

# 電動螺絲起子操作手冊

## OPERATION AND MAINTENANCE MANUAL

AC-TYPE 全自動手按

AC-TYPE 全自動下壓

AC-TYPE 半自動手按

DC-TYPE 全自動手按

DC-TYPE 全自動下壓

AC-TYPE Automatic Trigger Start Series

AC-TYPE Automatic Push Start Series

AC-TYPE Semi-Automatic Trigger Start Series

DC-TYPE Automatic Trigger Start Series

DC-TYPE Automatic Push Start Series

奇力速工業股份有限公司

**KILEWS INDUSTRIAL CO., LTD.**

<http://www.kilews.com>

## 目錄 / INDEX

1、	操作守則.....	2
2、	操作須知.....	3
3、	接地說明.....	4
4、	其他說明.....	4
	附零件分解圖、零件表.....	附頁
	技術參數.....	附頁
	標準配備.....	附頁
	扭力調整.....	附頁
1、	Important Safety Instructions.....	6
2、	Grounding Instructions.....	7
3、	Operations Cautions.....	9
4、	Description Of Operation.....	10
5、	Servicing.....	10
	Parts List.....	Appendix
	Specifications.....	Appendix
	Accessories.....	Appendix
	Torque Adjustment Operation.....	Appendix

## 操作前請閱讀全部說明(內附零件分解圖)

### 警告

在進行本電動螺絲起子任何維修之前,須將電源線自插座拔離。  
若非合格維修技師,請勿嘗試修理本電動螺絲起子

使用電動螺絲起子時,應遵守下列基本安全措施,以避免失火、觸電和人身傷害等危險。

1. 工作場所要保持乾淨。  
雜亂的區域及工作場所易造成傷害。
2. 注意工作場所的環境。  
勿將電動螺絲起子或其配件置放於水邊,工作場所應照明良好。
3. 閒人勿近。  
除非指派,勿讓他人任意操作此電動螺絲起子。
4. 收好不使用的工具。  
不使用此電動螺絲起子時應將其收好,存放於乾爽安全處。
5. 勿強押電動螺絲起子。  
為確保電動螺絲起子之功能及安全性,使用時請勿強壓之。
6. 使用正確機型的電動螺絲起子。  
勿以小型電動螺絲起子或附件去操作須以重型電動螺絲起子完成的工作。  
勿使用此電動螺絲起子於非其設定之用途,如:鑽孔等。
7. 操作此電動螺絲起子時要穿著適宜。  
勿穿著太寬鬆之衣物或珠寶,以免遭工具勾扯而造成危險。
8. 小心使用電源線。  
不可使用電源線拉提電動螺絲起子,或將電源線從插座猛拉開。  
避免電源線接觸到熱源、油污或化學劑等物品,或磨擦到尖銳的物品邊緣。
9. 固定工作物。  
作業員應將工作物固定,安全操作電動螺絲起子。
10. 細心維護工具。  
定期檢查電動螺絲起子的電源線,遇有損壞應由指定之服務部門修理;機身需保持乾淨,避免油污弄髒。
11. 拔掉電動螺絲起子的插頭。  
不使用電動螺絲起子時或更換零件時應拔掉電源線插頭。
12. 避免意外起動電動螺絲起子。  
注意使用電壓是否符合該機型使用,在插上電動螺絲起子的電源插頭時須先確認開關處於"OFF"的狀態。
13. 保持警覺。  
注意正在做的事,在進一步使用工具前應先仔細檢查安全措施或其他零件是否破損,以確定工具能如原設計的正常使用的。

