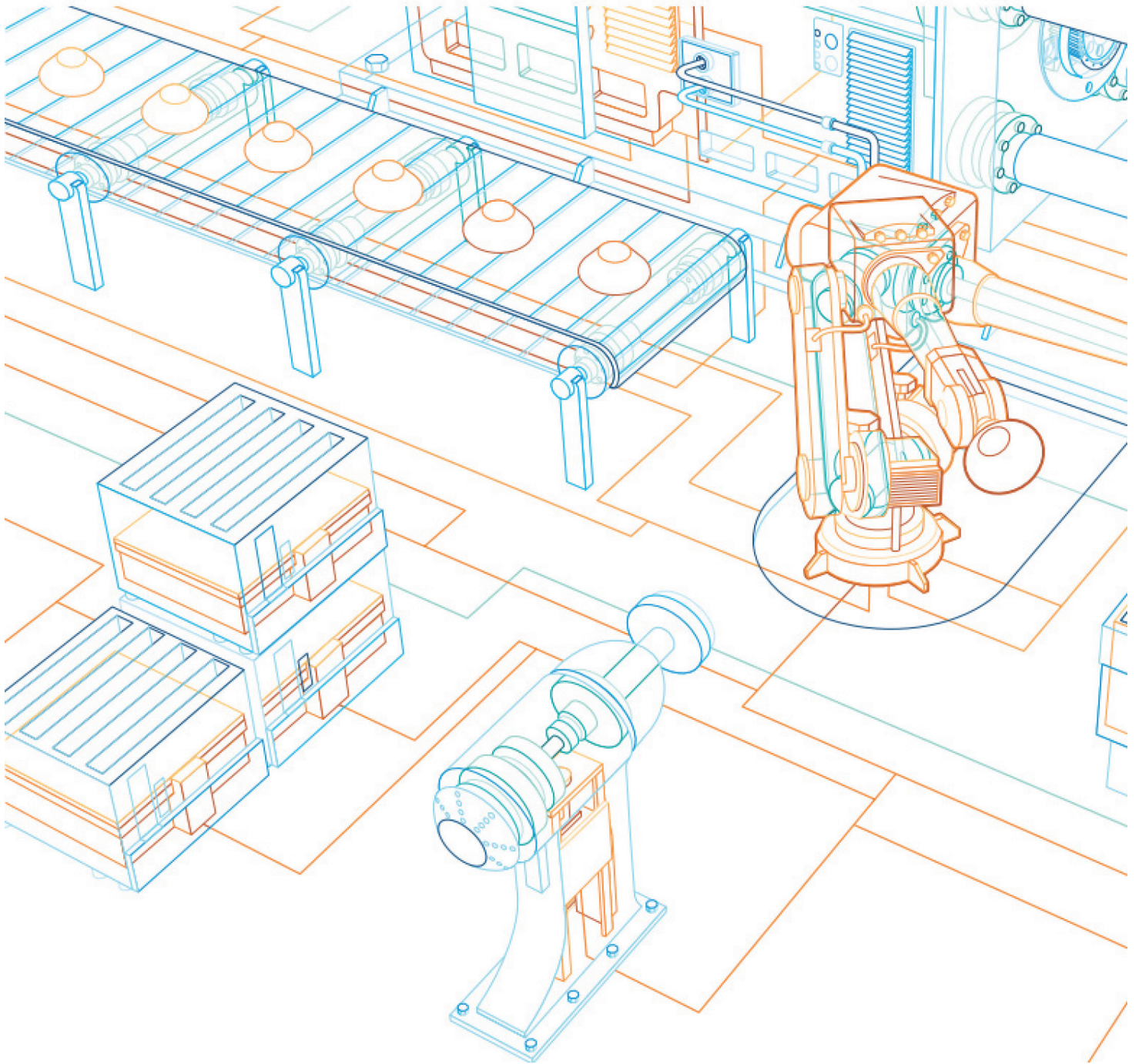


ABB JOKAB SAFETY Products

# Safety contact mats



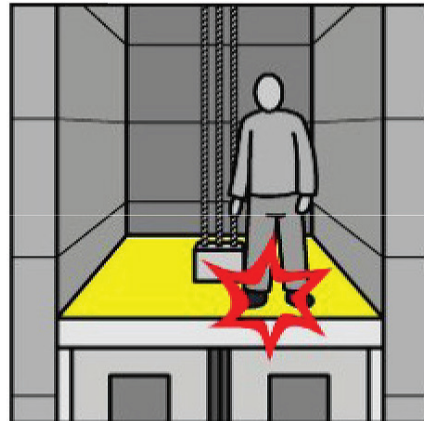
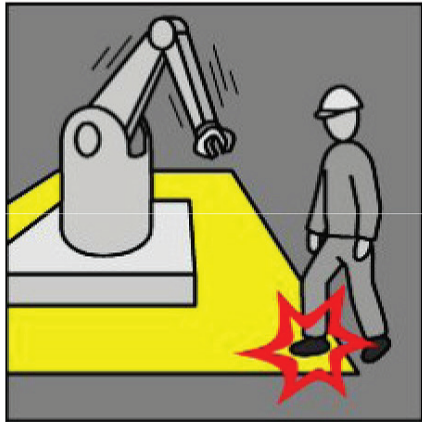
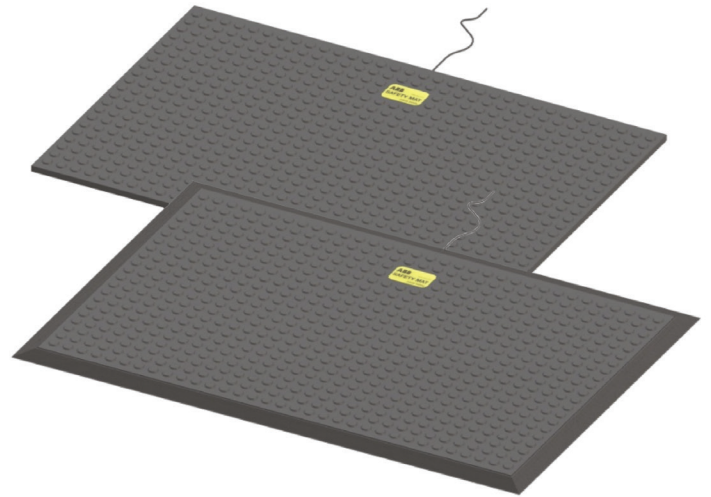
Disclaimer: This document and any attachments may include suggested specifications, drawings, schematics and similar materials from ABB Inc. Use of such information and/or documentation by the recipient is subject to and conditioned upon your acceptance of the terms of the General Document Disclaimer which can be found at [www.jokabsafety.com](http://www.jokabsafety.com). Your acceptance of the terms of such General Document Disclaimer is conclusively presumed unless you notify ABB in writing of your disagreement with