

HS5B/HS5E

Door Handle Actuator

Sliding Actuator

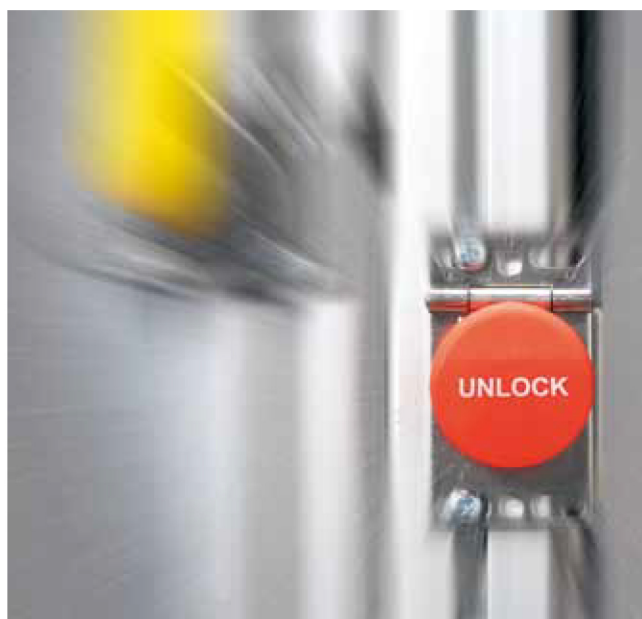


IDEC CORPORATION

Easy and Secure Pushbutton Operation



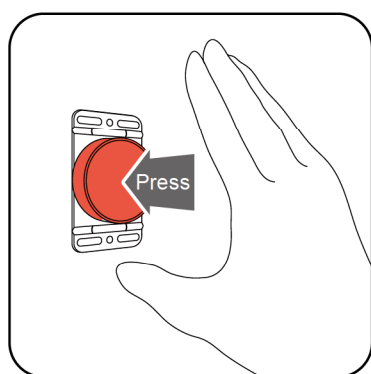
Pressing a red mushroom pushbutton in an emergency situation—the established safety measure.



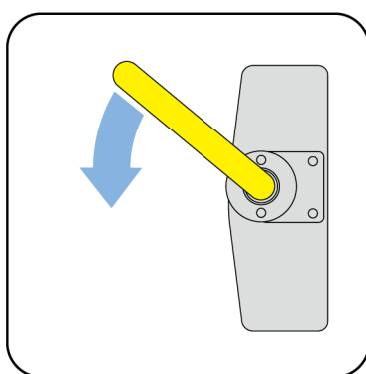
Simply press the red mushroom pushbutton.

Imagine you are in an emergency situation and you need to escape from a hazardous area immediately. If getting out requires multiple actions, it is likely you will be trapped within the hazardous area!

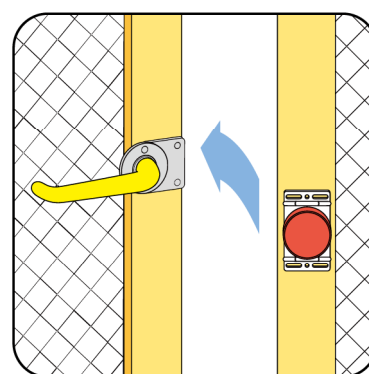
A system should require only simple measures which can be performed without much thinking—such as pressing a pushbutton!



Press the pushbutton.
Machine will stop.



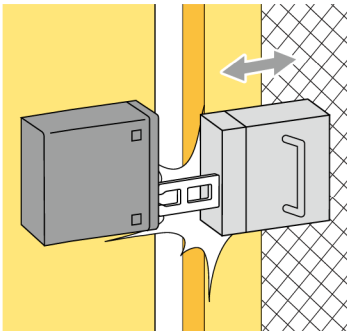
Turn the rear handle.



Escape.

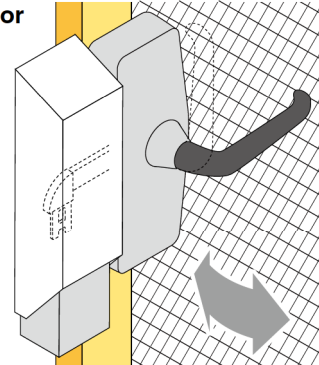
Rotational handle actuator can be inserted/removed smoothly on rattling doors.

Conventional Sliding Actuator



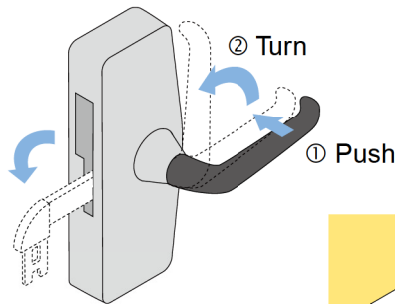
IDEC's Door Handle Actuator

Rattling doors can be locked smoothly and securely.

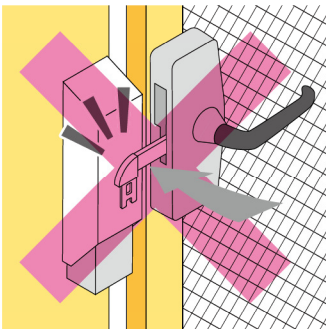
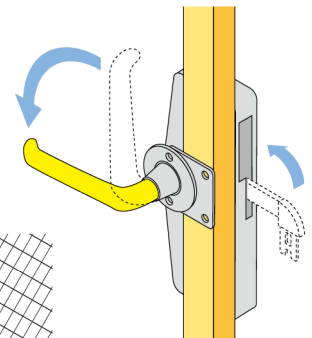


The door can be locked and unlocked by pushing and turning the handle.

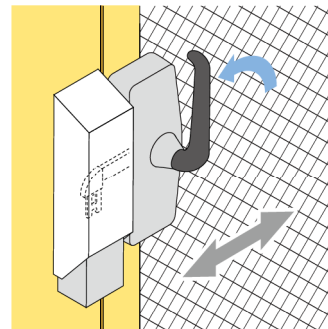
The actuator can be inserted into the interlock switch by pushing and turning the front handle. The actuator can be removed from the interlock switch by turning the front handle.



The rear handle can remove the actuator, but cannot insert the actuator.



Because the handle can be turned only while it is pushed, the actuator is prevented from hitting the switch cover unit.



Sliding doors can also be locked securely.

Padlockable tab ensures operator's safety.

When padlocks are installed on the padlock tab, the machine cannot be started because the actuator entry slot is blocked and the actuator cannot enter the interlock switch. By requiring all operators to have their own padlock and installing them on the door handle actuator before entering the hazardous area, the door will not be closed unless all padlocks are removed—i.e. all operators have left the hazardous area.

Note: Operators must observe rules in the workplace in order to ensure safety. Residual risk such as failure to install padlocks must be taken into consideration.



Interlock switch with/without solenoid locking can be selected.