## 注意

請勿任意分解、拆裝此電動螺絲起子，否則保證無效。

電動螺絲起子請配合使用原廠零件，使用非原廠零件維修而造成電動螺絲起子發生故障或品質不良，從而導致一切保證失效，本廠恕不負責。

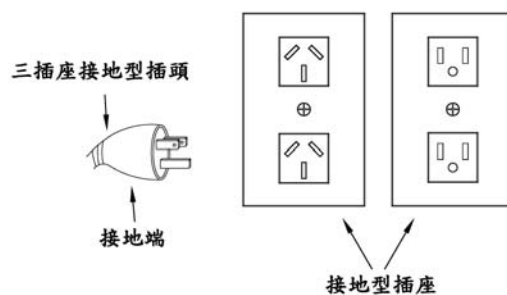
## 操作須知

1. 當更換螺絲刀頭時應先確定正反開關在“OFF”的位置，且將電源插頭拔離插座。
2. 化學物品如：丙酮、苯、稀釋劑、酮類、三氯乙烯等等，切勿接觸電動螺絲起子外殼，以免遭到破壞。
3. 小心使用電動螺絲起子，勿使掉落或受撞擊，使用時最好用平衡器吊起來，若電動螺絲起子無法吊起來時，可使用起子架來放置。
4. 裝卸螺絲刀頭：只需以指尖將起子頭帽往上推即可自由的將螺絲刀頭裝上或卸下，放開手指使起子頭帽歸位即可將螺絲刀頭固定。  
注意：裝卸螺絲刀頭時請確實斷電或將開關置於“OFF”的位置。
5. 將電源線接上電源插座。  
注意：電源線插頭或手部潮濕會導致觸電危險。
6. 扭力輸出的大小可由電動螺絲起子下端的扭力調整環調整之，機身的刻劃段數並不代表實際的扭力輸出，請參考扭力標示圖或以扭力計量測及調整所需扭力。  
注意：請勿將扭力調整超過刻度“8”。
7. ※為壓板式起子時要進行鎖緊螺絲動作，請將正反開關切到“F”的位置(若螺絲為反牙規格，則須將正反開關切換至“R”的位置)，對準螺絲刀頭與螺絲的位置，手按開關壓板後電動螺絲起子即可啟動運轉；當螺絲鎖緊達設定扭力時，離合器會自動跳脫，馬達會斷電並及時剎車，讓電動螺絲起子停止運轉。  
※為下壓式起子若要進行鎖緊螺絲動作，請將正反開關切到“F”的位置(若螺絲為反牙規格，則須將正反開關切換至“R”的位置)，對準螺絲刀頭與螺絲的位置，下壓電動螺絲起子即可啟動運轉；當螺絲鎖緊達設定扭力時，離合器會自動跳脫，馬達會斷電並及時剎車，讓電動螺絲起子停止運轉。
8. ※若為壓板式起子，鬆脫拔起螺絲時則僅需將正反開關切換至“R”的位置(若螺絲為反牙規格，則須將正反開關切換至“F”的位置)，按上述程式操作，於螺絲鬆開後，放開開關壓板即可。  
※若為下壓式起子，鬆脫拔起螺絲時則僅需將正反開關切換至“R”的位置(若螺絲為反牙規格，則須將正反開關切換至“F”的位置)，按上述程式操作，於螺絲鬆開後，提高電動螺絲起子即可停止運轉。
9. 操作頻率：本機額定斷續運行時間為1秒/3秒(ON/OFF)。即每分鐘操作鎖螺絲的數量約15只，過高的使用頻率會使馬達過熱造成嚴重損壞，請給予起子適當的休息散熱。
10. 請勿使用本電動螺絲起子鎖木螺絲。
11. 操作運行中嚴禁切換正反轉開關。
12. 無論何時，只要不使用電動螺絲起子，均應將正反開關置於“OFF”位置。

## 接 地 說 明

1. 電動螺絲起子於使用中應確實接地，以免操作者觸電。
2. 操作者可以用簡單的方法檢查接地是否正常：拿一般三用電錶，將電錶檔位切換到歐姆檔\*10 的位置，將電錶正、負測試棒接觸，進行歸零調整；之後，將紅色測試棒接觸電源線的接地端，另一黑色測試棒則接觸在電動螺絲起子尾端起子頭帽內側，稍微施力；此時電錶指標大幅擺動，顯示阻值介於 0~10 歐姆間，即表示接地正常，若指針不動或阻值遠大於 10 歐姆以上，即表示接地不正常，應及時予以檢修。

※注意：電源插座的接地線需確實和電源設備的接地端相連接才有接地作用；地線可將電動螺絲起子所產生的靜電(ESD)消除。



## 其 他 說 明

1. 此電動螺絲起子的最佳使用狀況是每日不超過 8 小時。
2. 當電動螺絲起子使用時數達 1000 小時或約半年時間，須進行機身內部清潔、換碳刷、加潤滑油等等的保養或檢查動作，以維持電動螺絲起子的壽命、安全和扭力精確度(無碳刷馬達不在此限)。
3. 定期檢查馬達兩端的碳刷損耗情形，如果碳刷長度不到 2~3mm 就要換新的碳刷，碳刷磨損的速率與電動螺絲起子使用的頻率成正比。
4. 電動螺絲起子內部應定期清潔，以避免積碳破壞絕緣強度，引起漏電的危險。
5. 離合器應定期補充專用的潤滑油，使其傳動順暢減低磨損。
6. 不要超出額定運轉的頻率(0.8 秒/3.2 秒 ON/OFF)，以免造成馬達過熱所引發的嚴重損壞。
7. 電動螺絲起子的維修保養工作可就近交由本公司指定之售後服務中心或連絡原購買的經銷商送往當地服務中心處理。
8. 客戶若將電動螺絲起子交由非本公司指定之服務中心維修或自行拆解修理，因此所造成的品質不良將無法獲得應有的保證服務。
9. 電動螺絲起子的管理部門有責任將本手冊交予操作員或使用者的閱讀，切勿嘗試自行修理本電動螺絲起子。

注 意



請妥善保存此說明書

## NOTICE

Metal Assembly Screwdrivers are designed for installing threaded fasteners in light industrial and appliance manufacturing applications.

