

SEMI EMO Switches

SEMI Emergency Off (EMO) Switches

ø16mm XA Series EMO Switches (Solder Terminal) (Pushlock Turn Reset Switch)

Package Quantity: 1

Shape	NC Main Contact	NO Monitor Contact	Part No.
	1NC	—	XA1E-BV401RH-EMO
	2NC	—	XA1E-BV402RH-EMO
	3NC	—	XA1E-BV403RH-EMO
	4NC	—	XA1E-BV404RH-EMO
	1NC	1NO	XA1E-BV411RH-EMO
	2NC	1NO	XA1E-BV412RH-EMO
	3NC	1NO	XA1E-BV413RH-EMO

- Button color is bright red (RH).
- For detailed specifications and instructions, see website.

ø22mm XW Series EMO Switch (Pushlock Turn Reset Switch)

Package Quantity: 1

Shape	NC Main Contact	NO Monitor Contact	Part No.	
			IP20 Fingersafe Terminal	w/Terminal Cover
	1NC	—	XW1E-BV401MFRH-EMO	XW1E-BV401MRH-EMO
	2NC	—	XW1E-BV402MFRH-EMO	XW1E-BV402MRH-EMO
	3NC	—	XW1E-BV403MFRH-EMO	XW1E-BV403MRH-EMO
	4NC	—	XW1E-BV404MFRH-EMO	XW1E-BV404MRH-EMO
	1NC	1NO	XW1E-BV411MFRH-EMO	XW1E-BV411MRH-EMO
	2NC	1NO	XW1E-BV412MFRH-EMO	XW1E-BV412MRH-EMO
	3NC	1NO	XW1E-BV413MFRH-EMO	XW1E-BV413MRH-EMO
	2NC	2NO	XW1E-BV422MFRH-EMO	XW1E-BV422MRH-EMO

- Button color is bright red (RH).
- For detailed specifications and instructions, see website.

ø22mm HW Series EMO Switches (Screw Terminal) (Pushlock Turn Reset Switch)

Package Quantity: 1

Shape	Contact Arrangement	Part No.	Button Color
	1NC	HW1B-V401R-EMO	Red only
	1NO-1NC	HW1B-V411R-EMO	
	2NC	HW1B-V402R-EMO	
	2NO-2NC	HW1B-V422R-EMO	

- For detailed specifications and instructions, see website.

FB Series Control Stations

ø22mm HW Series EMO Switch

Package Quantity: 1

Illumination	Shape	NC Main Contact	NO Monitor Contact	Part No.	
				Without SEMI Switch Guard	With SEMI Switch Guard
Non-illuminated		1NC	—	FB1W-HW1B-V401R-EMO-Y0	FB1W-HW1B-V401R-EMO-Y□
		2NC	—	FB1W-HW1B-V402R-EMO-Y0	FB1W-HW1B-V402R-EMO-Y□
		1NC	1NO	FB1W-HW1B-V411R-EMO-Y0	FB1W-HW1B-V411R-EMO-Y□

ø22mm XW Series EMO Switch

Package Quantity: 1

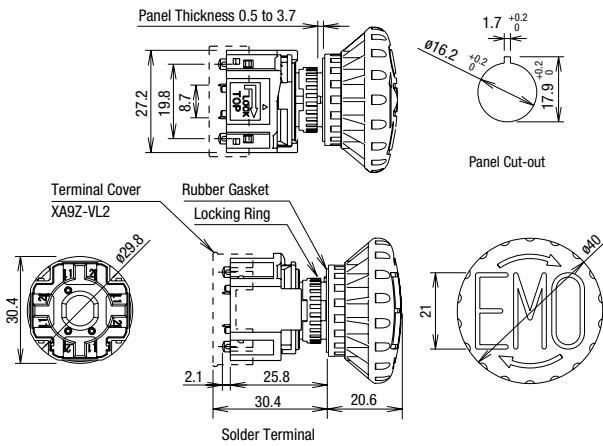
Illumination	Shape	NC Main Contact	NO Monitor Contact	Part No.	
				Without SEMI Switch Guard	With SEMI Switch Guard
Non-illuminated		1NC	—	FB1W-XW1E-BV401MRH-EMO-Y0	FB1W-XW1E-BV401MRH-EMO-Y□
		2NC	—	FB1W-XW1E-BV402MRH-EMO-Y0	FB1W-XW1E-BV402MRH-EMO-Y□
		3NC	—	FB1W-XW1E-BV403MRH-EMO-Y0	FB1W-XW1E-BV403MRH-EMO-Y□
		4NC	—	FB1W-XW1E-BV404MRH-EMO-Y0	FB1W-XW1E-BV404MRH-EMO-Y□
		1NC	1NO	FB1W-XW1E-BV411MRH-EMO-Y0	FB1W-XW1E-BV411MRH-EMO-Y□
		2NC	1NO	FB1W-XW1E-BV412MRH-EMO-Y0	FB1W-XW1E-BV412MRH-EMO-Y□
		3NC	1NO	FB1W-XW1E-BV413MRH-EMO-Y0	FB1W-XW1E-BV413MRH-EMO-Y□
		2NC	2NO	FB1W-XW1E-BV422MRH-EMO-Y0	FB1W-XW1E-BV422MRH-EMO-Y□