HS5E



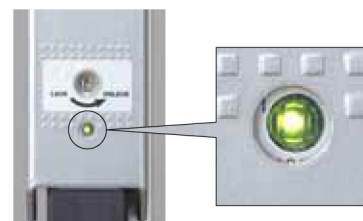
(HS5E-44L**-G)

HS5B



(HS5B-**-Z)

LED shows solenoid status
(when using the HS5E interlock switch)



Door Handle Actuator Configuration

• Interlock Switches



HS5E-44L**G
Rear Unlocking
Button Type



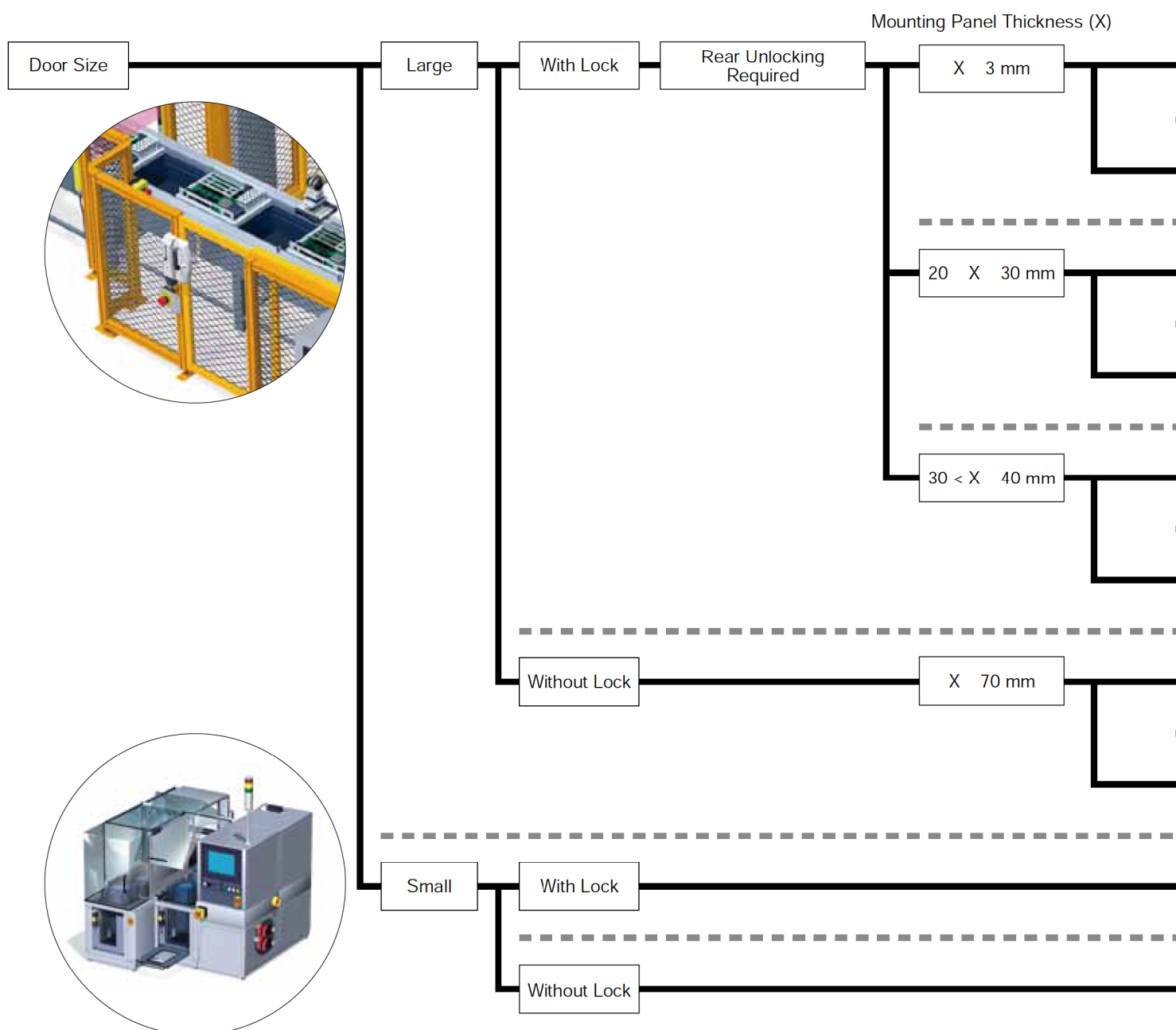
HS5B-22Z
Metal Head Type

• Switch Cover Unit



HS9Z-DH5C

Selection Chart



• Handle Unit

Right-hand Door



HS9Z-DH5RH

Left-hand Door



HS9Z-DH5LH

Accessories

• Rear Unlocking Button Kit



HS9Z-FL53
HS9Z-FL54

• HS5B Installation Kit



HS9Z-DH5B

Handle Unit		Switch Cover Unit		Accessories		Interlock Switch	
Right-hand Door	 HS9Z-DH5RH	+	 HS9Z-DH5C	+		+	 HS5E-44L**G (Rear Unlocking Button Type)
Left-hand Door	 HS9Z-DH5LH	+		+		+	
Right-hand Door	 HS9Z-DH5RH	+		+	 Rear Unlocking Button Kit HS9Z-FL53	+	
Left-hand Door	 HS9Z-DH5LH	+		+		+	
Right-hand Door	 HS9Z-DH5RH	+		+	 Rear Unlocking Button Kit HS9Z-FL54	+	
Left-hand Door	 HS9Z-DH5LH	+		+		+	
Right-hand Door	 HS9Z-DH5RH	+		+	 HS5B Installation Kit HS9Z-DH5B	+	 HS5B-**Z (Metal Head Type)
Left-hand Door	 HS9Z-DH5LH	+		+		+	
 Sliding Actuator HS9Z-SH5		+		+		+	 HS5E (All types)
		+		+		+	 HS5B-**Z (Metal Head Type)

HS5B/HS5E Door Handle Actuator

Easy and secure operation.

- Rattling doors can be locked smoothly and securely.
- A door can be locked with an actuator by pushing and turning the handle.
- Padlock tab is provided to ensure operator safety.
- Interlock switch with or without solenoid lock can be installed.
- LED shows solenoid status
(when using HS5E-*44L**G).

Specifications

Applicable Interlock Switch	HS5B Metal Head Interlock Switch (Note 1) HS5E Rear Unlocking Button Type Interlock Switch with Solenoid (Note 2)
Operating Temperature	-25 to +70°C (no freezing)
Mechanical Durability	100,000 operations minimum
Applicable Shackle Diameter of Padlock	ø6 to 7.5 mm
Withstand Load of Padlock Tab	30N maximum
Handle Operation Angle	77° (removed position ↔ inserted position)
Weight	HS9Z-DH5LH/RH: 1000g HS9Z-DH5C: 900g HS9Z-DH5B: 30g

Note 1: HS5B-*ZB, HS5B-*ZBM

Note 2: HS5E-*44L**G

- Interlock switch is not supplied with the actuator and must be ordered separately.
- For the specifications of interlock switches, see Cat No. EP1199-0.



