

DRILL SERIES

SAFEWAY TECHNOLOGY



Best aid

SAFEWAY

SA-plus Drill Grinding Machine 鑽頭研磨機

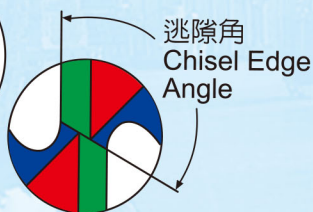
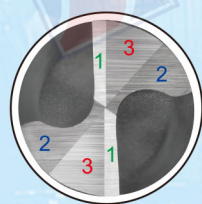
PAT.專利在案

特 性：

- 可研磨SG-ES鑽頭，可研磨第三後逃斜面，而靜點大小可以任意調整。
- 操作簡單，研磨精確，經濟實惠。
- 手提式設計，攜帶方便，室內、室外均可使用。
- 砂輪壽命極長，研磨角度精確。
- 隱藏式筒夾盒設計，方便管理筒夾。
- 採用高效率AC馬達，頻率穩定，壽命佳。

FEATURES:

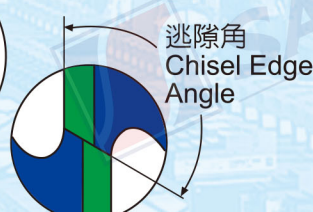
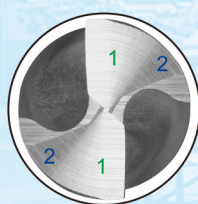
- Most suitable for SG-ES drill, With adjustable chisel edge length and tertiary facet.
- Easy operating, accurate grinding, and cost-saving.
- Portable and convenient to carry in any place.
- Adopt long lasting, precise grinding wheel.
- Built-in collet bracket for easily organizing.
- Adopt high efficient, stable frequency and long lasting AC motor.



XR type

3斜面鑽頭研磨機

可調整靜點大小與研磨第三後逃斜面
Adjustable chisel edge length and tertiary facet



X type

2斜面鑽頭研磨機

可調整靜點大小
Adjustable chisel edge length

簡單EASY

精確ACCURATE

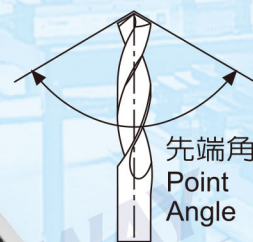
快速FAST



SA-1313 (Ø3-Ø13)
SA-2020 (Ø3-Ø20)
適用鑽頭：三斜面鑽頭SG-ES



SA-1301 (Ø3-Ø13)
SA-2001 (Ø3-Ø20)
適用鑽頭：高速鋼HSS / 碳化鎢Carbide



先端角
Point Angle



一般鑽頭可依轉速高低、材質軟硬程度來決定靜點大小。
本產品首創可以任意依客戶需求調整靜點大小，
且簡單與精確，實為研磨鑽頭之利器。

Easy, Precise and First application for drill with different chisel edge length.

ISO9001



SAFEWAY

ISO-9001 SA-plus

鑽頭研磨機 DRILL GRINDING MACHINE

適用可調整靜點大小鑽頭：3斜面鑽頭(XR型) 和2斜面鑽頭(X型) Drill with adjustable chisel edge length: XR type / X type

適用2斜面鑽頭、一般麻花鑽

- 型號 ● 078301301 SA-1301-110V
 MODEL ● 078321301 SA-1301-240V
 ● 078302001 SA-2001-110V
 ● 078322001 SA-2001-240V



SA-1301 (Ø3-Ø13)
SA-2001 (Ø3-Ø20)

●如何研磨鑽頭? ① → ② → ③

- 鎖緊鑽頭。
- 研磨先端角(90° - 144°) **G**
- 研磨靜點大小 X 可以從刻度 $X=0-1.0\text{ mm}$ 設定。

●如何調整靜點大小?

