



***DOGA BRUSHLESS ELECTRIC
SCREWDRIVERS GX 30 VOLTS***

A large, light gray, stylized watermark of the DOGA logo is positioned in the background, centered vertically and horizontally. It consists of the same circular icon and the word "DOGA" in a large, bold, sans-serif font.

INSTRUCTIONS MANUAL

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WARNING

1. Keep the working area clean.
Avoid wearing the harmful clothes to the electric shock.
2. Don't touch the electrical parts after opening the cover. It may be dangerous for the electric shock.
3. Always keep the power off during contact the electrical parts.
4. Before the power on, always check the electric concerned.
5. Be sure that the any live parts should not be touched to the steel parts.
6. Use the rated power voltage for each models
7. Be careful the earth line not to touch the electric parts or lead on power.
8. Never use the non-specified parts.
9. Never lubricate aerosol oil the electrical part including the motor
10. The wires should not be damaged by sharp edge, soldering iron or any pulling force when close the cover.
11. All solder points should be protected by the shrink cable
12. Be aware that the motor can be damaged by the impact or hit.

1. Scheme

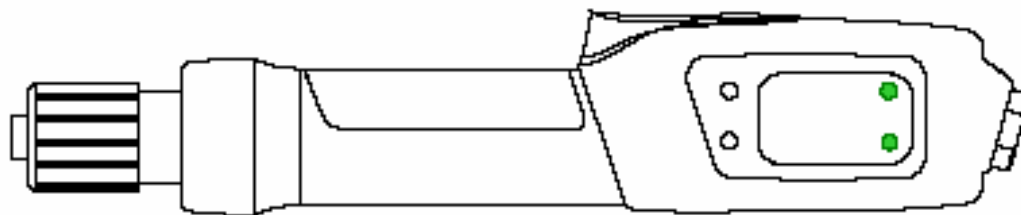
25W Brushless motor equipped screwdriver with the torque control system by the mechanical clutch working with the spring. The range of torque: 0.2 – 12 Kgf.cm

2. Optional products

- 1) Soft stop, ESD and Clean room operation
---> Semi conductor, optical, storage and LCD products industry
- 2) Automation market with the long lasting life time with less maintenance
---> Mobile phone, LCD products and automatic fastening system industry

3. Description

Grip: Dia. 30 mm
Length: 220 mm
Weight: 350 gr Max.
Torque range: 0.2 – 12 Kgf.cm
Voltage: DC 30V

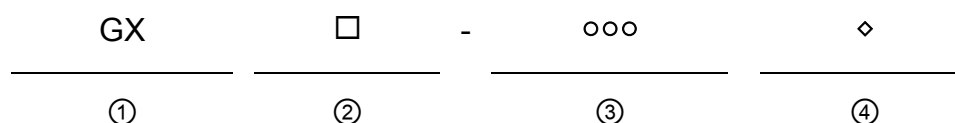


4. Main features

STANDARD

- Brushless DC motor equipped
- Built in BLDC drive circuit
- Sensor operated for Start, FOR/REV selecting, Torque limit
- Optional Soft start, Double hit
- Soft Stop (shockless) models available
- Over Current, voltage and heat Protection
- Screw pick-up accessories by the vacuum
- LED display of alarm status

5. Model composition



① Series: GX

② Operation

□ (Empty) : Standard screwdriver
 A: Automation - Direct signal start and clamping flange
 S: Soft Stop (Shockless) - lower shock when it stops
 T: Timer & Auto Reverse

③ Maxim torque value of the range (Kgf.cm)