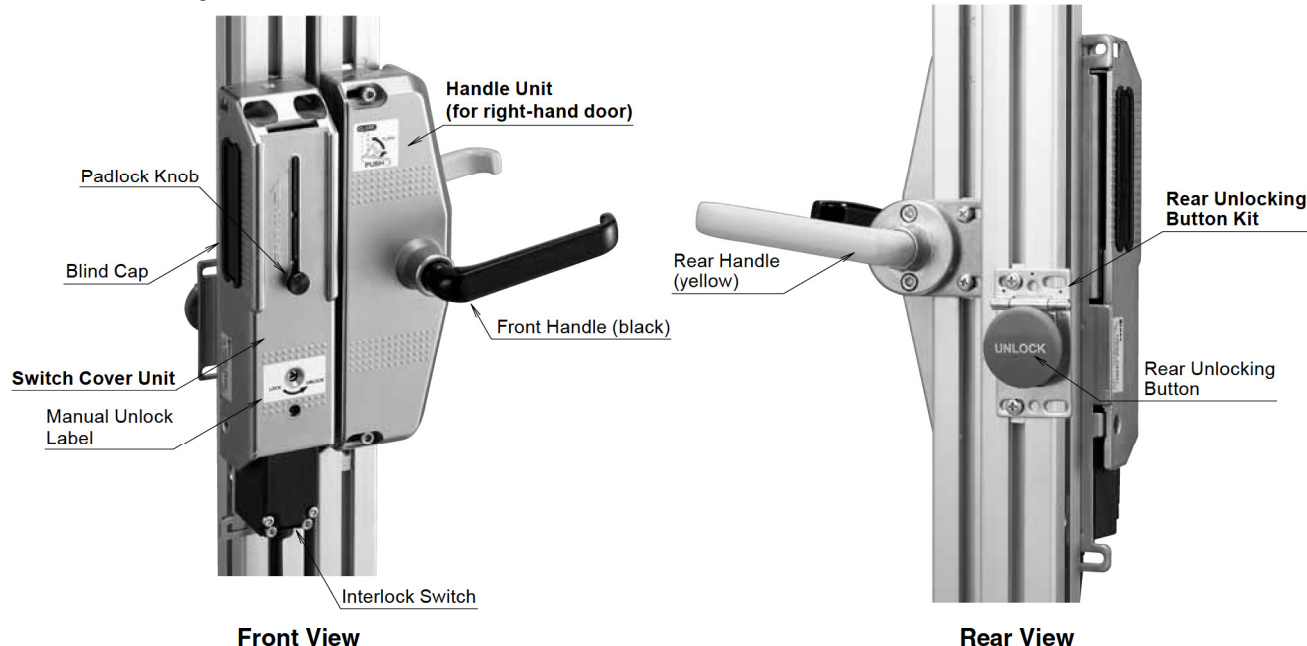
Types

Description		Ordering Type No.	Remarks
Handle Unit	For right-hand door	HS9Z-DH5RH	Choose according to the required opening side.
	For left-hand door	HS9Z-DH5LH	
Switch Cover Unit		HS9Z-DH5C	Used for installing the interlock switch inside.
HS5B Installation Kit		HS9Z-DH5B	Contains a mounting plate and two spacers.
Rear Unlocking Button Kit (Note 1)		HS9Z-FL53	Contains a button with base plate and a connecting rod Mounting panel thickness (X): $20 \leq X \leq 30$ mm (Note 2)
		HS9Z-FL54	Mounting panel thickness (X): $30 < X \leq 40$ mm (Note 2)

Note 1: Use the kit in combination with the HS5E-*44L**G rear unlocking button type interlock switch.

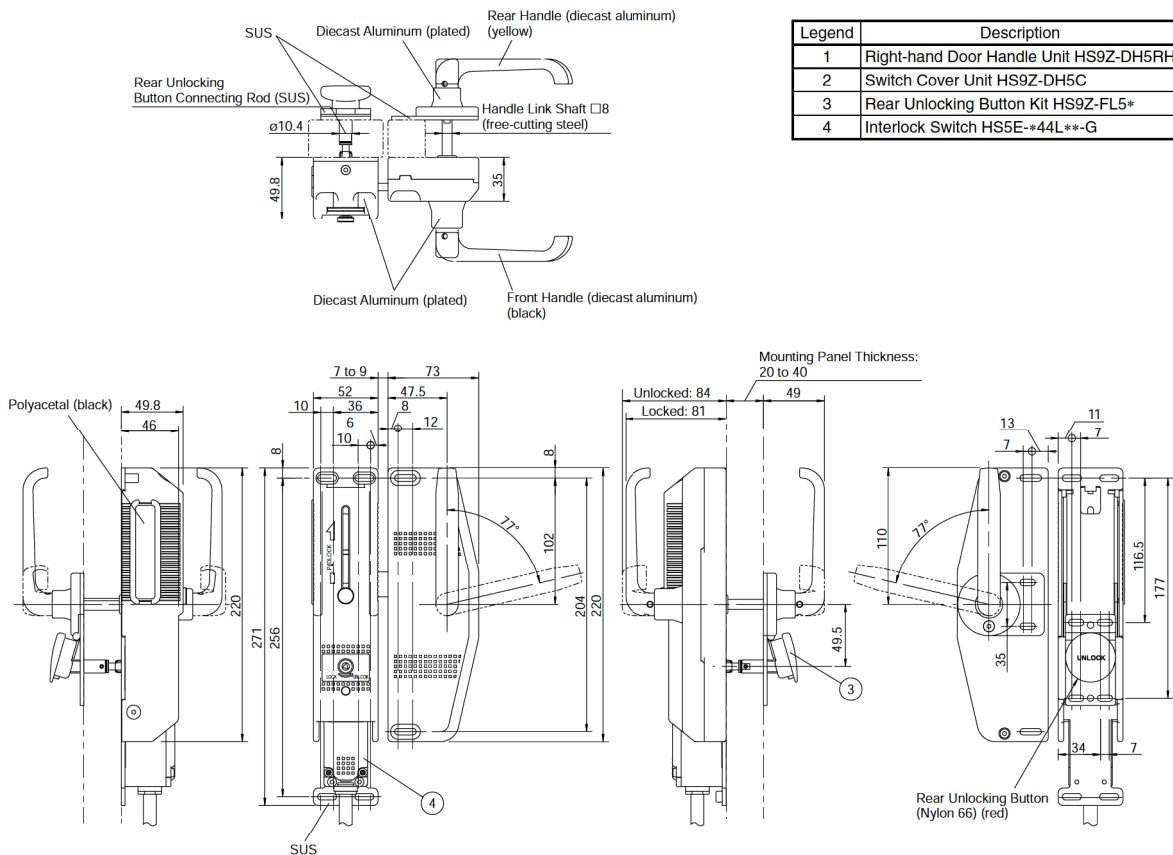
Note 2: Mounting panel is a frame or a panel.

