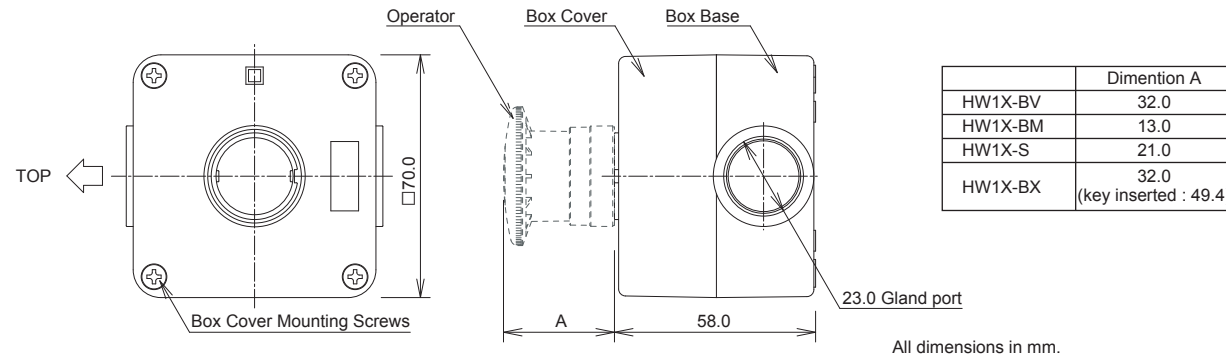


## Safety Precautions

### SAFETY NOTE

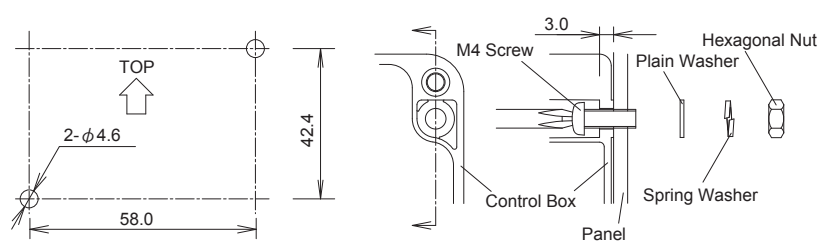
- Confirm that the delivered product is what you have ordered. Read this instruction sheet to make sure of correct operation. Make sure that the instruction sheet is kept by the end user.
- Turn off the power to the control box before starting installation, removal, wiring, maintenance, and inspection. Failure to turn power off may cause electrical shocks or fire hazard.
- For wiring, use wires of a proper size to meet the voltage and current requirements. Tighten the M3.5 terminal screws to a tightening torque of 1.0 to 1.3 N·m. Failure to tighten terminal screws may cause overheating and fire hazard.

### 1 Dimensions



### 2 Panel Mounting

- (1) To mount the control box on a panel, use two M4 screws, plane washers, and spring washers to prevent loosening.
- (2) Determine the screw length in consideration of the panel thickness.

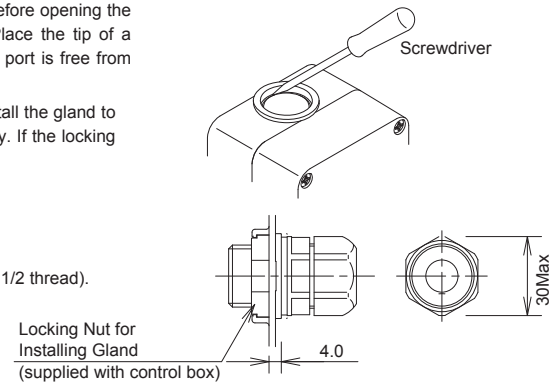


### 3 Applicable Gland and Installation

- (1) To install a gland, break open the gland port on the top and bottom of the control box. Before opening the gland port, remove the attached two gland locking nuts from the control box base. Place the tip of a screwdriver on the gland port and strike the screwdriver end. Make sure that the gland port is free from burrs and cracks, which may hamper waterproof characteristics.
- (2) Use G1/2 or PG16 glands which can mount on a panel of 4.0 mm thick minimum. To install the gland to the control box, use the attached gland locking nut and tighten the locking nut sufficiently. If the locking nut is tightened insufficiently, the waterproof characteristics are not ensured.

Thread Size	Locking Nut Color	Locking Nut Type No.
G1/2	White	HW9Z-G
PG16	Black	HW9Z-PG

Unless otherwise specified, every control box is supplied with two gland locking nuts (G1/2 thread).

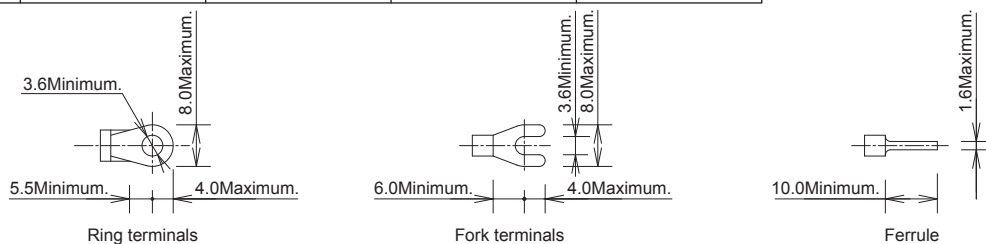


- (3) Only when using a plastic gland, Insulation Class II (IEC 61140) is satisfied.

