



sensing the future



Pressure-Sensitive Mat Systems

Safety mats for protection of people around machinery, robots & other hazardous areas

Signal mats for activation of a device or counter through presence detection

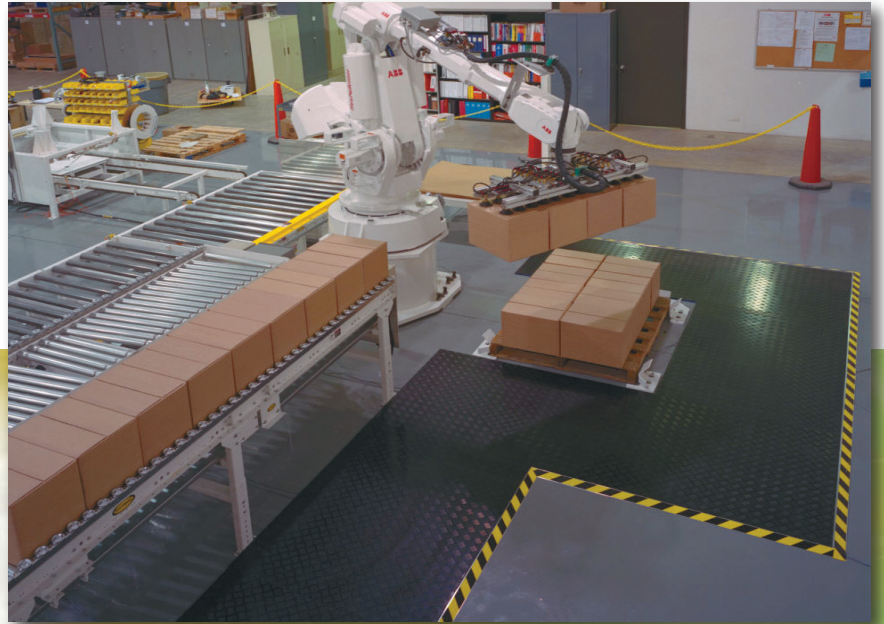
Safe, reliable, low maintenance

- Wide variety of sizes & shapes available
- Easy to install
- Safety category 3 systems available
- Made in the USA

Pressure-Sensitive Mats

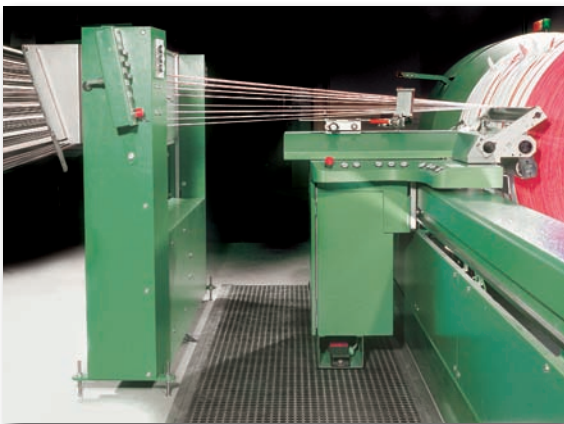
Durable and reliable

Bircher Reglomat pressure-sensitive mats are durable products with well-balanced sensitivity that are ideal for a variety of safety or control applications. These mat systems meet or exceed current US & CE standards. 2-wire & 4-wire failsafe wiring and safety category 3 systems are available. The unique edge design allows multi-mat systems to have consistent detection across seams without the need for joining trim. This benefit reduces installation time and material costs.



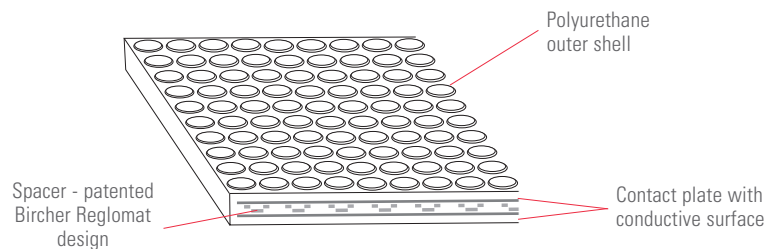
Your benefits

- Maintenance-free
- Easy to install
- Custom shapes & sizes available
- Three surface pattern options
- Molded, totally sealed design is water resistant
- Multiple activation zones available
- Mats can be easily joined together to create larger systems
- Mats are silicone-free, PVC-free option also available



Mat design

Bircher Reglomat pressure-sensitive mats consist of copper clad epoxy sheets encapsulated in black polyurethane compound. Copper offers superior corrosion resistance compared to other safety mat contact plates.