35 = 3.5 Kgf.cm

45 = 4.5 Kgf.cm

80 = 8.0 Kgf.cm

120 = 12.0 Kgf.cm

④ Start type

□: Lever start

P: Push start

6. Models

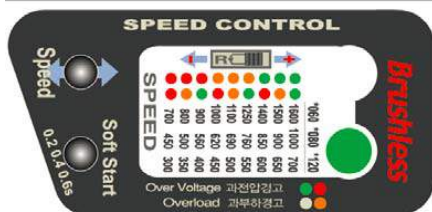
Model	Start	Torque (Kgf.cm)	Rotation Speed (Rpm)	Options			
				Clutch		Software*	
				Standard	Soft Stop	Standard	T
GX 35/ESD	LEVER	0.2~3.5	300~1100		○	○	
GX 45/ESD		0.4~4.5	300~700		○	○	
GX 80/ESD V2	LEVER	1.0~8.0	450~1000	○		○	
GX 120/ESD V2		2.0~12.0	300~700	○		○	
GX 80P/ESD V2	PUSH	1.0~8.0	450~1000	○		○	
GX 120P/ESD V2		2.0~12.0	300~700	○		○	
GXS 80/ESD V2	LEVER	1.0~8.0	450~1000		○	○	
GXS 120/ESD V2		2.0~12.0	300~700		○	○	
GXS 80P/ESD V2	PUSH	1.0~8.0	450~1000		○	○	
GXS 120P/ESD V2		2.0~12.0	300~700		○	○	
GXT 80/ESD V2	LEVER	1.0~8.0	450~1000		○		○
GXT 120/ESD V2		2.0~12.0	300~700		○		○
GXA 35/ESD V3	REMOTE	0.2~3.5	300~1100		○	○	
GXA 45/ESD V3		0.4~4.5	300~700		○	○	
GXA 80/ESD V3		1.0~8.0	450~1000		○	○	
GXA 120/ESD V3		2.0~12.0	300~700		○	○	

* **Features definition:**

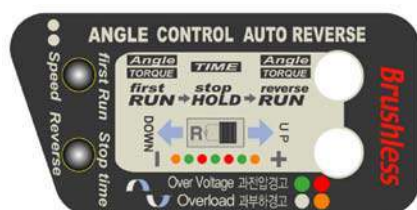
- Standard = Speed Control + Soft Start (soft start not available on GX35 & GX45 and GXA models)
- I = Speed & Angle Control + Auto Reverse

7. Panel of each model





- Standard (Speed & Soft Start) / GX_____



- Speed & Angle Control & Auto Reverse / GXT_____



8. Alarm display by LED color

 Orange	Over Voltage	Blink Orange color stop the driver immediately over DC33V. Automatically reset below DC33V.
 Red	Over Heat	Blink Red color stop the driver immediately over 70°C. Automatically reset below 70°C.
 G+O	Over Load	Blink Green & Orange color stop the driver immediately over 2.5A. Automatically reset below 2.5A load.
 Green	Motor Drive	Motor drive lamp.

8. Settings

8.1 Speed & Soft Start (GX)

Speed Selection:



1) Press the Speed button for 2 seconds to visit to PROGRAM mode. Then the two LED lights will display colours depending on the set speed.

2) Select "Reverse" on F/R switch for increasing speed or select "Forward" on F/R switch for increasing speed.

3) Press the Speed button and select the target speed. The set speed can be recognized by the colors of two LED as below.

4) Press the Speed button for 2 seconds to go back to operating (work) mode.

■ Speed display by two LED color (Standard model)

Model	LED	● ●	● ●	● ●	● ●	● ●	● ●	● ●	● ●	● ●
	Button	1th	2nd	3rd	4th	5th	6th	7th	8th	9th
GX 35	RPM	300	400	500	600	700	800	900	1000	1100
GX 45	RPM	300	350	400	450	500	550	600	650	700
GX 80	RPM	450	500	560	620	690	780	850	900	1000
GX 120	RPM	300	350	400	450	500	550	600	650	700

Soft Start Setting:

1) Press the Soft Start button for 2 seconds to enter setting mode.

2) Press the Soft Start button (pulse) to increase the Soft Start duration. As shown below, 3 steps are available.

3) Press the Soft Start button for 2 seconds to save.

- Green: 0.2 second
- Red: 0.4 second
- Orange: 0.6 second

8.2 Speed / Angle Control & Auto Reverse (GXT)

Model: GXT 80, GXT 120

One triggering by the lever can make 3 steps operation sequence in a cycle

■ Start, Stop and Direction in a cycle

Step	1	→	2	→	3
Sequence	first RUN		stop HOLD		reverse RUN
Rotating direction	Clockwise or Counter-clockwise by F/R switch				Reverse
Activating	Screwdriver runs to the target angle and stops. It always stops at the set torque, even it does not reach the target angle.		Stop and hold for set time		Rotate reverse until releasing the lever or stop at the target torque
Time setting	0 - 5 sec / 30 steps		0 - 5 sec / 12 steps		x

- Screwdriver stops immediately when the lever is released in any sequence.