KILEWS is not responsible for customer modification of tools for applications on which KILEWS was not consulted.

## WARNING

### **Important safety information enclosed.**

Read all these instructions before placing tool in service or operation this tool and save these instructions. It is the responsibility of the employer to place the information in this manual into the hands of the operator. Failure to observe the following warnings could result in injury. When using electric tools, Basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following:

## Important Safety Instructions

**WARNING!** Read all instructions. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury. The term “power tool” in all of the warning listed below refer to your mains operated (corded) power tool or battery operated (cordless) power tool.

### SAVE THESE INSTRUCTIONS

#### 1) Electrical Safety

- a) **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.
- b) **Do not operate power tools in explosive atmosphere, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- c) **Keep children, and bystanders away while operating a power tool.** Distractions can cause you to lose control.

#### 2) Electrical Safety

- a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- c) **Don't expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of cord suitable for outdoor use reduces the risk of electric shock.

#### 3) Personal Safety

- a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use power tool while you are tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- b) **Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.  
Rubber gloves and non-skid footwear are recommended when working outdoors.
- c) **Avoid accidental starting. Ensure the switch is in the off position before plugging in.** Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.
- d) **Remove any adjusting keys or wrench before turning the power tool on.** A wrench or a key that is left attached to a rotating part of the power tool may result in personal injury.
- e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewellery, or long hair can be caught in moving parts.
- g) **Secure work.** Use clamps or a vice to hold the work. It is safer than using your hand and frees both hands to operate the tool.
- h) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of these devices can reduce dust related hazards.



#### 4) Power tool Use and Care

- a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- b) **Do not use power tool if switch does not turn it on or off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c) **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- d) **Store idle power tools out of reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.  
Do not let visitors touch the tool or extension cord. All visitors should be kept away from work area.
- e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.  
Inspect extension cords periodically and replace, if damaged.
- f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- g) **Use the power tools, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from intended could result in a hazardous situation.

#### 5) SERVICE

- a) Have your power tool serviced by qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

#### Additional information shall be provided

- a) Instruction for putting into use
  - 1. Setting-up or fixing power tool in a stable position as appropriate for power tools which can be mounted on a support.
  - 2. Assembly
  - 3. Connection to power supply, cabling, fusing, socket type and earthing requirements.
  - 4. Illustrated description of functions.
  - 5. Limitations on ambient conditions.
  - 6. List of contents.
- b) Operating Instructions.
  - 1. Setting and testing.
  - 2. Tool changing.
  - 3. Clamping of work.
  - 4. Limits on size of work piece.
  - 5. General instructions for use.
- c) Maintenance and servicing.
  - 1. Regular cleaning, maintenance, and lubrication.
  - 2. Servicing by manufacturer or agent, list of addresses.
  - 3. List of user-replaceable parts.
  - 4. Special tools which may be required.

