



Think Automation and beyond...

Emergency Stop Switches Switch Guard Selection Guide



ISO13850: 2015
SEMI S2
compliant



ø30 switch guards now available. A new addition to ø16 and ø22 switch guards.





Switch guard: XN9Z-KG1
Emergency Stop Switches: XN Series

Switch guards can now be used on machinery other than semiconductor equipment

*According to ISO13850: 2015 4.5, the use of a protective shroud has been permitted under certain conditions. For details on the standard, see page 6.

In cases where safety requirements of ISO13850: 2015 4.3.2 and 4.5 are satisfied, combination of IDEC switch guards and emergency stop switches have been approved by TÜV Rheinland specified by ISO13850: 2015 and therefore, safety is ensured.

Ø16

		Non-illuminated				Illuminated		
		Detachable Contact Block		Unibody			Detachable Contact Block	
		Pushlock Pull or Turn Reset						
Button Sizes		Ø29	Ø40	Ø29	Ø40	Ø29	Ø40	
Model	XA1E-BV3	XA1E-BV4	AB6E-3BV	XA1E-BV3U	AB6E-4BV	XA1E-BV4U	XA1E-LV3	XA1E-LV4
Terminal Style	Solder, PC Board Terminal	Solder, PC Board Terminal	Solder Terminal	Solder, Solder/Tab #110 Terminal	Solder Terminal	Solder, Solder/Tab #110 Terminal	Solder, PC Board Terminal	Solder, PC Board Terminal
Shape								
Mark								
Compliant Switch Guards								
ISO13850	XA9Z-KG1	XA9Z-KG1	—	—	—	—	XA9Z-KG1	XA9Z-KG1
SEMI S2	XA9Z-KG1	XA9Z-KG1	—	—	—	—	XA9Z-KG1	XA9Z-KG1

Ø16 Switch Guard <Emergency Off / Emergency Stop (Protective Shroud)>

Package quantity: 1

Description & Shape	ISO13850	SEMI S2	Part No. (Ordering No.)	Applicable Switches	Remarks
	✓ (*1)	✓ (*1)	XA9Z-KG1	XA1E-BV3 XA1E-BV4 XA1E-LV3 XA1E-LV4	<ul style="list-style-type: none"> Material: polyamide, degree of protection: IP65 (IEC 60529) Refer to the latest standards when selecting products.

*1) The combination of IDEC's emergency stop switches and EMO switch guards are approved by TÜV Rheinland for compliance with SEMI S2 standard. Evaluation is required at final mounting status.

Ø22

		Non-Illuminated		Illuminated		Push-ON		Non-Illuminated	
		Detachable Contact Block				Detachable Contact Block			
		Pushlock Pull or Turn Reset							
Button Sizes		Ø40	Ø60	Ø40	Ø40	Ø29	Ø40		
Model	XW1E-BV4 (*1)		XW1E-BV5	XW1E-LV4 (*1)		XW1E-TV4		HW1B-V3	HW1B-V4
Terminal Style	Screw Terminal	Solder, PC Board Terminal	Connector	Screw Terminal	Screw Terminal	Solder, PC Board Terminal	Screw Terminal	Connector	Screw Terminal
Shape									
Mark									
Compliant Switch Guards									
ISO13850	HW9Z-KG3 HW9Z-KG4 HW9Z-KG5		HW9Z-KG4 HW9Z-KG5	HW9Z-KG3 HW9Z-KG4 HW9Z-KG5			HW9Z-KG3 HW9Z-KG5 HW9Z-KG4		
SEMI S2	HW9Z-KG3 HW9Z-KG4 HW9Z-KG5		HW9Z-KG4 HW9Z-KG5	HW9Z-KG3 HW9Z-KG4 HW9Z-KG5			HW9Z-KG3 HW9Z-KG5 HW9Z-KG4		

*1) Except for mechanical indicator.

