快速銑刀研磨機

FAST END MILL RE-SHARPENING MACHINE

GH-413 / GH-1225

EASY 簡單

ACCURATE 精確

FAST 快速

4 Flutes　3 Flutes　2 Flutes

二、四刃專用
for 2 and 4 Flute End Mill

三刃專用
for 3 Flute End Mill

單位/Unit: cm

Patent M321829

型號 Model	研磨範圍 Capacity	馬達 Motor / 轉速 Speed	重量 Weight	包裝尺寸 L X W X H
GH-413	4mm - 13mm	450 w / 6000 rpm	17kgs	310 x 260 x 290
GH-1225	12mm - 25mm	1000 w / 4500rpm	30kgs	360 x 290 x 340

先端角 Axial angles	銑刀端面角 6° Third angle 6°	銑刀後斜角 20° Primary angle 20°	銑刀底溝角 30° Second angle 30°
電源 Power	AC 110 V / AC 220 V 50 / 60 HZ		

標準配件 STANDARD ACCESSORIES ※SDC鎢鋼專用(Carbide) CBN高速鋼專用(High Speed)

電源線	Cable	1 SET
保險絲	Fuse	2 PCS
六角扳手	Hex. key wrench	1 PCS 4mm
鑽石砂輪	Diamond wheel	GH-413 SDC300# (4mm~5mm, carbide end mill)
		GH-1225 CBN150# (12mm~25mm, High Speed end mill)
鑽石砂輪	Diamond wheel	GH-413 SDC300# (6mm~13mm, carbide end mill)
		GH-1225 SDC150# (12mm~25mm, carbide end mill)
夾頭	ER chuck	2, 4 flutes chuck *1 set 3 flutes chuck *1 set
筒夾	ER collet	GH-413 4 ~ 13mm(10pcs) / GH-1225 12,16,18,20,22,25mm

特別配件 OPTION ACCESSORIES

鑽石砂輪	Diamond wheel	GH-413 CBN300# (4mm~5mm, High Speed end mill)
鑽石砂輪	Diamond wheel	GH-413 CBN270# (6mm~13mm, High Speed end mill)
鑽石砂輪	Diamond wheel	GH-413 CBN270# (4mm~13mm, High Speed end mill) 2 flutes
鑽石砂輪	Diamond wheel	GH-413 SDC300# (4mm~13mm, carbide end mill) 2 flutes
鑽石砂輪	Diamond wheel	GH-1225- CBN150# (12mm~25mm, High Speed end mill) 2 flutes
鑽石砂輪	Diamond wheel	GH-1225- SDC150# (12mm~25mm, carbide end mill) 2 flutes

GH TYPE

PRECISON END MILL GRINDER

放大圖 Magnified Part

定位座
Alignment Base

定位檔塊
Alignment Block

固定檔塊
(硬化處理，避免校正刀端磨損)
Fixed Block
(Harden treatment to protect the alignment base)

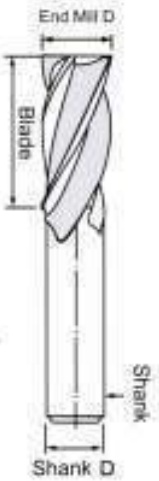
定位調整扭
Alignment Knob

2. 研磨後斜角 20°
NO.2 FOR SCREW RADIAL ANGLE 20°

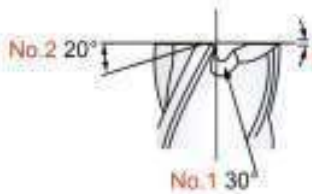
3. 平面角 6°此橢圓形孔允許夾具軸向移動研磨所有端銑刀面
NO.3 FOR CUTTING ANGLE 6. THIS OVAL SHAPED HOLE ALLOWS HOLDER UNIT TO MOVE ON AXIS TO GRIND ALL SURFACE OF END MILL.

1. 供端銑刀底溝角 30°
NO.1 FOR END MILL FLAT SLOT ANGLE 30°

研磨2.3及4刃端銑刀，精密、效率、易操作，縮短製程時間，研磨直徑
GH413- 4-13mm,GH1225-12-25mm
For End Mill Re-sharpening, 2,3 and 4 Flutes Precision, Efficiency, Easy Operation, Short Processing Time, Grinding Diameter from GH413- 4-13mm,GH1225-12-25mm.



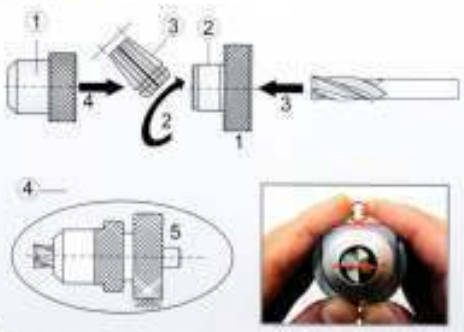
1.高效率、高品質研磨滑程(滑率)，好的研磨效果。
High Efficiency, High Quality Grinding Slip, Good Grinding Results.
2.品質保證 .02mm。
Quality Assurance: .02mm.
3.容易操作，供緊急的方便用具，快速。
Easy Operation, and Fast for Convenience.