the terms of such Disclaimer immediately upon receipt of this document and you return to ABB all specifications, drawings, schematics and similar materials provided to you by ABB in this document.

# When should I use safety mats?

A safety mat is used as personal protection within dangerous areas.

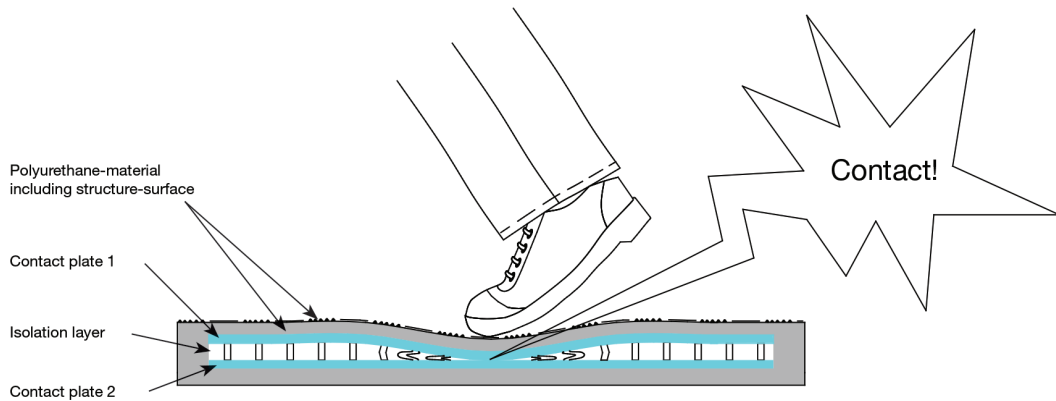
The ABB JOKAB SAFETY contact mat is used for safeguarding sections in hazardous areas around machines, presses, robots and other types of active equipment. When connected to a suitable monitoring system, stepping on the mat surface triggers a control signal to the stop circuit of the potentially hazardous motion. This fast contact occurs due to the area switch design on the inside of the mat.