### 4 Applicable Wire and Wiring

- (1) Push rod is color-coded for different contacts as below.

Contact	1a(NO)	1b(NC)	1Ea(early make)	1Lb(late break)
Type No.	HW-S10	HW-S01	HW-S10R	HW-S01R
Push Rod	Green	Red	Black	White



- (2) Applicable wire size is as follows.

Solid wire :  $\phi$  1.6 mm maximum      Stranded wire : 2.0 mm<sup>2</sup> maximum

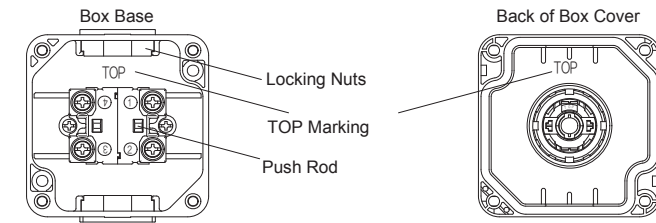
- (3) For wiring, use terminals of a proper size to meet the M3.5 terminal screws.

Tightening torque: 1.0 to 1.3 N·m      A maximum of two pieces can be connected to one terminal.

- (4) When a conduit or CVV cable is used, select a cable appropriate for the gland.

### 5 Installing Box Cover on Box Base

- (1) Place the TOP markings in the same direction, and install the box cover on the box base.

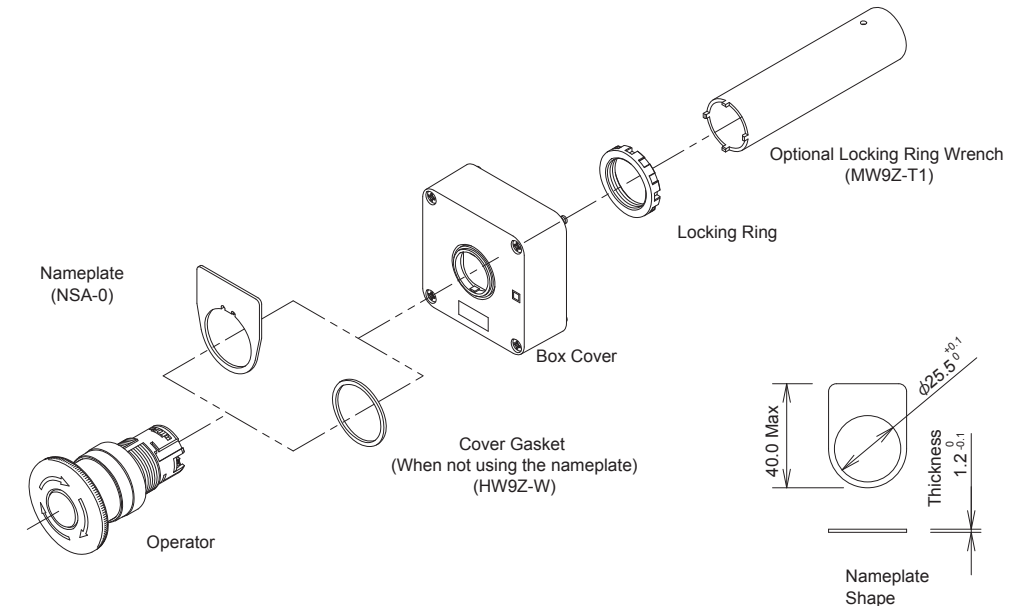


- (2) Install the box cover flat on the box base. When the box cover is installed diagonally, the box cover cannot be secured correctly, resulting in an operation error.

- (3) Tighten the box cover mounting screws to a torque of 1.4 to 2.0 N·m.

### 6 Removing Operator

- (1) When removing and installing the nameplate on the box cover, use the optional locking ring wrench (MW9Z-T1) to loosen the locking ring. Do not use pliers. Using pliers will damage the locking ring.
- (2) Use the attached nameplate (NSA-0). The nameplate is not supplied with the HW1X-BV and HW1X-BX control box. When making a nameplate with acrylic etc., make the shape as shown in the figure below. Make sure that the outside frame and the  $\phi$  25.5<sup>+0.1</sup> opening are free from burrs and cracks, which may hamper waterproof characteristics.
- (3) When not using the nameplate, use the cover gasket (HW9Z-W).
- (4) When remounting the operator onto the box cover, use the optional locking ring wrench (MW9Z-T1) to tighten the locking ring. Tightening torque must not exceed 2.0 N·m.



### Contact Ratings (Contact Block)

Rated Insulation Voltage		600V					
Thermal Current		10A					
Operational Voltage		24V	48V	50V	110V	220V	440V
Operational current	AC	AC-12 Control of resistive loads and solid state loads					
	50/60 Hz	10A	-	10A	10A	6A	2A
		10A	-	7A	5A	3A	1A
DC	DC-12 Control of resistive loads and solid state loads						
		8A	4A	-	2.2A	1.1A	-
	DC-13 Control of electromagnets						
		4A	2A	-	1.1A	0.6A	-

• Minimum applicable load: 3V AC/DC, 5 mA

(Applicable range may vary with operating conditions and load types.)

Note: The operational current represents the classification by making and breaking currents (IEC 60947-5-1).