2 Flutes　3 Flutes　4 Flutes

操作程序 OPERATIONS

A 端銑刀夾具組與"筒夾"及"端銑刀"之組裝 Setup the end mill to the ER collet holder



*請依上列圖示1.2.3.4.之步驟裝，"不鎖緊"
1.首先確認銑刀直徑及刃數，再選擇適當之筒夾與刀具組。
2.將筒夾以適當角度放入夾具並鎖緊螺帽。
3.銑刀裝入筒夾內，並伸出約35mm左右。
4.校刀前請先以目測方式找出過中心刀刃，並大約與基準槽平行，以便進行校刀定位。
*Please follow steps 1, 2,3,4 to set up the end mill to the holder (without tightening).
1. Determine diameter and flute of your end mill, and then select the proper collet and collet holder.
2. Insert collet into collet holder and tighten nut slightly.
3. Insert end mill into collet holder and nuts out 35mm or so from the collet holder.
4. Place the flute with edge over center point and have it to be parallel with the benchmark notch.

B 校正定位 -NO.1 Align end mill - NO.1

*請依照銑刀直徑尺寸，旋轉定位調整鈕，轉至檔塊刻度線數字(如銑刀為10mm即刻度調整至10 mm)
*Set alignment knob to the prpoer number according to the diameter of the end mill. (e.x. End mill dia. 10mm, set the scale to 10 mm.)

*過中心刀刃應與基準槽下之基準線平行。
*The flute with edge over center point should be parallel with the benchmark line.

C 校正定位 -NO.2 Align end mill - NO.2

1.將ER夾具組基準槽，對準定位座上三角標誌後置放。
2.鬆開夾具組螺帽使夾具組下降至定位座，然後由右至左旋轉到底，同時將銑刀過中心刃刃，以順時鐘方向旋轉至頂住定位檔塊為止。
3.ER螺帽以順時鐘方向旋轉，將銑刀輕輕夾緊後，以逆時鐘方向取出，請再次確認過中心刀刃與筒夾邊是否平行後，再用力鎖緊，若無平行，請重覆定位步驟。
1. Point holder's benchmark notch at triangle mark of alignment base and insert it to the base.
2. Loosen holder, lower the holder to the base, and screw the nut clockwise. At the same time, rotate the flute with edge over center point clockwise until it touches the alignment block.
3. Tighten the ER nut until the end mill is supported but free to turn. Pull out the holder counterclockwise, tighten up the holder after confirmed the flute is parallel with the notch. If it's not parallel, please repeat the alignment steps. The benchmark notch.

D 刀口研磨切削 Primary edge re-sharpening

1. 起重馬達。
2. 將ER夾具組基準槽對準刀口研磨座NO.1之研磨孔之凹槽。
3. 輕輕按觸砂輪，緩慢推進研磨到底為止。
4. 換至下一個刀刃，並重覆上述二個動作，一直到所有刀刃研磨完成為止。
1. Switch on machine.
2. Point ER holder at the notch of primary edge re-sharpening port NO.1.
3. Insert the holder into the port NO.1 with a slight push motion for grinding.
4. Change to another flute, repeat the above steps until the sharpening for all flutes' edges is complete.

E 刀口大小倒角調整 Relief settings

1.若需調整刀口平面大小，請用 4mm 六角板手鬆開刀口研磨座NO.1兩側螺絲。
2.順時鐘方向（+）旋轉可加大刀口平面，逆時鐘方向（−）可縮小刀口平面，調整所須之大小後再行鎖緊即可。

1. If the relief needs to be adjusted, please use provided 4mm hex. wrench to loosen the screws in the sharpener NO.1.
2. Rotate clockwise (+) to increase, rotate counterclockwise (−) to decrease. Tighten after relief setting.

F 後斜角研磨切削-1（4刃） Secondary clearance angle sharpening -1 (for 4 flutes)

1.將ER夾具對準螺絲頭，裝入後斜角研磨座NO.2之研磨孔，輕輕將夾具放入凹槽內並做緩慢推進研磨至無聲即可。
2.將ER夾具取出轉至下一個未研磨之後斜角，並重覆上述動作，一直到所有後斜角研磨完成為止。

1. Pointing ER holder at screw secondary clearance angle sharpening port NO.2, insert it into the port with a slight push motion to sharpen until grinding noise disappears.
2. Change to another flute, repeat the above steps until the sharpening for all flutes' edges is complete.

