

# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

Rev 2.2 (4/13/17)  
for V3 Models Only



RoHS



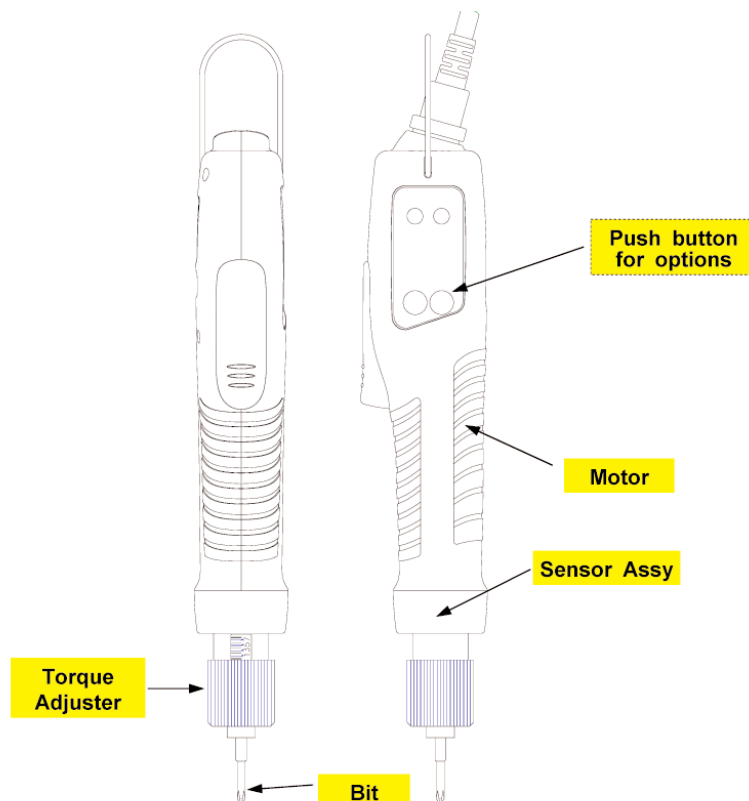
## BF-Series (BF060, BF080 & BF120 models) Operation Instructions

### Introduction

- Various models that range from 0.17 - 10.4 lbf.in
- High performance Swiss Maxon brushless motor design provides durability and reduces the standard maintenance costs for electric screwdrivers.
- Designed for high production environments. Minimal heat build-up even when tool is operated continuously.
- Over Heat Protection (OHP) and Over Current Protection (OCP) protect driver from damage or malfunction. Features a LED display that signals the tool status for the operator to view.
- Can be connected with the Scout Screw Counter.
- External torque adjustment scale.
- Requires transformer (power supply).
- All models are ESD designed and prevent the occurrence of electrostatic discharge, which improves production yields, manufacturing costs, product quality, product reliability, reputation and profitability.

### Four style of brushless screwdriver models:

- **Standard models:** Adjustable RPM setting on the tool. A selectable Soft Start mode from 0.2-0.6 seconds. (Lever Start & Push-to-Start)
- **Soft Stop models:** Precision "Soft-Stop" clutch prevents shock to sensitive assemblies like disk drives, plastics, electronics, etc. Adjustable RPM setting on the tool. A selectable Soft Start mode from 0.2-0.6 seconds. (Lever Start)
- **Angle Control & Auto Reverse models:** Set the start, stop and operating direction of the tool. Adjustable RPM setting on the tool. (Lever Start)
- **Plus models:** Features a selectable Double Hit Mode for soft joint applications and a selectable Soft Start mode (from 0.2-0.6 seconds). This option is available for Standard & Soft Stop screwdrivers (Lever Start & Push-to-Start)



# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

### General Operation for BF-Series models

1. Attach power tool cable to the BF-Series screwdriver and the transformer. Make sure notch at the cable end aligns with the notch on the driver connector. Tighten knurled ground ring.
2. Plug in power cord to the back of the transformer and power outlet. Flip power switch to "ON" position located on the back of transformer.
3. Select a bit. Slide the bit collar forward. Insert the bit and release the collar. To avoid damaging fasteners, make sure the proper bit is suitable for the head of the fastener.
4. The torque limit is determined by the tension of the coil spring housed in the tool. The tighter the coil spring is wound the higher the torque limit is raised. See Torque Charts on pages 14 & 15 to determine the appropriate torque adjustment setting.
5. Rotate the torque adjustment nut to set the torque limit. Turn clockwise to increase torque and counter clockwise to decrease torque. The scale adjacent to the Torque Adjustment Nut is a reference guide. The torque output from the driver can change depending on various fastening factors like friction, type of joint, and the type material being used like a washer. Verify torque setting with a torque testing system.
7. Turn driver on and check for proper rotation. FOR-clockwise, REV-counterclockwise.
8. To apply torque, squeeze the lever (Push-to-Start models - place light downward pressure on the nose of the driver). The driver will automatically stop when the preset torque has been reached.
9. To remove the screw, turn the FOR/REV switch to REV position.