Ø22 Switch Guard <Emergency Off / Emergency Stop (Protective Shroud)>

Package quantity: 1

Description & Shape	ISO13850	SEMI S2	Part No. (Ordering No.)	Applicable Switches	Remarks
	✓ (*1)	✓ (*1)	HW9Z-KG3	XW1E-BV4 (*2) XW1E-LV4 (*2) XW1E-TV4	<ul style="list-style-type: none"> The smallest switch guard for Ø22 series switches. Can be installed on FB series control stations. Material: polyamide, degree of protection: IP65 (IEC 60529) Refer to the latest standards when selecting products.
	✓ (*1)	✓ (*1)	HW9Z-KG4	XW1E-BV4 (*2) XW1E-BV5 XW1E-LV4 (*2) XW1E-TV4	<ul style="list-style-type: none"> Narrower than HW9Z-KG5. Saves more space. Can be installed on FB series control stations. Material: polyamide, degree of protection: IP65 (IEC 60529) Refer to the latest standards when selecting products.
	✓ (*1)	✓ (*1)	HW9Z-KG5	XW1E-BV4 (*2) XW1E-BV5 XW1E-LV4 (*2) XW1E-TV4	<ul style="list-style-type: none"> A nameplate can be installed. Material: polyamide, degree of protection: IP65 (IEC 60529) Refer to the latest standards when selecting products.

*1) The combination of IDEC's emergency stop switches and EMO switch guards are approved by TÜV Rheinland for compliance with SEMI S2 standard. Evaluation is required at final mounting status.

*2) Except for mechanical indicator.

Nameplate (Ø22 Emergency Stop Switches)