Note: Insert a code of SEMI switch guard in place of □ in Part No. (2: HW9Z-KG3, 3: HW9Z-KG4)
 HW9Z-KG3 and HW9Z-KG4 are compliant with SEMI S2. See **D-055** for details.

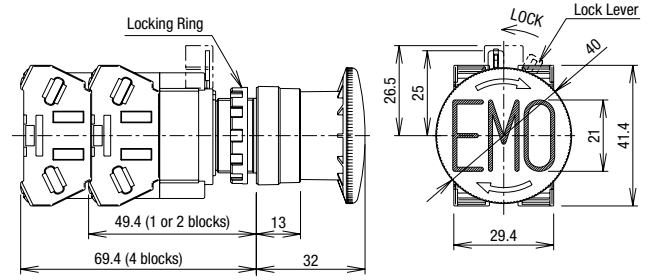
SEMI EMO Switch Guards

Dimensions

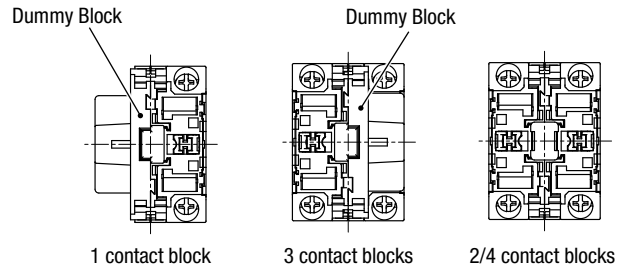
ø16mm XA Series EMO Switches



ø22mm HW Series EMO Switches

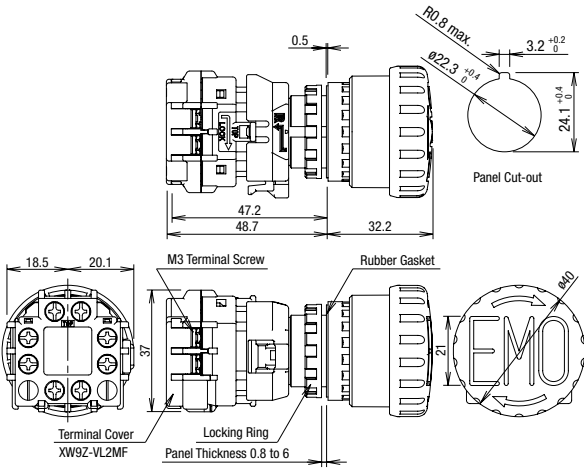


Bottom View



- For 1NC contact, the contact block will mount on the opposite side.
- See **B-227** for wiring.
- Integrated terminal cover