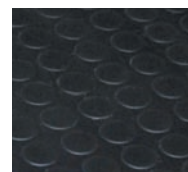


Non-standard knob surface pattern shown above

Surface pattern options



Standard non-skid surface



Knob surface

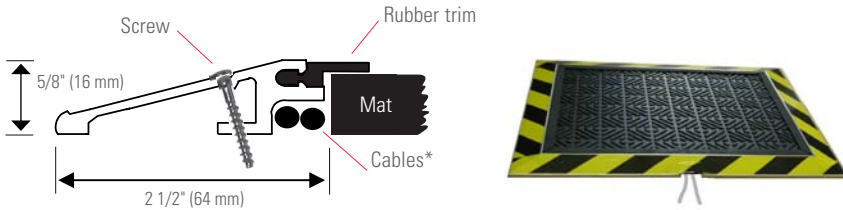


Smooth surface (no pattern)

Aluminum trim options

Aluminum ramp trim

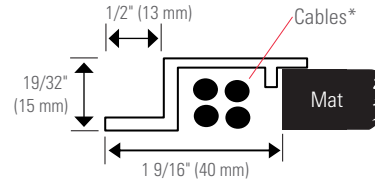
Use extruded aluminum ramp trim to secure pressure-sensitive mats to the floor. Ramp trim increases safety by minimizing stumbling hazards and shifting of the mat system. Black & yellow awareness tape can be added to ramp trim for additional visibility. Ramp trim can withstand vehicle traffic.



Ramp trim adds an additional 2 1/2" (64 mm) to each side on which it is used.
*Please refer to technical data on page 4 for standard supplied cable diameter

Aluminum machine-side trim

Use extruded aluminum machine-side trim to secure pressure-sensitive mats to the floor in close proximity to machinery. Machine-side trim is not suitable for vehicle traffic.



Machine-side trim adds an additional 1 9/16" (40 mm) to each side on which it is used.



Standard mats



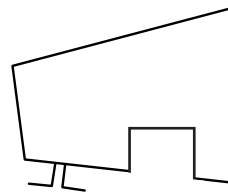
Standard cable exit location

- Two 12' (4 m) 2-conductor cable leads exiting the middle of the longer side
- Black non-skid diamond surface pattern
- Width and length measurement in inches (mat measurement only - not including dimensions with trim)
- Sample part number denoting standard 24" x 36" mat: CESM-21CB-2436
- Sample part number denoting standard 24" x 36" ramp trim kit: ASSY ES-S2436

Standard mat & corresponding ramp trim kit sizes (width x length in inches):

24" x 24"	24" x 30"	24" x 36"	24" x 42"	24" x 48"
24" x 60"	24" x 72"	30" x 30"	30" x 36"	30" x 42"
30" x 48"	30" x 60"	30" x 72"	36" x 36"	36" x 42"
36" x 48"	36" x 60"	36" x 72"	42" x 42"	42" x 48"
42" x 60"	42" x 72"	48" x 48"	48" x 60"	48" x 72"









Custom mats & mat systems



- Create large custom systems with multiple mats
- Cut-out, mitre & multiple zone options available
- Customer-specified cable length
- Customer-specified cable exit location (two 2-conductor leads in any length located at least 2" from a corner - only on sides that will not be joined against another mat)
- Standard Bircher Reglomat mat options will be used if custom options are not specified
- Drawings are required

Order Information

Safeguarding requirements for the majority of safety mat applications can be met with the products listed below. Contact Bircher Reglomat for additional information or custom designs.

Part No.	Description	
ES-S10	Aluminum ramp trim, sold in 10-ft (3m) sections Without mitre cutting, holes or screws	
ES-S	Aluminum ramp trim, to fit all safety mats With mitre cutting, holes & screws	
ES-SZ10	Aluminum machine-side trim, sold in 10-ft (3m) sections Without mitre cutting, holes or screws	
ES-SZ	Aluminum machine-side trim, cut to length Without mitre cutting, holes or screws	
ES-Tape	Yellow/black adhesive awareness tape Sold in 108 ft (33 m) rolls	
ES-WID	8.2kOhm resistor - one supplied complimentary per mat system	
ES-CON	Lead wire connector kit - 2 pieces Crimp splices & shrink tubing	
ES-EC	Extension cable - 2 x 20 AWG wires (0.5 ² mm dia.) inside 5 AWG (4.5 mm dia.) PVC jacket	

Safety controller features

- Rated PL e, meets safety category 3 when used with the safety mat. (BG certificate from BIA available upon request)
- Fail-safe wiring with only 2 wires and a resistor
- 2 input terminals to connect multiple mats/edges
- Automatic or external reset options
- Redundant safety output
- Monitoring output
- DIN rail mount



Safety controller selection

The following chart provides the **safety output** logic.