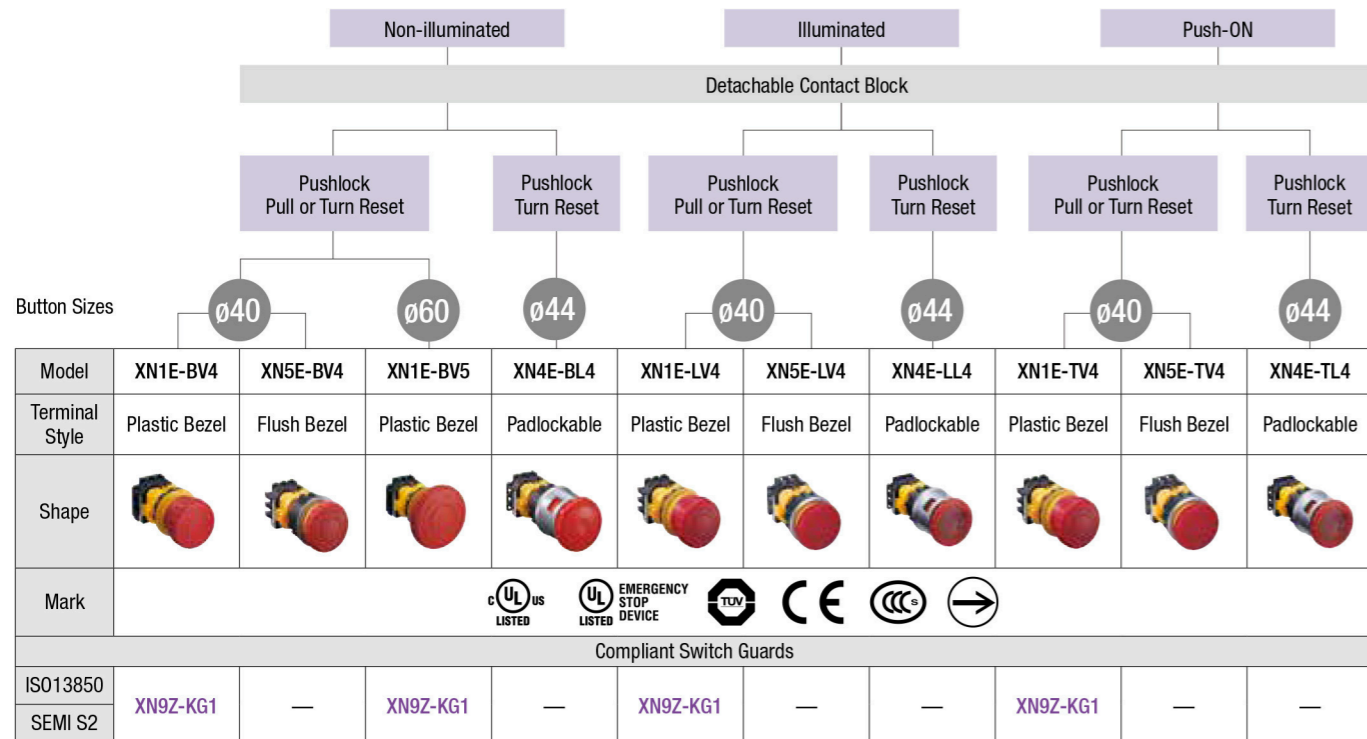
Package quantity: 1

Description & Shape	ISO13850	SEMI S2	Part No. (Ordering No.)	Remarks
	—	✓	HWAV-74-Y	<ul style="list-style-type: none"> Material: polyamide, nameplate color: yellow, legend color: black, panel thickness: 0.8 to 4.5 mm

• For semiconductor manufacturing equipment, flat panel display device, and material manufacturers subject to SEMI standards, a nameplate can be used with HW9Z-KG5.

Note: For machinery subject to ISO/IEC standards such as machine tools and food machinery, in compliant with the revised ISO13850, it is not recommended to display texts or symbols such as EMERGENCY STOP on the actuator or nameplate of an emergency stop device.

Ø30



• Terminal style: screw terminal

Ø30 Switch Guard <Emergency Off / Emergency Stop (Protective Shroud)>

Package quantity: 1

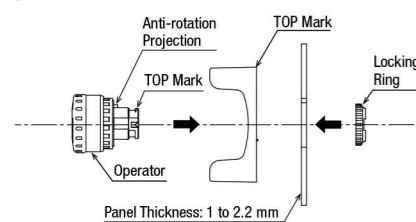
Description & Shape	ISO13850	SEMI S2	Part No. (Ordering No.)	Applicable Switches	Remarks
	✓ (*1)	(*2)	XN9Z-KG1	XN1E-BV4 XN1E-BV5 XN1E-LV4 XN1E-TV4	<ul style="list-style-type: none"> Material: polyamide, degree of protection: IP65 (IEC 60529) Refer to the latest standards when selecting products.

*1) The combination of IDEC's emergency stop switches and EMO switch guards are approved by TÜV Rheinland for compliance with SEMI S2 standard. Evaluation is required at final mounting status.

*2) TÜV Rheinland has confirmed that "switch guard is designed so that it does not prevent the EMO switch from easy operation." Evaluation is required at final mounting status.

Installation

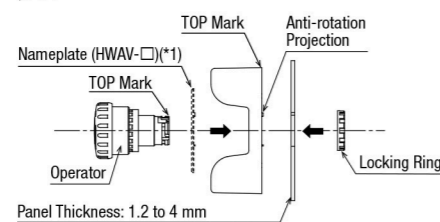
Ø16



With the TOP marking of the operator and switch guard on top side, align the anti-rotation projection on the operator with the recess in the panel and tighten the locking ring. Use a dedicated locking ring tightening tool (part no.: MT-001) and tighten to a recommended tightening torque of 0.88N·m.

Note: If the projection on the bezel and the recess in the panel is not aligned, a gap may occur between the operator, switch guard, and panel and may lead to degradation of protection characteristics.