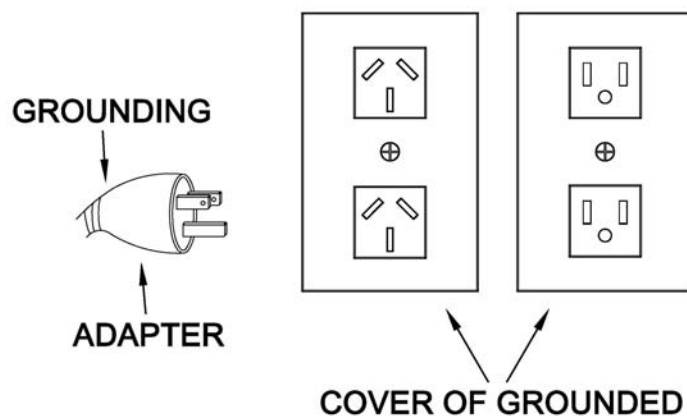


## WARNING !

**DO NOT OPERATE THIS TOOL WITHOUT  
PROTECTIVE EARTH CONNECTED**

### Grounding Instructions

- 1、 This tool should be grounded while in use to protect the operator from electric shock. NOTICE ! To ensure the grounding result, the grounding conductor of the power cord must be well connected with the grounding terminal of power facility. This tool is equipped with grounding conductors. The Green(or Green and Yellow)conductor in the Power Cord is the grounding wire. Never connect Green (or Green and Yellow) to a live terminal. The grounding wires in this tool can not only earth the electric leakage safely, but also can eliminate ESD-the electrostatic that tool occurred while in use.
- 2、 The grounding is the most important task a user. Periodically, depends on the working condition and circumstance, for maintaining a good function the user has to check the grounding condition every 3~6 months by an electric meter and following simple steps; Set the Ohm meter to level  $R \times 100(\text{Ohm})$ . Touching 2 test rods (“+”&“-”) together and reset the meter to “0”. Using the Red(“+”) rod to touch the Grounding wire on the Plug of controller’s cord, and the Black(“-”) rod to the end of Bit Head. It stands for the grounding is normal if the meter is read as close as to “0”. For getting a normal indication on the meter while in testing, need to press the test rods firmly to the testing objects.
- 3、 The instrument QC of the tool is performed before the tool ex-factory. The grounding continuity test is conducted by input 26A voltage to the end of earth terminal, and subject to the resistance value lower than 0.3Ohm.



## Operations Cautions

- 1) Whenever changing a bit, make certain the Forward / Reverse Switch is in the “ OFF “ position and tool is unplugged.
- 2) Do not allow chemicals such as acetone, benzene, thinner, trichloroethylene ketone, or other similar chemicals to come in contact with the screwdriver housing as damage will result.
- 3) Do not drop or abuse the screwdriver.
- 4) Do not adjust the torque setting higher than 8 on the torque scale.
- 5) There should be a tool rest interval when cycles three seconds or longer. This tool is intended for a duty cycle of 1.0 sec on, 3.0 sec off.
- 6) Do not use this screwdriver for tightening wood screws. This is “ Metal Assembly Screw Driver ”
- 7) Do not operate the Forward / Reverse Switch the motor is running.
- 8) Whenever a tool is not being used, move the Forward / Reverse Switch to the “OFF” position and unplug the screwdriver.
- 9) Don't touch For&Rew Switch during operating for keeping system from wrong judgement.

### CAUTION

- Do not drop or abuse the tool.
- Whenever a tool is not being used, position the Power Switch to the “OFF” position and unplug the power cord.

## Description of Operation

Attaching / detaching bit and bit type

Push up the holder clamp by finger tip, and it will be unlocked. Thus, the bit can be freely attached and detached (single finger notion type) select such a bit whose shank is equal to the size shown below.

- ☒ Insert the power plug into a receptacle and set the changeover switch to “F” position.
- ☒ Apply the bit to the screw head and press the lever or push main body to, then the switch will be turned ON to start the motor running.
- ☒ When the screw is tighten and reach the torque that you had set, The tool will stopped automatically.
- ☒ To reset the tool by releasing the lever to the original position or releasing the bit From the screw head.
- ☒ To return the screw, set the changeover switch to “R” position.

## Servicing

### Maintenance and Inspection:

1. The screw driver must be operated in top condition, one day working hour must be not more than eight hours.
2. Periodically check for wear of motor 、 Carbon brush, one day for eight hours use is normal, replace it after every five to six months.
3. Please note don't let the motor get over heated, every minute use 10~15 screws to operate.
4. The frequency use of this electric screw driver is over than eight hours a day, still it needs periodically testing and treatment. Every 5-6 months.
5. Inspect tool cords periodically and if damaged, have them repaired by an authorized service facility. Inspect extension cords periodically and replace if damaged.
6. Do not remove any labels. Replace any damaged label.

**CAUTION**


1. The use of other than genuine KILEWS replacement parts may Result in decreased tool performance and increased maintenance, and may invalidate all warranties.
2. All repairs and maintenance of this tool and its word must be performed by an authorized service center.
3. KILEWS is not responsible for customer modification of tools for applications on which KILEWS was not consulted.
4. Repairs should by made only by authorized, trained personnel. Consult your nearest KILEWS authorized service center.
5. It is the responsibility of the employer to place the information in this manual into the hands of the operator.