- 鬆開螺絲 **A**
- 轉動調整環 **B**，依照Table1刻度設定靜點 **C** 指示所須要靜點大小。

Table 1.	靜點大小 Chisel edge length				
刻度 Scales	0.2	0.4	0.6	0.8	1.0
Length (m/m)	$X=0-1.0\text{ mm}$				
SA-1301 (Ø3-Ø13)	0.17	0.34	0.51	0.68	0.85
SA-2001 (Ø3-Ø20)	0.16	0.32	0.48	0.64	0.80

- 再將螺絲 **A** 鎖上，即完成設定

可調整式靜點
Adjustable
chisel edge length

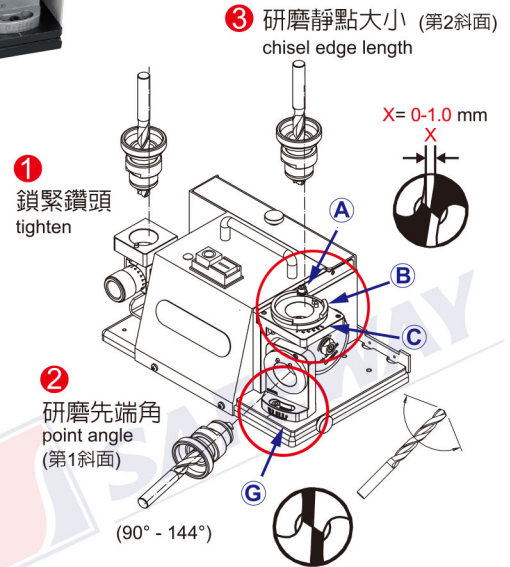
Drill type
HSS Drill
Carbide Drill

●How to grind the drill? ① → ② → ③

- Tighten the drill.
- Choose suitable angle (90° - 144°) **G** to grind point angle.
- Grind chisel edge length **C** by setting scales on the collar **B** ($X=0-1.0\text{ mm}$).

●How to adjust chisel edge length?

- Loosen socket cap screw **A**.
- Choose chisel edge length **C** by setting scales on the collar **B** ($X=0-1.0\text{ mm}$).(Table 1)
- Tighten socket cap screw **A** again.



適用3 斜面鑽頭

- 型號 ● 078301313 SA-1313-110V
 MODEL ● 078321313 SA-1313-240V
 ● 078302020 SA-2020-110V
 ● 078322020 SA-2020-240V



SA-1313 (Ø3-Ø13)
SA-2020 (Ø3-Ø20)

●如何研磨3斜面鑽頭? ① → ② → ③ → ④

- 鎖緊鑽頭。
- 研磨先端角(118° - 144°) **G**
- 研磨靜點大小 X 可以從刻度 $X=0-1.0\text{ mm}$ 設定。
- 研磨第3後逃斜面 **F** (118°-144°)

注意 先端角第1斜面 **G** 須與第3後逃斜面 **F** 的角度(118°-144°) 相同 ($G=F$)

●如何調整靜點大小?

- 鬆開螺絲 **A**
- 轉動調整環 **B**，依照Table1刻度設定靜點 **C**

Table 1.	靜點大小 Chisel edge length				
刻度 Scales	0.2	0.4	0.6	0.8	1.0
Length (m/m)	$X=0-1.0\text{ mm}$				
SA-1313 (Ø3-Ø13)	0.17	0.34	0.51	0.68	0.85
SA-2020 (Ø3-Ø20)	0.16	0.32	0.48	0.64	0.80

- 再將螺絲 **A** 鎖上，即完成設定

●如何調整第3後逃斜面?