### Information by Color LED for BF brushless screwdriver

The LED display signals the tool status for the operator. It's located on the side of the tool. Below is the LED display indicator for reference.

No.	Description	Display	Reset
1	START (Before torque up)	● Green (left one) Synchronized with start	START OFF
2	START (After torque up)	● Orange (left one) Synchronized with start	START OFF
3	Over voltage input (over 32V)	●● R/G change two colors in 0.5s	Automatically resets when it's below DC32V.
4	Over load (over 1.5A/0.5s)	● Orange color ON ↔ OFF in 0.5s	Automatically resets after 5 seconds.
5	Over temperature (over 80°C)	● Red color ON ↔ OFF in 0.5s	Automatically resets when it's below 80°C.
6	Driver Lock (Remote)	● Green color ON ↔ OFF in 0.5s	By remote

# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

## BF-Series Standard Models & Soft Stop Models

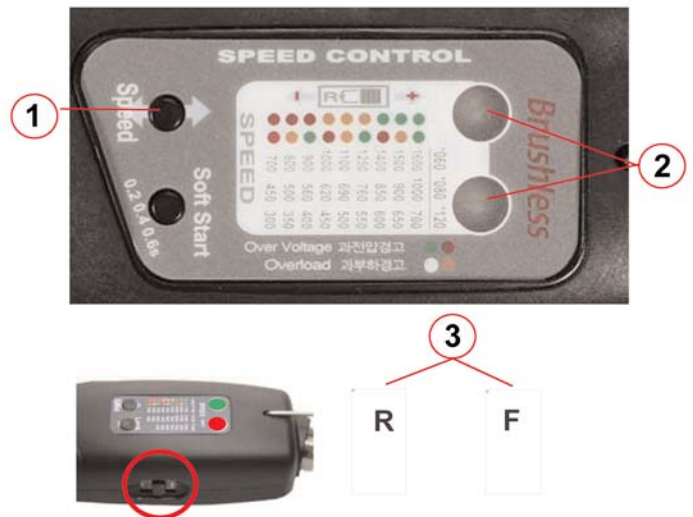
These models feature an adjustable RPM setting on the tool. The RPM settings can be adjusted to the preset increments as shown label (see image on the right).

These models also feature a selectable Soft Start mode (from 0.2, 0.4 & 0.6 seconds).



## How to Adjust Speed Setting

1. Press and hold the Speed button for 2 seconds.
2. Two LEDs will display colors that show the current speed selection of the brushless screwdriver.
3. Position the F/R slide switch in R or F to increase (+) or decrease (-) RPM setting of the tool. Slide switch to "R" position to increase speed. Slide switch to "F" to decrease speed. Then press the Speed button until the target speed is selected. The two LEDs will display colors that show the current speed selection (see table below for reference) **Note!** The RPM settings can only be adjusted to the preset increments as shown on the label (see chart below).
4. By starting the screwdriver, the selected speed is saved automatically.



## Program Lock Key

The Program Lock Key protects from incidental or operator tampering of the programmable settings on the side of select BF-Series models\* (V3 models only). To adjust the settings the Program Lock Key must be plugged into the STC40 & FT-30D Mini Transformer.

**Note!** The program Key **cannot** be used with BF-Series Standard Plus Models, Soft Stop Plus Models & Angle & Auto Reverse Models.