Parts Description

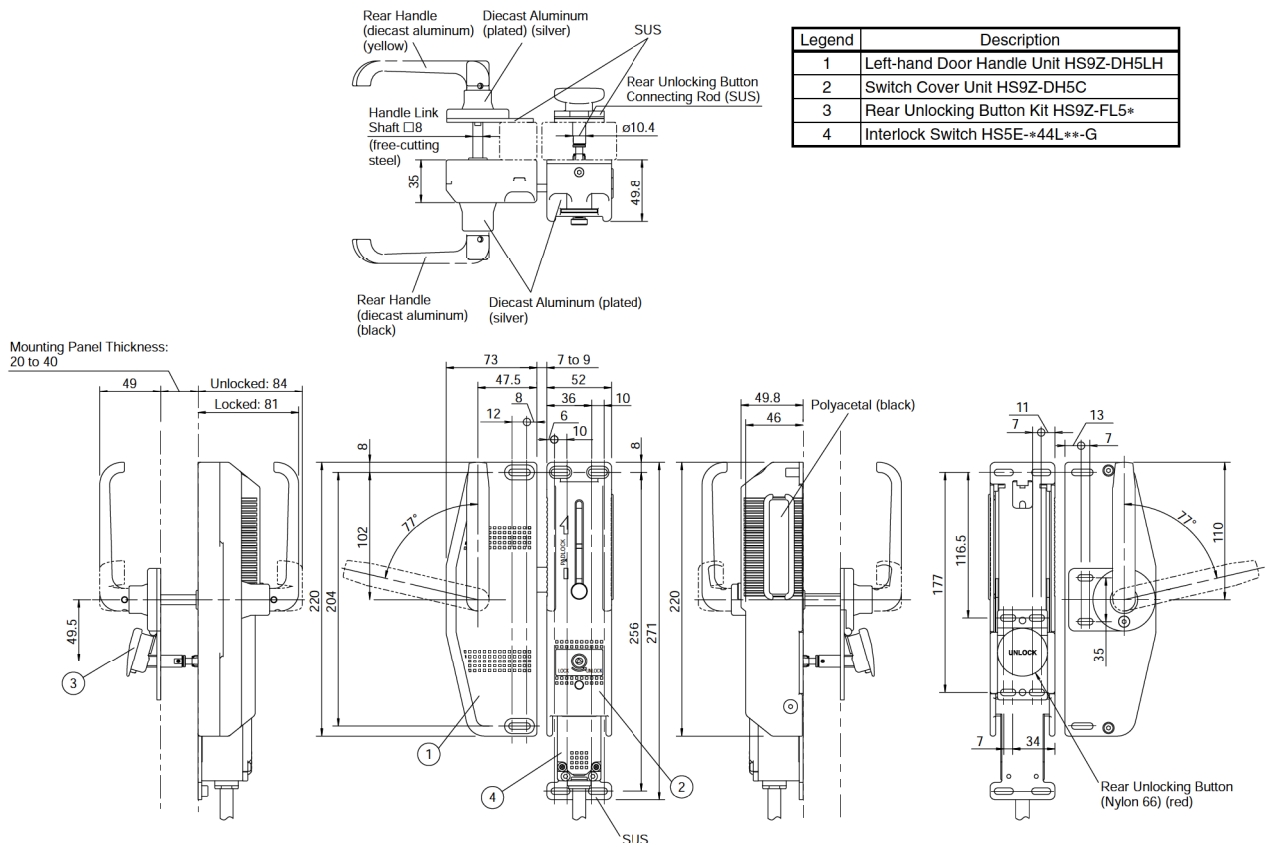


Dimensions

• HS9Z-DH5RH (right-hand door) and HS5E-*44L**G Interlock Switch with Solenoid



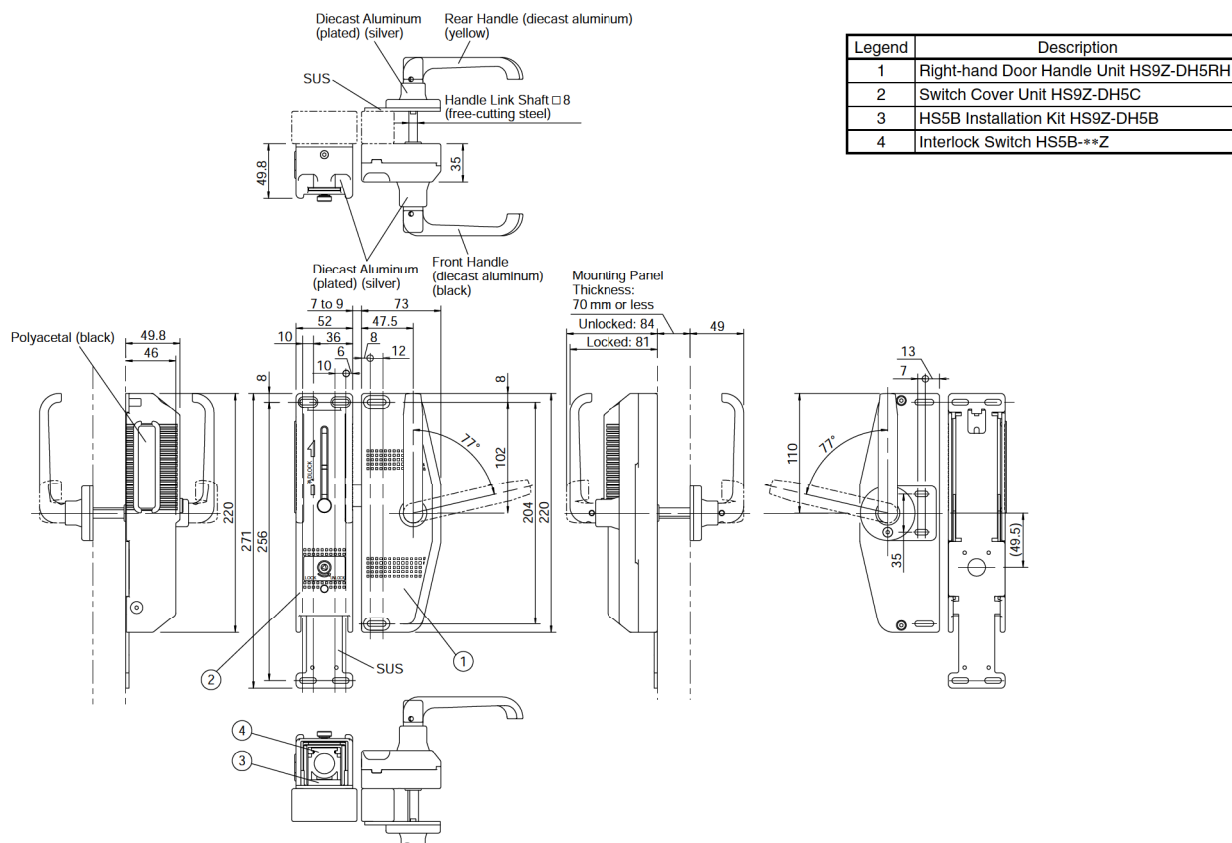
• HS9Z-DH5LH (left-hand door) and HS5E-*44L**G Interlock Switch with Solenoid