- 鬆開螺絲 **D**
- 調整角度定位環 **E**，設定角度(118°-144°) **F**
- 再將螺絲 **D** 鎖上，即完成設定。

●How to grind the drill? ① → ② → ③ → ④

- Tighten the drill.
- Set the angle **G** (118°-144°) to grind point angle (1st).
- Set the scale ($X=0-1.0\text{ mm}$) on the collar **B** to grind chisel edge length (2nd).
- Grind tertiary facet **F** (118°-144°)

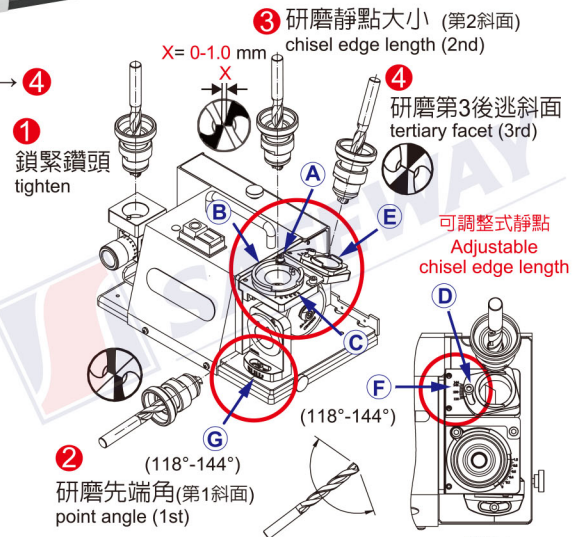
Note The angle of **G** and **F** must be same.

●How to adjust chisel edge length (2nd)?

- Loosen socket cap screw **A**.
- Choose suitable chisel edge length **C** by setting scales on the collar **B**. (Table 1)
- Lock socket cap screw **A** again.

●How to grind tertiary facet?

- Loosen socket cap screw **D**.
- Set the angle **F** (118°-144°) by setting scales of the collar **E**.
- Lock socket cap screw **D** again.



單位 Unit : mm

訂購編號 ORDER NO.		型 號 MODEL	直徑範圍 DIA. CAPACITY	角度範圍 ANGLE CAPACITY	電源 / POWER (單相 / SINGLE)	淨重 N.W.	毛重 G.W.	保險絲 / FUSE (慢斷型)	砂輪 WHEEL	筒夾型式 COLLET	外型尺寸 DIMENSION	備註 REMARK	
二 斜 面 X	078301301	SA-1301	Ø3~Ø13mm	90°~144°	AC100~110V 50~60Hz	11kg	12kg	6A	CBN#200	ER-20	335x220x200		
	078321301				AC220~240V 50~60Hz			3A					
	078302001	SA-2001	Ø3~Ø20mm		AC100~110V 50~60Hz	17kg	18kg	8A		CBN#200	ER-25		435x240x220
	078322001				AC220~240V 50~60Hz			4A					
三 斜 面 XR	078301313	SA-1313	Ø3~Ø13mm	118°~144°	AC100~110V 50~60Hz	11kg	12kg	6A	CBN#200	ER-20	335x220x200		
	078321313				AC220~240V 50~60Hz			3A					
	078302020	SA-2020	Ø3~Ø20mm		AC100~110V 50~60Hz	17kg	18kg	8A		CBN#200	ER-25		435x240x220
	078322020				AC220~240V 50~60Hz			4A					

A. 靜點設定 CHISEL EDGE Pre-setting (mm)

鬆開螺絲，將刻度環調到所需靜點大小，再將螺絲鎖上即可。

Loose screw, settle proper scale in line with the chisel edge and install it back.

**Table 1, 靜點 CHISEL EDGE (mm)**

型號 MODEL	SA-1301	SA-1313	SA-2001	SA-2020
0.2	0.17	0.17	0.16	0.16
0.4	0.34	0.34	0.32	0.32
0.6	0.51	0.51	0.48	0.48
0.8	0.68	0.68	0.64	0.64
1.0	0.85	0.85	0.80	0.80

B. 長度及方位設定 Position & Length Pre-setting

- 整組順時鐘方向輕輕頂住直銷。
- 鑽頭輕輕頂到底且順時鐘方向輕輕頂住停止檔。
- 順時鐘方向將筒夾螺帽鎖緊。
- Against pin by clockwise direction.
- Hit the drill to the bottom slightly and then turn clockwise to against the stopper.
- Next, tighten the collet manually and clockwise.