Ø22

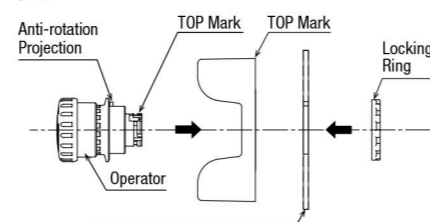


*1) The nameplate can be used with the HW9Z-KG5 only.

With the TOP marking of the operator and switch guard on top side, align the anti-rotation projection on the switch guard with the recess in the panel and tighten the locking ring. Use a dedicated locking ring tightening tool (part no.: MW9Z-T1) and tighten to a recommended tightening torque of 2.0N·m.

Note: If the projection on the bezel and the recess in the panel is not aligned, a gap may occur between the operator, switch guard, and panel and may lead to degradation of protection characteristics.

Ø30



With the TOP marking of the operator and switch guard on top side, align the anti-rotation projection on the operator with the recess in the panel and tighten the locking ring. Use a dedicated locking ring tightening tool (part no.: XN9Z-T1 or TWST-T1) and tighten to a recommended tightening torque of 2.5N·m.

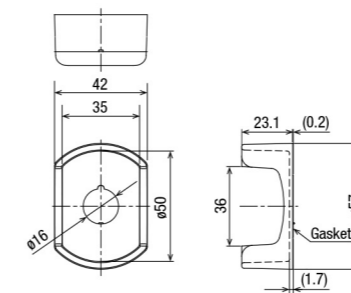
Note: If the projection on the bezel and the recess in the panel is not aligned, a gap may occur between the operator, switch guard, and panel and may lead to degradation of protection characteristics.

Switch Guard <Emergency Off / Emergency Stop (Protective Shroud)>

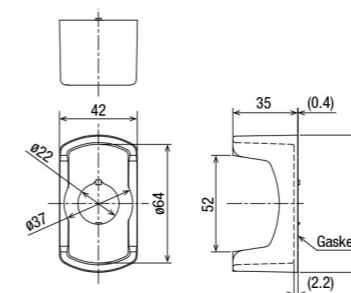
All dimensions in mm.