An anti-slip surface is also implemented into the design. The safety mat and its connection cabling can be supervised by a suitable ABB JOKAB SAFETY safety relay, Vital Controller or Pluto Safety PLC which provides PL d.



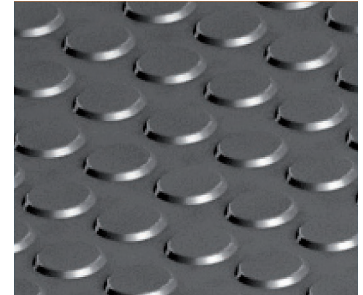
# Safety mat construction

The basic construction of the ABB JOKAB SAFETY mat consists of two conductive plates which are separated by a proprietary isolating layer. These plates are completely potted in a polyurethane material so that they are impervious to oil, water and dirt. The top consists of a slip resistant dotted pattern. This surface provides excellent resistance against oil and grease. Mounting to the floor can be realized with either aluminum ramp rails or integrated rubber ramp trim.



## Safety mat surface layer

Safety mats are normally supplied with a dotted polyurethane non-slip surface layer that withstands tough conditions very well (oil, acid or caustic substances) and has anti-slip properties. If required, other patterns can be supplied, or for special requirements, even other materials. Please contact us for more information about these alternatives.



## Safety mat electrical connection

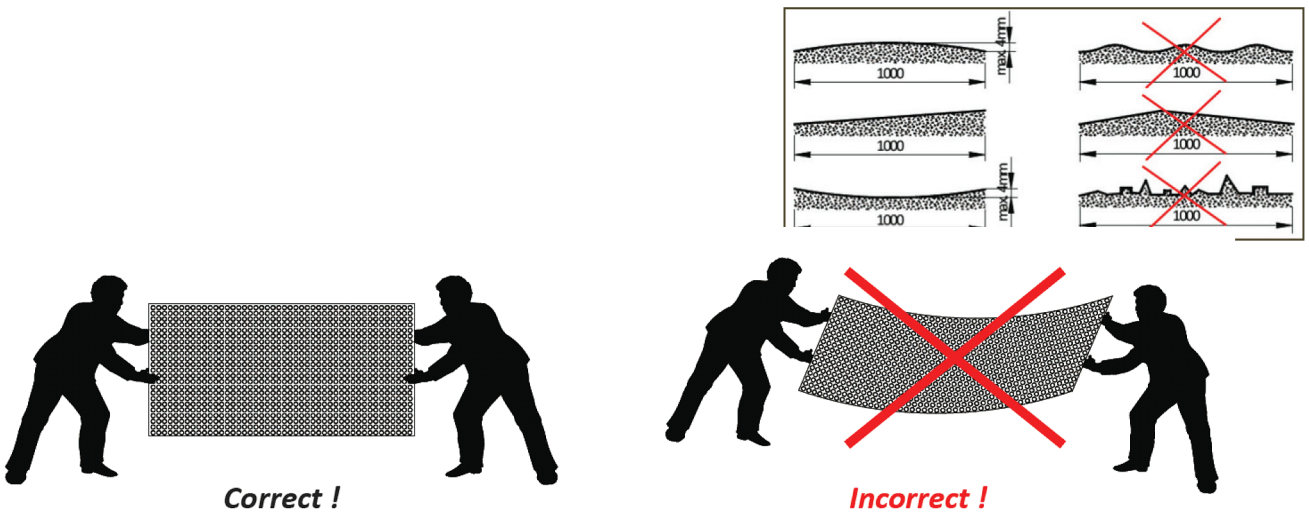
Safety mats must be connected to a suitable monitoring unit (e.g. ABB JOKAB SAFETY safety relays RT6, RT7A/B, RT9, Vital with Tina 6A or Pluto Safety PLC). The monitoring unit monitors the functionality of the contact protection and detects any breaks or short-circuits in the lines. Several safety mats can be connected in series while still retaining the same level of safety. When pressure is applied, the active surface of the contact area in the contact protection is closed and the safety output on the monitoring unit trips. A stop signal will be sent to the machine's safety circuits preventing any dangerous movements. Safety mats are supplied with a 4 conductor 10m cable exiting out the middle of the long side. Conductors 1 and 3 are connected to the top plate (Safety channel 1) and conductors 2 and 4 are connected to the bottom plate (Safety channel 2).