**C. 先端角研磨 (第1斜面) Point Angle**

- 調整適當的角度範圍。
- 慢慢送入整組筒夾夾組，使鑽頭輕輕接觸砂輪。
- 並順時鐘及逆時鐘方向慢慢來回旋轉。
- Settle proper scale.
- Move the collet bracket in and touch the wheel lightly.
- Rotate the drill back and forth slowly. And then stop until soundless.

**D. 靜點(逃隙角)研磨 Chisel Edge length**

- 鬆開螺絲，調整適當的角度範圍再鎖緊。
- 整組慢慢壓到底輕輕接觸砂輪。
- 整組順時鐘、逆時鐘來回慢慢旋轉，直到沒有研磨聲音為止即可。
- Loosen socket cap screw, Settle proper scale and tighten again.
- Hit the drill to the bottom slightly and then turn clockwise to against the stopper.
- Rotate the drill back and forth slowly. And then stop until soundless.

**E. 第三後逃斜面研磨 (Tertiary Facet)**

- 鬆開螺絲，調整適當的角度範圍再鎖緊。
- 整組慢慢壓到底輕輕接觸砂輪。
- 整組順時鐘、逆時鐘來回慢慢旋轉，直到沒有研磨聲音為止即可。
- Loosen socket cap screw, Settle proper scale and tighten again.
- Must hit the drill "centrally" slightly to the wheel.
- Rotate the drill back and forth slowly And then stop until soundless.

Note: The angle should be as "Point Angle"

**標準附件/Standard Accessories:**

筒夾 collet:

SA-1301, 1313 : ER-20 Ø3, Ø4, Ø5, Ø6, Ø7, Ø8, Ø9, Ø10, Ø11, Ø12, Ø13 x 11pcs
SA-2001, 2020 : ER-25 Ø3, Ø4, Ø5, Ø6, Ø7, Ø8, Ø9, Ø10, Ø11, Ø12, Ø13, Ø14, Ø15, Ø16, Ø17, Ø18, Ø19, Ø20 x 18pcs

砂輪 / wheel:

CBN #200 x 1pc(SA-1301, SA-1313) 適合HSS鑽頭使用For HSS drill
CBN #200 x 1pc(SA-2001, SA-2020) 適合HSS鑽頭使用For HSS drill
4mm六角板手 Hex. Wrench x 1pc

特殊附件/Optional Accessories:

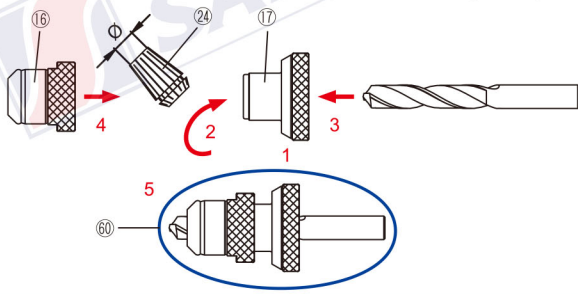
SA-1301, 1313 : ER-20 Ø3.5, Ø4.5, Ø5.5, Ø6.5, Ø7.5, Ø8.5, Ø9.5, Ø10.5, Ø11.5, Ø12.5 x 10pcs
SA-2001, 2020 : ER-25 Ø3.5, Ø4.5, Ø5.5, Ø6.5, Ø7.5, Ø8.5, Ø9.5, Ø10.5, Ø11.5, Ø12.5, Ø13.5, Ø14.5, Ø15.5, Ø16.5, Ø17.5, Ø18.5, Ø19.5 x 17pcs

鑽石砂輪 / DIAMOND WHEEL:

