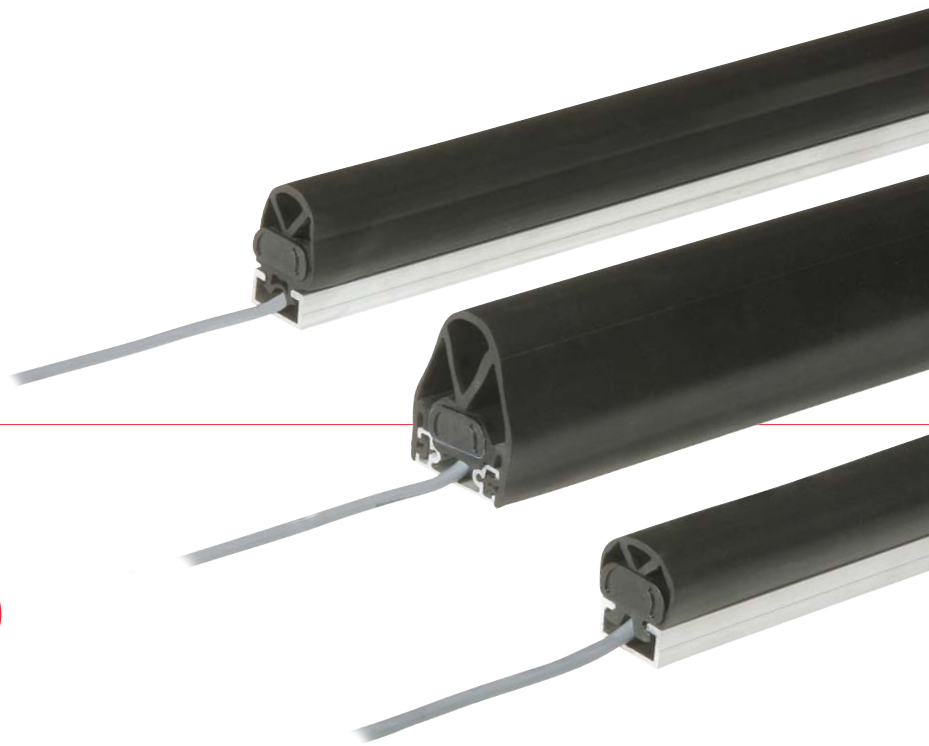
BIRCHER
Reglomat



sensing the future

ClickLine
CoverLine
StandardLine

Electrical safety edges and rubber profiles with contact strip for safeguarding machinery & robots, automatic doors & gates, and public transportation

Reliable, proven, long lasting

- **Wide variety of profiles for every application**
- **Durable products stand up to tough environmental conditions**
- **High mechanical load capacity**

Electrical safety edges

For safeguarding machinery & robots, automatic doors & gates, and public transit applications

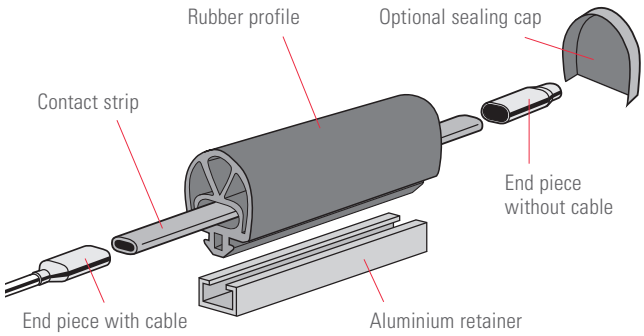
Reliable, proven, long lasting

Electrical safety edges are used to protect crush and shear points around machinery as well as on automatic industrial doors & gates. Profiles of different sizes in combination with Bircher Reglomat's safety controllers protect people and objects from injury or damage.

Fast and easy installation

Our safety edges are based on the proven system of a contact strip inserted into the rubber profile. They are available as assembled safety edges or as separate parts for self assembly. Bircher Reglomat's proprietary separated contact strip technology allows better sealing for the highest reliability in all applications and environments.

Safety edges – system overview



End pieces

Maximum flexibility

End pieces matching the contact strips are available with or without terminating resistor (standard 8.2 kOhm) and in the following cable lengths:
20" (0.5 m), 6'6" (2 m), 13' (4 m), and 32' (10 m).

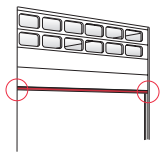
Safety edge assembly

Prefabricated edge assemblies – customized and convenient

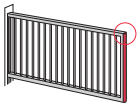
Electrical safety edges are made to order, available in any length.

For optimum functionality, a distinction can be made between horizontal and vertical applications:

Horizontal safety edge application
- Rubber profile sealed **on both ends** with end caps



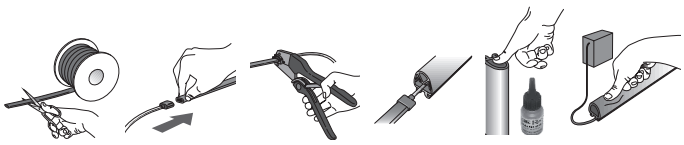
Vertical safety edge application
- Rubber profile **closed at top** with end cap, **open at bottom** with profile holder



Special safety edge application
- All chambers fully sealed (e.g. food processing application)

Self-assembly

Safety edges can be self-assembled

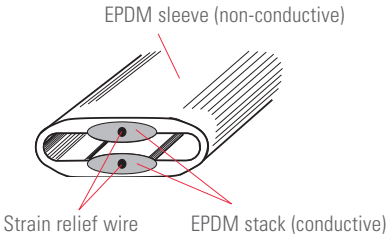


Detailed installation and operating instructions are included with the product

Contact strip

ENT-R

This robust contact strip is suited for all applications,*
especially in moist conditions or those with a large mechanical load.