**To adjust the settings the Program Lock Key must be plugged into the STC40 & FT-30D Mini Transformer.**

## Speed Selection

Model	LED	● ●	● ●	● ●	● ●	● ●	● ●	● ●	● ●	● ●
	Button	1th	2nd	3rd	4th	5th	6th	7th	8th	9th
<b>F060</b>	<b>RPM</b>	<b>700</b>	<b>800</b>	<b>900</b>	<b>1000</b>	<b>1100</b>	<b>1250</b>	<b>1400</b>	<b>1500</b>	<b>1600</b>
F080	RPM	450	500	560	620	690	760	850	900	1000
F120	RPM	300	350	400	450	500	550	600	650	700

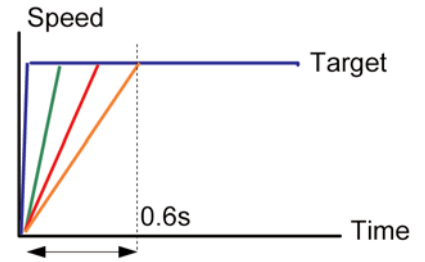
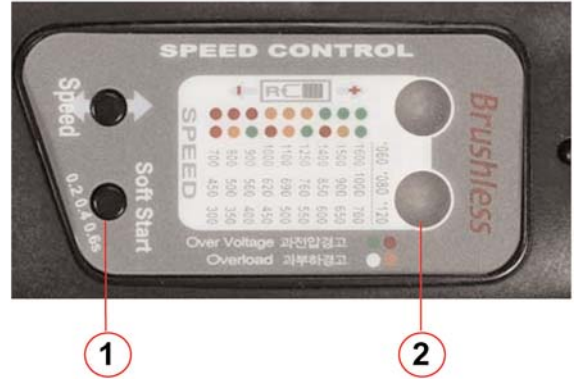
# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

## BF-Series Standard Models & Soft Stop Models (continued)

### How to Adjust Soft Start Setting

There are 3 different time settings for the Soft Start mode which are (0.2, 0.4 & 0.6 seconds). The default setting is OFF.

1. Press and hold the Soft Start button for 2 seconds.
2. Two LEDs will display colors that show the current soft start selection of the brushless screwdriver.
3. Press Soft Start button until the target time is selected.
4. By starting the screwdriver, the selected soft start setting is saved automatically.



② LED color	Time to target
OFF	0 sec
● Green	0.2 sec
● Red	0.4 sec
● Orange	0.6 sec

The Soft Start button is “wrap around” button meaning you can toggle through the settings continuously by pressing the button (OFF - 0.2s-0.4s-0.6s).

## BF-Series (BF060, BF080 & BF120 models) Operation Instructions

### BF-Series Standard Plus Models & Soft Stop Plus Models

The “Plus” models feature a selectable Double Hit Mode for soft joint applications and a selectable Soft Start mode (from 0.2, 0.4 & 0.6 seconds). This option is only available with Standard & Soft Stop “Plus” models.

#### Double Hit Mode

The Double Hit mode is for very soft joint applications. When an electric screwdriver runs down a fastener and the tool clutches off once the preset torque is achieved there can be some joint relaxation that can occur. The Double Hit mode has the electric screwdriver perform a second hit to stabilize the torque for joint relaxation.

Joint relaxation is caused by the surface of part(s) embedding or by “soft parts” such as gaskets, plastics or spongy material, which collapses under the clamping force created in a torque condition. For Hard Joint applications there is no need to use the Double Hit mode.

The clutch of the electric driver works twice at the set torque under the “Double Hit” mode. The Double Hit will increase the repeatability accuracy at the target torque by double checking.

#### Operating the Double Hit Feature with “Plus” models

The default setting is OFF.

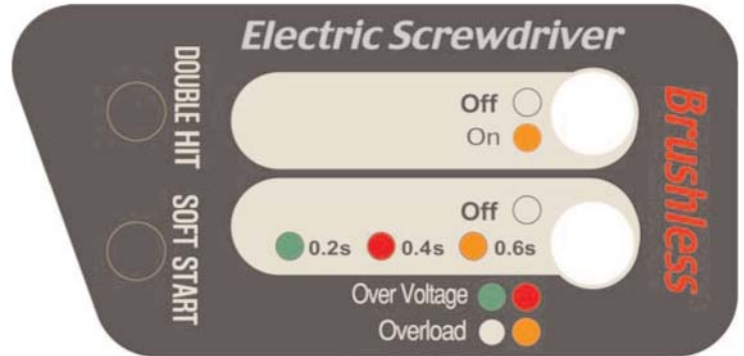
1. Press the Double Hit button for 2 seconds to turn ON Double Hit. (ON Status is indicated with LED - Orange). Note - When the motor is operating LED will be Green.

#### Soft Start Mode

There are 3 different time settings for the Soft Start mode which are (0.2, 0.4 & 0.6 seconds). The default setting is OFF.

1. Press the Soft Start button for 2 seconds to turn on Soft Start.
  - Soft Start is ON and set for 0.2s (LED - Orange)
  - Soft Start is ON and set for 0.4s (LED - Orange blinks 1 time)
  - Soft Start is ON and set for 0.6s (LED - Orange blinks 2 time)

The Soft Start button is “wrap around” button meaning you can toggle through the settings continuously by pressing the button (OFF - 0.2s-0.4s-0.6s).