ø22mm XW Series EMO Switches

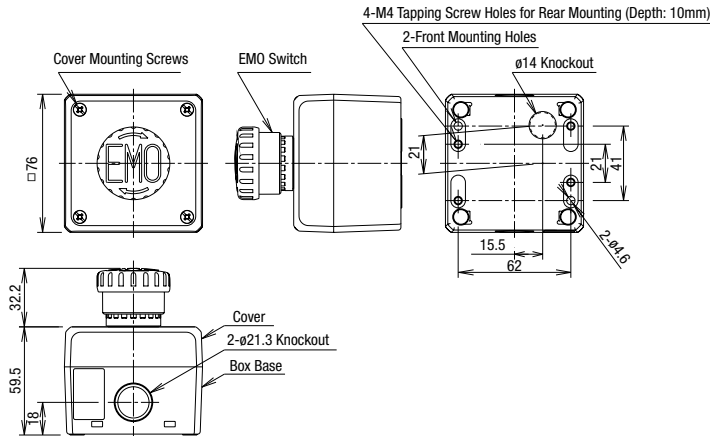


Recommended Tightening Torque Number of Wires

Unit	Wire	Number of Wires	Recommended Tightening Torque (N·m)	Terminal Screw	
HW-U Contact Block	Crimping Terminal	2	1.0 to 1.3	M3.5	
	Solid Wire	ø0.5 to 1.6mm (AWG14 to 22)	2		1.0 to 1.3
		ø1.7 to 2.0mm (AWG12)	1		1.2 to 1.3
	Stranded Wire	0.3 to 2.0mm ² (AWG14 to 22)	2		1.0 to 1.3
		2.1 to 3.5mm ² (AWG12)	1		1.2 to 1.3

FB Series Control Box

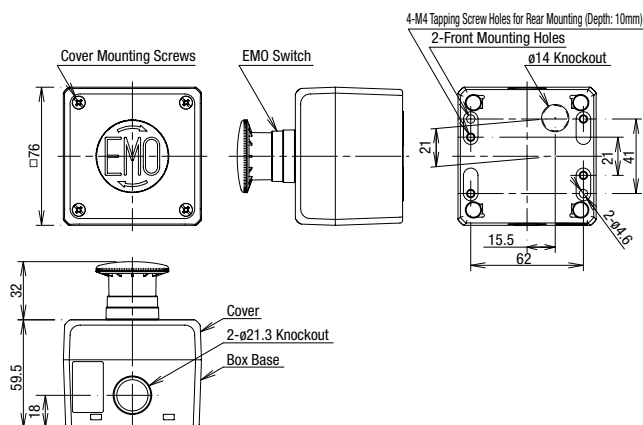
ø22mm XW Series EMO Switches



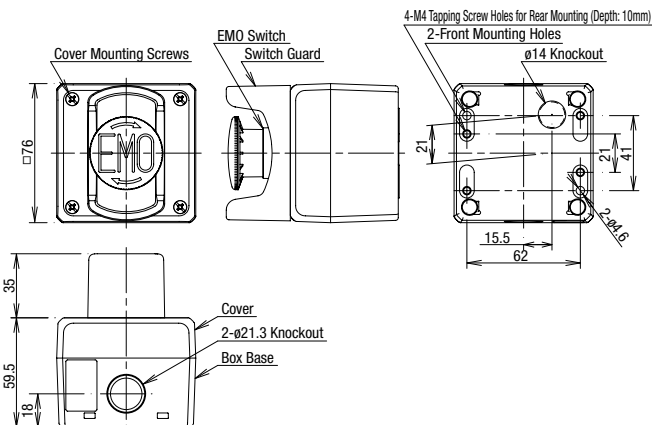
All dimensions in mm.