**Note: If alternative units are used rather than the recommended ABB JOKAB SAFETY relays, it is essential that the user checks their suitability with ABB JOKAB SAFETY before use. Failure to do so may result in incorrect operation and/or damage to the safety mat and invalidate warranty.**

# Safety mat mounting

The ground on which the mats are to be laid must be level, clean and dry. The mats should not be glued to the ground. If more than one mat is to be installed, be sure to place the mats edge to edge (without space.).

**NOTE: Safety mats must not be rolled/twisted or modified in any way. It is also essential that mats are not cut into any shape or shortened following delivery.**



# Safety mat mounting

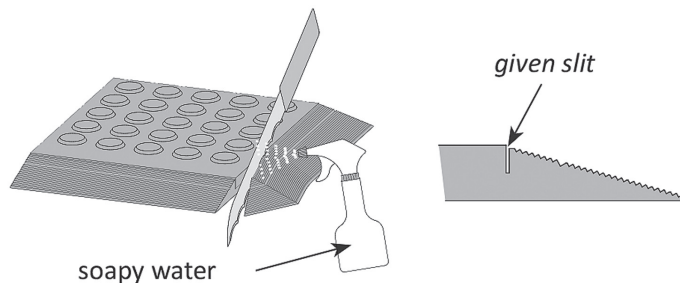
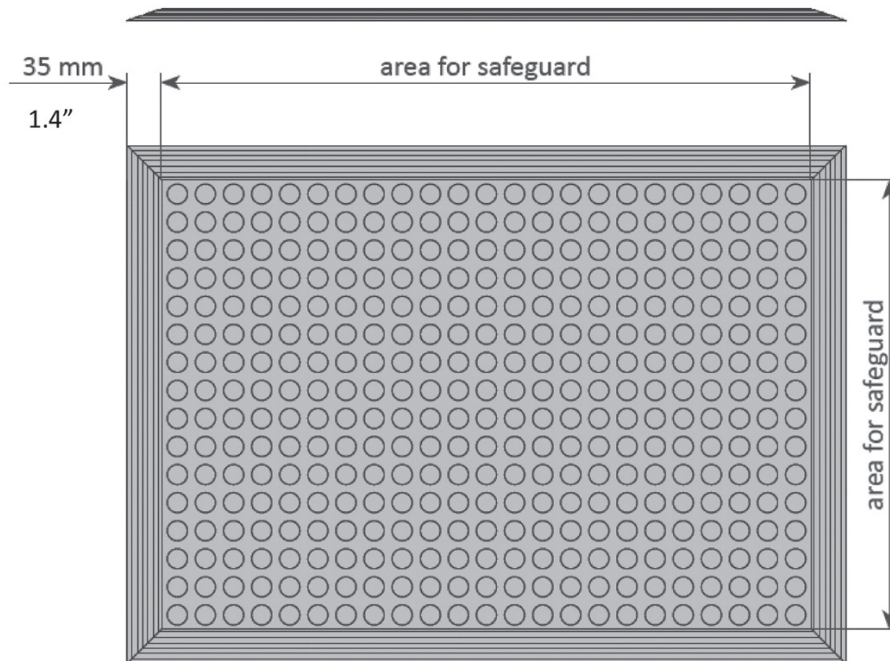
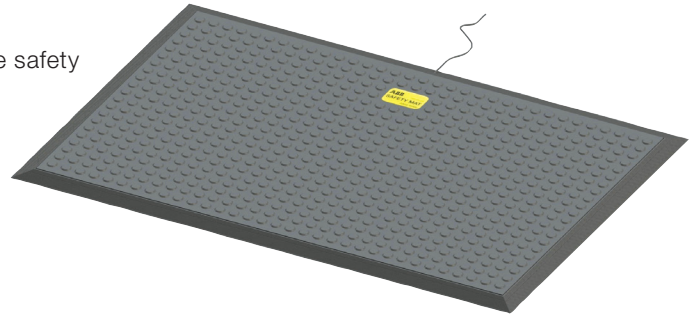
## Safety mat mounting – integrated ramp trim