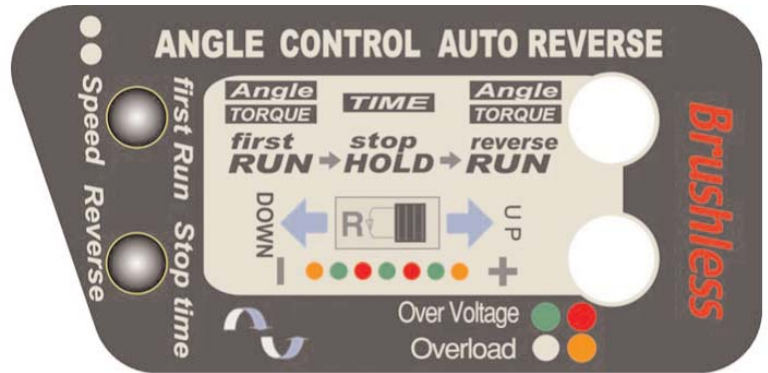


# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

## BF-Series Angle Control & Auto Reverse models

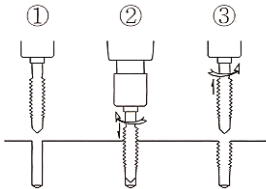
Set the start and stop point by angle control within a range of 0.25 - 15 turns. Also set the "Stop Holding Time" within a range of 0.1 to 6 seconds. Adjustable RPM is at increments of 50 RPM units.

Ideal for installation of heli-coil wound inserts, light tapping or gauging applications.



### Example 1.

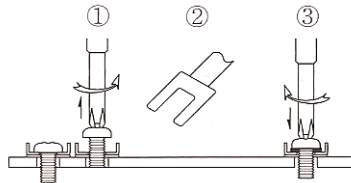
Start from selected rotation by the lever and immediately change rotation to reverse at the set torque or releasing the lever. Useful for Tapping and Heli-coil fastening.



1. Start forward rotation.
2. Stop at the target torque or set time.
3. Auto reverse rotation and stop at releasing the lever or set time.

### Example 2.

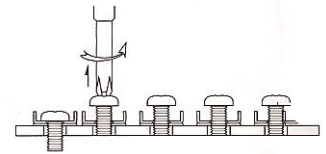
Start from Reverse rotation by the lever for set time (A) and stop for a set time (B), then auto run for Forward fastening by set torque.



1. Start from reverse rotation.
2. Stop at the set time and wait for set time.
3. Auto forward rotation and stop at the target torque.

### Example 3.

Fasten or unfasten the set turns by timer.



## Start, Stop and Direction.

There are three sequences for this process: Start, Stop and Direction. With one pull of the lever on the electric screwdriver all 3 sequences occur within programmed cycle.

Step Sequence	1 First Run	2 Stop & Hold	3 Reverse Run
Selecting Rotating Direction	Clockwise or Counterclockwise by F/R Switch		Reverse
Activating	Run and stop for set time (angle) or stop at the target torque	Stop and hold for set time	Rotate reverse until releasing the lever or stop at the preset torque or angle
Time (Angle) Setting	0-15 turns / 24 steps	0-6 sec / 14 steps	0-15 turns / 24 steps

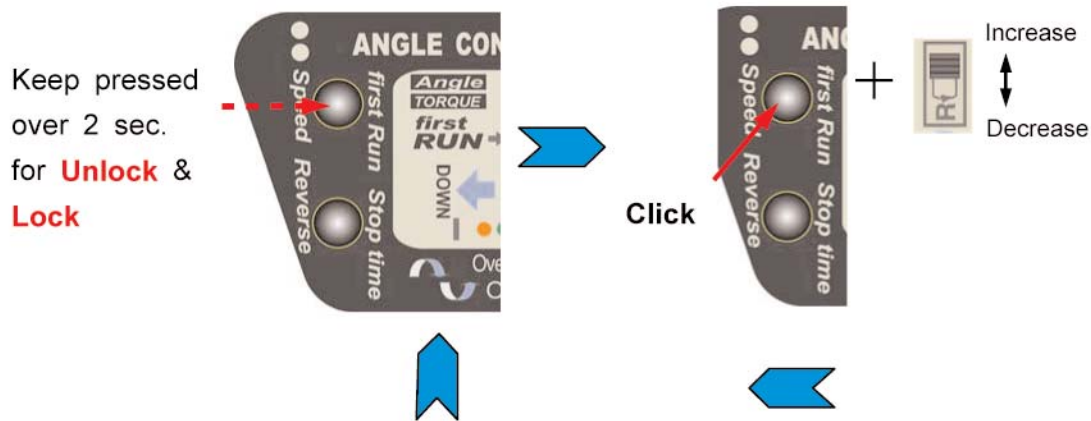
# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