FB Series Control Box

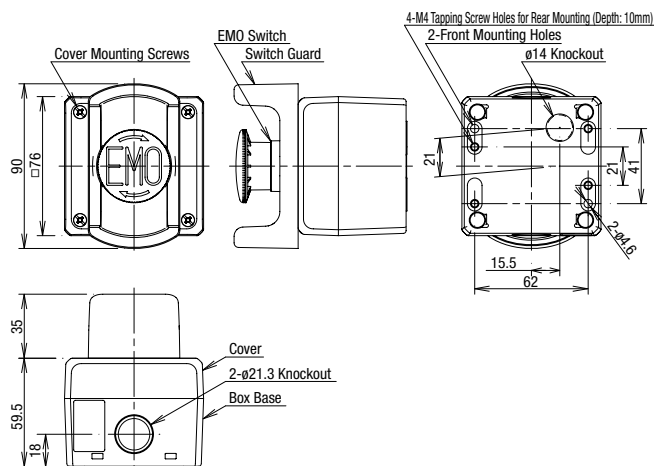
ø22mm HW Series EMO Switches



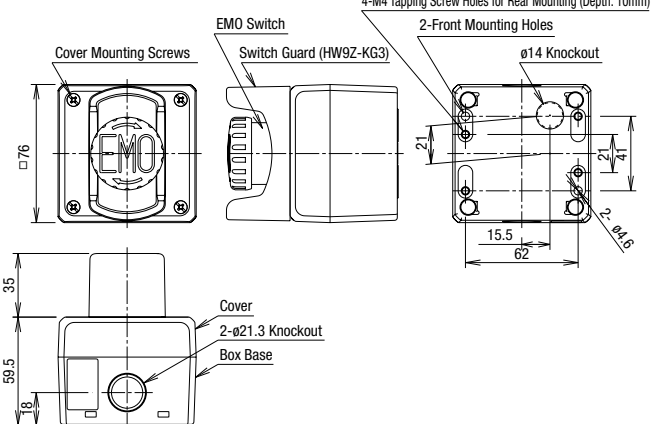
ø22mm HW Series EMO Switches + SEMI Switch Guard (HW9Z-KG3)



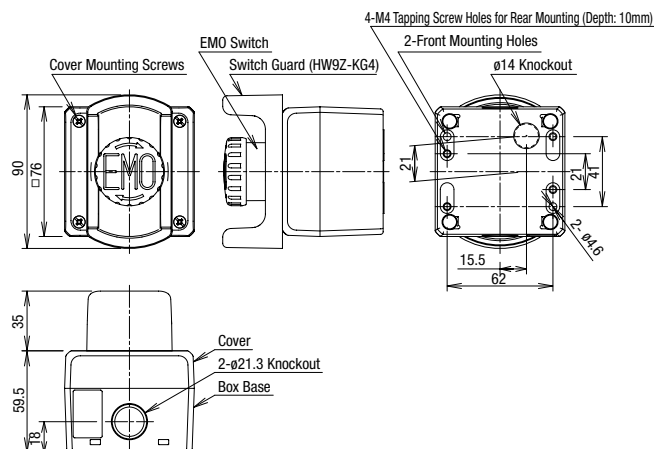
ø22mm HW Series EMO Switches + SEMI Switch Guard (HW9Z-KG4)



ø22mm XW Series EMO Switches + SEMI Switch Guard (HW9Z-KG3)



ø22mm XW Series EMO Switches + SEMI Switch Guard (HW9Z-KG4)



- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
- Terminal Blocks
- Relays & Sockets
- Circuit Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors
- AUTO-ID
- X6
- XA
- XW
- XN
- SEMI

SEMI EMO Switch Guards

The combination of IDEC's EMO switch guards and emergency stop switches are approved by TÜV Rheinland for compliance with SEMI S2 standards.

SEMI S2-compliant Combinations

EMO Switch Guard	Applicable Emergency Stop Switches
XA9Z-KG1	XA1E-BV4****-EMO (①), XA1E-BV3 (②), XA1E-LV3 (③), XA1E-BV4 (③), XA1E-LV4 (③)
HW9Z-KG3	XW1E-BV4****-EMO (④), XW1E-BV4 (⑤), XW1E-LV4 (⑤), XW1E-TV4 (⑤), HW1B-V3 (⑥), HW1B-V4 (⑦), HW1B-X4 (⑧), HW1B-Y2 (⑨)
HW9Z-KG4	XW1E-BV4****-EMO (⑩), XW1E-BV4 (⑪), XW1E-LV4 (⑪), XW1E-TV4 (⑪), XW1E-BV5 (⑫), HW1B-V3 (⑬), HW1B-V4 (⑭), HW1E (⑮), HW1B-X4 (⑯), HW1B-Y2 (⑰)
HW9Z-KG5	XW1E-BV4****-EMO (⑱), XW1E-BV4 (⑲), XW1E-LV4 (⑲), XW1E-TV4 (⑲), XW1E-BV5 (⑳), HW1B-V3 (㉑), HW1B-V4 (㉒), HW1E (㉓), HW1B-X4 (㉔), HW1B-Y2 (㉕)