**DO NOT ATTEMPT TO REPAIR THIS  
ELECTRIC SCREW DRIVER**

**CAUTION**

**SAVE THESE INSTRUCTIONS  
DO NOT DESTROY**

## ※主要技術參數

機 型		SKD-2000L	SKD-2200L	SKD-2300L	SKD-2000LS
輸入電壓		DC 24V OR 32V			
額定功率		25W			
扭 力	(kgf.cm)	0.2~3.5	0.5~7	1~10	0.2~3.5
	(Lbf.in)	0.18~3.01	0.44~6.10	0.89~8.67	0.18~3.01
	(N.m)	0.02~0.34	0.05~0.69	0.1~0.98	0.02~0.34
扭力精度 (%)		±3%			
扭 力 調 整		無段式			
空轉速 n0: (r/min)	HI	1000	1000	670	670
	LO	700	700	470	470
適用螺絲直徑 (mm)	機械牙	1.0~2.3	1.4~2.6	1.6~3.0	1.0~2.3
	自攻牙	1.0~2.0	1.4~2.3	1.6~2.6	1.0~2.0
重 量 (g)		270			
長 度 (mm)		LC / 213 ; LB / 222			
適用扭力固定環		KC-4			
適用電動起子控制器		SKP-32HL-60W ; SKP-32VR-60W			
適用起子架		KH-4、(KC & KH-4)			
適用起子頭					

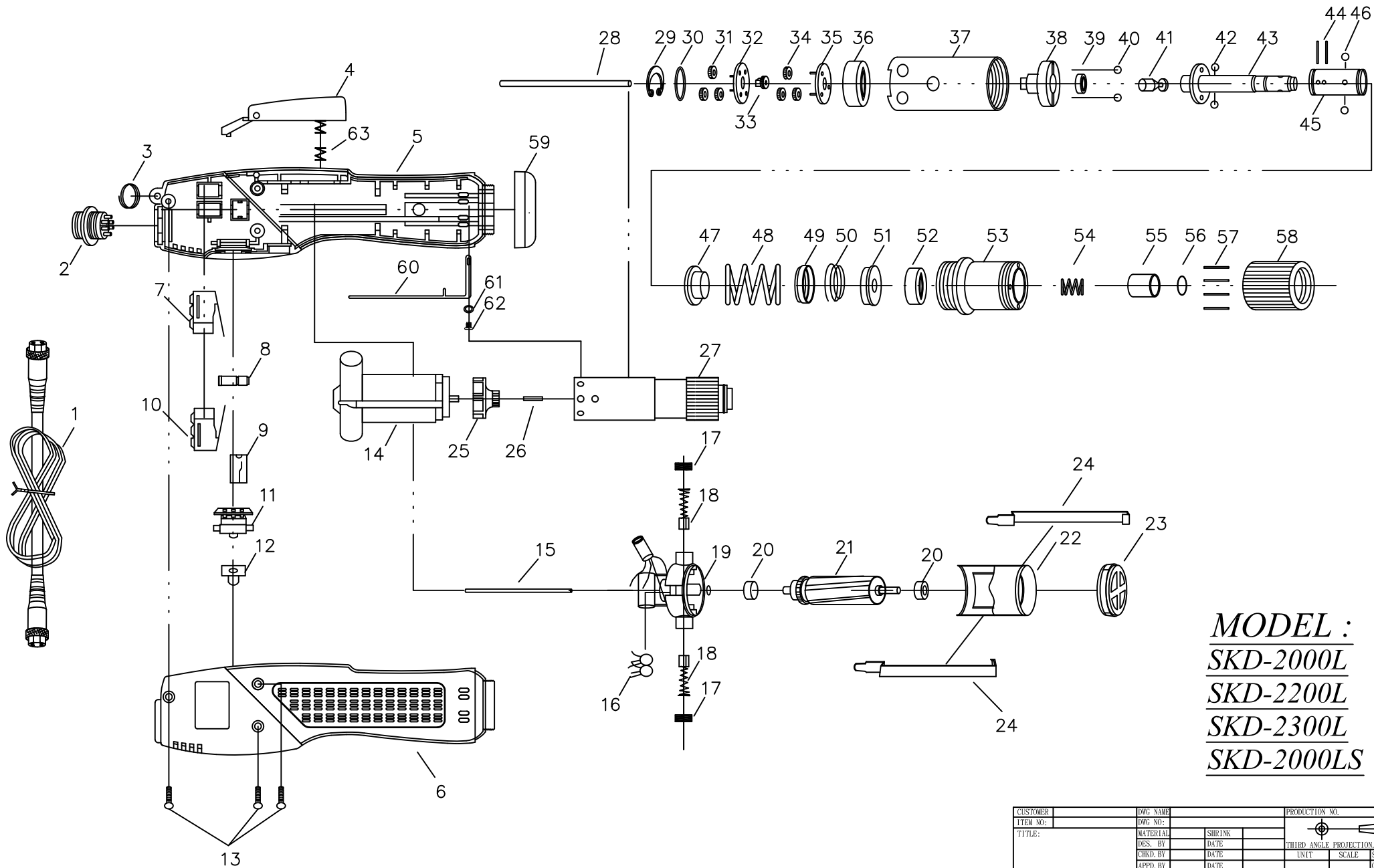
\* 1N.m=10.2Kgf.cm 1N.m=8.85Lbf.in

## ※標準配件

- 1 · 起子頭 (B I T) 型號：
- NO. 00# 適用於直徑 1.3~1.8mm 螺絲
  - NO. 0# 適用於直徑 1.8~2.0mm 螺絲
  - NO. 1# 適用於直徑 2.0~2.6mm 螺絲
  - NO. 2# 適用於直徑 3.0~4.0mm 螺絲