## Operating BF-Series Angle Control & Auto Reverse models

Angle Setting for the first RUN

1. Keep the first Run button pressed for over 2 seconds for angle setting. Then press first Run button 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. for Lock & operating mode.

Click	0	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	
Turns	Off	1	2	3	4	5	6	7	8	9	1	1	3	4	5	6	7	8	9	1	1	1	1	2	2	2	2	2	3	
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	G	R	G	R	G	O



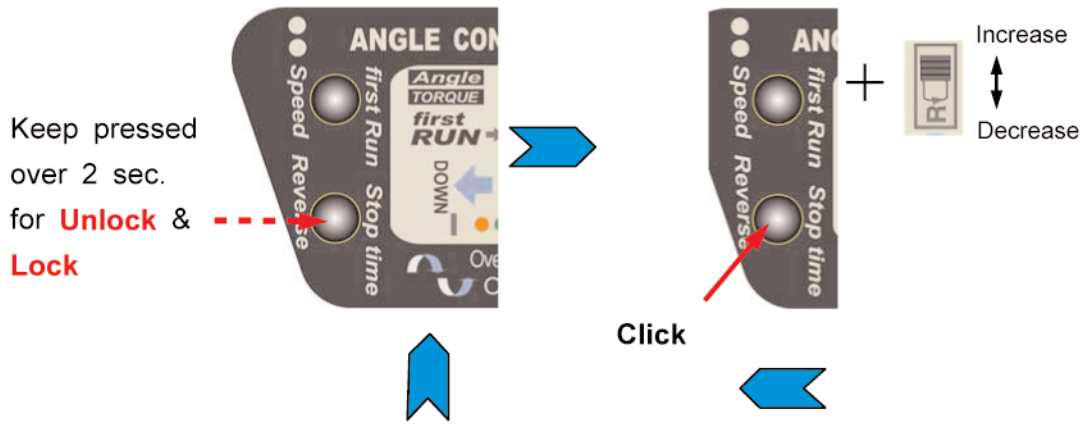


# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

## Time Setting for STOP & HOLD

1. Keep the stop time button pressed over 2 seconds. 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. for Lock & operating mode.

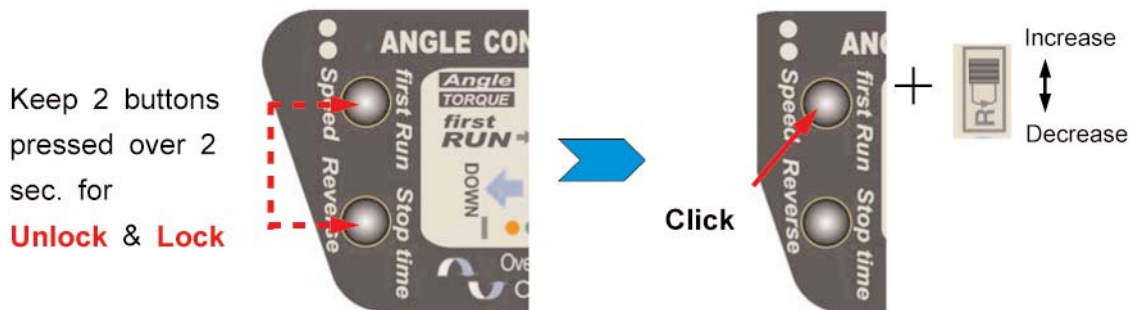
Click	0	1th	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th
Time (second)	Off	0.1	0.3	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
LED	Orange	G	R	G	R	G	R	G	R	G	R	G	R	G	O



## Rotating speed setting

1. Keep the both first Run & stop time buttons pressed over 2 seconds for 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. for 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	● ●	● ●	● ●	● ●	● ●	● ●	● ●	● ●	● ●

