING
X-AEWR2020	60	315	4800~5300	1100~1500	20	9~10	側銑 SIDE MILLING
X-AEWR2020	90	205	3000~3500	700~1000	9~10	18~20	溝銑 SLOTTING
X-AEWR2020	90	205	3000~3500	1700~2200	20	0~2	側銑 SIDE MILLING
X-AEWR2020	90	205	3000~3500	1100~1500	20	6~8	側銑 SIDE MILLING
X-AEWR2020	90	205	3000~3500	800~1100	20	9~10	側銑 SIDE MILLING
X-AEWR2030	60	315	4800~5300	1500~2000	3~4	18~20	溝銑 SLOTTING
X-AEWR2030	60	315	4800~5300	900~1300	6~8	18~20	溝銑 SLOTTING
X-AEWR2030	60	315	4800~5300	700~1000	9~10	18~20	溝銑 SLOTTING
X-AEWR2030	60	315	4800~5300	2200~2700	20	0~2	側銑 SIDE MILLING
X-AEWR2030	60	315	4800~5300	1200~1600	20	6~8	側銑 SIDE MILLING
X-AEWR2030	60	315	4800~5300	900~1300	20	9~10	側銑 SIDE MILLING
X-AEWR2030	90	205	3000~3500	600~900	9~10	18~20	溝銑 SLOTTING
X-AEWR2030	90	205	3000~3500	1500~2000	20	0~2	側銑 SIDE MILLING
X-AEWR2030	90	205	3000~3500	900~1300	20	6~8	側銑 SIDE MILLING
X-AEWR2030	90	205	3000~3500	700~1000	20	9~10	側銑 SIDE MILLING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AEWR2510	60	340	4000~4500	1600~2000	3~4	20~25	溝銑 SLOTTING
X-AEWR2510	60	340	4000~4500	1200~1600	6~8	20~25	溝銑 SLOTTING
X-AEWR2510	60	340	4000~4500	1000~1400	10~12	20~25	溝銑 SLOTTING
X-AEWR2510	60	340	4000~4500	1600~2000	25	3~4	側銑 SIDE MILLING
X-AEWR2510	60	340	4000~4500	1200~1600	25	6~8	側銑 SIDE MILLING
X-AEWR2510	60	340	4000~4500	1000~1400	25	10~12	側銑 SIDE MILLING
X-AEWR2510	100	180	2000~2500	600~1000	10~12	20~25	溝銑 SLOTTING
X-AEWR2510	100	180	2000~2500	1200~1600	25	3~4	側銑 SIDE MILLING
X-AEWR2510	100	180	2000~2500	900~1300	25	6~8	側銑 SIDE MILLING
X-AEWR2510	100	180	2000~2500	600~1000	25	10~12	側銑 SIDE MILLING
X-AEWR2530	60	340	4000~4500	1600~2000	3~4	20~25	溝銑 SLOTTING
X-AEWR2530	60	340	4000~4500	1200~1600	6~8	20~25	溝銑 SLOTTING
X-AEWR2530	60	340	4000~4500	1000~1400	10~12	20~25	溝銑 SLOTTING
X-AEWR2530	60	340	4000~4500	1600~2000	25	3~4	側銑 SIDE MILLING
X-AEWR2530	60	340	4000~4500	1200~1600	25	6~8	側銑 SIDE MILLING
X-AEWR2530	60	340	4000~4500	1000~1400	25	10~12	側銑 SIDE MILLING
X-AEWR2530	100	180	2000~2500	600~900	10~12	20~25	溝銑 SLOTTING
X-AEWR2530	100	180	2000~2500	1100~1400	25	3~4	側銑 SIDE MILLING
X-AEWR2530	100	180	2000~2500	800~1100	25	6~8	側銑 SIDE MILLING
X-AEWR2530	100	180	2000~2500	600~900	25	10~12	側銑 SIDE MILLING
X-AEWR3230	70	300	2700~3200	1200~1600	3~4	25~32	溝銑 SLOTTING
X-AEWR3230	70	300	2700~3200	900~1300	6~8	25~32	溝銑 SLOTTING
X-AEWR3230	70	300	2700~3200	700~1100	10~12	25~32	溝銑 SLOTTING
X-AEWR3230	70	300	2700~3200	1200~1600	32	3~4	側銑 SIDE MILLING
X-AEWR3230	70	300	2700~3200	900~1300	32	6~8	側銑 SIDE MILLING
X-AEWR3230	70	300	2700~3200	700~1100	32	10~12	側銑 SIDE MILLING
X-AEWR3230	110	180	1600~2000	400~600	10~12	25~32	溝銑 SLOTTING
X-AEWR3230	110	180	1600~2000	800~1100	32	3~4	側銑 SIDE MILLING
X-AEWR3230	110	180	1600~2000	600~900	32	6~8	側銑 SIDE MILLING
X-AEWR3230	110	180	1600~2000	400~600	32	10~12	側銑 SIDE MILLING
X-AEWR3250	70	300	2700~3200	1200~1600	3~4	25~32	溝銑 SLOTTING
X-AEWR3250	70	300	2700~3200	900~1300	6~8	25~32	溝銑 SLOTTING
X-AEWR3250	70	300	2700~3200	700~1100	10~12	25~32	溝銑 SLOTTING
X-AEWR3250	70	300	2700~3200	1200~1600	32	3~4	側銑 SIDE MILLING
X-AEWR3250	70	300	2700~3200	900~1300	32	6~8	側銑 SIDE MILLING
X-AEWR3250	70	300	2700~3200	700~1100	32	10~12	側銑 SIDE MILLING
X-AEWR3250	110	180	1600~2000	300~500	10~12	25~32	溝銑 SLOTTING
X-AEWR3250	110	180	1600~2000	700~1000	32	3~4	側銑 SIDE MILLING
X-AEWR3250	110	180	1600~2000	500~800	32	6~8	側銑 SIDE MILLING
X-AEWR3250	110	180	1600~2000	400~600	32	10~12	側銑 SIDE MILLING

X-AES

高效能鋁用立銑刀頭
End Mills

Super MG | 0.4 μm | 40° | 3 Flutes



- 精銑 Finishing
- 中銑 Semi-finishing
- 粗銑 Roughing

- 乾式切削 Dry Machining
- 油霧切削 MQL (Mist)
- 水溶性切削 Emulsion Machining
- 油性切削 Oil Machining

直徑 D1	直徑公差值 D1 Tolerance
8.0	$^{0}_{-0.02}$
10.0	$^{0}_{-0.02}$
12.0	$^{0}_{-0.02}$
16.0	$^{0}_{-0.02}$
20.0	$^{0}_{-0.03}$
25.0	$^{0}_{-0.04}$
32.0	$^{0}_{-0.04}$

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-AES0803	8.0	8.0	7.8	12.1	M 5 -3P	K08
X-AES1003	10.0	10.0	9.8	16.1	M 7 -3P	K10
X-AES1203	12.0	12.0	11.7	20.3	M 8 -3P	K12
X-AES1603	16.0	16.0	15.6	25.7	M10-3P	K16
X-AES2003	20.0	20.0	19.5	31.1	M12-3P	K20
X-AES2503	25.0	25.0	24.4	39.3	M16-3P	K25
X-AES3203	32.0	32.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-AES MILLING CONDITIONS

被切削材 Work Material	鋁合金 *Aluminum Alloy* : **5052 / 6061 / 7075**
冷卻方式 Coolant Type	溼式切削 Wet coolant