In the case of safety mats with cast-in rubber edge trim, the mat is secured to the floor by screws straight through the edge trim. When placing several mats side by side, the relevant integrated rubber ramp rails have to be cut off. To do this, cut off the ramp rail with a knife in the given slit (spray the knife and the cutting area with soapy water).

### Please note for over measure:

The areas to be safeguarded are made up by the dimension of the safety contact mat and the dimensions of 70mm / 2.8" (for the ramp rail) must be added to this. The sum gives the total area required. The ramp rails are required for holding the mat in position on the floor.

The maximum size that can be manufactured is 4' x 6'. sizes greater than this can be realized by sequencing several single mats together.



# Safety mat mounting

## Safety mat mounting – aluminum ramp trim

In the case of safety mats with an aluminum edge trim, see below. Place the selected edge trim to the mat. Mark the locations of the securing screws along the scribed line on the edge trim. It is recommended that fixing screws should be located at 60 cm spacing. Secure the edge trim to the ground with 6mm plugs and suitable screws. Plug the holes above the screws in the edge trim with the cover plugs provided.

When using corner connectors, the ramp rail must be shortened around 20mm for each corner connector. The corner connector nearest the cable is to be mounted from above over the cable in such a way that the cable is guided safely in the cable duct (Fig. 1). Afterwards, drill and fasten it to the bottom with 6mm dowel and suitable screw.

Push the ramp rails laterally to the mat and then on the fixation pin of the corner connector (Fig. 2). Mark the fastening points along the marking groove on the rail and predrill 10mm for the intended plugs. Fasten the rails on the bottom with 6mm dowels and suitable screws (approximately all 60cm) and close the openings with the plugs (Fig. 3, next page).

Push the corner connectors laterally to the mat and then the fixation pin into the rail. Afterwards, drill and fasten it to the bottom with 6mm dowel and suitable screw.

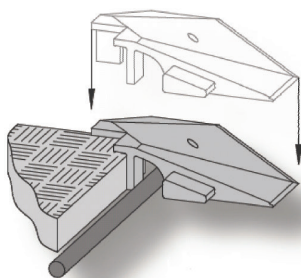
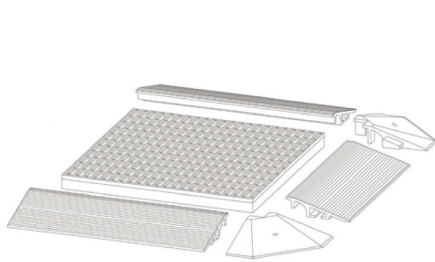
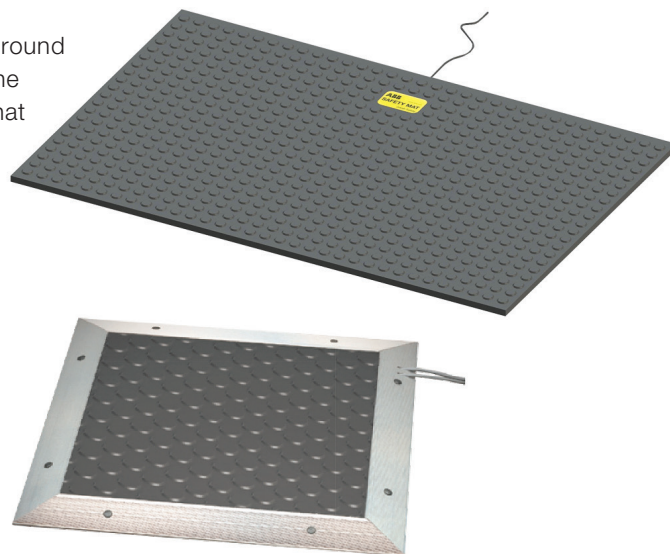