System operative	Sensor actuated	Wire failure or no voltage
Closed	Open	Open

For available **monitoring output** options, see chart below.

Voltage for all controllers is **24 VAC/DC**. Controllers listed in bold are standard in most applications.

Please contact Bircher Reglomat for additional safety controller options.

Version	Reset	Monitoring output (status relay)		
		System operative	Sensor actuated	Wire failure or no voltage
ESD3-04¹	Auto	Closed	Open	Open
ESD3-08	Auto	Open	Closed	Closed
ESD3-03 ²	Auto	Closed	Closed	Open
ESD3-06	External	Closed	Open	Open
ESD3-09	External	Open	Closed	Closed
ESD3-05	External	Closed	Closed	Open

¹Also available in 115 VAC or 230 VAC

²Also available in 230 VAC

Item # 991003: Switched-mode power supply, DIN rail mounted, Vin = 90 VAC - 240 VAC
Vout = 24 VDC

Controller order example: **ESD3-04-24ACDC**

Version from table above _____ Supply voltage _____

Technical Data

Mats

Material	Polyurethane compound
Color	Black
Min/max dimensions (Length x width)	Max. 48" x 72" (1219 x 1828 mm) Min. 8" x 8" (200 x 200 mm) Tolerance: +1/-1.5 mm
Thickness	Thickness: .4" (10 mm) Tolerance: ± 1.5 mm
Weight (approximate)	Mat: 4 lbs/ft ² (20 kg/m ²) Ramp trim: 0.4 lbs/ft (0.6kg/m)
Inactive zone	1 ¼" (32 mm) on cable side ¾" (19 mm) on other sides
Operating temperature	32° to 125° F (0° C to 50° C)
Loading capacity	2,900 lbs/in ² (2,000 N/cm ²)
Vehicle capacity	For 6,000 repetitions Solid rubber tire 2,200 lbs (2000 kg)/tire Pneumatic tire (90 mm dia.) 4,400 lbs (2000 kg)/tire
Voltage	Max. 24 VDC/VAC, 0.5 A
Insulation strength	>1500 VAC
Reaction time	< 20 ms
Actuating force	< 66 lbs (30 kg) Typical force is 10-23 lbs (4.5- 10.5 kg)

Bircher Reglomat safety mats meet the actuating force requirements defined by the EN-1760-1 and ANSI/RIA 15.06. The mat shall respond to a force of 66 lbs (30 kg) applied to a flat disc with 3.15" (80 mm) diameter placed anywhere on the effective sensing area

Protection class	NEMA 4 (IP67)
Insulation resistance	>1500 VAC
Lead wires	2 x 20 AWG wires (0.5 mm ² dia) inside 5 AWG (4.5 mm dia) PVC jacket

Directives & standards

Bircher Reglomat safety mat systems correspond to safety category 3 according to EN954-1 and are type approved according to standard EN1760-1

Chemical resistance	Weathering, ozone, oils, gasoline water at 68° F (20° C), paraffin, solvents, diluted acids
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Operating life

More than 1 million cycles at the same position with test piece of 3.15" (80 mm) diameter with a force of 170 lbf (76 lg/750 N) vertical down to the surface. Contact loaded with 24V/0.5A

ESD3 Controllers

Protection class	NEMA 3 (IP 54)
Operating temperature	0° to 125° F (-15° to 50° C)
Safety output	2 Relays: 2A/250 VAC To be connected in series to meet safety category 3
Monitoring output	1 relay: 1A/30 VAC
Power consumption	Max. 5 VA
Power supply	24 VACDC ± 10% / 115 VAC ± 10% / 230 VAC ± 10%
Reaction time	< 50 ms
Dimensions (L x W x D)	4" x 1 ¾" x 3" (104 x 45 x 79 mm)

Note: Technical details and recommendations concerning our products are based on experience and are an aid for the orientation of the user. Details stated in our brochures and data sheets do not guarantee special properties of the products. This does not apply to special product properties confirmed in writing or individually on a case-by-case basis. Subject to technical alterations.

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