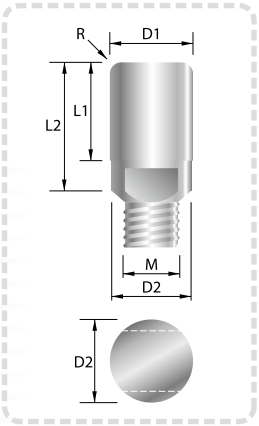
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AES0803	25	215	8500~9000	1800~2300	0.05~0.15	6~8	溝銑 SLOTTING
X-AES0803	25	215	8500~9000	3500~4000	2~4	6~8	溝銑 SLOTTING
X-AES0803	25	215	8500~9000	2500~3000	4~7	6~8	溝銑 SLOTTING
X-AES0803	25	215	8500~9000	1800~2300	8	0.05~0.15	側銑 SIDE MILLING
X-AES0803	25	215	8500~9000	2500~3000	8	4~7	側銑 SIDE MILLING
X-AES0803	40	180	7000~7500	1400~1800	0.05~0.15	6~8	溝銑 SLOTTING
X-AES0803	40	180	7000~7500	2200~2600	1.5~2.5	6~8	溝銑 SLOTTING
X-AES0803	40	180	7000~7500	1400~1800	3~4	6~8	溝銑 SLOTTING
X-AES0803	40	180	7000~7500	1400~1800	8	0.05~0.15	側銑 SIDE MILLING
X-AES0803	40	180	7000~7500	1400~1800	8	3~4	側銑 SIDE MILLING
X-AES0803	50	160	6000~6500	1200~1600	0.05~0.15	6~8	溝銑 SLOTTING
X-AES0803	50	160	6000~6500	1800~2200	1~1.5	6~8	溝銑 SLOTTING
X-AES0803	50	160	6000~6500	1200~1600	2~3	6~8	溝銑 SLOTTING
X-AES0803	50	160	6000~6500	1200~1600	8	0.05~0.15	側銑 SIDE MILLING
X-AES0803	50	160	6000~6500	1200~1600	8	2~3	側銑 SIDE MILLING
X-AES1003	30	300	9000~10000	2200~2600	0.05~0.1	8~10	溝銑 SLOTTING
X-AES1003	30	300	9000~10000	4000~4500	1~2	10	溝銑 SLOTTING
X-AES1003	30	225	7000~7500	2600~3000	5~8	10	溝銑 SLOTTING
X-AES1003	30	300	9000~10000	1800~2200	10	0.05~0.1	側銑 SIDE MILLING
X-AES1003	30	225	7000~7500	2600~3000	10	7~9	側銑 SIDE MILLING
X-AES1003	45	300	9000~10000	2000~2400	0.05~0.1	8~10	溝銑 SLOTTING
X-AES1003	45	260	8000~8500	3000~3500	0~1.5	10	溝銑 SLOTTING
X-AES1003	45	200	6200~6700	2000~2400	5~8	10	溝銑 SLOTTING
X-AES1003	45	300	9000~10000	1800~2200	10	0.05~0.1	側銑 SIDE MILLING
X-AES1003	45	200	6200~6700	2000~2400	10	7~9	側銑 SIDE MILLING
X-AES1003	60	260	8000~8500	1600~2000	0.05~0.1	8~10	溝銑 SLOTTING
X-AES1003	60	170	5200~5600	2200~2600	1~2	10	溝銑 SLOTTING
X-AES1003	60	130	4000~4500	1400~1800	4~5	10	溝銑 SLOTTING
X-AES1003	60	260	8000~8500	1400~1800	10	0.05~0.1	側銑 SIDE MILLING
X-AES1003	60	130	4000~4500	1400~1800	10	4~5	側銑 SIDE MILLING
X-AES1203	30	355	9000~10000	2200~2600	0.05~0.1	10~12	溝銑 SLOTTING
X-AES1203	30	330	8500~9000	4000~4500	1~2	12	溝銑 SLOTTING
X-AES1203	30	300	7800~8300	2600~3000	6~10	12	溝銑 SLOTTING
X-AES1203	30	355	9000~10000	2000~2400	12	0.05~0.1	側銑 SIDE MILLING
X-AES1203	30	300	7800~8300	2200~2600	12	6~10	側銑 SIDE MILLING
X-AES1203	50	300	7800~8300	2100~2300	0.05~0.1	10~12	溝銑 SLOTTING
X-AES1203	50	225	5800~6300	2800~3200	1~1.5	12	溝銑 SLOTTING
X-AES1203	50	180	4600~5100	1800~2200	3~5	12	溝銑 SLOTTING
X-AES1203	50	300	7800~8300	1800~2200	12	0.05~0.1	側銑 SIDE MILLING
X-AES1203	50	225	5800~6300	1600~2000	12	4~6	側銑 SIDE MILLING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AES1203	70	245	6300~6800	1600~2000	0.05~0.1	10	溝銑 SLOTTING
X-AES1203	70	160	4000~4500	2000~2400	0.5~1	12	溝銑 SLOTTING
X-AES1203	70	115	2700~3200	1400~1800	1~2	12	溝銑 SLOTTING
X-AES1203	70	245	6300~6800	1400~1800	12	0.05~0.1	側銑 SIDE MILLING
X-AES1203	70	115	2700~3200	1000~1400	12	2	側銑 SIDE MILLING
X-AES1603	50	355	7000~7500	1600~2000	0.05~0.2	14~16	溝銑 SLOTTING
X-AES1603	50	320	6000~6500	4000~4500	1~2	14~16	溝銑 SLOTTING
X-AES1603	50	320	6000~6500	2500~3000	4~6	14~16	溝銑 SLOTTING
X-AES1603	50	320	6000~6500	1200~1600	16	0.05~0.2	側銑 SIDE MILLING
X-AES1603	50	320	6000~6500	2500~3000	16	4~6	側銑 SIDE MILLING
X-AES1603	70	320	6000~6500	1400~1800	0.05~0.2	14~16	溝銑 SLOTTING
X-AES1603	70	290	5500~6000	3000~3500	1~2	14~16	溝銑 SLOTTING
X-AES1603	70	290	5500~6000	2000~2500	2~4	14~16	溝銑 SLOTTING
X-AES1603	70	290	5500~6000	1200~1600	16	0.05~0.2	側銑 SIDE MILLING
X-AES1603	70	290	5500~6000	2200~2700	16	2~4	側銑 SIDE MILLING
X-AES1603	90	320	6000~6500	1200~1600	0.05~0.2	14~16	溝銑 SLOTTING
X-AES1603	90	260	5000~5500	2000~2500	1~1.5	14~16	溝銑 SLOTTING
X-AES1603	90	260	5000~5500	1200~1600	2~3	14~16	溝銑 SLOTTING
X-AES1603	90	260	5000~5500	1000~1400	16	0.05~0.2	側銑 SIDE MILLING
X-AES1603	90	260	5000~5500	1200~1600	16	2~3	側銑 SIDE MILLING
X-AES2003	60	355	5500~6000	1400~1800	0.05~0.2	18~20	溝銑 SLOTTING
X-AES2003	60	315	5000~5400	3500~4000	1~2	18~20	溝銑 SLOTTING
X-AES2003	60	315	5000~5400	2000~2500	4~6	18~20	溝銑 SLOTTING
X-AES2003	60	315	5000~5400	1200~1600	20	0.05~0.2	側銑 SIDE MILLING
X-AES2003	60	315	5000~5400	2000~2500	20	4~6	側銑 SIDE MILLING
X-AES2003	80	315	5000~5400	1400~1600	0.05~0.2	18~20	溝銑 SLOTTING
X-AES2003	80	265	4000~4500	2500~3000	1~1.5	18~20	溝銑 SLOTTING
X-AES2003	80	265	4000~4500	1500~2000	3~4	18~20	溝銑 SLOTTING
X-AES2003	80	265	4000~4500	1200~1600	20	0.05~0.2	側銑 SIDE MILLING
X-AES2003	80	265	4000~4500	1500~2000	20	3~4	側銑 SIDE MILLING
X-AES2003	100	265	4000~4500	1100~1300	0.05~0.2	18~20	溝銑 SLOTTING
X-AES2003	100	200	3000~3400	1800~2200	1~1.5	18~20	溝銑 SLOTTING
X-AES2003	100	200	3000~3400	1200~1600	2~3	18~20	溝銑 SLOTTING
X-AES2003	100	200	3000~3400	1100~1300	20	0.05~0.2	側銑 SIDE MILLING
X-AES2003	100	200	3000~3400	1200~1600	20	2~3	側銑 SIDE MILLING
X-AES2503	60	355	4300~4700	1200~1600	0.05~0.1	23~25	溝銑 SLOTTING
X-AES2503	60	315	3800~4300	1800~2200	2~3	25	溝銑 SLOTTING
X-AES2503	60	315	3800~4300	1200~1600	5~6	25	溝銑 SLOTTING
X-AES2503	60	315	3800~4300	1000~1400	25	0.05~0.1	側銑 SIDE MILLING
X-AES2503	60	315	3800~4300	1200~1600	25	5~6	側銑 SIDE MILLING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : **5052 / 6061 / 7075**						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AES2503	90	315	3800~4300	1000~1300	0.05~0.1	23~25	溝銑 SLOTTING
X-AES2503	90	265	3200~3600	1400~1600	1.5~2.5	25	溝銑 SLOTTING
X-AES2503	90	265	3200~3600	1000~1300	4~5	25	溝銑 SLOTTING
X-AES2503	90	265	3200~3600	1000~1300	25	0.05~0.1	側銑 SIDE MILLING
X-AES2503	90	265	3200~3600	1200~1600	25	4~5	側銑 SIDE MILLING
X-AES2503	120	265	3200~3600	800~1000	0.05~0.1	23~25	溝銑 SLOTTING
X-AES2503	120	200	2400~2800	1400~1600	1~2	25	溝銑 SLOTTING
X-AES2503	120	200	2400~2800	1000~1300	3~4	25	溝銑 SLOTTING
X-AES2503	120	200	2400~2800	800~1200	25	0.05~0.1	側銑 SIDE MILLING
X-AES2503	120	200	2400~2800	1000~1300	25	3~4	側銑 SIDE MILLING
X-AES3203	70	355	3400~3800	1000~1200	0.05~0.1	30~32	溝銑 SLOTTING
X-AES3203	70	315	3000~3400	1300~1600	2~3	32	溝銑 SLOTTING
X-AES3203	70	315	3000~3400	900~1200	5~6	32	溝銑 SLOTTING
X-AES3203	70	315	3000~3400	700~1000	32	0.05~0.2	側銑 SIDE MILLING
X-AES3203	70	315	3000~3400	900~1200	32	5~6	側銑 SIDE MILLING
X-AES3203	100	315	3000~3400	800~1000	0.05~0.1	30~32	溝銑 SLOTTING
X-AES3203	100	265	2500~2900	1100~1400	2~3	32	溝銑 SLOTTING
X-AES3203	100	265	2500~2900	800~1100	4~5	32	溝銑 SLOTTING
X-AES3203	100	265	2500~2900	600~900	32	0.05~0.2	側銑 SIDE MILLING
X-AES3203	100	265	2500~2900	800~1100	32	4~5	側銑 SIDE MILLING
X-AES3203	130	265	2500~2900	600~800	0.05~0.1	30~32	溝銑 SLOTTING
X-AES3203	130	200	1800~2200	1000~1300	1~2	32	溝銑 SLOTTING
X-AES3203	130	200	1800~2200	700~1000	3~4	32	溝銑 SLOTTING
X-AES3203	130	200	1800~2200	600~800	32	0.05~0.2	側銑 SIDE MILLING
X-AES3203	130	200	1800~2200	700~1000	32	3~4	側銑 SIDE MILLING

X-AESR

高效能鋁用立銑刀頭
End Mills



精銑 Finishing
中銑 Semi-finishing
粗銑 Roughing

乾式切削 Dry Machining
油霧切削 MQL (Mist)
水溶性切削 Emulsion Machining
油性切削 Oil Machining

直徑 D1	R徑公差值 R Tolerance	直徑公差值 D1 Tolerance
8.0	+0.02 0	0 -0.02
10.0	+0.02 0	0 -0.02
12.0	+0.02 0	0 -0.02
16.0	+0.02 0	0 -0.02
20.0	+0.02 0	0 -0.02
25.0	+0.02 0	0 -0.03
32.0	+0.02 0	0 -0.04

unit : mm

型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	R 圓鼻角 Corner R	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-AESR0805	8.0	8.0	0.5	7.8	12.1	M 5 -3P	K08
X-AESR0810	8.0	8.0	1.0	7.8	12.1	M 5 -3P	K08
X-AESR1005	10.0	10.0	0.5	9.8	16.1	M 7 -3P	K10
X-AESR1010	10.0	10.0	1.0	9.8	16.1	M 7 -3P	K10
X-AESR1205	12.0	12.0	0.5	11.7	20.3	M 8 -3P	K12
X-AESR1210	12.0	12.0	1.0	11.7	20.3	M 8 -3P	K12
X-AESR1605	16.0	16.0	0.5	15.6	25.7	M10-3P	K16
X-AESR1610	16.0	16.0	1.0	15.6	25.7	M10-3P	K16
X-AESR1630	16.0	16.0	3.0	15.6	25.7	M10-3P	K16
X-AESR2005	20.0	20.0	0.5	19.5	31.1	M12-3P	K20
X-AESR2010	20.0	20.0	1.0	19.5	31.1	M12-3P	K20
X-AESR2030	20.0	20.0	3.0	19.5	31.1	M12-3P	K20
X-AESR2530	25.0	25.0	3.0	24.4	39.3	M16-3P	K25
X-AESR3230	32.0	32.0	3.0	31.2	48.0	M20-3P	K32
X-AESR3250	32.0	32.0	5.0	31.2	48.0	M20-3P	K32