SKD-2000L	配附 BIT	M3	Ø4×40	00# & 0# & 1#	各 1 支
SKD-2200L	配附 BIT	M3	Ø4×40	00# & 0# & 1#	各 1 支
SKD-2300L	配附 BIT	M3	Ø4×40	1# & 2#	各 1 支
SKD-2000LS	配附 BIT	M3	Ø4×40	00# & 0# & 1#	各 1 支

- 2 · 起子吊簧(30cm)一條。



**MODEL :**  
SKD-2000L  
SKD-2200L  
SKD-2300L  
SKD-2000LS

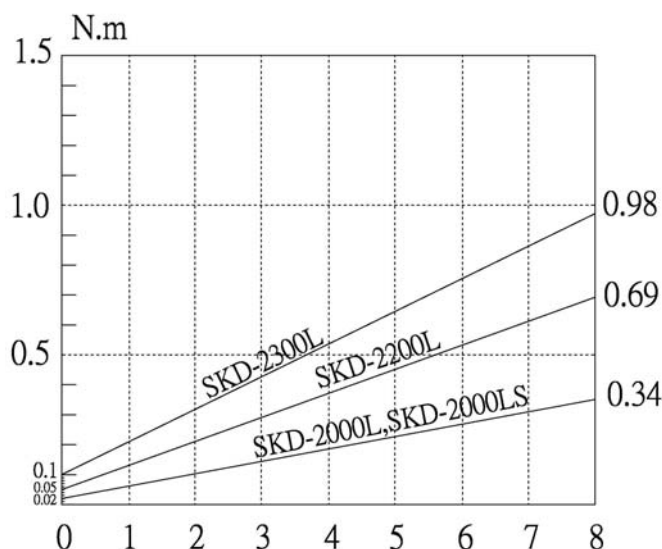
CUSTOMER	DWG NAME	PRODUCTION NO.
ITEM NO:	DWG NO:	
TITLE:	MATERIAL	SHRINK
	DES. BY	DATE
	CHKD. BY	DATE
	APPD. BY	DATE
		THIRD ANGLE PROJECTION.
		UNIT SCALE SHIT NO.
		OF SHITS.