Fig. 1

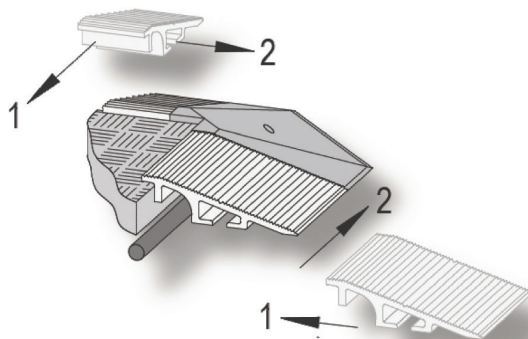
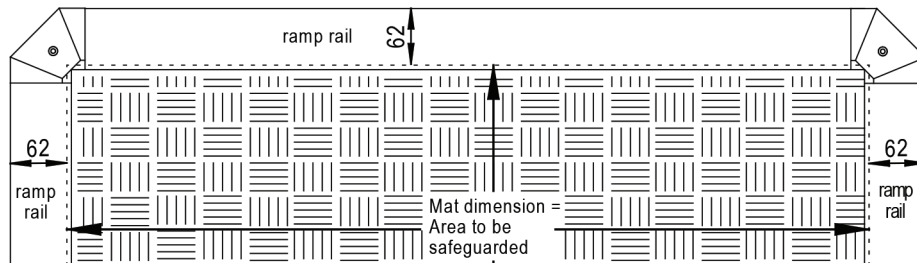
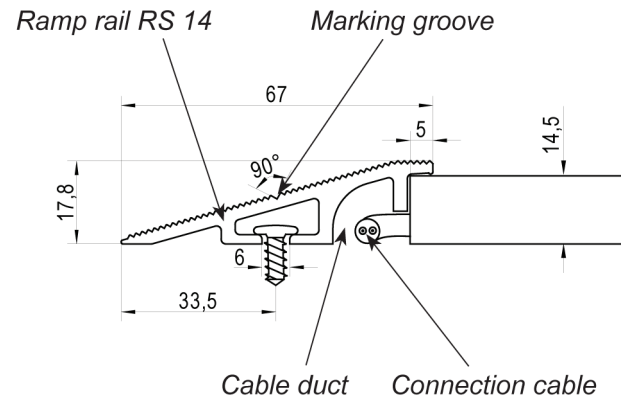
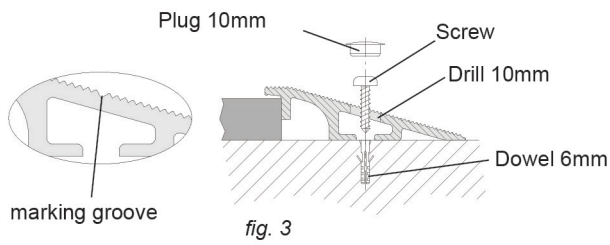


Fig. 2

# Safety mat mounting



## Please note for over measure

The areas to be safeguarded are made up by the dimension of the safety contact mat and the dimensions of 62mm (for the ramp rail) must be added to this. The sum gives the total area required. The ramp rails are required for holding the mat in position on the floor.