unit : mm

切削條件表 X-AESR MILLING CONDITIONS

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075
冷卻方式 Coolant Type	溼式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AESR0805	25	250	10000	1600~2000	0.05~0.1	6~8	溝銑 SLOTTING
X-AESR0805	25	225	9000	4000~4500	0~1.5	6~8	溝銑 SLOTTING
X-AESR0805	25	225	9000	2000~2500	6~8	6~8	溝銑 SLOTTING
X-AESR0805	25	250	10000	1600~2000	8	0.05~0.1	側銑 SIDE MILLING
X-AESR0805	25	225	9000	2000~2500	8	6~8	側銑 SIDE MILLING
X-AESR0805	35	225	9000	1400~1800	0.05~0.1	6~8	溝銑 SLOTTING
X-AESR0805	35	200	8000	3500~4000	0~1.5	6~8	溝銑 SLOTTING
X-AESR0805	35	200	8000	2000~2500	4~5	6~8	溝銑 SLOTTING
X-AESR0805	35	225	9000	1400~1800	8	0.05~0.1	側銑 SIDE MILLING
X-AESR0805	35	200	8000	2000~2500	8	4~5	側銑 SIDE MILLING
X-AESR0805	45	200	8000	1300~1700	0.05~0.1	6~8	溝銑 SLOTTING
X-AESR0805	45	175	7000	3000~3500	0~1.5	6~8	溝銑 SLOTTING
X-AESR0805	45	175	7000	1800~2300	3~4	6~8	溝銑 SLOTTING
X-AESR0805	45	200	8000	1300~1700	8	0.05~0.1	側銑 SIDE MILLING
X-AESR0805	45	175	7000	1800~2300	8	3~4	側銑 SIDE MILLING
X-AESR0810	25	250	10000	1600~2000	0.05~0.1	5~8	溝銑 SLOTTING
X-AESR0810	25	225	9000	4000~4500	0~1.5	5~8	溝銑 SLOTTING
X-AESR0810	25	225	9000	2000~2500	6~8	5~8	溝銑 SLOTTING
X-AESR0810	25	250	10000	1600~2000	8	0.05~0.1	側銑 SIDE MILLING
X-AESR0810	25	225	9000	2000~2500	8	6~8	側銑 SIDE MILLING
X-AESR0810	35	225	9000	1400~1800	0.05~0.1	5~8	溝銑 SLOTTING
X-AESR0810	35	200	8000	3000~3500	0~1.5	5~8	溝銑 SLOTTING
X-AESR0810	35	200	8000	2000~2500	4~5	5~8	溝銑 SLOTTING
X-AESR0810	35	225	9000	1400~1800	8	0.05~0.1	側銑 SIDE MILLING
X-AESR0810	35	200	8000	2000~2500	8	4~5	側銑 SIDE MILLING
X-AESR0810	45	200	8000	1300~1700	0.05~0.1	5~8	溝銑 SLOTTING
X-AESR0810	45	175	7000	2500~3000	0~1.5	5~8	溝銑 SLOTTING
X-AESR0810	45	175	7000	1700~2200	3~4	5~8	溝銑 SLOTTING
X-AESR0810	45	200	8000	1300~1700	8	0.05~0.1	側銑 SIDE MILLING
X-AESR0810	45	175	7000	1700~2200	8	3~4	側銑 SIDE MILLING
X-AESR1005	30	315	10000	1600~2000	0.05~0.15	8~10	溝銑 SLOTTING
X-AESR1005	30	280	9000	4000~4500	0~2	8~10	溝銑 SLOTTING
X-AESR1005	30	220	7000	1700~2200	5~6	8~10	溝銑 SLOTTING
X-AESR1005	30	280	9000	1400~1800	10	0.05~0.15	側銑 SIDE MILLING
X-AESR1005	30	220	7000	1700~2200	10	5~6	側銑 SIDE MILLING
X-AESR1005	40	315	10000	1600~2000	0.05~0.15	8~10	溝銑 SLOTTING
X-AESR1005	40	250	8000	3500~4000	0~2	8~10	溝銑 SLOTTING
X-AESR1005	40	190	6000	1700~2200	4~5	8~10	溝銑 SLOTTING
X-AESR1005	40	250	8000	1300~1700	10	0.05~0.15	側銑 SIDE MILLING
X-AESR1005	40	190	6000	1700~2200	10	4~5	側銑 SIDE MILLING
X-AESR1005	50	315	10000	1600~2000	0.05~0.15	8~10	溝銑 SLOTTING
X-AESR1005	50	220	7000	3000~3500	0~2	8~10	溝銑 SLOTTING
X-AESR1005	50	140	4500	1500~2000	3~4	8~10	溝銑 SLOTTING
X-AESR1005	50	220	7000	1200~1600	10	0.05~0.15	側銑 SIDE MILLING
X-AESR1005	50	140	4500	1500~2000	10	3~4	側銑 SIDE MILLING
X-AESR1010	30	315	10000	1600~2000	0.05~0.15	7~10	溝銑 SLOTTING
X-AESR1010	30	280	9000	4000~4500	0~2	7~10	溝銑 SLOTTING
X-AESR1010	30	220	7000	1700~2200	5~6	7~10	溝銑 SLOTTING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AESR1010	30	280	9000	1400~1800	10	0.05~0.15	側銑 SIDE MILLING
X-AESR1010	30	220	7000	1700~2200	10	5~6	側銑 SIDE MILLING
X-AESR1010	40	315	10000	1600~2000	0.05~0.15	7~10	溝銑 SLOTTING
X-AESR1010	40	250	8000	3500~4000	0~2	7~10	溝銑 SLOTTING
X-AESR1010	40	190	6000	1700~2200	4~5	7~10	溝銑 SLOTTING
X-AESR1010	40	250	8000	1300~1700	10	0.05~0.15	側銑 SIDE MILLING
X-AESR1010	40	190	6000	1700~2200	10	4~5	側銑 SIDE MILLING
X-AESR1010	50	315	10000	1600~2000	0.05~0.15	7~10	溝銑 SLOTTING
X-AESR1010	50	220	7000	3000~3500	0~2	7~10	溝銑 SLOTTING
X-AESR1010	50	140	4500	1500~2000	3~4	7~10	溝銑 SLOTTING
X-AESR1010	50	220	7000	1200~1600	10	0.05~0.15	側銑 SIDE MILLING
X-AESR1010	50	140	4500	1500~2000	10	3~4	側銑 SIDE MILLING
X-AESR1205	30	375	10000	1600~2000	0.05~0.15	10~12	溝銑 SLOTTING
X-AESR1205	30	340	9000	4000~4500	0~2	10~12	溝銑 SLOTTING
X-AESR1205	30	300	8000	2200~2600	8~10	10~12	溝銑 SLOTTING
X-AESR1205	30	340	9000	1600~2000	12	0.05~0.15	側銑 SIDE MILLING
X-AESR1205	30	300	8000	2000~2400	12	9~12	側銑 SIDE MILLING
X-AESR1205	40	340	9000	1500~1900	0.05~0.15	10~12	溝銑 SLOTTING
X-AESR1205	40	300	8000	3500~4000	0~2	10~12	溝銑 SLOTTING
X-AESR1205	40	265	7000	2000~2400	6~8	10~12	溝銑 SLOTTING
X-AESR1205	40	340	9000	1500~1900	12	0.05~0.15	側銑 SIDE MILLING
X-AESR1205	40	300	8000	1500~1900	12	8~10	側銑 SIDE MILLING
X-AESR1205	50	300	8000	1300~1700	0.05~0.15	10~12	溝銑 SLOTTING
X-AESR1205	50	225	6000	2500~3000	0~1.5	10~12	溝銑 SLOTTING
X-AESR1205	50	190	5000	1500~1900	3~5	10~12	溝銑 SLOTTING
X-AESR1205	50	300	8000	1300~1700	12	0.05~0.15	側銑 SIDE MILLING
X-AESR1205	50	225	6000	1400~1800	12	4~6	側銑 SIDE MILLING
X-AESR1205	60	265	7000	1200~1600	0.05~0.15	10~12	溝銑 SLOTTING
X-AESR1205	60	190	5000	3000~3500	0~1	10~12	溝銑 SLOTTING
X-AESR1205	60	170	4500	1600~2000	1~1.5	10~12	溝銑 SLOTTING
X-AESR1205	60	265	7000	1200~1600	12	0.05~0.15	側銑 SIDE MILLING
X-AESR1205	60	115	3000	1200~1600	12	0.5~2	側銑 SIDE MILLING
X-AESR1210	30	375	10000	1600~2000	0.05~0.15	9~12	溝銑 SLOTTING
X-AESR1210	30	340	9000	4000~4500	0~2	9~12	溝銑 SLOTTING
X-AESR1210	30	300	8000	2200~2600	8~10	9~12	溝銑 SLOTTING
X-AESR1210	30	340	9000	1600~2000	12	0.05~0.15	側銑 SIDE MILLING
X-AESR1210	30	300	8000	2000~2400	12	9~12	側銑 SIDE MILLING
X-AESR1210	40	340	9000	1500~1900	0.05~0.15	9~12	溝銑 SLOTTING
X-AESR1210	40	300	8000	3500~4000	0~2	9~12	溝銑 SLOTTING
X-AESR1210	40	265	7000	2000~2400	6~8	9~12	溝銑 SLOTTING
X-AESR1210	40	340	9000	1500~1900	12	0.05~0.15	側銑 SIDE MILLING
X-AESR1210	40	300	8000	1500~1900	12	8~10	側銑 SIDE MILLING
X-AESR1210	50	300	8000	1300~1700	0.05~0.15	9~12	溝銑 SLOTTING
X-AESR1210	50	225	6000	2500~3000	0~1.5	9~12	溝銑 SLOTTING
X-AESR1210	50	190	5000	1500~1900	3~5	9~12	溝銑 SLOTTING
X-AESR1210	50	300	8000	1300~1700	12	0.05~0.15	側銑 SIDE MILLING
X-AESR1210	50	225	6000	1400~1800	12	4~6	側銑 SIDE MILLING
X-AESR1210	60	265	7000	1200~1600	0.05~0.15	9~12	溝銑 SLOTTING