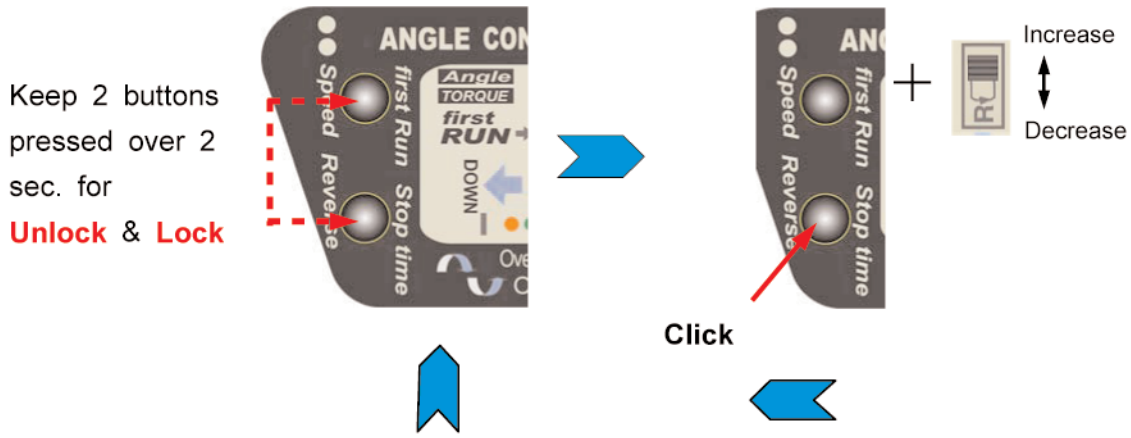


# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

### Angle Setting for the reverse RUN

1. Keep the both first Run & stop time buttons pressed over 2 seconds for 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. for Lock & operating mode.

Click	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
Turns	Off	1	2	3	1	5	6	7	2	9	1	1	3	4	5	6	7	8	9	1	1	1	1	1	2	2	2	2	2	2	3
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	G	R	G	R	G	O	



## BF-Series (BF060, BF080 & BF120 models) Operation Instructions

	first RUN <i>Angle</i>	stop HOLD <i>Time</i>	Auto Reverse <i>Angle</i>	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

## BF-Series (BF060, BF080 & BF120 models) Operation Instructions

### Power Supply (Transformer)

STC40 transformer is power supply designed for operating the BF-Series & NF-Series brushless electric screwdrivers. Only use this transformer when operating any BF-Series & NF-Series models.



### Features

- Over Heat Protection (OHP) and Over Current Protection (OCP) protect driver from damage or malfunction.
- Temperature Detection powers down the unit and resets automatically when unit restores to acceptable levels.
- Switchable 110V & 230V input voltage. Unit will reset itself if motor/current overload is too high.
- Start & Stop Signal Output (for PLC).
- Screwdriver Lock Signal Input (for PLC).
- Unit can be connected to the Scout (Screw Counter).

**Model:** STC40

**Item #** 145754

Specifications:

Rated Output: 2.6A 105W

Max. Output: 10A

Output VDC: 30/40V

Input VAC: 110/230V

Size inches (W x D x H): 4 3/8" x 7 1/2" x 2 3/8"

Weight: 1.8 lbs.

**Operates with:** BF-Series and NF-Series

### Program Lock Key - Item # 145774

The Program Lock Key protects from incidental or operator tampering of the programmable settings on the side of select BF-Series models\* (V3 models only). To adjust the settings the Program Lock Key must be plugged into the STC40 & FT-30D Mini Transformer.

**\* Note! The program key is required for the BF-Series Mini models, Standard Models and Soft Stop Models. RPM & Soft Start Settings cannot be adjusted without it.**



The program Key **cannot** be used with BF-Series Standard Plus Models, Soft Stop Plus Models & Angle & Auto Reverse Models.

### Accessories

#### Pistol Grip Attachment

The Pistol Grip attachment is an accessory item that converts the BF-Series in-line electric screwdrivers into pistol grip style tools.

For: BF060, BF080 & BF120 models

**Item # 145788**



## BF-Series (BF060, BF080 & BF120 models) Operation Instructions

### Accessories

#### Torque Cover

For: BF060, BF080 & BF120 models

Item # 145611

Protects the BF-Series tools from incidental or operator tampering of torque setting.



#### Torque Arms

The EZ-Glider torque arms are designed to improve production and quality control during the assembly process. The arms securely keep electric or pneumatic drivers in perpendicular alignment to help prevent side loading or cross threading occurring during the assembly process. The EZ-Glider helps remove the operator's influence in the assembly process and strengthens quality control.