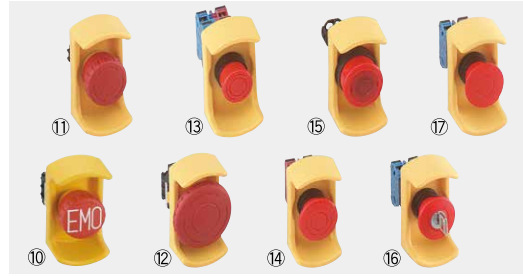
XA9Z-KG1



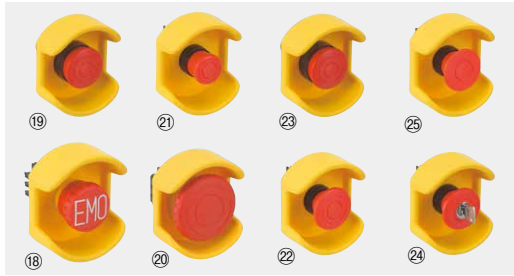
HW9Z-KG3



HW9Z-KG4



HW9Z-KG5



Note:

EMO switch guards have been designed for applications in semiconductor manufacturing equipment only. Do not use EMO switch guards with emergency stop switches which are installed on machine tools or food processing machines. (Machinery Directive of the European Commission and IEC 60204-1 require that emergency stop switches be installed in a readily accessible area, and the usage of switch guards is not permitted.)

About SEMI

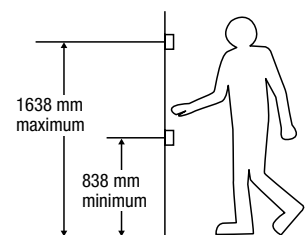
SEMI is an international industry association whose member companies produce materials, equipment, and related technology for manufacturing semiconductor, flat panel display (FPD), and micro-electromechanical systems (MEMS) products. The SEMI safety guideline was published for the semiconductor industry and it is observed with the same importance as standards.

SEMI S2-0706, 12.1 describes as follows; "The equipment should have an 'emergency off' (EMO) circuit. The EMO actuator (e.g., button), when activated, should place the equipment into a safe shutdown condition, without generating any additional hazard to personnel or the facility."

Because the semiconductor environment involves solvents and chemicals in many cases, some of which are toxic, interrupting the power source may cause secondary accidents. SEMI safety guideline requires the installation of an emergency off switch which disconnects only the part responsible for the hazardous situation, and maintains the functions of safety-related devices (e.g., smoke detectors, gas/water leak detectors, pressure measurement devices, etc.).

Emergency off buttons should be located or guarded to minimize accidental activation (SEMI S2-0706, 12.5.1). The emergency off button should be red and mushroom shaped. A yellow background for the EMO should be provided (SEMI S2-0706, 12.3).

- Location of EMO switches on semiconductor manufacturing equipment
Acceptance criteria: controls should not be located above 1638 mm (64.5 in.) or below 838 mm (33 in.) (SEMI S8-0705, 9.1.2).
- No operation or regularly scheduled maintenance location should require more than 3 m (10 feet) travel to an EMO button (S2-0706, 12.5.2).