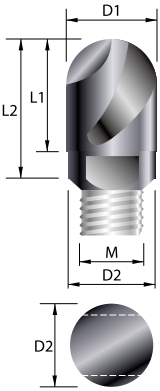
被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AESR1210	60	190	5000	3000~3500	0~1	9~12	溝銑 SLOTTING
X-AESR1210	60	170	4500	1600~2000	1~1.5	9~12	溝銑 SLOTTING
X-AESR1210	60	265	7000	1200~1600	12	0.05~0.15	側銑 SIDE MILLING
X-AESR1210	60	115	3000	1200~1600	12	0.5~2	側銑 SIDE MILLING
X-AESR1605	40	375	7500	1600~2000	0.05~0.15	14~16	溝銑 SLOTTING
X-AESR1605	40	350	7000	3500~4000	0~2	14~16	溝銑 SLOTTING
X-AESR1605	40	350	7000	2500~3000	8~10	14~16	溝銑 SLOTTING
X-AESR1605	40	375	7500	1600~2000	16	0.05~0.15	側銑 SIDE MILLING
X-AESR1605	40	350	7000	2500~3000	16	8~10	側銑 SIDE MILLING
X-AESR1605	55	330	6600	1400~1800	0.05~0.15	14~16	溝銑 SLOTTING
X-AESR1605	55	330	6600	3200~3700	0~2	14~16	溝銑 SLOTTING
X-AESR1605	55	330	6600	2500~3000	6~7	14~16	溝銑 SLOTTING
X-AESR1605	55	330	6600	1400~1800	16	0.05~0.15	側銑 SIDE MILLING
X-AESR1605	55	330	6600	2500~3000	16	7~8	側銑 SIDE MILLING
X-AESR1605	75	250	5000	1200~1600	0.05~0.15	14~16	溝銑 SLOTTING
X-AESR1605	75	275	5500	2000~2500	0~2	14~16	溝銑 SLOTTING
X-AESR1605	75	250	5000	1500~2000	3~5	14~16	溝銑 SLOTTING
X-AESR1605	75	250	5000	1200~1600	16	0.05~0.15	側銑 SIDE MILLING
X-AESR1605	75	250	5000	1500~2000	16	3~5	側銑 SIDE MILLING
X-AESR1610	40	375	7500	1600~2000	0.05~0.15	13~16	溝銑 SLOTTING
X-AESR1610	40	350	7000	3500~4000	0~2	13~16	溝銑 SLOTTING
X-AESR1610	40	350	7000	2500~3000	8~10	13~16	溝銑 SLOTTING
X-AESR1610	40	375	7500	1600~2000	16	0.05~0.15	側銑 SIDE MILLING
X-AESR1610	40	350	7000	2500~3000	16	8~10	側銑 SIDE MILLING
X-AESR1610	55	330	6600	1400~1800	0.05~0.15	13~16	溝銑 SLOTTING
X-AESR1610	55	330	6600	3200~3700	0~2	13~16	溝銑 SLOTTING
X-AESR1610	55	330	6600	2500~3000	6~7	13~16	溝銑 SLOTTING
X-AESR1610	55	330	6600	1400~1800	16	0.05~0.15	側銑 SIDE MILLING
X-AESR1610	55	330	6600	2500~3000	16	7~8	側銑 SIDE MILLING
X-AESR1610	75	250	5000	1200~1600	0.05~0.15	13~16	溝銑 SLOTTING
X-AESR1610	75	275	5500	2000~2500	0~2	13~16	溝銑 SLOTTING
X-AESR1610	75	250	5000	1500~2000	3~5	13~16	溝銑 SLOTTING
X-AESR1610	75	250	5000	1200~1600	16	0.05~0.15	側銑 SIDE MILLING
X-AESR1610	75	250	5000	1500~2000	16	3~5	側銑 SIDE MILLING
X-AESR1630	40	375	7500	1600~2000	0.05~0.15	9~16	溝銑 SLOTTING
X-AESR1630	40	350	7000	3000~3500	0~2	9~16	溝銑 SLOTTING
X-AESR1630	40	350	7000	2000~2500	8~10	9~16	溝銑 SLOTTING
X-AESR1630	40	375	7500	1600~2000	16	0.05~0.15	側銑 SIDE MILLING
X-AESR1630	40	350	7000	2000~2500	16	8~10	側銑 SIDE MILLING
X-AESR1630	55	330	6600	1400~1800	0.05~0.15	9~16	溝銑 SLOTTING
X-AESR1630	55	330	6600	2500~3000	0~2	9~16	溝銑 SLOTTING
X-AESR1630	55	330	6600	1800~2300	6~7	9~16	溝銑 SLOTTING
X-AESR1630	55	330	6600	1400~1800	16	0.05~0.15	側銑 SIDE MILLING
X-AESR1630	55	330	6600	1800~2300	16	7~8	側銑 SIDE MILLING
X-AESR1630	75	250	5000	1200~1600	0.05~0.15	9~16	溝銑 SLOTTING
X-AESR1630	75	275	5500	1600~2000	0~2	9~16	溝銑 SLOTTING
X-AESR1630	75	250	5000	1200~1600	3~5	9~16	溝銑 SLOTTING
X-AESR1630	75	250	5000	1200~1600	16	0.05~0.15	側銑 SIDE MILLING

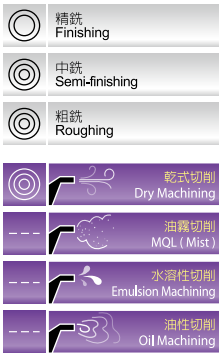
被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AESR1630	75	250	5000	1200~1600	16	3~5	側銑 SIDE MILLING
X-AESR2005	50	375	6000	1300~1700	0.05~0.15	18~20	溝銑 SLOTTING
X-AESR2005	50	375	6000	2400~2800	0~2	18~20	溝銑 SLOTTING
X-AESR2005	50	375	6000	1400~1800	6~7	18~20	溝銑 SLOTTING
X-AESR2005	50	375	6000	1200~1600	20	0.05~0.15	側銑 SIDE MILLING
X-AESR2005	50	345	5500	1400~1800	20	6~7	側銑 SIDE MILLING
X-AESR2005	70	315	5000	1200~1600	0.05~0.15	18~20	溝銑 SLOTTING
X-AESR2005	70	315	5000	2000~2400	0~2	18~20	溝銑 SLOTTING
X-AESR2005	70	280	4500	1200~1600	4~5	18~20	溝銑 SLOTTING
X-AESR2005	70	315	5000	1100~1500	20	0.05~0.15	側銑 SIDE MILLING
X-AESR2005	70	280	4500	1200~1600	20	4~5	側銑 SIDE MILLING
X-AESR2005	90	240	3800	1000~1300	0.05~0.15	18~20	溝銑 SLOTTING
X-AESR2005	90	240	3800	1600~2000	0~2	18~20	溝銑 SLOTTING
X-AESR2005	90	190	3000	1000~1400	3~4	18~20	溝銑 SLOTTING
X-AESR2005	90	240	3800	1000~1300	20	0.05~0.15	側銑 SIDE MILLING
X-AESR2005	90	190	3000	1000~1400	20	3~4	側銑 SIDE MILLING
X-AESR2010	50	375	6000	1300~1700	0.05~0.15	16~20	溝銑 SLOTTING
X-AESR2010	50	375	6000	2400~2800	0~2	16~20	溝銑 SLOTTING
X-AESR2010	50	375	6000	1400~1800	6~7	16~20	溝銑 SLOTTING
X-AESR2010	50	375	6000	1200~1600	20	0.05~0.15	側銑 SIDE MILLING
X-AESR2010	50	345	5500	1400~1800	20	6~7	側銑 SIDE MILLING
X-AESR2010	70	315	5000	1200~1600	0.05~0.15	16~20	溝銑 SLOTTING
X-AESR2010	70	315	5000	2000~2400	0~2	16~20	溝銑 SLOTTING
X-AESR2010	70	280	4500	1200~1600	4~5	16~20	溝銑 SLOTTING
X-AESR2010	70	315	5000	1100~1500	20	0.05~0.15	側銑 SIDE MILLING
X-AESR2010	70	280	4500	1200~1600	20	4~5	側銑 SIDE MILLING
X-AESR2010	90	240	3800	1000~1300	0.05~0.15	16~20	溝銑 SLOTTING
X-AESR2010	90	240	3800	1600~2000	0~2	16~20	溝銑 SLOTTING
X-AESR2010	90	190	3000	1000~1400	3~4	16~20	溝銑 SLOTTING
X-AESR2010	90	240	3800	1000~1300	20	0.05~0.15	側銑 SIDE MILLING
X-AESR2010	90	190	3000	1000~1400	20	3~4	側銑 SIDE MILLING
X-AESR2030	50	375	6000	1300~1700	0.05~0.15	12~20	溝銑 SLOTTING
X-AESR2030	50	375	6000	2000~2400	0~2	12~20	溝銑 SLOTTING
X-AESR2030	50	375	6000	1200~1600	6~7	12~20	溝銑 SLOTTING
X-AESR2030	50	375	6000	1200~1600	20	0.05~0.15	側銑 SIDE MILLING
X-AESR2030	50	345	5500	1200~1600	20	6~7	側銑 SIDE MILLING
X-AESR2030	70	315	5000	1200~1600	0.05~0.15	12~20	溝銑 SLOTTING
X-AESR2030	70	315	5000	1600~2000	0~2	12~20	溝銑 SLOTTING
X-AESR2030	70	280	4500	1000~1400	4~5	12~20	溝銑 SLOTTING
X-AESR2030	70	315	5000	1100~1500	20	0.05~0.15	側銑 SIDE MILLING
X-AESR2030	70	280	4500	1000~1400	20	4~5	側銑 SIDE MILLING
X-AESR2030	90	240	3800	1000~1300	0.05~0.15	12~20	溝銑 SLOTTING
X-AESR2030	90	240	3800	1200~1600	0~2	12~20	溝銑 SLOTTING
X-AESR2030	90	190	3000	800~1200	3~4	12~20	溝銑 SLOTTING
X-AESR2030	90	240	3800	1000~1300	20	0.05~0.15	側銑 SIDE MILLING
X-AESR2030	90	190	3000	800~1200	20	3~4	側銑 SIDE MILLING
X-AESR2530	60	390	5000	1200~1500	0.05~0.15	16~25	溝銑 SLOTTING
X-AESR2530	60	390	5000	1600~2000	0~2	16~25	溝銑 SLOTTING