- Sliding F/R switch works for

■ Operating (Work) mode

- ① Rotating direction (FOR-REV)

■ PROGRAM mode

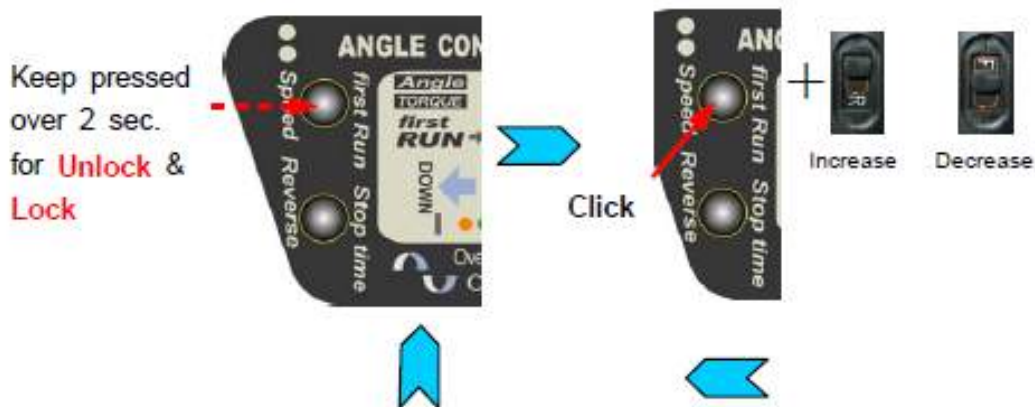
- ① First run angle (Increase / Decrease) together with "First Run(Speed)" button
 ② Time (Increase / Decrease) together with "Stop(Reverse)" button
 ③ Rotation speed (Increase / Decrease) together with "Speed(First Run)" button
 ④ Reverse run angle (Increase / Decrease) together with "Reverse(Stop)" button



■ Angle setting for first RUN

- ① Keep the first Run button pressed over 2 sec. for angle setting. Then press one by one for the desired rotating angle
 ② Select the R position of F/R switch for increasing set angle or F position for decreasing set angle
 ③ Keep the first Run button pressed over 2 sec. to Lock & operating mode.

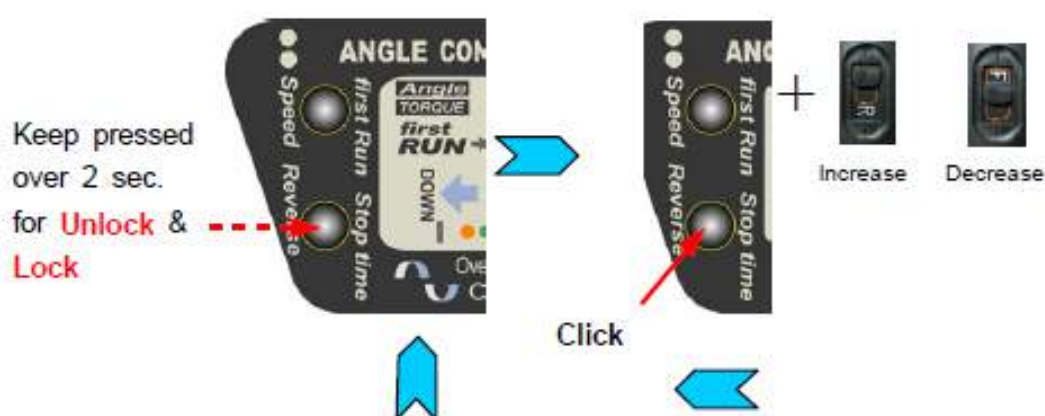
Click	0	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	2 0	2 1	2 2	2 3	2 4
Angle in turn	Off	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	1	$\frac{5}{4}$	$\frac{6}{4}$	$\frac{7}{4}$	2	$\frac{9}{4}$	$\frac{10}{4}$	$\frac{11}{4}$	3	4	5	6	7	8	9	1 0	1 1	1 2	1 3	1 4	1 5
LED	O	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	O



■ Time setting for stop HOLD

- ① Keep the **stop time** button pressed over 2 sec. Then click the stop time button one by one for desired stop holding time
- ② Select the R position of F/R switch for increasing set time or F position for decreasing set time
- ③ Keep the **stop time** button pressed over 2 sec. to Lock & operating mode.