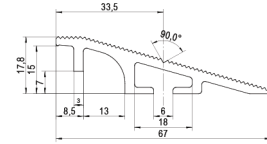
The maximum size that can be manufactured is 4' x 6'. Sizes greater than this can be realized by sequencing several single mats together.



# Specifications

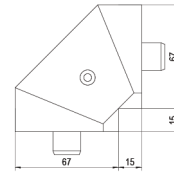
## Safety mat trim

Material	Aluminum AlMgSi 0.5
Standard delivery lengths	10' (3048 mm)
Custom lengths	Length of mat minus 0.75" (20mm) per corner connector
Weights	Approximately 788 g/lfm



## Safety mat corner connector

Material	PA 6 black
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## Safety mat

Maximum dimensions	4' x 6'
Standard dimensions	See product ordering page
Construction height	14mm
Approximate weight	17 kg/m <sup>2</sup> (without covering)
Inactive border (maximum)	16/42mm
Switching pressure	Round body Ø 80mm = CA. 150 N
Static load	Max. 2000 N over Ø 80mm ①
Response time	Max. 25 MS ①
Switching times	Min. 1 million ①
Electrical capacity	24 V, 100 mA
Material	Polyurethane black, 68 +/-5 Shore A
Protection class	IP 65
Temperature range	-10°C to +55°C
Chemical resistance	Oil, greases; good 10% acid & lye resistant
Maintenance	The mat is maintenance free. Functional testing on an annual basis is recommended.
Connection cable	Standard 10m, 4 conductor
Fire and shock evaluation	UL 508 and CSA C22.2 no. 14

# Ordering data

## Safety mat without integrated trim

Material number	Material description
2TLA858003R2800	Safety mat w/o trim 12" x 12"
2TLA858002R3800	Safety mat w/o trim 24" x 24"
2TLA858002R3900	Safety mat w/o trim 24" x 30"
2TLA858002R4000	Safety mat w/o trim 24" x 36"
2TLA858002R4100	Safety mat w/o trim 24" x 42"
2TLA858002R4200	Safety mat w/o trim 24" x 48"
2TLA858002R4300	Safety mat w/o trim 24" x 60"
2TLA858002R4400	Safety mat w/o trim 30" x 30"
2TLA858002R4500	Safety mat w/o trim 30" x 36"
2TLA858002R4600	Safety mat w/o trim 30" x 42"
2TLA858002R4700	Safety mat w/o trim 30" x 48"
2TLA858002R4800	Safety mat w/o trim 36" x 36"
2TLA858002R4900	Safety mat w/o trim 36" x 42"
2TLA858002R5000	Safety mat w/o trim 36" x 48"
2TLA858002R5100	Safety mat w/o trim 36" x 60"
2TLA858002R5200	Safety mat w/o trim 42" x 42"
2TLA858002R5300	Safety mat w/o trim 42" x 48"
2TLA858002R5400	Safety mat w/o trim 48" x 48"
2TLA858002R5500	Safety mat w/o trim 48" x 60"

## Safety mat with integrated trim

Material number	Material description
2TLA858003R2900	Safety mat w trim 12" x 12"
2TLA858002R5600	Safety mat w trim 24" x 24"
2TLA858002R5700	Safety mat w trim 24" x 30"
2TLA858002R5800	Safety mat w trim 24" x 36"
2TLA858002R5900	Safety mat w trim 24" x 42"
2TLA858002R6000	Safety mat w trim 24" x 48"
2TLA858002R6100	Safety mat w trim 24" x 60"
2TLA858002R6200	Safety mat w trim 30" x 30"
2TLA858002R6300	Safety mat w trim 30" x 36"
2TLA858002R6400	Safety mat w trim 30" x 42"
2TLA858002R6500	Safety mat w trim 30" x 48"
2TLA858002R6600	Safety mat w trim 36" x 36"
2TLA858002R6700	Safety mat w trim 36" x 42"
2TLA858002R6800	Safety mat w trim 36" x 48"
2TLA858002R6900	Safety mat w trim 36" x 60"
2TLA858002R7000	Safety mat w trim 42" x 42"
2TLA858002R7100	Safety mat w trim 42" x 48"
2TLA858002R7200	Safety mat w trim 48" x 48"
2TLA858002R7300	Safety mat w trim 48" x 60"

NOTE: Custom non-stocked safety mat are available upon request.