被切削材 Work Material	鋁合金 *Aluminum Alloy* : 5052 / 6061 / 7075						
冷卻方式 Coolant Type	溼式切削 Wet coolant						
型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-AESR2530	60	355	4500	1000~1400	6~7	16~25	溝銑 SLOTTING
X-AESR2530	60	355	4500	1100~1400	25	0.05~0.15	側銑 SIDE MILLING
X-AESR2530	60	315	4000	1000~1400	25	6~7	側銑 SIDE MILLING
X-AESR2530	80	315	4000	1000~1300	0.05~0.15	16~25	溝銑 SLOTTING
X-AESR2530	80	315	4000	1400~1800	0~2	16~25	溝銑 SLOTTING
X-AESR2530	80	275	3500	900~1300	4~5	16~25	溝銑 SLOTTING
X-AESR2530	80	315	4000	1000~1300	25	0.05~0.15	側銑 SIDE MILLING
X-AESR2530	80	235	3000	900~1300	25	4~5	側銑 SIDE MILLING
X-AESR2530	100	210	2700	800~1000	0.05~0.15	16~25	溝銑 SLOTTING
X-AESR2530	100	210	2700	1200~1600	0~1	16~25	溝銑 SLOTTING
X-AESR2530	100	190	2400	800~1100	2~3	16~25	溝銑 SLOTTING
X-AESR2530	100	210	2700	700~1000	25	0.05~0.15	側銑 SIDE MILLING
X-AESR2530	100	190	2400	800~1100	25	2~3	側銑 SIDE MILLING
X-AESR3230	70	360	3600	900~1200	0.05~0.2	24~32	溝銑 SLOTTING
X-AESR3230	70	360	3600	1300~1700	0~2	24~32	溝銑 SLOTTING
X-AESR3230	70	280	2800	700~1000	5~6	24~32	溝銑 SLOTTING
X-AESR3230	70	360	3600	700~1000	32	0.05~0.2	側銑 SIDE MILLING
X-AESR3230	70	280	2800	700~1000	32	5~6	側銑 SIDE MILLING
X-AESR3230	100	280	2800	800~1000	0.05~0.2	24~32	溝銑 SLOTTING
X-AESR3230	100	280	2800	1000~1400	0~2	24~32	溝銑 SLOTTING
X-AESR3230	100	250	2500	500~800	4~5	24~32	溝銑 SLOTTING
X-AESR3230	100	280	2800	500~800	32	0.05~0.2	側銑 SIDE MILLING
X-AESR3230	100	250	2500	500~800	32	4~5	側銑 SIDE MILLING
X-AESR3230	140	200	2000	600~800	0.05~0.2	24~32	溝銑 SLOTTING
X-AESR3230	140	200	2000	800~1200	0~1	24~32	溝銑 SLOTTING
X-AESR3230	140	180	1800	400~700	2~3	24~32	溝銑 SLOTTING
X-AESR3230	140	200	2000	400~600	32	0.05~0.2	側銑 SIDE MILLING
X-AESR3230	140	180	1800	400~700	32	2~3	側銑 SIDE MILLING
X-AESR3250	70	360	3600	900~1200	0.05~0.2	20~32	溝銑 SLOTTING
X-AESR3250	70	360	3600	1300~1700	0~2	20~32	溝銑 SLOTTING
X-AESR3250	70	280	2800	700~1000	5~6	20~32	溝銑 SLOTTING
X-AESR3250	70	360	3600	700~1000	32	0.05~0.2	側銑 SIDE MILLING
X-AESR3250	70	280	2800	700~1000	32	5~6	側銑 SIDE MILLING
X-AESR3250	100	280	2800	800~1000	0.05~0.2	20~32	溝銑 SLOTTING
X-AESR3250	100	280	2800	1000~1400	0~2	20~32	溝銑 SLOTTING
X-AESR3250	100	250	2500	500~800	4~5	20~32	溝銑 SLOTTING
X-AESR3250	100	280	2800	500~800	32	0.05~0.2	側銑 SIDE MILLING
X-AESR3250	100	250	2500	500~800	32	4~5	側銑 SIDE MILLING
X-AESR3250	140	200	2000	600~800	0.05~0.2	20~32	溝銑 SLOTTING
X-AESR3250	140	200	2000	800~1200	0~1	20~32	溝銑 SLOTTING
X-AESR3250	140	180	1800	400~700	2~3	20~32	溝銑 SLOTTING
X-AESR3250	140	200	2000	400~600	32	0.05~0.2	側銑 SIDE MILLING
X-AESR3250	140	180	1800	400~700	32	2~3	側銑 SIDE MILLING

X-GB

石墨用超微粒圓頭立銑刀頭
Ball Nose End Mills / 2 Flute





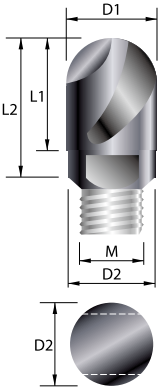
型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-GB0802	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-GB1002	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-GB1202	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-GB1602	R 8.0	16.0	15.6	25.7	M10-3P	K16

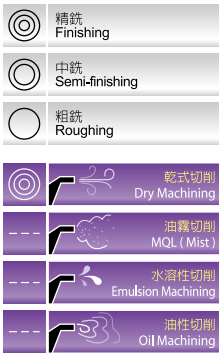
unit : mm

X-GB

石墨用超微粒圓頭立銑刀頭

Ball Nose End Mills / 4 Flute



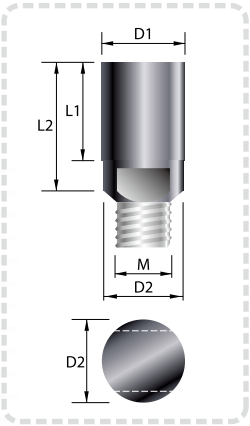


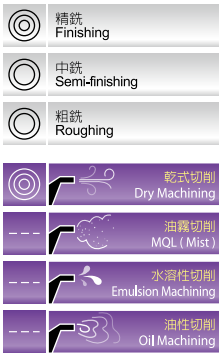
型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-GB0804	R 4.0	8.0	7.8	12.1	M 5 -3P	K08
X-GB1004	R 5.0	10.0	9.8	16.1	M 7 -3P	K10
X-GB1204	R 6.0	12.0	11.7	20.3	M 8 -3P	K12
X-GB1604	R 8.0	16.0	15.6	25.7	M10-3P	K16

unit : mm

X-GE

石墨用超微粒立銑刀頭
End Mills





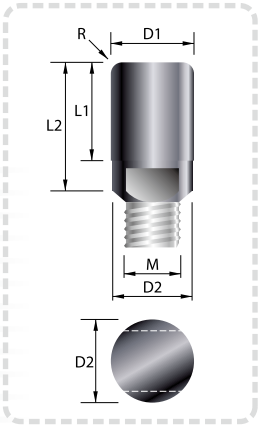
型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-GE0804	8.0	8.0	7.8	12.1	M 5 -3P	K08
X-GE1004	10.0	10.0	9.8	16.1	M 7 -3P	K10
X-GE1204	12.0	12.0	11.7	20.3	M 8 -3P	K12
X-GE1604	16.0	16.0	15.6	25.7	M10-3P	K16

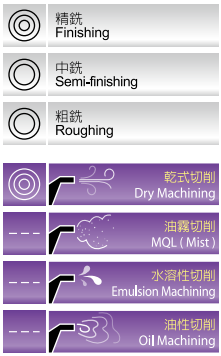
unit : mm

X-GPR

石墨用圓鼻角立銑刀頭

End Mills



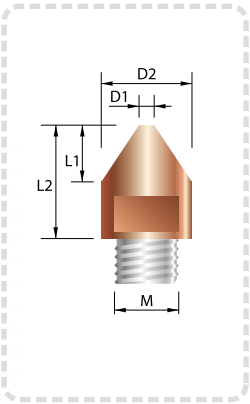


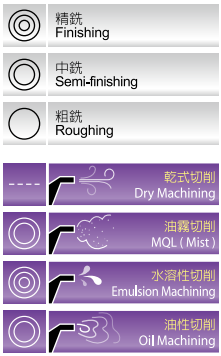
型號 Type No.	D1 直徑 Diameter	L1 刃長 Flute Length	R 圓鼻角 Corner R	D2 頸徑 Neck Dia.	L2 全長 O.A.L.	M 螺牙 Thread Size	鎖固扳手型號 Screw Driver Type No.
X-GPR0805	8.0	8.0	0.5	7.8	12.1	M 5 -3P	K08
X-GPR0810	8.0	8.0	1.0	7.8	12.1	M 5 -3P	K08
X-GPR1005	10.0	10.0	0.5	9.8	16.1	M 7 -3P	K10
X-GPR1010	10.0	10.0	1.0	9.8	16.1	M 7 -3P	K10
X-GPR1210	12.0	12.0	1.0	11.7	20.3	M 8 -3P	K12
X-GPR1220	12.0	12.0	2.0	11.7	20.3	M 8 -3P	K12
X-GPR1610	16.0	16.0	1.0	15.6	25.7	M10-3P	K16
X-GPR1620	16.0	16.0	2.0	15.6	25.7	M10-3P	K16
X-GPR1630	16.0	16.0	3.0	15.6	25.7	M10-3P	K16

unit : mm

X-TS

螺旋刃倒角刀頭
Spiral Flute Chamfering





型號 Type No.	D1 前端徑 Front Diameter	D2 柄徑 Diameter	L1 刃長 Flute Length	L2 全長 O.A.L.	配合刀桿 Recommended Carbide Shank	鎖固扳手型號 Screw Driver Type No.
X-TS0803	1	8	3.5	10.1	X-WDEX080-	K08
X-TS1003	2	10	4.0	11.1	X-WDEX100-	K10
X-TS1203	2	12	5.0	13.8	X-WDEX120-	K12
X-TS1603	3	16	6.5	14.7	X-WDEX160-	K16
X-TS2003	5	20	7.5	18.1	X-WDEX200-	K20

unit : mm

切削條件表 X-TS MILLING CONDITIONS

被切削材 Work Material	碳素鋼 *Carbon Steels* : S50C / SS400 : 1.1210 / 1.0036 : 1050 / A570 Gr.45 (~HRc22)
冷卻方式 Coolant Type	溼式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-TS0803	25	215	8000~9000	2000~2400	0.3	0.3	倒角 CHAMFERING
X-TS0803	25	215	8000~9000	1800~2200	0.5	0.5	倒角 CHAMFERING
X-TS0803	25	215	8000~9000	1000~1400	1	1	倒角 CHAMFERING
X-TS0803	45	190	7200~7700	1400~1800	0.3	0.3	倒角 CHAMFERING
X-TS0803	45	190	7200~7700	1200~1600	0.5	0.5	倒角 CHAMFERING
X-TS0803	45	190	7200~7700	600~900	1	1	倒角 CHAMFERING
X-TS1003	30	200	6200~6700	2200~2600	0.5	0.5	倒角 CHAMFERING
X-TS1003	30	200	6200~6700	2000~2400	1	1	倒角 CHAMFERING
X-TS1003	30	200	6200~6700	1200~1600	1.5	1.5	倒角 CHAMFERING
X-TS1003	50	170	5200~5700	1600~2000	0.5	0.5	倒角 CHAMFERING
X-TS1003	50	170	5200~5700	1400~1800	1	1	倒角 CHAMFERING
X-TS1003	50	170	5200~5700	700~1100	1.5	1.5	倒角 CHAMFERING
X-TS1203	35	215	5500~6000	1800~2200	0.5	0.5	倒角 CHAMFERING
X-TS1203	35	215	5500~6000	1600~2000	1	1	倒角 CHAMFERING
X-TS1203	35	215	5500~6000	800~1200	1.5	1.5	倒角 CHAMFERING
X-TS1203	60	185	4700~5200	1400~1800	0.5	0.5	倒角 CHAMFERING
X-TS1203	60	185	4700~5200	1200~1600	1	1	倒角 CHAMFERING
X-TS1203	60	185	4700~5200	500~800	1.5	1.5	倒角 CHAMFERING
X-TS1603	45	215	4000~4500	1200~1600	0.5	0.5	倒角 CHAMFERING
X-TS1603	45	215	4000~4500	1000~1400	1	1	倒角 CHAMFERING
X-TS1603	45	215	4000~4500	700~1000	1.5	1.5	倒角 CHAMFERING
X-TS1603	70	190	3500~4000	900~1200	0.5	0.5	倒角 CHAMFERING
X-TS1603	70	190	3500~4000	700~1100	1	1	倒角 CHAMFERING
X-TS1603	70	190	3500~4000	500~800	1.5	1.5	倒角 CHAMFERING
X-TS2003	60	185	2700~3200	800~1200	0.5	0.5	倒角 CHAMFERING
X-TS2003	60	185	2700~3200	600~800	1	1	倒角 CHAMFERING
X-TS2003	60	185	2700~3200	400~600	1.5	1.5	倒角 CHAMFERING
X-TS2003	100	120	1700~2200	700~1100	0.5	0.5	倒角 CHAMFERING
X-TS2003	100	120	1700~2200	500~700	1	1	倒角 CHAMFERING
X-TS2003	100	120	1700~2200	400~600	1.5	1.5	倒角 CHAMFERING