G 後斜角研磨切削-2（2、3刃） Secondary clearance angle sharpening -2 (for 2 and 3 flutes)

1.若需將二刃與三刃後斜角完全磨除，可鬆開斜角座螺絲，左右轉動後磨除；請注意二刃與三刃左右轉動幅度不同，二刃端銑刀可左右旋轉幅度可到底，三刃端銑刀可左右旋轉幅度只可至後斜角研磨座中間標誌處，（過中心刀刃）即可。
2.所有研磨起點都需從四刃原點開始旋轉。

1. If you need to sharpen the secondary clearance angle completely, loosen the screws in the secondary clearance angle port, and then rotate left and right repeatedly for clearance.

Attn: The rotation ranges for 2 flutes and 3 flutes are different. For 2 flutes, rotate the holder left and right in whole rotation; for 3 flutes, on the sharpening port NO.2, rotate the benchmark notch side only.

2. The grinding should start from the flute pointed at the benchmark notch.

H 刀刃研磨切削 End gash sharpening

1.將ER夾具組對準螺絲頭及C型之凹槽NO.3之研磨孔裝入，並輕輕接觸砂輪做緩慢進給研磨。
為求刀刃研磨平均，請以右手握住ER夾具組，左手做左右移動研磨至無聲即可。
2.將ER夾具組取出，換至下一個未研磨刀刃並重覆上述動作，一直到所有刀刃研磨完成為止。
3.取出ER夾具組，查看端銑刀研磨是否完成。

1. Pointing ER holder at upper screw of end gash sharpening port NO.3, insert it into the port with a slight push motion. For precise and average grinding, hold tight the upper part of the ER holder with one hand and move the lower port at both sides with another hand to sharpen until grinding noise disappears.
2. Take out the holder with end mill and change to another flute, repeat the above steps until the sharpening for all flutes' end gashes is complete.
3. Take out the end mill from the holder and inspect it.

砂輪的更換 REPLACING THE WHEEL

A 拿取砂輪蓋 Removing the wheel cover

1.確定拔掉電源線以確保安全。
2.再用4mm的六角板手將雷刀機上蓋周圍之三支螺絲以反時鐘方向將螺絲鬆開。

1. Unplug the machine.
2. Loosen the three screws in the wheel cover counterclockwise with 4mm Allen key.

B 清除本體粉屑 Cleaning the grinding dust

1.取出上蓋後，用風槍將粉末清除乾淨，再用乾布將表面擦拭清潔。
2.若剛使用中更換，請靜待3分鐘後，待砂輪之溫度已降至常溫在清除。

1. Make sure the temperature of the wheel goes down to normal temperature.
2. Open the upper cover, clean the grinding dust with pressurized air and wipe outside with dry cloth.

C 拿取砂輪墊片 Removing the washer

1.以左手握住砂輪，右手用4mm六角板手以反時鐘方向轉開。
2.拿起砂輪墊片，並將4mm螺絲及墊片置於旁邊固定的位置。
3.拿起銑刀機上之鑽石砂輪。

1. Hold the wheel with left hand and loosen the screw counterclockwise with 4mm Allen key with right hand.
2. Take out the black washer.
3. Take out the wheel from the motor hub slightly.

D 換裝砂輪 Replacing the wheel

1.再更換新的砂輪。
2.再輕放回砂輪主軸內，並鎖回螺絲及砂輪蓋，即完成。
* 馬達主軸相當精密，如裝配不良將導致主軸損壞，而影響砂輪之位置。

1. Take a new proper wheel.
2. To re-install the wheel, reverse steps taken to remove wheel.
* The motor hub is very precise, it will be damaged by excessive force and affect the position of wheel accordingly.

注意事項 Caution

1.研磨前請確認研磨端銑刀材質，鎢鋼端銑刀材質請使用SDC鑽石砂輪；若材質為高速鋼端銑刀，請將砂輪更換為CBN鑽石砂輪。
2.請依照端銑刀刃數，選擇適當夾具組：GH-413 / 1225 可研磨2. 3. 4. 刃端銑刀。
3.端銑刀定位步驟是研磨過程中，最重要的一環，請確實完成定位動作。
4.本機台正常使用範圍內保固一年（虛耗零件及砂輪除外），本機台設有產品序號，有維修問題請告知產品序號。
5.研磨4~5mm銑刀，因砂輪直徑較小，研磨刀口時，需要特別緩慢進給。
6.馬達請勿持續運轉超過1小時。

1. Determine the material of end mill before grinding. Please use SDC diamond wheel for carbide end mill; please use CBN diamond wheel for HSS end mill.
2. Determine the flute of the end mill and use the proper collet holder; GH-413 / 1225 is suitable for 2, 3, and 4 flute end mill.
3. Aligning end mill is the most important among the steps, make sure to complete this step before grinding.
4. This machine is guaranteed for one year under normal operation (expendable parts and wheels are exceptions), please inform the serial no. when the machine needs to be repaired.
5. For end mill 4~5mm, be sure to use a very slight push motion while grinding the primary edge due the outer diameter of wheel is smaller.
6. The motor cannot run continuously over 1 hour.