NO	PARTS NO	PARTS NAME-E	PARTS NAME-C	Q'ty	NO	PARTS NO	PARTS NAME-E	PARTS NAME-C	Q'ty
1	AA50001	CORD ASSEMBLY 2M	電源線 2M	1		GH28191-6	IDLE GEAR FOR "2300L&2000LS"	游星齒輪(2300L&2000LS)	3
2	PZ50160	CONNECTOR ASS'Y	6芯插座	1	32	GG28211	GEAR SEAT"2000L&2200L"	上齒盤(2000L&2200L)	1
3	CJ20011	SUSPENSION RING	起子吊環	1		G21507	GEAR SEAT FOR "2300L&2000LS"	上齒盤(2300L&2000LS)	1
4	CC28022	TRIGGER ASSEMBLY	手按開關半成品	1	33	M11308	CENTRAL GEAR FOR "2000L&2200L"	中心齒(2000L&2200L)	1
	CC28023	TRIGGER ASSEMBLY (ESD)	手按開關半成品 (ESD)	1		G20103	CENTRAL GEAR FOR "2300L&2000LS"	中心齒(2300L&2000LS)	1
5	CB28003	HOUSING-UNDERSIDE	下蓋	1	34	GH28191	IDLE GEAR FOR "2000L&2200L"	游星齒輪(2000L&2200L)	3
	CB28005	HOUSING-UNDERSIDE (ESD)	下蓋 (ESD)	1		GH28191-1	IDLE GEAR FOR "2300L&2000LS"	游星齒輪(2300L&2000LS)	3
6	CA28153	HOUSING-UPSIDE	上蓋	1	35	GG28211	GEAR SEAT FOR "2000L&2200L"	下齒盤(2000L&2200L)	1
	CA28155	HOUSING-UPSIDE (ESD)	上蓋 (ESD)	1		GG28211-1	GEAR SEAT FOR "2300L&2000LS"	下齒盤(2300L&2000LS)	1
7	HB50061	START SWITCH	啟動開關	1	36	GN28221	MAIN BEARING	離合器主軸承	1
8	CE28051-1	PUSH ROD	推桿半成品	1	37	GA28231-3	GEAR CASE	上離合器筒	1
9	CE28061	FIXTURE	三合一固定片	1	38	GC28241-2	CAM FOR"2000L&2000LS"	上離合器頭(2000L&2000LS)	1
10	HB50061	SHUT OFF SWITCH	剎車開關	1		GC28241-1	CAM FOR "2200L"	上離合器頭(2200L)	1
11	HA28071F	CHANGEOVER SWITCH	正反開關	1		GC28241	CAM FOR "2300L"	上離合器頭(2300L)	1
12	CI60216	CHANGEOVER SWITCH CAP FOR "2000L&2000LS"	正反開關帽蓋(2000L&2000LS)	1	39	GN28251	BALL BEARING	軸承	1
	CI60211	CHANGEOVER SWITCH CAP FOR "2200L"	正反開關帽蓋(2200L)	1	40	GP30371	STEEL BALLS "3.15mm"	跳脫鋼珠 (3.15mm)	2
	CI60212	CHANGEOVER SWITCH CAP FOR "2300L"	正反開關帽蓋(2300L)	1	41	GU28261-1	STOP PILOT	停止用酒杯	1
13	CH20102	SCREW	螺絲	3	42	GP21291A	STELL BALLS for 3mm	酒杯鋼珠(3mm)	2
14	MO28081-0	MOTOR ASSEMBLY FOR "2000L"	馬達整組(2000L)	1	43	GD28281C-1	SHAFT FOR "2000LC/2200LC/2300LC" TYPE	傳動軸(2000LC/2200LC/2300LC)	1
	MO28081-2	MOTOR ASSEMBLY FOR "2200L"	馬達整組(2200L)	1		GD28281B	SHAFT FOR "B" TYPE	傳動軸(B頭)	1
	MO28081-1	MOTOR ASSEMBLY FOR "2300L&2000LS"	馬達整組(2300L&2000LS)	1	44	G21203	PINS FOR GT28282B	插梢(LB)	2
15	MI30511-2	PILOT ROD	開關引導棒	1	45	GT28282B	BIT HOLDER(B:6.35)	起子頭(LB)	2
16	EB33610-2	CERAMICS CAPACITOR	陶瓷電容	2	46	GP20331	BIT PILOT FOR "C"TYPE 2mm	起子頭帽鋼珠(C)(2mm)	1
17	MD20151	BRUSH CAP	碳刷蓋	2		GP21291B	BIT PILOT FOR "B"TYPE 2.5mm	起子頭帽鋼珠(B)(2.5mm)	2
18	MC50161-1	CAPBON BRUSH	碳刷	2	47	GF28291	WARING PLATE TYPE	扭力推盤	2
19	ML28131	MOTOR TOP COVER	碳刷座半成品	1	48	GE28321	WARING SPRING FOR "2000L&2000LS"	扭力彈簧(2000L&2000LS)	1
20	ME28121	BALL BEARING	軸承	2		GE28321-3	WARING SPRING FOR 2200L	扭力彈簧(2200L)	1
21	MH28161-1	ARMATURE FOR "2000L"	電樞(2000L)	1		GE28321-4	WARING SPRING FOR 2300L	扭力彈簧(2300L)	1
	MH28161-2	ARMATURE FOR "2200L&2300L&2000LS"	電樞(2200L&2300L&2000LS)	1	49	GO28241	SPRING CUP FOR "2000L&2200L&2000LS"	彈簧杯(2000L&2200L&2000LS)	1
22	MJ28171-1	MOTOR YOKE ASSEMBLY FOR "2000L"	鐵圈連磁鐵(2000L)	1	50	GO28251	TRIANGLE SPRING "2000L&2200L&2000LS"	三角彈簧(2000L&2200L&2000LS)	1
	MJ28171-2	MOTOR YOKE ASSEMBLY "2200L&2300L&2000LS"	鐵圈連磁鐵(2200L&2300L&2000LS)	1	51	GY28331	WARING SPRING SEAT	止推盤	1
23	MB28141	MOTOR END COVER	馬達前蓋	1	52	GN28341	BALL BEARING	軸承	1
24	MA33621B	ASSEMBLING SPRING	馬達固定片	2	53	GB21332	CLUTCH CASE	下離合器筒	2
25	MK28091	FAN FOR 2000L& 2200L	風扇(2000L,2200L)	1	54	GO28361	BIT SPRING FOR "C"TYPE	起子頭帽彈簧(C)	1
	MK28091-1	FAN FOR 2300L&2000LS	風扇(2300L,2000LS)	1		GO28361-1	BIT SPRING FOR "B"TYPE	起子頭帽彈簧(B)	1
26	MG30081	PILOT ROD	陶瓷棒	1	55	GJ28371	BIT SLEEVE FOR "C"TYPE	起子頭帽(C)	1
27	GZ28111-1C	CLUTCH ASSEMBLY FOR "2000LC"	離合器整組 (2000LC)	1		GJ3046B	BIT SLEEVE FOR "B"TYPE	起子頭帽(B)	1
	GZ28111-1B	CLUTCH ASSEMBLY FOR "2000LB"	離合器整組 (2000LB)	1	56	GQ28411	C-RING FOR "C"TYPE	起子頭帽 C環(C)	1
	GZ28111-2C	CLUTCH ASSEMBLY FOR "2200LC"	離合器整組 (2200LC)	1		GQ21361	C-RING FOR "B"TYPE	起子頭帽 C環(B)	1
	GZ28111-2B	CLUTCH ASSEMBLY FOR "2200LB"	離合器整組 (2200LB)	1	57	GL28381	TORQUE ADJUSTING PINS	扭力調整棒	4
	GZ28111-3C	CLUTCH ASSEMBLY FOR "2300LC"	離合器整組 (2300LC)	1	58	GM28391	TORQUE ADJUSTING RING	扭力調整環	1
	GZ28111-3B	CLUTCH ASSEMBLY FOR "2300LB"	離合器整組 (2300LB)	1	59	CD28043	COUPLER	前鎖環	1
	GZ28111-1CS	CLUTCH ASSEMBLY FOR "2000LSC"	離合器整組 (2000LSC)	1		CD28043-1	COUPLER (ESD)	前鎖環 (ESD)	1
	GZ28111-1BS	CLUTCH ASSEMBLY FOR "2000LSB"	離合器整組 (2000LSB)	1	60	CH50671-3	GROUNDING MEANS	接地線	1
28	MI28101-1	PILOT ROD	開關引導棒	1	61	CH20102-18	WASHER	華司	1
29	GK28181-1	"C" RING	齒輪固定C環	1	62	CH30192	SCREW	地線螺絲	1
30	GI28441	IRON WASHER	齒輪固定片	1	63	CK28031	TRIGGER SPRING	壓板彈簧	1
31	GH28191-2	IDLE GEAR FOR "2000L&2200L"	游星齒輪(2000L&2200L)	3					