X-TS

切削條件表 MILLING CONDITIONS

被切削材 Work Material	合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2 (HRc23~32)
冷卻方式 Coolant Type	溼式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-TS0803	25	180	7000~7500	1600~2000	0.3	0.3	倒角 CHAMFERING
X-TS0803	25	180	7000~7500	1400~1800	0.5	0.5	倒角 CHAMFERING
X-TS0803	25	180	7000~7500	700~1000	1	1	倒角 CHAMFERING
X-TS0803	45	150	5700~6200	1000~1400	0.3	0.3	倒角 CHAMFERING
X-TS0803	45	150	5700~6200	800~1200	0.5	0.5	倒角 CHAMFERING
X-TS0803	45	150	5700~6200	500~800	1	1	倒角 CHAMFERING
X-TS1003	30	180	5500~6000	1800~2200	0.5	0.5	倒角 CHAMFERING
X-TS1003	30	180	5500~6000	1600~2000	1	1	倒角 CHAMFERING
X-TS1003	30	180	5500~6000	800~1200	1.5	1.5	倒角 CHAMFERING
X-TS1003	50	150	4500~5000	1200~1600	0.5	0.5	倒角 CHAMFERING
X-TS1003	50	150	4500~5000	1000~1400	1	1	倒角 CHAMFERING
X-TS1003	50	150	4500~5000	700~1000	1.5	1.5	倒角 CHAMFERING
X-TS1203	35	180	4500~5000	1400~1800	0.5	0.5	倒角 CHAMFERING
X-TS1203	35	180	4500~5000	1200~1600	1	1	倒角 CHAMFERING
X-TS1203	35	180	4500~5000	700~1000	1.5	1.5	倒角 CHAMFERING
X-TS1203	60	150	3700~4200	1000~1400	0.5	0.5	倒角 CHAMFERING
X-TS1203	60	150	3700~4200	800~1200	1	1	倒角 CHAMFERING
X-TS1203	60	150	3700~4200	400~700	1.5	1.5	倒角 CHAMFERING
X-TS1603	45	180	3300~3800	1000~1400	0.5	0.5	倒角 CHAMFERING
X-TS1603	45	180	3300~3800	800~1200	1	1	倒角 CHAMFERING
X-TS1603	45	180	3300~3800	600~900	1.5	1.5	倒角 CHAMFERING
X-TS1603	70	150	2700~3200	900~1300	0.5	0.5	倒角 CHAMFERING
X-TS1603	70	150	2700~3200	700~1000	1	1	倒角 CHAMFERING
X-TS1603	70	150	2700~3200	500~800	1.5	1.5	倒角 CHAMFERING
X-TS2003	60	140	2000~2500	700~1000	0.5	0.5	倒角 CHAMFERING
X-TS2003	60	140	2000~2500	500~700	1	1	倒角 CHAMFERING
X-TS2003	60	140	2000~2500	400~600	1.5	1.5	倒角 CHAMFERING
X-TS2003	100	80	1000~1500	500~800	0.5	0.5	倒角 CHAMFERING
X-TS2003	100	80	1000~1500	400~600	1	1	倒角 CHAMFERING
X-TS2003	100	80	1000~1500	300~500	1.5	1.5	倒角 CHAMFERING

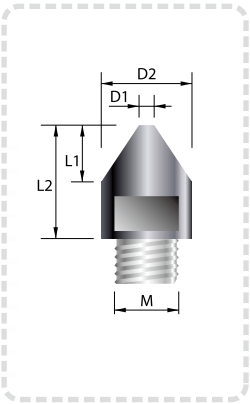
切削條件表 X-TS MILLING CONDITIONS

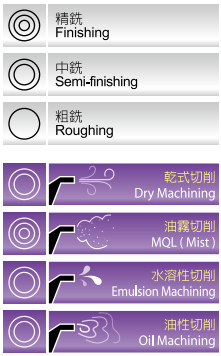
被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-TS0803	25	150	5700~6200	1000~1400	0.3	0.3	倒角 CHAMFERING
X-TS0803	25	150	5700~6200	800~1200	0.5	0.5	倒角 CHAMFERING
X-TS0803	25	150	5700~6200	500~800	0.8	0.8	倒角 CHAMFERING
X-TS0803	45	120	4500~5000	700~1100	0.3	0.3	倒角 CHAMFERING
X-TS0803	45	120	4500~5000	500~800	0.5	0.5	倒角 CHAMFERING
X-TS0803	45	120	4500~5000	300~600	0.8	0.8	倒角 CHAMFERING
X-TS1003	30	150	4500~5000	1200~1600	0.5	0.5	倒角 CHAMFERING
X-TS1003	30	150	4500~5000	1000~1400	1	1	倒角 CHAMFERING
X-TS1003	30	150	4500~5000	600~1000	1.3	1.3	倒角 CHAMFERING
X-TS1003	50	120	3600~4000	900~1300	0.5	0.5	倒角 CHAMFERING
X-TS1003	50	120	3600~4000	700~1100	1	1	倒角 CHAMFERING
X-TS1003	50	120	3600~4000	500~800	1.3	1.3	倒角 CHAMFERING
X-TS1203	35	145	3600~4000	1000~1400	0.5	0.5	倒角 CHAMFERING
X-TS1203	35	145	3600~4000	800~1200	1	1	倒角 CHAMFERING
X-TS1203	35	145	3600~4000	500~800	1.3	1.3	倒角 CHAMFERING
X-TS1203	60	115	2800~3300	700~1100	0.5	0.5	倒角 CHAMFERING
X-TS1203	60	115	2800~3300	500~800	1	1	倒角 CHAMFERING
X-TS1203	60	115	2800~3300	300~600	1.3	1.3	倒角 CHAMFERING
X-TS1603	45	150	2700~3200	900~1300	0.5	0.5	倒角 CHAMFERING
X-TS1603	45	150	2700~3200	700~1100	1	1	倒角 CHAMFERING
X-TS1603	45	150	2700~3200	400~700	1.5	1.5	倒角 CHAMFERING
X-TS1603	70	125	2200~2700	700~1000	0.5	0.5	倒角 CHAMFERING
X-TS1603	70	125	2200~2700	500~800	1	1	倒角 CHAMFERING
X-TS1603	70	125	2200~2700	300~600	1.5	1.5	倒角 CHAMFERING
X-TS2003	60	110	1500~2000	500~700	0.5	0.5	倒角 CHAMFERING
X-TS2003	60	110	1500~2000	400~600	0.9	0.9	倒角 CHAMFERING
X-TS2003	60	110	1500~2000	300~500	1.3	1.3	倒角 CHAMFERING
X-TS2003	100	50	500~1000	400~700	0.5	0.5	倒角 CHAMFERING
X-TS2003	100	50	500~1000	300~500	0.9	0.9	倒角 CHAMFERING
X-TS2003	100	50	500~1000	250~450	1.3	1.3	倒角 CHAMFERING

X-TD

直刃倒角刀頭
Straight Flute Chamfering





型號 Type No.	D1 前端徑 Front Diameter	D2 柄徑 Diameter	L1 刃長 Flute Length	L2 全長 O.A.L.	配合刀桿 Recommended Carbide Shank	鎖固扳手型號 Screw Driver Type No.
X-TD0803	1	8	3.5	10.1	X-WDEX080-	K08
X-TD1003	2	10	4.0	11.1	X-WDEX100-	K10
X-TD1203	2	12	5.0	13.8	X-WDEX120-	K12
X-TD1603	3	16	6.5	14.7	X-WDEX160-	K16
X-TD2003	5	20	7.5	18.1	X-WDEX200-	K20

unit : mm

切削條件表 X-TD MILLING CONDITIONS

被切削材 Work Material	碳素鋼 *Carbon Steels* : S50C / SS400 : 1.1210 / 1.0036 : 1050 / A570 Gr.45 (~HRc22)
冷卻方式 Coolant Type	溼式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-TD0803	25	200	7800~8300	1600~2000	0.3	0.3	倒角 CHAMFERING
X-TD0803	25	200	7800~8300	1400~1800	0.5	0.5	倒角 CHAMFERING
X-TD0803	25	200	7800~8300	700~1000	1	1	倒角 CHAMFERING
X-TD0803	45	180	6800~7300	1000~1400	0.3	0.3	倒角 CHAMFERING
X-TD0803	45	180	6800~7300	800~1200	0.5	0.5	倒角 CHAMFERING
X-TD0803	45	180	6800~7300	400~600	1	1	倒角 CHAMFERING
X-TD1003	30	185	5700~6200	1800~2200	0.5	0.5	倒角 CHAMFERING
X-TD1003	30	185	5700~6200	1600~2000	1	1	倒角 CHAMFERING
X-TD1003	30	185	5700~6200	800~1200	1.5	1.5	倒角 CHAMFERING
X-TD1003	50	140	4200~4700	1000~1400	0.5	0.5	倒角 CHAMFERING
X-TD1003	50	140	4200~4700	800~1200	1	1	倒角 CHAMFERING
X-TD1003	50	140	4200~4700	400~700	1.5	1.5	倒角 CHAMFERING
X-TD1203	35	185	4700~5200	1200~1600	0.5	0.5	倒角 CHAMFERING
X-TD1203	35	185	4700~5200	1000~1400	1	1	倒角 CHAMFERING
X-TD1203	35	185	4700~5200	600~900	1.5	1.5	倒角 CHAMFERING
X-TD1203	60	150	3700~4200	700~1000	0.5	0.5	倒角 CHAMFERING
X-TD1203	60	150	3700~4200	500~800	1	1	倒角 CHAMFERING
X-TD1203	60	150	3700~4200	300~600	1.5	1.5	倒角 CHAMFERING
X-TD1603	45	185	3500~4000	700~1000	0.5	0.5	倒角 CHAMFERING
X-TD1603	45	185	3500~4000	500~800	1	1	倒角 CHAMFERING
X-TD1603	45	185	3500~4000	300~600	1.3	1.3	倒角 CHAMFERING
X-TD1603	70	150	2700~3200	700~1000	0.5	0.5	倒角 CHAMFERING
X-TD1603	70	150	2700~3200	500~700	1	1	倒角 CHAMFERING
X-TD1603	70	150	2700~3200	400~600	1.3	1.3	倒角 CHAMFERING
X-TD2003	60	140	2000~2500	500~800	0.5	0.5	倒角 CHAMFERING
X-TD2003	60	140	2000~2500	400~600	1	1	倒角 CHAMFERING
X-TD2003	60	140	2000~2500	300~500	1.3	1.3	倒角 CHAMFERING
X-TD2003	100	80	1000~1500	400~700	0.5	0.5	倒角 CHAMFERING
X-TD2003	100	80	1000~1500	400~600	1	1	倒角 CHAMFERING
X-TD2003	100	80	1000~1500	300~500	1.3	1.3	倒角 CHAMFERING