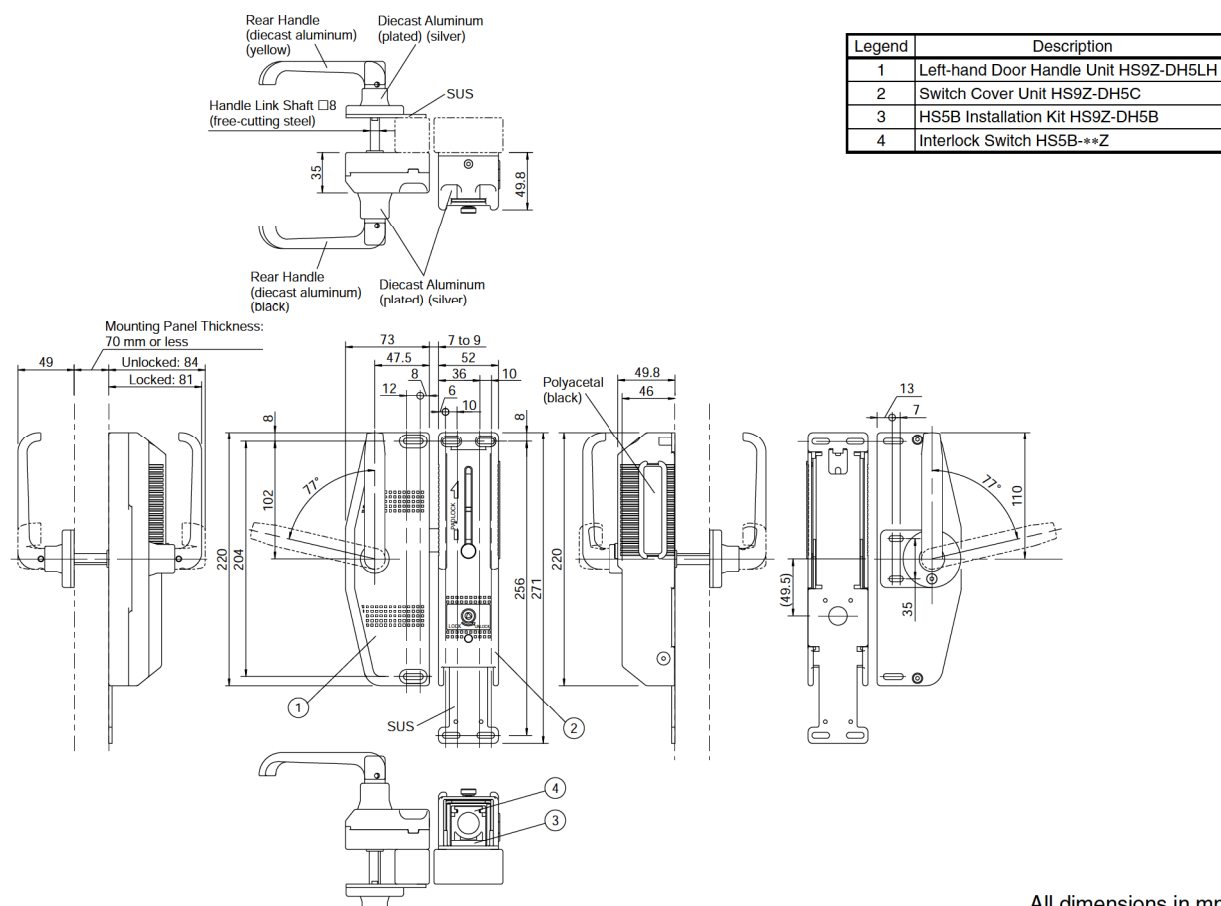
All dimensions in mm.

HS5B/HS5E Door Handle Actuator

• HS9Z-DH5RH (right-hand door) and HS5B-**Z Interlock Switch



• HS9Z-DH5LH (left-hand door) and HS5B-**Z Interlock Switch



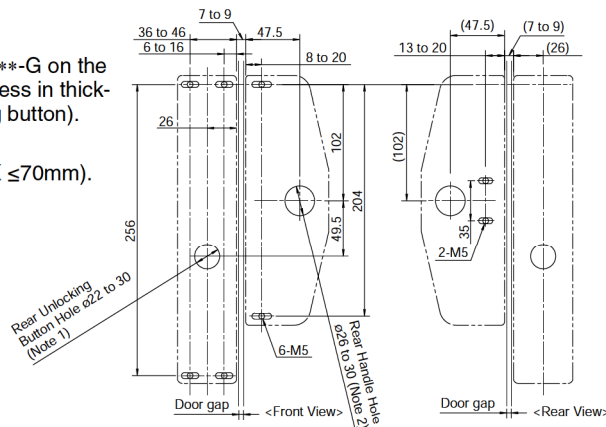
All dimensions in mm.

Panel Cut-out

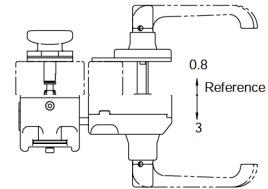
• HS9Z-DH5RH right-hand door handle unit

When using the HS5E-44L**-G on the mounting panel of 3 mm or less in thickness (use the rear unlocking button).

When using the HS5B-*Z (mounting panel thickness $X \leq 70\text{mm}$).

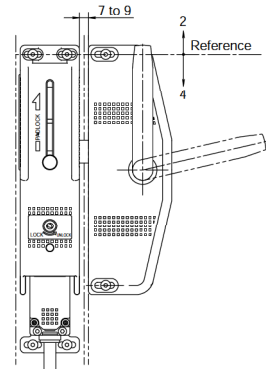
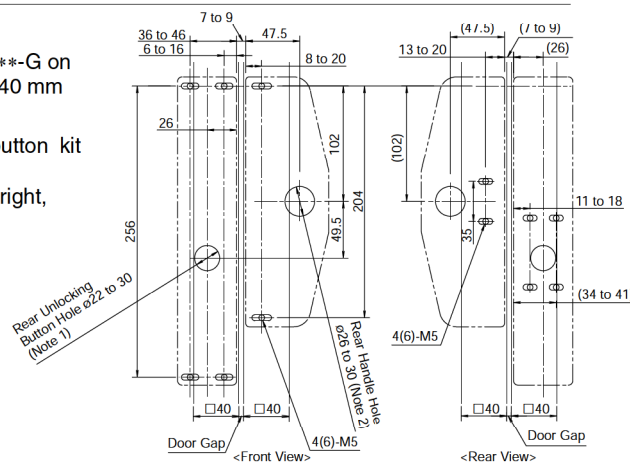


Mounting Position Tolerance



When using the HS5E-44L**-G on the mounting panel of 20 to 40 mm in thickness.

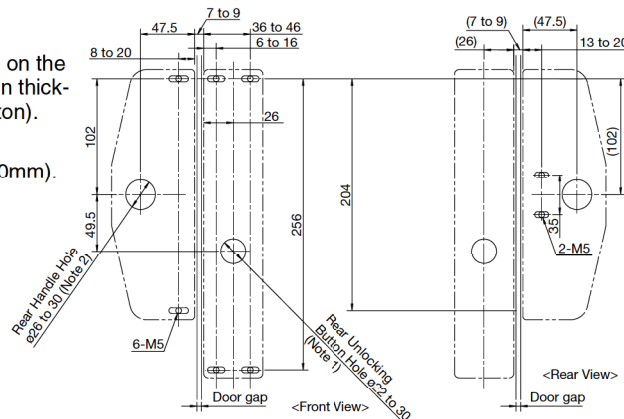
- Use the rear unlocking button kit (HS9Z-FL5*).
- In the figure shown on the right, □40mm frame is used.



• HS9Z-DH5LH left-hand door handle unit

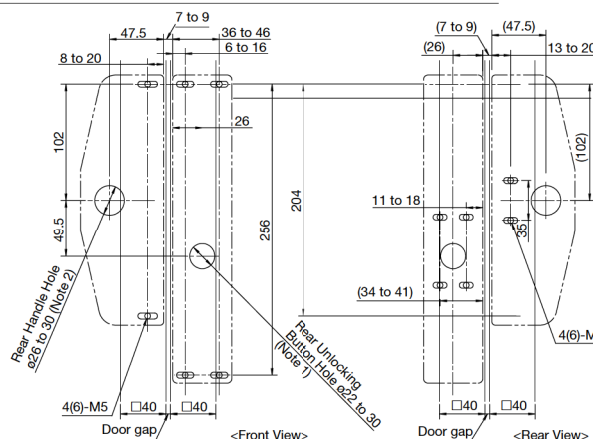
When using the HS5E-44L**-G on the mounting panel of 3 mm or less in thickness (use the rear unlocking button).

When using the HS5B-*Z (mounting panel thickness $X \leq 70\text{mm}$).



When using the HS5E-44L**-G on the mounting panel of 20 to 40 mm in thickness.

- Use the rear unlocking button kit (HS9Z-FL5*).
- In the figure shown on the right, □40mm frame is used.



Note 1:
Required when using the HS5E-44L**-G.
Not required when using the HS5B-*Z
(without locking function).

Note 2:
Ensure that the hole in the mounting panel
does not interfere with the rear handle shaft.