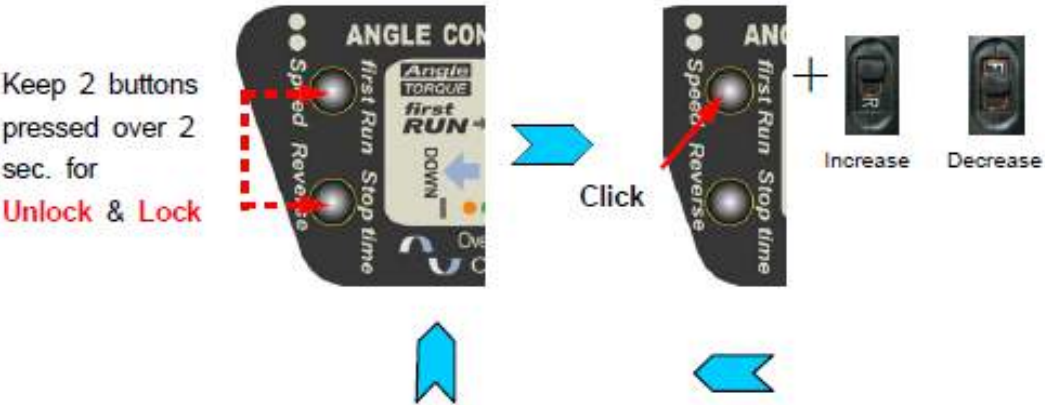
Click	0	1th	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th
Time (second)	Off	0.1	0.3	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
LED	Orange	R	G	R	G	R	G	R	G	R	G	R	G	R	O



■ Rotating speed setting

- ① Keep both **first Run** & **stop time** buttons pressed over 2 sec. to unlock. Then click one by one for the desired rotating speed.
- ② Select the R position of F/R switch for increasing speed or F position for decreasing speed
- ③ Keep the **first Run** button pressed over 2 sec. to Lock & operating mode.

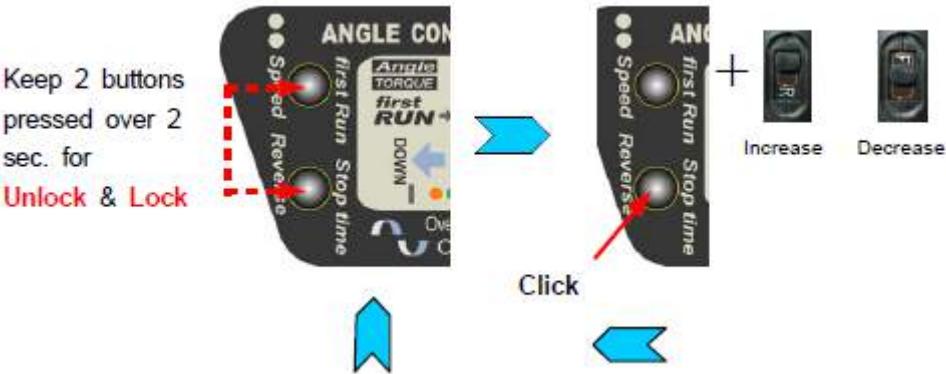
Click	0	1st	2nd	3rd	4th	5th	6th	7th	8th
Speed (rpm)	700	650	600	550	500	450	400	350	300
LED	Orange	Red	Green	Red	Green	Red	Green	Red	Orange



■ Angle setting for Reverse RUN

- ① Keep both first Run & stop time buttons pressed over 2 sec. to unlock. Then click stop time button one by one for the desired angle
- ② Select the R position of F/R switch for increasing set angle or F position for decreasing set angle
- ③ Keep the stop time button pressed over 2 sec. to Lock & operating mode.

Click	0	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	2 0	2 1	2 2	2 3	2 4
Angle in turn	Off	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	1	$\frac{5}{4}$	$\frac{6}{4}$	$\frac{7}{4}$	2	$\frac{9}{4}$	$\frac{10}{4}$	$\frac{11}{4}$	3	4	5	6	7	8	9	10	11	12	13	14	15
LED	O	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	O