切削條件表 X-TD MILLING CONDITIONS

被切削材 Work Material	合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* **P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2** (HRc23~32)
冷卻方式 Coolant Type	溼式切削 Wet coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-TD0803	25	160	6200~6700	1200~1600	0.3	0.3	倒角 CHAMFERING
X-TD0803	25	160	6200~6700	1000~1400	0.5	0.5	倒角 CHAMFERING
X-TD0803	25	160	6200~6700	500~800	1	1	倒角 CHAMFERING
X-TD0803	45	135	5200~5700	900~1200	0.3	0.3	倒角 CHAMFERING
X-TD0803	45	135	5200~5700	700~1000	0.5	0.5	倒角 CHAMFERING
X-TD0803	45	135	5200~5700	300~600	1	1	倒角 CHAMFERING
X-TD1003	30	160	4800~5300	1400~1800	0.5	0.5	倒角 CHAMFERING
X-TD1003	30	160	4800~5300	1200~1600	1	1	倒角 CHAMFERING
X-TD1003	30	160	4800~5300	700~1000	1.5	1.5	倒角 CHAMFERING
X-TD1003	50	135	4000~4500	900~1200	0.5	0.5	倒角 CHAMFERING
X-TD1003	50	135	4000~4500	700~1000	1	1	倒角 CHAMFERING
X-TD1003	50	135	4000~4500	400~700	1.5	1.5	倒角 CHAMFERING
X-TD1203	35	160	4000~4500	1000~1400	0.5	0.5	倒角 CHAMFERING
X-TD1203	35	160	4000~4500	800~1200	1	1	倒角 CHAMFERING
X-TD1203	35	160	4000~4500	500~800	1.3	1.3	倒角 CHAMFERING
X-TD1203	60	130	3200~3700	600~900	0.5	0.5	倒角 CHAMFERING
X-TD1203	60	130	3200~3700	400~700	1	1	倒角 CHAMFERING
X-TD1203	60	130	3200~3700	300~600	1.3	1.3	倒角 CHAMFERING
X-TD1603	45	160	3000~3500	600~900	0.5	0.5	倒角 CHAMFERING
X-TD1603	45	160	3000~3500	400~700	1	1	倒角 CHAMFERING
X-TD1603	45	160	3000~3500	300~500	1.3	1.3	倒角 CHAMFERING
X-TD1603	70	125	2200~2700	500~800	0.5	0.5	倒角 CHAMFERING
X-TD1603	70	125	2200~2700	400~600	1	1	倒角 CHAMFERING
X-TD1603	70	125	2200~2700	300~500	1.3	1.3	倒角 CHAMFERING
X-TD2003	60	125	1800~2300	500~700	0.5	0.5	倒角 CHAMFERING
X-TD2003	60	125	1800~2300	400~600	1	1	倒角 CHAMFERING
X-TD2003	60	125	1800~2300	300~500	1.3	1.3	倒角 CHAMFERING
X-TD2003	100	70	900~1300	400~600	0.5	0.5	倒角 CHAMFERING
X-TD2003	100	70	900~1300	300~500	1	1	倒角 CHAMFERING
X-TD2003	100	70	900~1300	250~450	1.3	1.3	倒角 CHAMFERING

X-TD

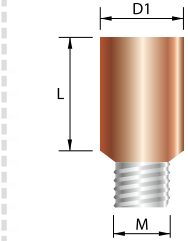
切削條件表 MILLING CONDITIONS

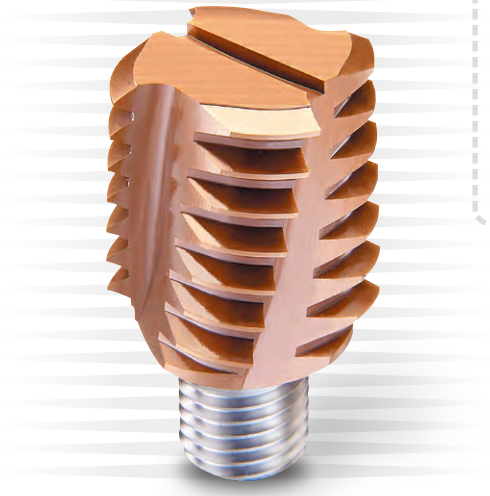
被切削材 Work Material	熱處理鋼 *Hardened Steels* SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRc48~54)
冷卻方式 Coolant Type	乾式切削 Dry coolant

型號 Type No.	刀具伸長量 Extension Length (mm)	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min^{-1})	進給速度 Feed (mm/min)	加工深度 (A_a) Depth of Cut	加工寬度 (A_p) Width of Cut	加工方式 Milling Type
X-TD0803	25	135	5200~5700	800~1200	0.3	0.3	倒角 CHAMFERING
X-TD0803	25	135	5200~5700	600~1000	0.5	0.5	倒角 CHAMFERING
X-TD0803	25	135	5200~5700	300~600	0.8	0.8	倒角 CHAMFERING
X-TD0803	45	90	3400~3800	600~900	0.3	0.3	倒角 CHAMFERING
X-TD0803	45	90	3400~3800	500~800	0.5	0.5	倒角 CHAMFERING
X-TD0803	45	90	3400~3800	300~500	0.8	0.8	倒角 CHAMFERING
X-TD1003	30	120	3500~4000	900~1300	0.5	0.5	倒角 CHAMFERING
X-TD1003	30	120	3500~4000	700~1100	1	1	倒角 CHAMFERING
X-TD1003	30	120	3500~4000	400~700	1.3	1.3	倒角 CHAMFERING
X-TD1003	50	90	2700~3200	700~1000	0.5	0.5	倒角 CHAMFERING
X-TD1003	50	90	2700~3200	500~800	1	1	倒角 CHAMFERING
X-TD1003	50	90	2700~3200	300~600	1.3	1.3	倒角 CHAMFERING
X-TD1203	35	110	2700~3200	700~1000	0.5	0.5	倒角 CHAMFERING
X-TD1203	35	110	2700~3200	500~800	1	1	倒角 CHAMFERING
X-TD1203	35	110	2700~3200	300~600	1.3	1.3	倒角 CHAMFERING
X-TD1203	60	85	2000~2500	500~800	0.5	0.5	倒角 CHAMFERING
X-TD1203	60	85	2000~2500	300~600	1	1	倒角 CHAMFERING
X-TD1203	60	85	2000~2500	300~600	1.2	1.2	倒角 CHAMFERING
X-TD1603	45	110	2000~2500	500~800	0.5	0.5	倒角 CHAMFERING
X-TD1603	45	110	2000~2500	300~600	0.8	0.8	倒角 CHAMFERING
X-TD1603	45	110	2000~2500	300~500	1	1	倒角 CHAMFERING
X-TD1603	70	85	1500~2000	400~700	0.5	0.5	倒角 CHAMFERING
X-TD1603	70	85	1500~2000	300~500	0.8	0.8	倒角 CHAMFERING
X-TD1603	70	85	1500~2000	250~400	1	1	倒角 CHAMFERING
X-TD2003	60	110	1500~1900	400~550	0.5	0.5	倒角 CHAMFERING
X-TD2003	60	110	1500~1900	300~500	0.8	0.8	倒角 CHAMFERING
X-TD2003	60	110	1500~1900	250~450	1	1	倒角 CHAMFERING
X-TD2003	100	60	700~1100	350~500	0.5	0.5	倒角 CHAMFERING
X-TD2003	100	60	700~1100	250~450	0.8	0.8	倒角 CHAMFERING
X-TD2003	100	60	700~1100	200~400	1	1	倒角 CHAMFERING

X-TW

螺紋銑刀
Thread Milling





型號 Type No.	螺距 Pitch	M 適用規格 Applicable Size		D1 直徑 Diameter	L 刃長 Flute Length	N 牙數 No. of Thread	配合刀桿 Recommended Carbide Shank	鎖固扳手型號 Screw Driver Type No.
		粗牙 Coarse	細牙 Fine					
X-TW101210	1.0		≧M14	10.0	12.0	12	X-WDEX080-	K16
X-TW121510	1.0		≧M15	12.0	15.0	15	X-WDEX100-	K16
X-TW161810	1.0		≧M20	16.0	18.0	18	X-WDEX120-	K16
X-TW202210	1.0		≧M24	20.0	22.0	22	X-WDEX160-	K20
X-TW111215	1.5		≧M15	11.0	12.0	8	X-WDEX080-	K16
X-TW131515	1.5		≧M17	13.0	15.0	10	X-WDEX100-	K16
X-TW161815	1.5		≧M20	16.0	18.0	12	X-WDEX120-	K16
X-TW202115	1.5		≧M24	20.0	21.0	14	X-WDEX160-	K20
X-TW252415	1.5		≧M30	25.0	24.0	16	X-WDEX200-	K20
X-TW111220	2.0	M16	≧M18	11.0	12.0	6	X-WDEX080-	K16
X-TW131420	2.0		≧M18	13.0	14.0	7	X-WDEX100-	K16
X-TW161820	2.0		≧M22	16.0	18.0	9	X-WDEX120-	K16
X-TW202220	2.0		≧M25	20.0	22.0	11	X-WDEX160-	K20
X-TW252420	2.0		≧M30	25.0	24.0	12	X-WDEX200-	K20
X-TW131525	2.5	M18~22		13.0	15.0	6	X-WDEX100- & X-WHEX100-	K16
X-TW161830	3.0	M24~27	≧M30	16.0	18.0	6	X-WDEX120- & X-WHEX120-	K16
X-TW202130	3.0		≧M30	20.0	21.0	7	X-WDEX160-	K20
X-TW252430	3.0		≧M33	25.0	24.0	8	X-WDEX200-	K20
X-TW202135	3.5	M30~33		20.0	21.0	6	X-WDEX160- & X-WHEX160-	K20
X-TW252440	4.0	M36~39	≧M42	25.0	24.0	6	X-WDEX200-	K20

unit : mm

K

變形刀頭鎖固扳手
Screw Driver

型號 Type No.	*D1* 直徑 Diameter	標準立銑刀頭（使用端） End Mills (Use End)	爆丸球刀頭（使用端） Ball Nose EndMills (Use End)	螺紋銑刀頭 Thread Milling	扳手鎖固扭力值 N.m
K08	8	XT-08	XTs-08	–	6
K10	10	XT-10	XTs-10	–	7
K12	12	XT-12	XTs-12	–	9
K16	16	XT-16	XTs-16	X-TW	10
K20	20	XT-20	XTs-20	X-TW	12
K25	25	XT-25	XTs-25	X-TW	15
K32	32	XT-32	XTs-32	X-TW	20

unit : mm

備註：刀桿與刀頭結合時可參考表格之「扭力值」。
Note : When combining shank and head, please refer to the "N.m" value.