## Safety mat aluminum trim

Material number	Material description
2TLA858002R7400	Safety mat trim corner connection
2TLA858002R7500	Safety mat alum. Trim (by the inch)
2TLA858002R7600	Safety mat demo sample

For Order entry Support or Technical Support, please contact  
**ABB JOKAB SAFETY**  
 at  
**888-282-2123**

# Aluminum trim calculations

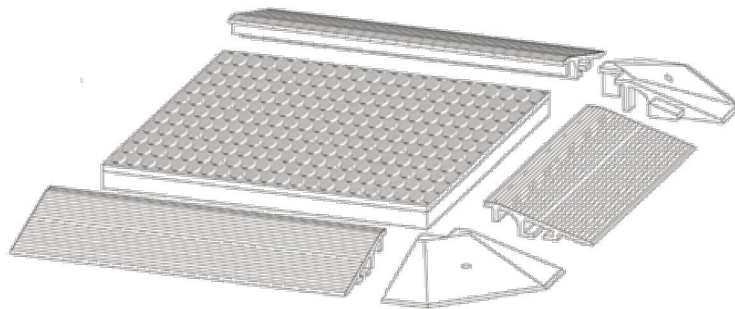
## Cutting of trim for safety mats when corner connectors are used (Trim Article #2TLA858002R7500)

Length of side of mat	20mm removed for each corner connector	Size of trim that needs to be cut
6 inch (152mm)	- 1.58 inches (40mm)	4.42 inch (112mm)
12 inch (304mm)	- 1.58 inches (40mm)	10.42 inch (264mm)
18 inch (457mm)	- 1.58 inches (40mm)	16.42 inch (417mm)
24 inch (609mm)	- 1.58 inches (40mm)	22.42 inch (569mm)
30 inch (762mm)	- 1.58 inches (40mm)	28.42 inch (722mm)
36 inch (914mm)	- 1.58 inches (40mm)	34.42 inch (874mm)
42 inch (1066mm)	- 1.58 inches (40mm)	40.42 inch (1026mm)
48 inch (1219mm)	- 1.58 inches (40mm)	46.42 inch (1179mm)
54 inch (1371mm)	- 1.58 inches (40mm)	52.42 inch (1331mm)
60 inch (1524mm)	- 1.58 inches (40mm)	58.42 inch (1484mm)
66 inch (1676mm)	- 1.58 inches (40mm)	64.42 inch (1636mm)
72 inch (1828mm)	- 1.58 inches (40mm)	70.42 inch (1788mm)
78 inch (1981mm)	- 1.58 inches (40mm)	76.42 inch (1941mm)
84 inch (2133mm)	- 1.58 inches (40mm)	82.42 inch (2093mm)
90 inch (2286mm)	- 1.58 inches (40mm)	88.42 inch (2246mm)
96 inch (2438mm)	- 1.58 inches (40mm)	94.42 inch (2398mm)
102 inch (2590mm)	- 1.58 inches (40mm)	100.42 inch (2550mm)
108 inch (2743mm)	- 1.58 inches (40mm)	106.42 inch (2703mm)
114 inch (2895mm)	- 1.58 inches (40mm)	112.42 inch (2855mm)
120 inch (3048mm)	- 1.58 inches (40mm)	118.42 inch (3008mm)

Note: Trim is in stock in 10ft (3048mm) lengths. Try to minimize waste with the trim when cutting.

### Example Cut

If a safety mat 24 x 30 without built in trim (2TLA858002R3900) is ordered the following pieces would need to be cut:  
 2 Pieces of Trim (2TLA858002R7500) at 22.42inch (569mm). This is for the 24 inch sides.  
 2 Pieces of Trim (2TLA858002R7500) at 28.42 inch (722mm). This is for the 30 inch sides.



# Contact us

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