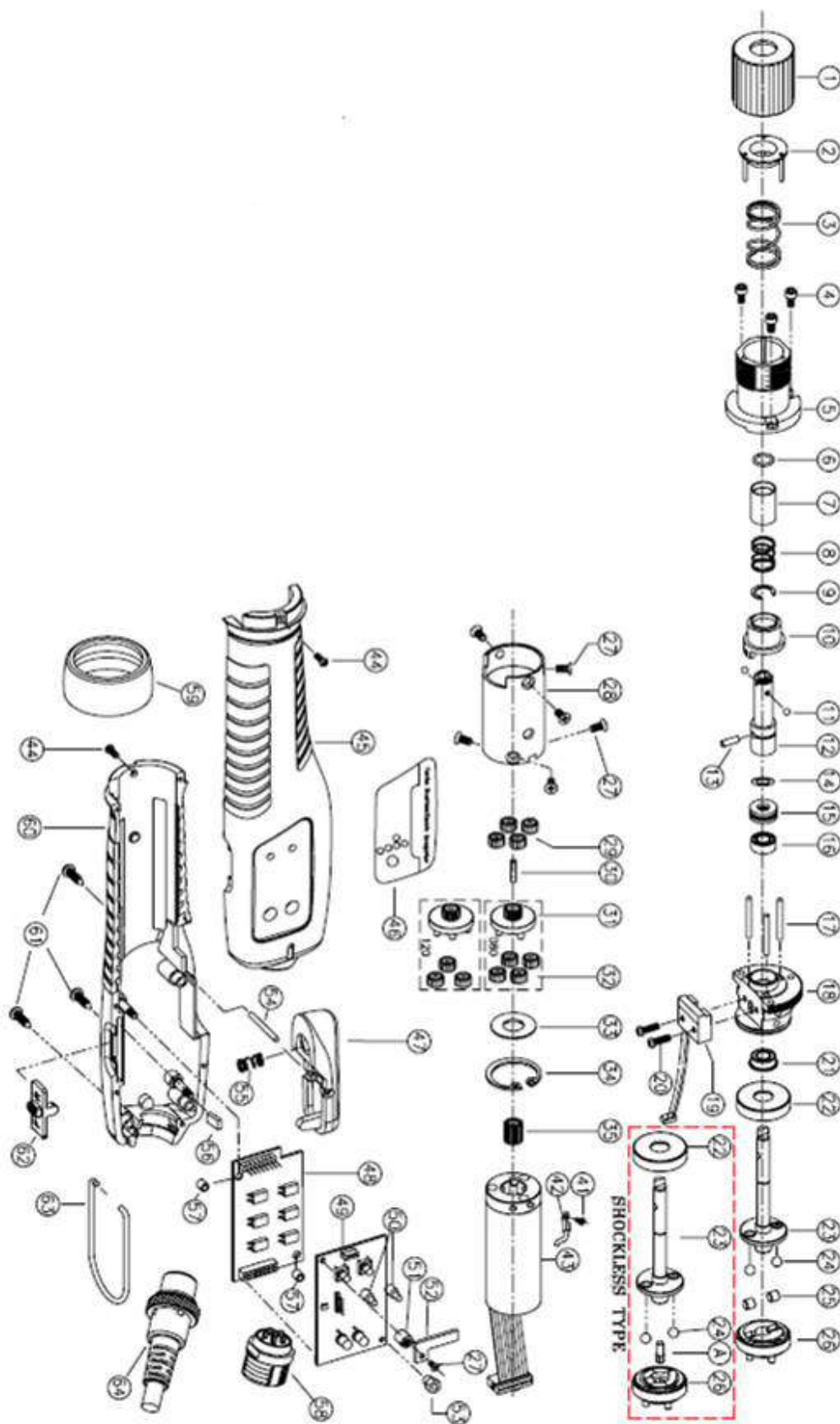


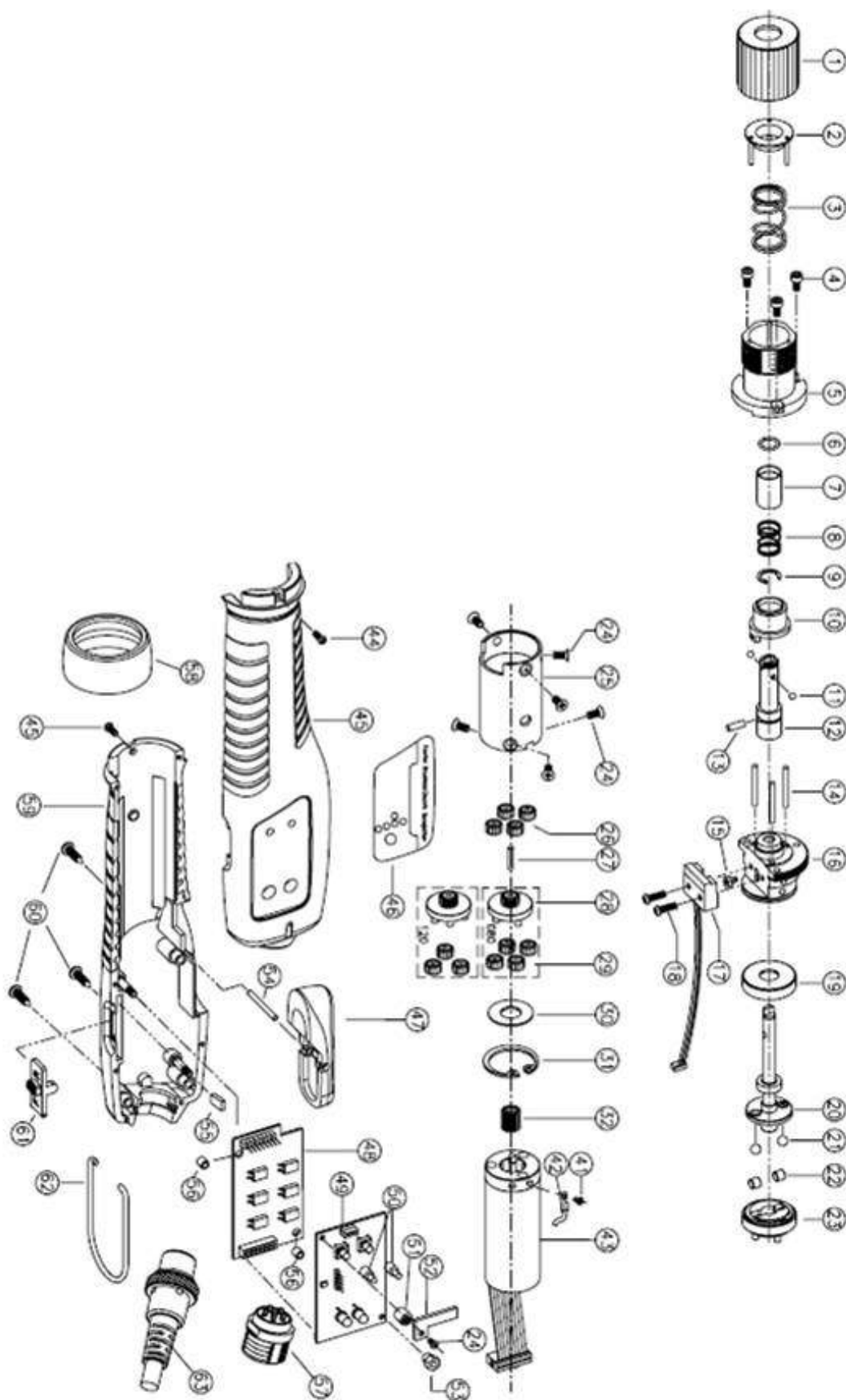
■ Application Example

	First RUN Angle	Stop HOLD Time	Auto Reverse Angle	Applications with different sequence in a cycle
Normal screwdriver	off	off	off	Normal screwdriver It stops at the set torque
Angle control	ON(1)	off	off	It stops at set angle(1)
Tapper or Insert fastening	ON(1)	ON(2)	ON(3) or off	It stops at set angle(1) and waits for set time(2), and makes reverse rotation to the set angle(3)
Wire inserting on terminal block	ON(1)	ON(2)	off	It stops at set angle(1) and waits for set time(2), and makes reverse rotation and stops at set torque