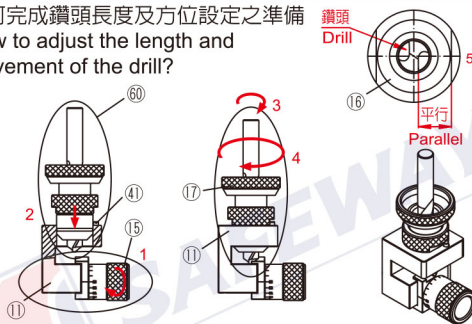
DIA #400 x 1pc(SA-1301, SA-1313) 適合碳化鎢鑽頭使用For Carbide drill
DIA #400 x 1pc(SA-2001, SA-2020) 適合碳化鎢鑽頭使用For Carbide drill

鑽頭研磨機 / 操作說明 DRILL GRINDING MACHINE / OPERATION

A. 如何完成鑽頭研磨前準備 / How to prepare for drill grinding



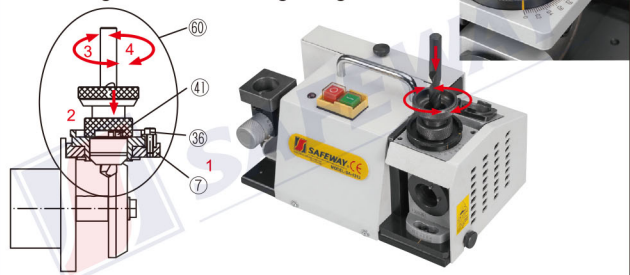
B. 如何完成鑽頭長度及方位設定之準備 How to adjust the length and movement of the drill?



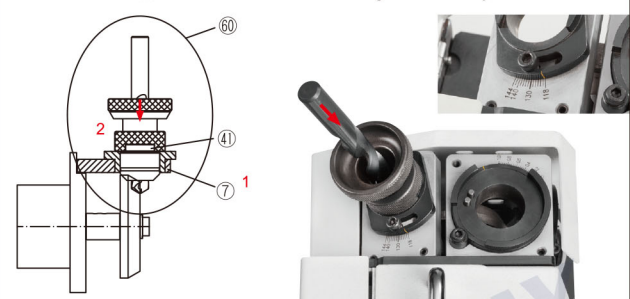
C. 如何研磨鑽頭先端角 / How to grind point angle?



D. 如何研磨鑽頭靜點大小(逃隙角) How to grind drill chisel edge length?



E. 如何研磨鑽頭第三後逃斜面 / How to grind tertiary facet?



A. 如何完成鑽頭研磨前準備:

1. 首先確認鑽頭直徑，再選擇筒夾 (24) 直徑。
2. 將已選筒夾以適當角度嵌入筒夾迫緊帽內 (17)。
3. 鑽頭插入筒夾內，並伸出約35mm左右，但不可鎖緊。
4. 筒夾環 (16) 套入筒夾 (24) 並鎖入筒夾迫緊帽 (17) 然後輕輕鎖入並保持鑽頭可用手旋轉。
5. 以上步驟即完成鑽頭研磨前準備 (60)。

B. 如何完成鑽頭長度及方位設定之準備:

1. 首先將刻度環 (15) 調到所需研磨鑽頭直徑一樣。
2. 將整組已準備好之鑽頭夾頭組 (60) (如A1-A4步驟)插入長度設定座 (11) 內，並將直銷 (4) 嵌入凹槽內。
3. 將整組鑽頭夾頭組 (60) 順時鐘方向旋轉至頂住直銷 (4) 同時將鑽頭順時鐘方向旋轉至頂住鑽頭刀刃為止。
4. 筒夾迫緊帽 (17) 順時鐘方向將鑽頭鎖緊。
5. 將整組鑽頭夾頭組 (60) 取出，確認鑽頭前端刀刃與筒夾環凹槽是否平行，如沒有平行，要再重新設定一次。

注意：如鑽頭螺旋形式不一，請自行設定平行後，再將刻度環數字調整與鑽頭直徑數字一樣。

C. 如何研磨鑽頭先端角:

1. 將整組鑽頭夾頭組 (60) 再插入研磨座 (4)，並將直銷 (4) 嵌入凹槽內。
2. 將整組鑽頭夾頭組 (60) 輕輕接觸砂輪，並順時鐘、逆時鐘方向旋轉約5-6次研磨直到沒有研磨聲音為止即可。
3. 將整組鑽頭夾頭組 (60) 取出轉180°，再依上述C1-C2步驟重複研磨一次，即可完成鑽頭兩刃先端角。