APEM

Switches & Pilot Lights

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

X6

XA

XW








XN

SEMI

SEMI S2 Compliant Switch Guards

Switch Guards

Package Quantity: 1

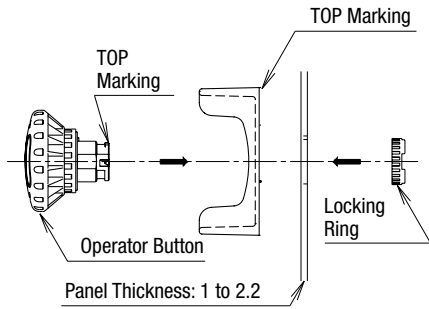
Series	Description & Shape	SEMI S2	ISO 13850	Part No.	Applicable Switches (*1)	Remarks
ø16mm XA Series	ø16 mm EMO Switch Guard 	○	○	XA9Z-KG1	XA1E-BV3 XA1E-BV4 XA1E-LV3 XA1E-LV4	<ul style="list-style-type: none"> SEMI S2 compliant (The combination of IDEC's emergency stop switches and EMO switch guards are approved by TÜV Rheinland for compliance with SEMI S2 standard.) ISO 13850 compliant.
ø22mm HW/XW Series	ø22 mm EMO Switch Guard 	○	—	HW9Z-KG1	XW1E-BV4 XW1E-LV4 XW1E-TV4 HW1B-V3 HW1B-V4 HW1B-X4 HW1B-Y2 HW1E-BV4 HW1E-LV4	<ul style="list-style-type: none"> SEMI S2-0703, 12.5.1 compliant. Widely used switch guard in many applications.
	ø22 mm EMO Switch Guard 	○	—	HW9Z-KG2	XW1E-BV4 XW1E-LV4 XW1E-TV4 HW1B-V3 HW1B-V4 HW1B-X4 HW1B-Y2 HW1E-BV4 HW1E-LV4	<ul style="list-style-type: none"> SEMI S2-0703, 12.5.1 compliant. SEMATECH Application Guide for SEMI S2-93, 12.4. compliant. The round shape is effective to prevent inadvertent operation from any direction.
	ø22 mm EMO Switch Guard 	○	○	HW9Z-KG3	XW1E-BV4 XW1E-LV4 XW1E-TV4 HW1B-V3 HW1B-V4 HW1B-X4 HW1B-Y2	<ul style="list-style-type: none"> SEMI S2 compliant (The combination of IDEC's emergency stop switches and EMO switch guards are approved by TÜV Rheinland for compliance with SEMI S2 standard.) ISO 13850 compliant. The smallest switch guard for ø22 series switches. Can be installed on FB control boxes.
	ø22 mm EMO Switch Guard 	○	○	HW9Z-KG4	XW1E-BV4 XW1E-BV5 XW1E-LV4 XW1E-TV4 HW1B-V3 HW1B-V4 HW1B-X4 HW1B-Y2 HW1E-BV4 HW1E-LV4	<ul style="list-style-type: none"> SEMI S2 compliant (The combination of IDEC's emergency stop switches and EMO switch guards are approved by TÜV Rheinland for compliance with SEMI S2 standard.) ISO 13850 compliant. SEMATECH Application Guide for SEMI S2-93, 12.4. compliant. Narrower than HW9ZKG5. Saves more space. Can be installed on FB control boxes. Available in white.
	ø22 mm EMO Switch Guard 	○	○	HW9Z-KG5	XW1E-BV4 XW1E-LV4 XW1E-TV4 XW1E-BV5 HW1B-V3 HW1B-V4 HW1B-X4 HW1B-Y2 HW1E-BV4 HW1E-LV4	<ul style="list-style-type: none"> SEMI S2 compliant (The combination of IDEC's emergency stop switches and EMO switch guards are approved by TÜV Rheinland for compliance with SEMI S2 standard.) ISO 13850 compliant. SEMATECH Application Guide for SEMI S2-93, 12.4. compliant. A nameplate can be installed. Available in white. 

• Material: polyamide (PA6), degree of protection: IP65 (IEC 60529)

*1) For details on applicable emergency stop switches, see [D-052](#).

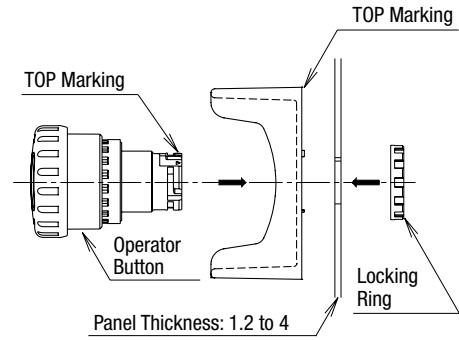
Installation

ø16 mm



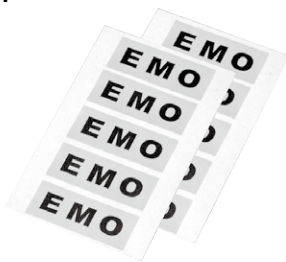
To tighten the locking ring, use locking ring wrench MT-100 and tighten to a torque of 0.88 N-m.

ø22 mm

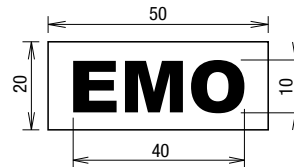


To tighten the locking ring, use locking ring wrench MW9Z-T1 and tighten to a torque of 2.0 N-m.

EMO Sticker



Part No.: HW9Z-EMO-NPP
 Color: Yellow (red legend) Package
 Quantity: 10



Nameplate (for ø22 mm Emergency Stop Switches)

Name	Legend	Part No.	Remarks
For ø40mm Mushroom	EMERGENCY OFF	HWAV-74-Y	<ul style="list-style-type: none"> Nameplate color: yellow Legend color: black

- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
- Terminal Blocks
- Relays & Sockets
- Circuit Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors
- AUTO-ID

- X6
- XA
- XW
- XN

- SEMI