9. Exploded view

9.1 Drawing for GX Lever start



9.2 Drawing For GX Push to start

10. Parts list for GX Series

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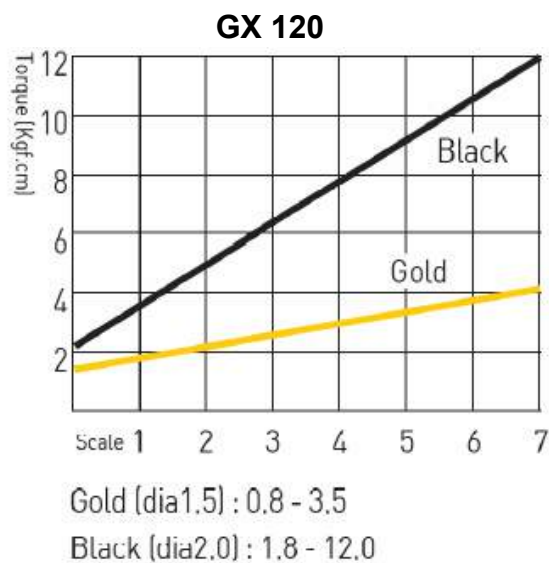
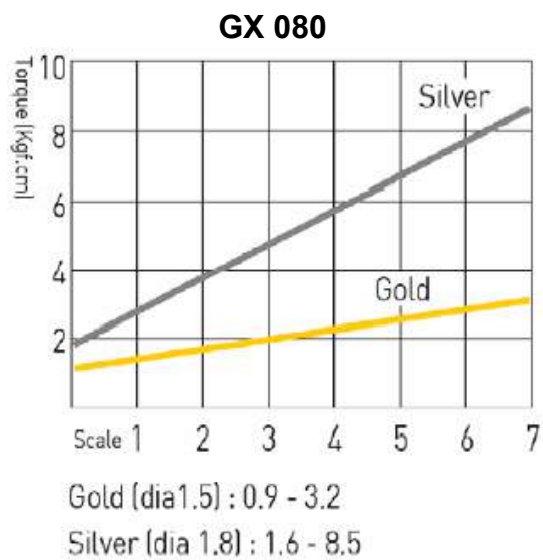
No- LEVER/PUSH	No- CODE	Part Name	Ref.	GX080	GX120	GXT080	GXT120	GX080P	GX120P	GXS080	GXS120
23	X	PFE1302 SHAFT [LEVER]	GXS	1	1	1	1				
		PFF1121 SHAFT ASSY								1	1
X	20	PFE1114 PUSH SHAFT ASSY						1	1		
24	21	PAL1932 STEEL BALL [φ4]		2	2	2	2	2	2	2	2
25	22	PFE1910 ROLLER(φ4X3.8L)		2	2	2	2	2	2		
		PFE1105 CLUTCH ASSY		1		1		1			
26	23	PFE1106 CLUTCH ASSY B			1		1		1		
		PFF1105 CLUTCH ASSY	GXS080							1	
X		PFF1106 CLUTCH ASSY B	GXS120								1
27	24	PSW2207 SCREW [M PHILIPS M2.6x6L FLAT HEAD]		6	6	6	6	6	6	6	6
28	25	PFE1201A GEAR CASE		1	1	1	1	1	1	1	1
29	26	PFE1211 2ND IDLE GEAR (12T)	080	4		4		4		4	
		PFE1212 2ND IDLE GEAR B (14T)	120		4		4		4		4
30	27	PFE1915 CENTER PIN		1	1	1	1	1	1	1	1
31	28	PFE1102 1ST GEAR HOLDER ASSY	080	1		1		1		1	
		PFE1103 1ST GEAR HOLDER ASSY B	120		1		1		1		1
32	29	PFE1216 1ST IDLE GEAR (12T)	080	4		4		4		4	
		PFE1217 1ST IDLE GEAR B (13T)	120		3		3		3		3
33	30	PFE1947 WASHER		1	1	1	1	1	1	1	1
34	31	PFE1903 SNAP RING [R21]		1	1	1	1	1	1	1	1
35	32	PFE1235 PINION GEAR	080	1		1		1		1	
		PFE1236 PINION GEAR B	120		1		1		1		1
41	41	PSW2205 SCREW [M PHILIPS M2.3x5L]		1	1	1	1	1	1	1	1
42	42	QFE0325A EARTH WIRE GX		1	1	1	1	1	1	1	1
43	43	PFF4005A MOTOR SET		1	1	1	1	1	1	1	1
44	44	PSW2202 SCREW [M PHILIPS M2.6x5L]		2	2	2	2	2	2	2	2
45	45	PFF1120B UPPER HOUSING ASSY		1	1	1	1	1	1	1	1
		PFF1120D UPPER HOUSING ASSY		1	1	1	1	1	1	1	1
		QFF0406A WINDOW LABEL	GX	1	1			1	1	1	1
46	46	QFF0408A WINDOW LABEL	GXT			1	1				
47	X	PFF1115 LEVER ASSY		1	1	1	1			1	1
		PFF1115B LEVER ASSY	ESD	1	1	1	1			1	1
X	47	PFF1819 ATTACHMENT						1	1		
		PFF1819B ATTACHMENT	ESD					1	1		
48	48	PFFZ537A AMP PCB SET FOR AS		1	1	1	1	1	1	1	1

- 1) **Red colors** show the newly replaced parts.
- 2) **SENSOR ASSY(PFFZ511A, PFFZ512A)** works with **SLEEVE ASSY(PFF1123)** (Before serial no. 7117001)
- 3) **SENSOR ASSY(3000036,3000037)** works with **SLEEVE ASSY(3000030)** - From serial no 1002060031.
If it is push to start type of screwdriver, replace **MAGNET HOLDER ASSY(3000043)**, too.
- 3) **CONTROL PCB SET FOR AS(PFFZ539A)** does not have firmware install.
CONTROL PCB SET(PFFZ516) with serial no. before **8077011** is **combined with Amp & Control part.**
- 4) **PEL318 6PIN CONNECTOR N** is for **PEL932 CABLE 6PIN** only.
(Applied from s/n.8077011)