The ergonomic design of the EZ-Glider torque arms reduces RMI (repetitive motion injury) and CTS (carpal tunnel syndrome). The effortless handling of the torque arm provides comfortable tool operation and increased production. The torque arm can be installed in space-restricted areas



#### Vacuum Adapter Kit

Vacuum adapter kits can be mounted on an electric screwdriver. The screwdriver is fitted with a suction head that holds the screw on the bit, enabling the operator to pick it up with the tool itself. This is an effective, time saving device that works with most fasteners.

Accepts different size screws and various length fasteners.

Allows quick-change set-up at a low cost.

Mounts with threaded torque nut. The driver remains externally adjustable while allowing semi-automatic pickup of non-ferrous fasteners.

Plug driver into vacuum supply or chose the Vacuum Ejector.

Mouthpiece and bit purchased separately.



Item # 145612

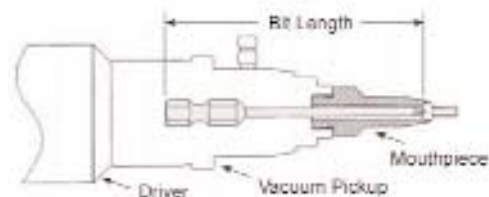
#### Mouthpieces

(Sold Separately from the Vacuum Adapter Kit)

Standard mouthpieces are manufactured of stainless steel, unless specified. The following items are required for Mountz to design a mouthpiece to fit your application.

#### Modification Requirements

1. Electric screwdriver model.
2. Torque Setting
3. Drive Size
4. Bit style and length
5. Fastener samples need to be submitted
6. Any special requirements, i.e. space restrictions



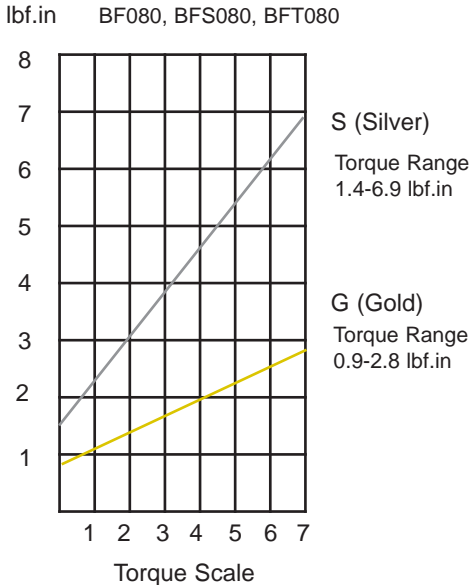
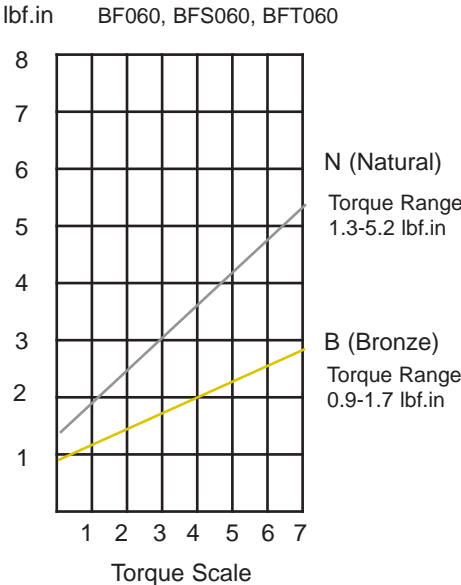
# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

### Torque Charts

These charts are meant to be used as guidelines for setting the torque on the BF-Series electric screwdrivers. The drivers have a torque scale on the torque adjustment nut showing reference numbers. These numbers determine the approximate torque setting. Refer to the charts to determine the reference number setting for your torque requirement.

#### How to Read the Torque Charts

Torque ranges (lbf.in) approximate tightening torque, operated on 30V. Figures below each chart indicate scale setting on the tool. Some drivers have more than one spring. Select the appropriate spring to achieve the desired torque setting.