Dimensions

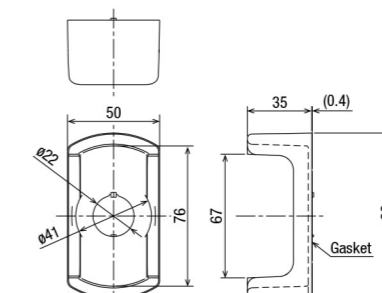
Ø16
XA9Z-KG1



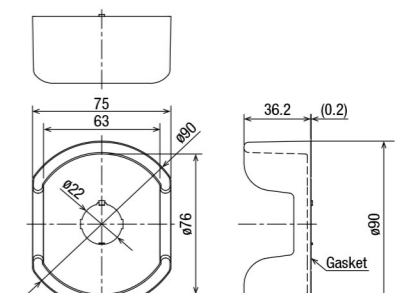
Ø22
HW9Z-KG3



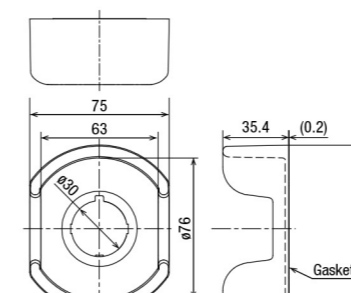
HW9Z-KG4



HW9Z-KG5

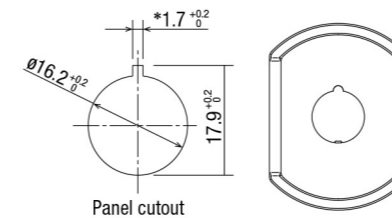


Ø30
XN9Z-KG1

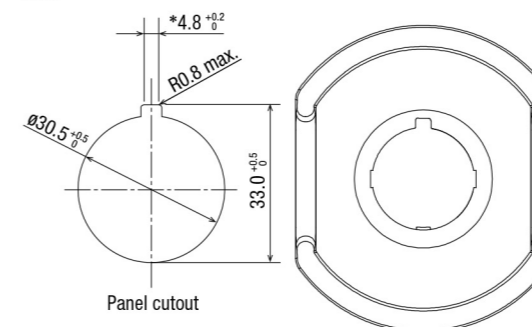


Mounting Hole Layout

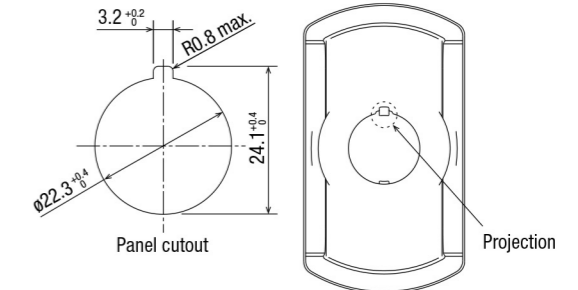
Ø16



Ø30



Ø22



• When anti-rotation is not required or when the panel cut-out does not have anti-rotation recess, remove the projection using pliers.

All dimensions in mm.

Prevention of unintended acuation of an emergency stop device

Compliant with ISO13850: 2015

In cases where safety requirements of ISO13850: 2015 4.3.2 and 4.5 are satisfied, combination of IDEC switch guards and emergency stop switches have been approved by TÜV Rheinland specified by ISO13850: 2015 and therefore, safety is ensured.

In this revision, examples of installation locations are specified.

Newly added safety requirement

ISO13850: 2015

4.3.2

An emergency stop device shall be located:

- at other locations, as determined by the risk assessment, e.g.:
- at entrance and exit locations;
- at locations where intervention to the machinery is needed, e.g. operations with a hold-to-run control function;
- at all places where a man / machine interaction is expected by design (loading / unloading zone for example).

The actuator of emergency stop device intended to be actuated by hand should be mounted between 0.6 m and 1.7 m above the access level (e.g. floor level, platform level).

For machinery subject to ISO/IEC standards such as machine tools and food machinery, using a switch guard (used synonymously with protective shroud, a term and definition added in this revision) with an emergency stop switch has not been permitted so far. However, in this revision, the use of a protective shroud has been permitted under certain conditions*, because the "Prevention of unintended actuation of emergency stop devices" is added as a safety requirement, and a protective shroud is defined as one of the means of realizing it.

* Conditions: when it is impossible to prevent unintended actuation at the installation locations, which is included in the following safety requirement

Newly added safety requirement

ISO13850: 2015

3.7

protective shroud

Mechanical measure provided to reduce the possibility of unintended actuation of an emergency stop device.

Productive shroud can be used under the following conditions:

Newly added safety requirement

ISO13850: 2015

4.5

Prevention of unintended acuation of an emergency stop device

The emergency stop device shall be designed to avoid unintended actuation.

So far as practicable, unintended actuation shall be prevented by location rather than the use of other application design measures.

The actuation of the emergency stop device shall not be impaired.

To prevent unintended actuation of the emergency stop device some precautions can be taken, e.g.:

- locate the emergency stop device away from foreseeable heavily trafficked areas,
- select the type of emergency stop device,
- select appropriate size or shape of the emergency stop device, or
- mount the emergency stop device within a recessed surface of the surrounding control panel.

The use of a protective shroud around the emergency stop device should be avoided, except when necessary to prevent unintended actuation and other measures are not practicable.

A protective shroud shall not have any sharp corners or edges or rough surfaces which could lead to injury. Corners and edges shall be de-burred and surfaces shall be smooth to the touch.

- For details see the Guidebook for Designing Emergency Stop Equipment (EF3001).

About SEMI

IDEC provides combinations of emergency stop switch and switch guard products that have been approved by TÜV Rheinland. For details, see IDEC website.

IDEC



30 COMPANIES



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