All dimensions in mm.

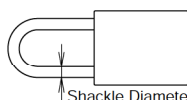
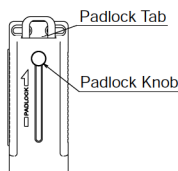
Instructions

- The door handle actuator can be used with the HS5B-**-Z (metal head type) and HS5E-**44L**-G (rear unlocking button type) only. Do not use with other interlock switches.
- When using the door handle actuator in the safety-related part of the system, make sure of proper operation while observing the safety standards and regulations of the relevant country or region where the actual machine/system is used. Also, perform a risk assessment before operation.
- Read the instruction sheet of interlock switch before installing the door handle actuator.
- Install the switch cover unit and handle unit on the outside of the door. Do not install them inside the door, otherwise the door cannot be opened or closed by the operator, affecting the operation and causing danger to the operator.
- Install the door handle actuator in the direction as shown on the right, so that the cable faces downward. Do not install in any other direction, otherwise malfunction will be caused.
- Do not modify or disassemble the door handle actuator.



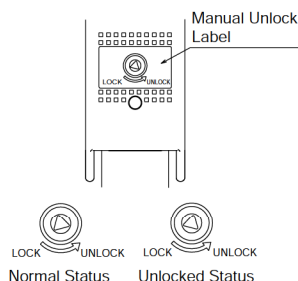
Padlocking

- When padlocking the HS9Z-DH5, lift the knob on the front of the HS9Z-DH5. A tab will appear. Install padlock(s) or a hasp on the tab.
- Make sure that the total load by the padlocks and hasp does not exceed 30N. Otherwise the door handle actuator will become deformed or damaged.
- The applicable shackle diameter of padlock is $\phi 6.0$ to 7.5 mm.



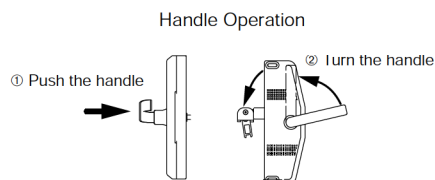
Manual Unlocking

- When using the HS5E-**44L**-G interlock switch, attach the manual unlock label on the front of the switch cover unit.
- For manual unlocking, refer to the catalog for the HS5E interlock switch with solenoid (EP1199).



Handle Operation

- Push the handle, and turn the handle to insert the actuator.



Note: Do not force to turn the handle without pushing in the handle, otherwise damage will occur.

- Do not close the door when the actuator is in the locked status, otherwise the actuator will hit the door, resulting in deformation or damage.
- When turning the handle, make sure that your hands or fingers are not caught by the door.

Installation

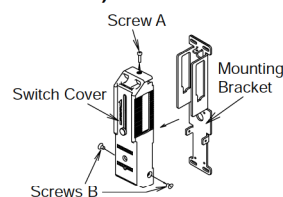
- Check whether the following parts are included.

Unit Type	Part	Quantity
Switch Cover Unit HS9Z-DH5C	Mounting Bracket	1
	Switch Cover	1
	Blind Cap	1
	Screw A *	1
	Screw B *	2
	Screw C	4
Handle Unit HS9Z-DH5RH HS9Z-DH5LH	Actuator Cover	1
	Front Handle (black)	1
	Rear handle (yellow)	1
	Rear handle Shaft	1
	Rear handle Plate	1
	Rear handle Base	1
	Screw D *	2
	Screw E	2
HS5B Installation Kit HS9Z-DH5B	Mounting Plate	1
	Spacer	2

*Screws A and B are loosely attached to the switch cover. Screws D are loosely attached to the handles.

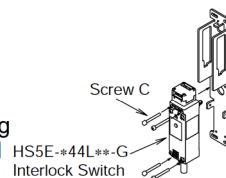
Installing the Switch Cover Unit (HS9Z-DH5C)

- Remove one Screw A and two Screws B from the switch cover and remove the switch cover from the mounting bracket.



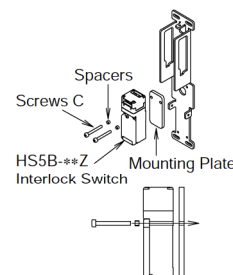
[HS5E-**44L**-G Interlock Switch]

Using four Screws C, install the interlock switch on the mounting bracket (panel thickness 3 mm or less). When installing on a mounting panel (X) of $20 \leq X \leq 40$ mm, install the connecting rod onto the push rod and press the pin into the hole in the push rod as described in the "Installing the Rear Unlocking Button Kit" on page 12, before installing the switch on the mounting bracket.

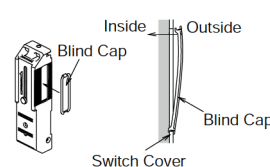


[HS5B-**-Z Interlock Switch]

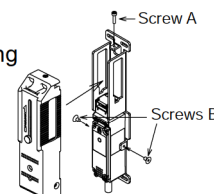
Install the interlock switch using the HS5B Installation Kit (HS9Z-DH5B) and two Screws C.



- Plug the unused actuator entry slot using the blind cap. To do so, attach the tab on one end to the switch cover, and bending the blind cap, attach the other end on the switch cover.



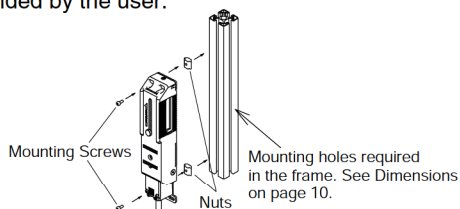
- Install the switch cover on the mounting plate using one Screw A and two Screws B.



HS5B/HS5E Door Handle Actuator

Instructions

4. Install the switch cover unit on the mounting frame and panel. Mounting screws or nuts are not supplied and must be provided by the user.



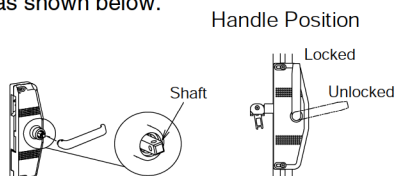
Installing the rear unlocking button

When the total thickness of mounting panel is 3.0 mm or less: Install the rear unlocking button on the rod on the back of the switch. For details, see the instruction sheet or catalog (EP1199) for the HS5E.

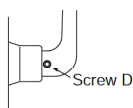
When the total thickness of mounting frame or panel is 20 mm or more: Install the rear unlocking button kit (HS9Z-FL5*) sold separately. For installation, see the instruction sheet for the HS9Z-FL5 or catalog (EP1199) for the HS5E.

Installing the Handle Unit HS9Z-DH5RH

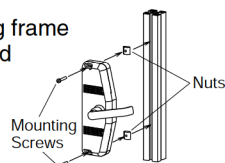
1. Install the front handle (black) on the shaft on the actuator cover as shown below.



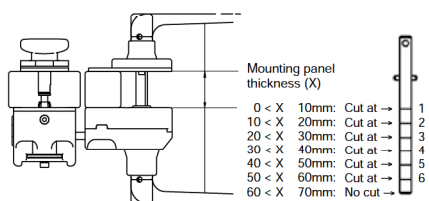
2. Tighten Screw D attached to the handle using a hexagonal wrench (size: 2.5). Apply Loctite to the screw so that it does not become loose.



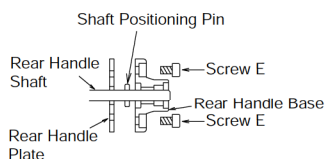
3. Install the handle unit on the mounting frame and panel, aligning the handle unit and switch cover unit as illustrated under "Actuator Mounting Reference Position." Mounting screws and nuts are not supplied and must be provided by the user.