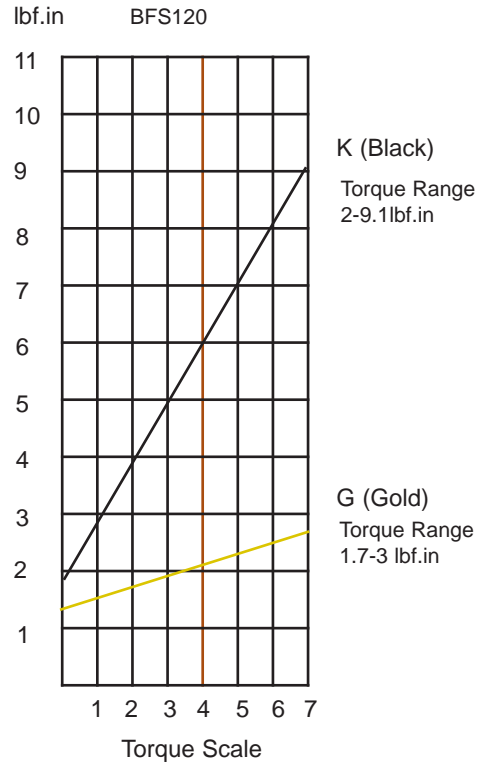
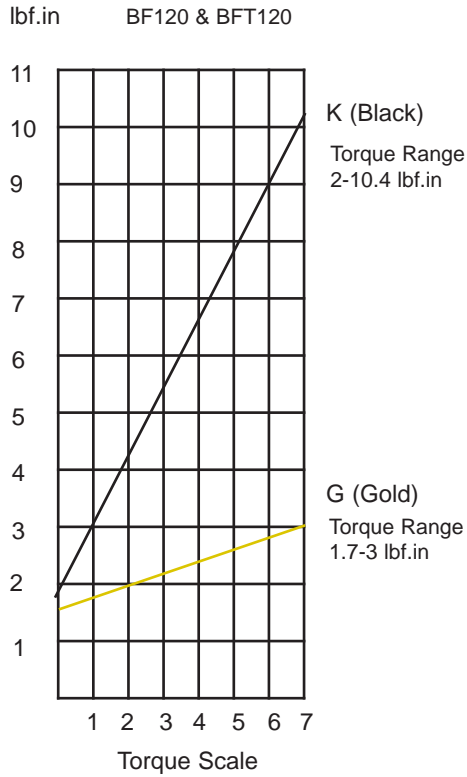


Torque Scale

Torque Scale

# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

## Torque Charts (Continued)





# BF-Series (BF060, BF080 & BF120 models) Operation Instructions

## Testing Power Tools:

1. Application Method: Use a torque analyzer in “Peak Mode” with a rotary transducer between the power tool and the actual application. This is the best way to test since you are using the actual joint as the test station. You will see the actual torque applied to the fastener. **Caution:** Variances in tool performance may occur do to the addition of the rotary transducer.
2. Simulated Method: Always use a quality joint rate simulator (run down adapter) with a torque analyzer when testing power tools in a simulated application. Use Joint rate and Breakaway methods to obtain most accurate torque readings in a simulated rundown.

## Care

1. The BF-Series screwdrivers are a precision torque control instrument and should be handled with care at all times.
2. Only use the transformers listed in the Mountz catalog or website for appropriate BF-Series driver model (If you have any questions regarding the appropriate transformer set-up, contact Mountz Customer Service Department).
3. Operate under safe conditions. Do not place in operation where such objects as hair, strings, clothing, etc. can become tangled in the rotating bit.
4. Keep away from moisture. Never use in high humid, moist or damp environment.

## Mountz Calibration & Repair Services

Mountz Inc. features an experienced calibration and repair staff. Our trained technicians can calibrate and repair most any tool. Mountz provides rapid service with quality that you can trust as we offer two state-of-the-art calibration lab and repair facilities that can calibrate up to 20,000 lbf.ft.

Since 1965, Mountz’s in-depth knowledge of torque is reflected in our tool’s craftsmanship and our ability to provide solutions to both common and uncommon torque applications. We perform calibrations in accordance with ANSI/NCSL-Z540. Mountz is dedicated solely to the manufacturing, marketing and servicing of high quality torque tools.

## Tool Service & Repair Capability

- Torque Wrench Calibration: Click Wrench, Dial Torque Wrench, Beam Wrench, Cam-Over & Break-Over Wrench
- Torque Screwdrivers: Dial, Micrometer, Preset & Adjustable
- Torque Analyzers/Sensors: All brands
- Electric Screwdrivers: All brands
- Air Tools: All brands  
Impact Wrenches, Drills, Pulse Tools, Grinders, Percussive Tools,  
Air Screwdrivers, Nutrunners, DC Controlled Nutrunners
- Torque Multipliers: All brands

**Mountz Service Locations**

**Eastern Service Center**  
19051 Underwood Rd.  
Foley, AL 36535  
Phone: (251) 943-4125  
Fax: (251) 943-4979

**Western Service Center**  
1080 N.11th Street  
San Jose, CA 95112  
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