## ※扭 力 調 整

1. 先行決定扭力大小，再用手旋轉扭力調整環至所需扭力位置。
2. 旋轉扭力調整環以增加或減少扭力輸出:順時針方向調至較高刻度，代表增加扭力。逆時針方向調至較低刻度，代表減少扭力。
3. 很多因素會影響扭力輸出。操作本電動螺絲起子時應循序漸進，先用小扭力試鎖螺絲，再漸漸增至較大扭力。
4. 扭力刻度與電動螺絲起子扭力的相互關係如扭力標示圖所示。扭力刻度的數值並非電動螺絲起子實際扭力的強弱，需對應電動螺絲起子型式以比對概略的扭力輸出值。
5. 鎖緊螺絲所需的扭力依其鉚合狀況或材質不同而有所差異，必要時可用扭力計量測及調整電動螺絲起子的扭力。
6. 電動螺絲起子經調整好扭力後，將外殼前鎖環鬆開取下，換上扭力固定環，這樣可避免人為擅意旋轉扭力調整環而讓原設定的扭力值遭到變動。
7. 在相同的扭力刻度下，反轉”R”的扭力會較大於正轉”F”的扭力，在不調整扭力調整環的情況下，有助於螺絲的拆卸；但是當螺絲緊度大於反轉扭力，離合器已經跳脫而螺絲仍無法鬆開時，仍需調整電動螺絲起子至較大扭力，方可鬆開螺絲。



## 注 意 ⚠

1. 進行扭力調整時，應先停止電動螺絲起子運轉。
2. 機身上的扭力刻度僅供與扭力標示圖參考，不代表電動螺絲起子的扭力輸出值。
3. 電動螺絲起子的機械磨損狀況，依使用者之使用扭力、時間或頻率而有所差異，使用扭力越大、時間越長或頻率越高則磨損越快；新品在刻度 4 使用一個月後(每日 8 時，操作頻率 12Pcs/min)約有 3~5%的扭力衰減(刻度 8 則有 5~7%的衰減)，依使用時間的增長，其衰減程度會逐漸減少並趨於穩定，使用者可定期使用扭力計量測電動螺絲起子的扭力輸出是否符合需要，適時補償衰減的扭力。
4. 若電源控制器切換至“LO”時會無法輸出高功率，則電動起子的扭力輸出必須調整於中間扭力值以下使用。