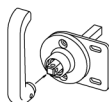
4. Cut the rear handle shaft according to the thickness of the mounting frame and panel.



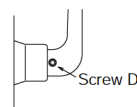
5. Align the rear handle plate, rear handle shaft, and the rear handle base as shown below, and fasten them using two Screws E. Apply Loctite to the screws so that they do not become loose.



6. Install the rear handle (yellow) on the rear handle shaft.

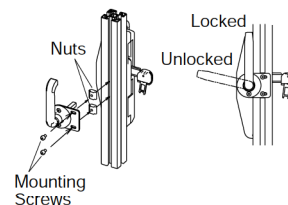


7. Tighten Screw D attached to the handle using a hexagonal wrench (size: 2.5). Apply Loctite to the screw so that it does not become loose.



8. Turn the handle to the locked position, and insert the rear handle shaft into the actuator cover. The rear handle should be in the locked position.

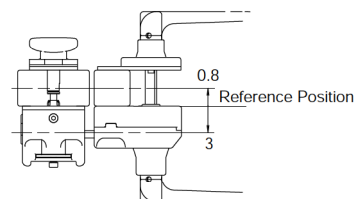
9. While adjusting to ensure smooth operation of the rear handle, fasten the rear handle unit on the mounting frame and panel.



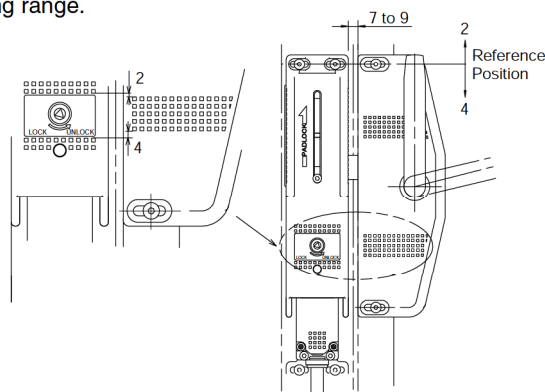
- * Install the HS9Z-DH5LH in a similar fashion as the HS9Z-DH5RH. Note that the handle direction becomes opposite.
- * Mounting screws and nuts are not supplied and must be provided by the user.

Actuator Mounting Reference Position

- The mounting reference position and allowable mounting range are as shown below.

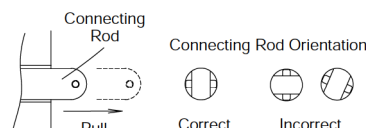
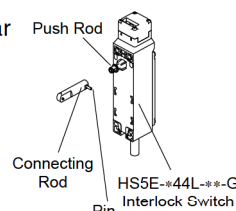


- Use the square dot pattern as a guide of the allowable mounting range.



Installing the Rear Unlocking Button Kit

1. Install the connecting rod onto the push rod on the HS5E-44L-G rear unlocking button type interlock switch.
2. A pin is attached to the connecting rod. Using pliers, press the pin into the hole in the push rod.
3. Pull out the connecting rod from the hole in the mounting frame, and turn the button operating pin to the horizontal position.

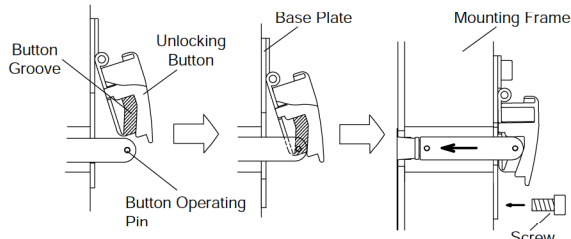


Instructions

Safety Precautions

Ensure that the connecting rod is pulled out completely and it is horizontal to the interlock switch, otherwise the unlocking button cannot be installed.

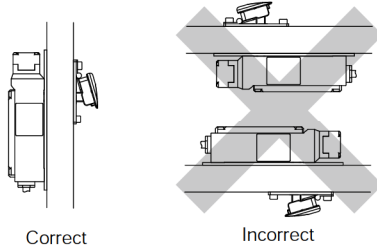
4. Install the unlocking button on the connecting rod by fitting the pin to the grooves on the back of the button, and fasten the base plate on the mounting frame using the screws.



5. After tightening the mounting screws to a torque of 4.8 to 5.2 N·m, check if locking and unlocking operations can be performed. Apply Loctite to the screws so that they do not become loose.

Safety Precautions

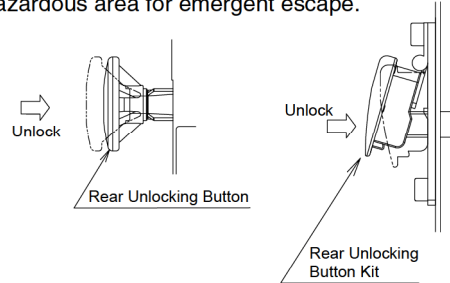
Install the rear unlocking button kit in the correct direction as shown below. Do not install the kit in incorrect directions, otherwise malfunction will be caused.



Do not apply strong force exceeding 100 m/s² to the rear unlocking button kit, otherwise malfunction will be caused.

Manual Unlocking Using the Rear Unlocking Button

- The rear unlocking button is used by the operator confined in a hazardous area for emergent escape.



How to operate

- When the rear unlocking button is pressed, the interlock switch is unlocked and the door can be opened.
- To lock the interlock switch, pull back the button.
- While the button remains pressed, the interlock switch cannot be locked even if the door is closed, and the main circuit remains open.

Safety Precautions

- Install the rear unlocking button in the place where only the operator inside the hazardous area can use it. Do not install the button in the place which can be reached by an operator outside the hazardous area, otherwise the interlock switch may be unlocked during machine operation, causing danger.
- Operate the rear unlocking button by hand only. Do not operate using a tool or with excessive force. Do not apply force to the button from the direction other than the proper direction, otherwise the button will be damaged.

Recommended Tightening Torque

Screw	Recommended Tightening Torque
HS9Z-DH5C Switch Cover Unit	
One Screw A (M4) and two Screws B (M5) to install the switch cover on the mounting bracket	1.0 to 1.2 N·m
Four Screws C (M4) to install the HS5E-44L**-G on the mounting bracket Two Screws C (M4) to install the HS5B-**-Z on the mounting bracket	1.5 to 1.8 N·m
Four M5 screws to install the switch cover unit on the mounting frame and panel (not supplied and must be provided by the user)	4.5 to 5.0 N·m
HS9Z-DH5*H Handle Unit	
Two Screws D (M5) to fasten handles (one each on front and rear handles)	2.5 to 3.0 N·m
Two Screws E (M5) to install the rear handle base on the rear handle plate	4.5 to 5.0 N·m
Two M5 screws each to install the front and rear handles on the mounting frame and panel (not supplied and must be provided by the user)	4.5 to 5.0 N·m

Note: The above recommended tightening torques of the mounting screws are the values with hex socket head bolts. When other screws are used and tightened to a smaller torque, make sure that the screws do not become loose after mounting.

HS5B/HS5E Sliding Actuator

Sliding actuators allow for easy installation and adjustment.

- Angle adjustment is not required, enabling easy positioning.
- Installation is possible both vertically and horizontally, and also on any type of doors.
- Can be used on the HS5B metal head type and HS5E interlock switches.
- Safety measures can be provided easily on existing facilities.