DHF變形金剛2代系列刀具推薦表

SELECTION OF DHF Exchangeable Head Endmill II Series

被切削材 Work Material	平刀 End Mills			圓鼻刀 Corner Radius End Mills			球刀 Ball Nose End Mills		
	第一推薦 First Selection	第二推薦 Second Selection	第三推薦 Third Selection	第一推薦 First Selection	第二推薦 Second Selection	第三推薦 Third Selection	第一推薦 First Selection	第二推薦 Second Selection	第三推薦 Third Selection
碳素鋼 *Carbon Steels* **S50C / SS400 : 1.1210 / 1.0036 : 1050 / A570 Gr.45** (~HRc 22)	X-UPS	X-UET	–	X-UXR	–	–	X-BMW	X-UB Xs-UB	X-BTB Xs-BTB
合金工具鋼/碳工具鋼 *Alloy Tool Steels / Carbon Tool Steels* **P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2** (HRc 23~32)	X-UPS	X-UET	–	X-UOR X-UXR	X-UEXR	X-UPR	X-BMW	X-UB Xs-UB	X-BTB Xs-BTB
調質鋼/預硬鋼 *Prehardened Steels* **NAK80 : 1.2083 : AISI420 : M310** (HRc36~45)	X-UPS	X-UET	–	X-UOR X-UXR	X-UEXR	X-UPR	X-BMW	X-UBY X-UB Xs-UB	X-BTB Xs-BTB
熱處理鋼 *Hardened Steels* **SKD61/ STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420** (HRc48~54)	X-UVT	X-UEX X-UPS	X-UET	X-UEYR X-UVTR	X-UOR	X-UEXR X-UPR	X-UBT Xs-UBT	X-UBY	X-UB
熱處理鋼 *Hardened Steels* **SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2** (HRc55~62)	X-UVT	X-UEX	–	X-UEYR X-UVTR	X-UOR	X-UEXR X-UPR	X-UBT Xs-UBT	X-UBY	–

DHF變形金剛2代系列刀具推薦表

SELECTION OF DHF Exchangeable Head Endmill II Series

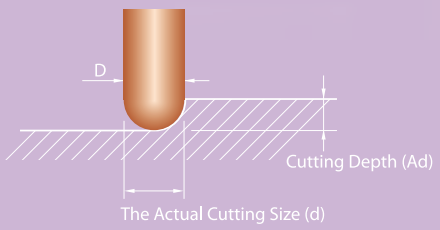
被切削材 Work Material	平刀 End Mills			圓鼻刀 Corner Radius End Mills			球刀 Ball Nose End Mills		
	第一推薦 First Selection	第二推薦 Second Selection	第三推薦 Third Selection	第一推薦 First Selection	第二推薦 Second Selection	第三推薦 Third Selection	第一推薦 First Selection	第二推薦 Second Selection	第三推薦 Third Selection
鋁合金 *Aluminum Alloy* **5052 / 6061 / 7075**	X-AES X-AEW	–	–	X-AESR X-AEWR	X-UXR	–	X-BTC	–	–
紅銅 *Copper* **C1100 / 2.0090 / B152C11000**	X-AES X-AEW	X-UET	–	X-AESR X-AEWR	X-UXR	–	X-BTC	X-UB Xs-UB	X-BTB Xs-BTB
沃斯田鐵系不銹鋼 *Stainless Steels* **SUS304 : 1.4301 : AISI 304** (HRc 28~32)	X-UPS	X-UET	–	X-UXR	–	–	X-UB Xs-UB	X-BTB Xs-BTB	X-BMW
(麻田散鐵, 析出硬化) 系不銹鋼 *Stainless Steels* **SUS420J2 / SUS630 : 1.2083 / 1.4542 : AISI 420 / 17-4PH** (HRc 28~32)	X-UPS	X-UET	–	X-UXR	–	–	X-UB Xs-UB	X-BTB Xs-BTB	X-BMW
鈦合金/純鈦 *Titanium Alloy / Pure Titanium* **Ti-6Al-4V / Ti-2 : 3.7165 / 3.7035 : Gr5 / Gr2 : TC4 / TA1**	X-UET X-AES	X-AEW	–	X-UXR X-AESR	X-AEWR	–	X-UB Xs-UB	X-BTB Xs-BTB	X-BMW

球刀實際切削直徑 BALL NOSE REAL CUTTING DIAMETER

球徑 R Ball R (mm)	直徑 Ø Mill Dia. (mm)	切削深度 (Ad) Depth of Cut (mm/min)														
		0.01	0.02	0.03	0.04	0.05	0.08	0.1	0.15	0.2	0.3	0.5	0.8	1.0	2.0	3.0
0.1	0.2	0.087	0.12	0.143	0.16	0.173	0.196	0.2	-----	-----	-----	-----	-----	-----	-----	-----
0.2	0.4	0.125	0.174	0.211	0.24	0.265	0.32	0.35	0.39	0.4	-----	-----	-----	-----	-----	-----
0.3	0.6	0.154	0.215	0.262	0.299	0.332	0.41	0.45	0.52	0.57	0.6	-----	-----	-----	-----	-----
0.4	0.8	0.178	0.25	0.304	0.349	0.387	0.48	0.53	0.62	0.63	0.77	0.77	-----	-----	-----	-----
0.5	1	0.199	0.28	0.341	0.392	0.436	0.54	0.6	0.71	0.8	0.92	1	-----	-----	-----	-----
1	2	0.282	0.398	0.486	0.56	0.624	0.78	0.87	1.05	1.2	1.43	1.73	1.96	2	-----	-----
1.5	3	0.346	0.488	0.597	0.688	0.768	0.97	1.08	1.31	1.5	1.8	2.24	2.65	2.83	2.83	-----
2	4	0.399	0.564	0.69	0.796	0.889	1.12	1.25	1.52	1.74	2.11	2.65	3.2	3.46	4	-----
2.5	5	0.447	0.631	0.772	0.891	0.995	1.25	1.4	1.71	1.96	2.37	3	3.67	4	4.9	4.9
3	6	0.489	0.692	0.846	0.977	1.091	1.38	1.54	1.87	2.15	2.62	3.32	4.08	4.47	5.66	6
4	8	0.565	0.799	0.978	1.129	1.261	1.59	1.78	2.17	2.5	3.04	3.87	4.8	5.29	6.93	7.75
5	10	0.632	0.894	1.094	1.262	1.411	1.78	1.99	2.43	2.8	3.41	4.36	5.43	6	8	9.17
6	12	0.693	0.979	1.198	1.383	1.546	1.95	2.18	2.67	3.07	3.75	4.8	5.99	6.63	8.94	10.39
7	14	0.748	1.058	1.295	1.495	1.67	2.11	2.36	2.88	3.32	4.05	5.2	66.5	7.21	9.8	11.49
8	16	0.8	1.131	1.384	1.598	1.786	2.26	2.52	3.08	3.56	4.34	5.57	6.97	7.75	10.58	12.49
9	18	0.848	1.199	1.468	1.695	1.895	2.39	2.68	3.27	3.77	4.61	5.92	7.42	8.25	11.31	13.42
10	20	0.894	1.264	1.548	1.787	1.997	2.52	2.82	3.45	3.98	4.86	6.24	7.84	8.72	12	14.28

實際直徑計算 CALCULATION OF REAL DIA.

$$d = 2\sqrt{Ad\ (D-Ad)}$$



產品回函卡 REPLY

客戶名稱／

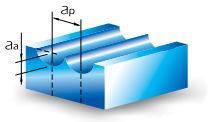
產品型號	被加工材質	硬度(HRC)
	是否經過熱處理 ☐ 是 ☐ 否	

使用機台型式	使用軟體版本		
型號	☐ UG ☐ Pro-E	☐ CIMATRON ☐ Work NC	☐ Power-Mill ☐ Master CAM

挾持方式	☐ ER夾頭	☐ 後拉式夾頭	☐ 油壓夾頭	☐ 燒結式夾頭
所使用夾頭的品牌				
冷卻方式	☐ 乾式切削	☐ 油霧方式	☐ 油性切削(大量)	☐ 水溶性切削

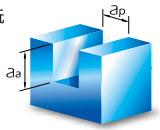
加工方式	☐ 順銑	☐ 逆銑

1.球刀		2.平刀	
轉速 min^{-1}	進給 m/min	轉速 min^{-1}	進給 m/min



側銑

溝銑



aa=	mm	ap=	mm	aa=	mm	ap=	mm	aa=	mm	ap=	mm

結果		結果	

REPLY 產品回函卡

Messrs. /

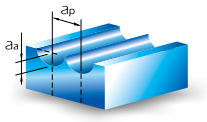
Type No. (Size Description)	Work Material	Hardness(HRC)
	Heat Treatment ☐ Yes ☐ No	

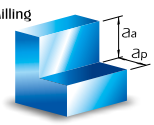
Machine Type	Programming Method
Model	☐ UG ☐ CIMATRON ☐ Power-Mill ☐ Pro-E ☐ Work NC ☐ Master CAM

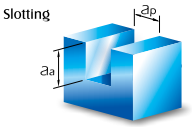
Tool Holding System	☐ ER Collect Chuck	☐ Draw Back Chuck	☐ Hydraulic Chuck	☐ Shrink Fit Chuck
Brand				
Cooling Type	☐ Dry Machining	☐ MQL (Mist)	☐ Oil Machining	☐ Emulsion(Coolant) Machining

Processing Method	☐ Down Milling	☐ Up Milling

1. Ball Nose End Mill		2. Flat End Mill	
Speed min^{-1}	Feed m/min	Speed min^{-1}	Feed m/min







aa= mm	ap= mm	aa= mm	ap= mm	aa= mm	ap= mm
Result		Result			