4) **PELZ318 6PIN CONNECTOR N** is for PELZ932 CABLE 6PIN only.
(Applied from s/n.8077011)

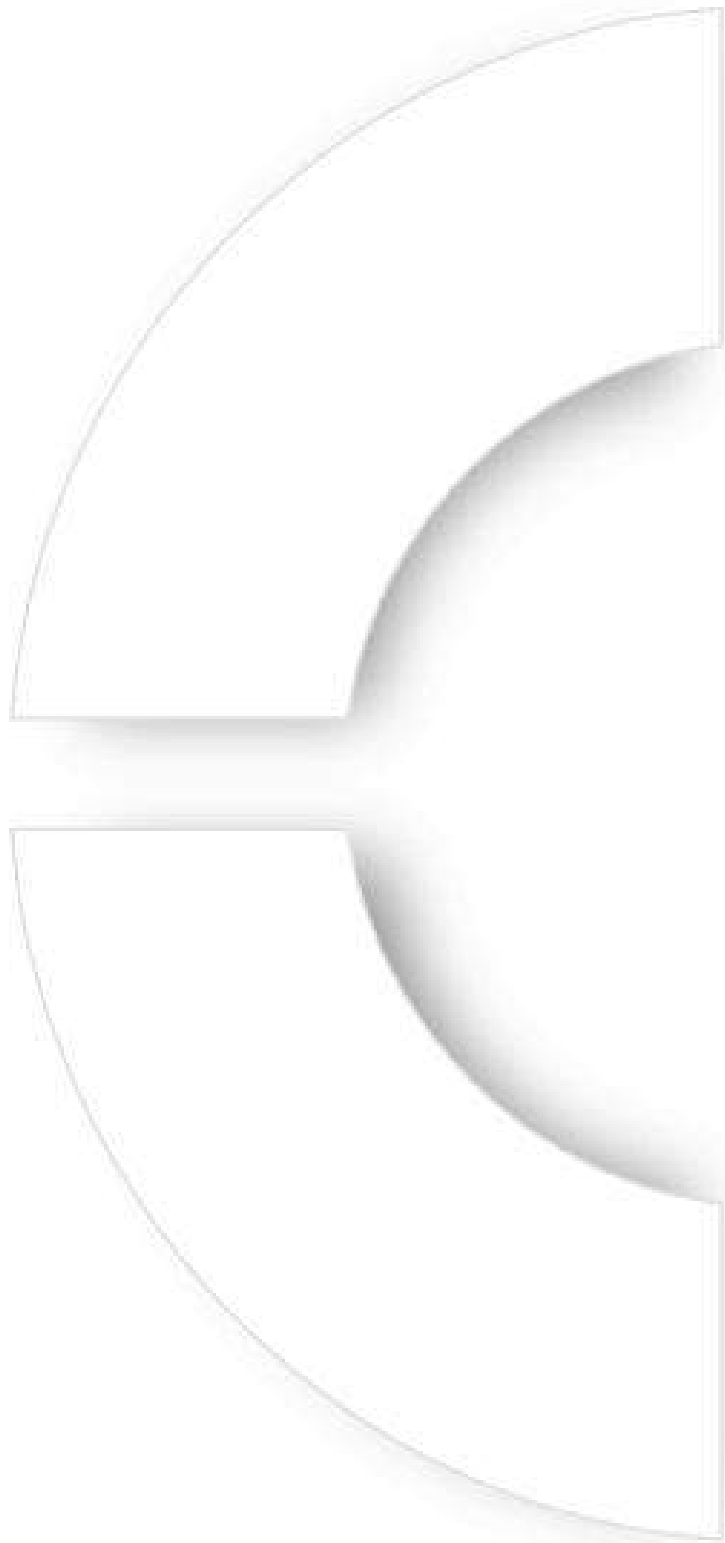
Torque Springs

Curves



Changing springs:

- 1 – Loosen completely the torque adjusting ring.
- 2 – Take off the torque spring you do not want to used anymore.
- 3 – Put in the torque spring you want to use.
- 4 – Put back the torque adjusting ring.
- 5 – Do not forget to adjust the torque ring to the target torque.



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