Types

Description	Ordering Type No.
HS5B/5E Sliding Actuator	HS9Z-SH5

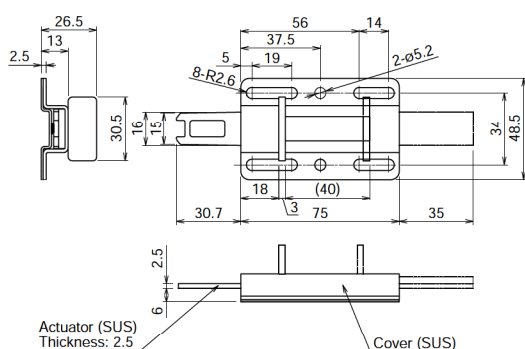
Note: HS5B and HS5E interlock switches are not supplied with the sliding actuators and must be ordered separately.

Specifications

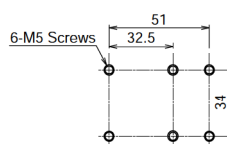
Applicable Type	HS5B-**Z Metal Head Type Interlock Switches HS5E Interlock Switches
Weight	125g
Mechanical Durability	100,000 operations minimum
Operation Stroke	40 mm
Direct Opening Force	HS5B: 80N minimum HS5E: 90N minimum

Note: For the details of interlock switches, refer to Cat No. EP1199-0.

Dimensions



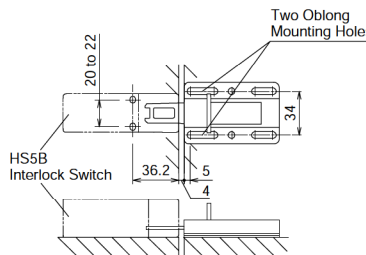
Mounting Hole Layout



All dimensions in mm.

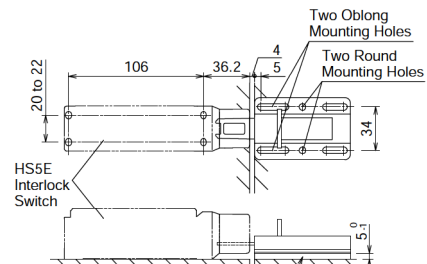
Installation

When using with HS5B-**Z interlock switch



Fasten the actuator cover on at least two oblong holes using mounting screws.

When using with HS5E interlock switch



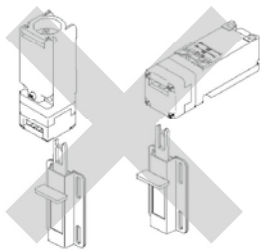
Thickness Adjustment Plate
(to be provided by the user)
Recommended thickness: 5.3 mm

Fasten the actuator cover on at least two rectangular holes and two round mounting holes using mounting screws.
The thickness adjustment plate requires mounting holes.

Instructions

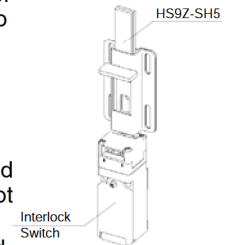
Operating Instructions

- When using the sliding actuator in a safety-related part of the system, make sure of proper operation while observing the safety standards and regulations of the relevant country or region where the actual machine/system is used. Also, perform a risk assessment before operation.
- Read the instruction sheet of the interlock switch carefully before installation or operation.
- The actuator has projections on the end. Take care not to injure hands.
- Regardless of door types, do not use the sliding actuator as a door stop.
- When the actuator is inserted to an interlock switch in the different direction from the open/close direction of the door, do not open the door with excessive force, otherwise failure or damage will be caused.
- When an operator enters the hazardous zone, take a safety measure such as using padlock hasp HS9Z-PH5 so that the operator is not trapped inside and the machine is not operated while the operator is in the hazardous zone.
- Do not install the sliding actuator as shown below, otherwise the actuator may be removed from the interlock switch due to shocks.



- Ensure to slide the sliding actuator completely. Incomplete insertion of the actuator may cause unstable contact operation of the interlock switch. Also, door may not be opened, damaging the actuator.
- Do not close the door when the actuator is slid out of the cover, otherwise the actuator may be damaged.
- When using the sliding actuator, take care so that fingers or hands are not caught between the actuator and interlock switch.

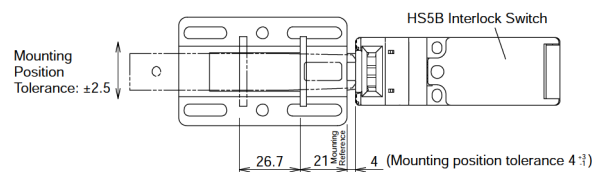
- When installing the sliding actuator over the interlock switch as shown below, do not apply a shock exceeding 100 m/s² to the actuator, otherwise the actuator may be inserted to the interlock switch and cause unintended machine operation.
- Use the sliding actuator with HS5B and HS5E interlock switches only. Do not use with other products.
- Do not modify or disassemble the sliding actuator.



Adjustment

1. Mounting Reference Position

- The mounting reference position of sliding actuator is shown below.



2. Recommended Tightening Torque of Mounting Screws

- M5 screws for mounting the sliding actuator: 4.5 to 5.5 N·m
- M4 screws for mounting the interlock switch: 1.8 to 2.2 N·m

Note: The above recommended tightening torque of the mounting screws are the values with hex socket head bolts. When other screws are used and tightened to a smaller torque, make sure that the screws do not become loose after mounting.

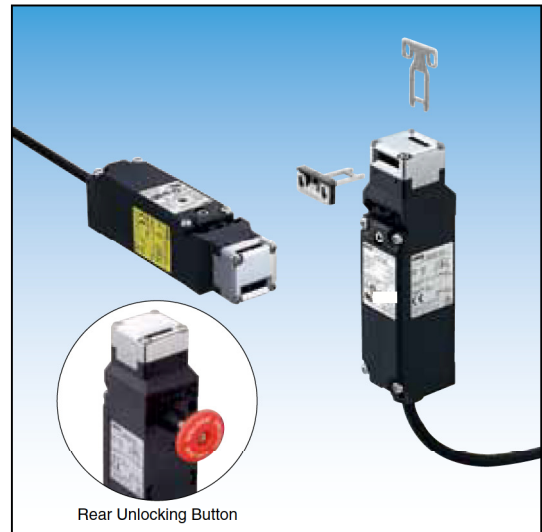
HS5E Miniature Interlock Switch with Solenoid

Ideal for applications in small spaces.

- Compact body. 35 × 40 × 146 mm
- Rear unlocking button type for emergency escape available. Also available is a rear unlocking button kit.
- A variety of circuit types—dual safety circuit and four-circuit independent output type available.
- Spring lock and solenoid lock are available.
- The head orientation can be rotated, allowing for 8 different actuator entries.
- A metal entry slot ensures high durability of head.
- The actuator retention force is 1000N minimum (GS-ET-19).



Juli 2013: BG & GS sind ausgelaufen.
Nachzertifizierung ist beantragt.



Rear Unlocking Button

HS5B Miniature Interlock Switches

Available with a robust and durable metal head. Choice of three conduit port sizes: G1/2, PG13.5, and M20

- Actuators are interchangeable with the HS5E interlock switches.
- Actuators with rubber bushings are ideal for rattling doors.
- The head orientation can be changed, allowing for 8 different actuator entries.
- Compact body (30 × 30 × 90mm)



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Specifications and other descriptions in this catalog are subject to change without notice.



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