D. 如何研磨鑽頭靜點大小(逃隙角):

1. 首先鬆開螺絲 (36)，將刻度環調到所需靜點大小(依照上頁table 1)，再將螺絲鎖上即可。
2. 將整組鑽頭夾頭組 (60) 再插入逃隙角研磨座 (7)，並將凹槽嵌入直銷內。
3. 將整組鑽頭夾頭組 (60) 輕輕接觸砂輪，並順時鐘、逆時鐘方向旋轉約5-6次研磨，直到沒有研磨聲音為止即可。
4. 將整組鑽頭夾頭組 (60) 取出，轉180°，再依上述D1-D2步驟重複研磨一次，即可完成鑽頭兩刃逃隙角。

注意：鑽頭靜點最小值為0.01 mm，最大值為1 mm。

E. 如何研磨鑽頭第三後逃斜面:

1. 將整組鑽頭夾頭組 (60) 再插入研磨座，並將直銷嵌入凹槽內。
2. 將整組鑽頭夾頭組 (60) 輕輕接觸砂輪，直到沒有研磨聲音為止即可。
3. 將整組鑽頭夾頭組 (60) 取出轉180°，再依上述E1-E2步驟重複研磨一次，即可完成鑽頭第三後逃斜面。

注意：研磨時角度須與先端角相同。

A. How to prepare for drill grinding:

1. Prepare the drill and proper collet (24) for match.
2. Lock collet into holder (17) properly.
3. Insert drill into collet with 35 mm extension and slightly tightened.
4. Insert collet nut (16) into collet (24) to lock collet holder (17). Operate slightly to turn the drill by hand.
5. Drill grinding preparation ends for collet chuck set (60).

B. How to adjust the length and movement of the drill:

1. Settle proper scale (15) in line with the dia. of drill.
2. Put the whole set (60) into Length pre-setting bracket (11) (According to step A1-A4) and insert pin (4) into the slot.
3. Turn collet chuck set (60) clockwise to against pin (4) and either turn drill clockwise until touched drill cutting edge.
4. Tighten collet holder (17) and make sure that the drill is firmly locked.
5. Take out of collet chuck set (60) and check cutting edge and collet nut slot are paralleled with each other. If not, please repeat B1-B4 again.

Attention: If drills are different in spiral form, please reset the parallel and re-adjust scale ring (15) in line with drill diameter.

C. How to grind point angle:

1. Settle proper scale
2. Put collet chuck set (60) into bracket (4) and then against the pin (4).
3. Push collet chuck set (60) "centrally and slightly" that enables the drill touched the wheel and then rotated reversely until soundless.
4. Repeat step C1 and step C2 to finish point angle grinding.

D. How to grind drill chisel edge angel:

1. Loosen socket cap screw (36), Settle proper scale (from table 1) and tighten again.
2. Put collet chuck set (60) into bracket (7) and then against the pin (4).
3. Push collet chuck set (60) "centrally and slightly" that enables the drill touched the wheel and then rotates reversely about 5-6 times until soundless.
4. Repeat step D1 and step D2 to finish chisel edge length grinding.

Attention: The range of chisel edge length is from 0.1mm to 1mm.

E. How to grind tertiary facet:

1. Loosen socket cap screw, Settle proper scale and tighten again.
2. Put collet chuck set (60) into bracket and then against the pin (4).
3. Push collet chuck set "centrally and slightly" that enables the drill touched the wheel and then rotates reversely about 5-6 times until soundless.
4. Repeat step E1 and step E2 to finish the tertiary facet grinding.

Attention: The angle should be same as point angle.



Best aid

SAFEWAY

<http://www.safeway-vise.com>

協威機械工業股份有限公司
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