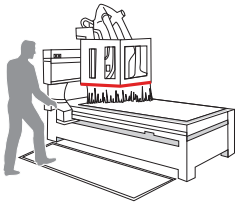


*If no safety rating is required, ENT-20 contact strip is recommended. See technical data on last page for details.

Safe & reliable in every application

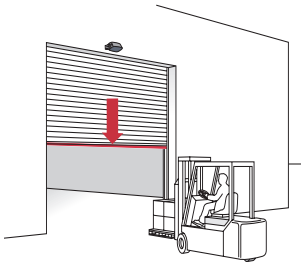
Situation
Machine safety

Solution
- Safety edge (ClickLine, CoverLine or StandardLine) in combination with a Bircher Reglomat ESD3 safety controller
- Use in conjunction with a Bircher Reglomat safety mat system for additional safety.



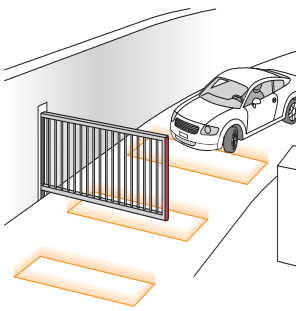
Situation
Overhead door

Solution
- Safety edge (ClickLine, CoverLine or StandardLine) in combination with RFGate (to meet safety category 2)
- Use Hercules 2 microwave motion sensor as an activation device. It distinguishes between movement of people and vehicles to reduce unwanted openings



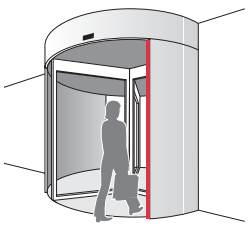
Situation
Sliding gate

Solution
- Safety edge (ClickLine or CoverLine) in combination with the InTra6 inductive transmission system (to meet safety category 3)
- Use ProLoop as opening sensor for reliable evaluation and monitoring of induction loops



Situation
Revolving door

Solution
- Safety edge (ClickLine, CoverLine or StandardLine) in combination with a safety controller
- Use Reflex 2 microwave motion sensor as a reliable activation device and SpotScan as an entry point sensor for enhanced safety



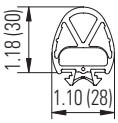
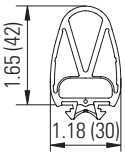
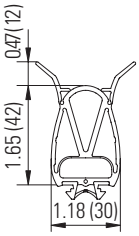
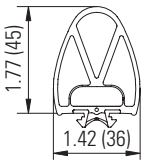
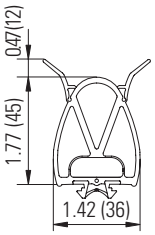
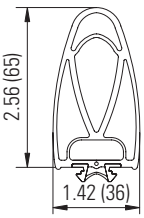
ClickLine

Rubber profiles with a click-fit foot

Click-fit!
ClickLine edges are designed with a click-fit foot for the easiest possible installation. No need to pull the profile into the retainer from the side. The uniquely designed profile shape guarantees the maximum switching reliability.
If vertical mounting is required, use in conjuction with EN-PHK profile holder (see back page for more information) or select alternate CoverLine or StandardLine profile.

ClickLine profiles

General technical data on rubber profiles and prefabricated safety edges can be found on the back page.
To avoid edge compression, select profiles with fins when sealing properties are required.

Dimensions in inches (mm)[1]	 **EPE025/029A0V** Part no. 210736	 **EPE030/042A0V** Part no. 210751	 **EPE030/042J2V** Part no. 210752	 **EPE036/045A0V** Part no. 210760	 **EPE036/045J2V** Part no. 210761	 **EPE036/065A0V** Part no. 210764
Designation for prefabricated edges[2]	ELE025/029A0Vx	ELE030/042A0Vx	ELE030/042J2Vx	ELE036/045A0Vx	ELE036/045J2Vx	ELE036/065A0Vx
Roll length	164 ft (50 m)	164 ft (50 m)	164 ft (50 m)	82 ft (25 m)	82 ft (25 m)	82 ft (25 m)
Retainer	AP-5	AP-5	AP-5	AP-8	AP-8	AP-8
Activation distance	0.28" (7 mm)	0.24" (6 mm)	0.39" (10 mm)	0.39" (10 mm)	0.59" (15 mm)	0.39" (10 mm)
Switch point force	15.7 lbf (70 N)	13.5 lbf (60 N)	22.5 lbf (100 N)	11.2 lbf (50 N)	20.2 lbf (90 N)	24.7 lbf (110N)
Overtravel[3] **56 lbf (250N)** **90 lbf (400N)**	 0.31" (8 mm) 0.39" (10 mm)	 0.39" (10 mm) 0.79" (20 mm)	 0.20" (5 mm) 0.55" (14 mm)	 0.83" (21 mm) 0.87" (22 mm)	 0.67" (17 mm) 0.79" (20 mm)	 0.83" (21 mm) 0.98" (25 mm)

[1] Tolerances acc. to DIN ISO 3302-1, class E2
[2] See back page for more information on ordering prefabricated edges
[3] Acc. to EN 1760-2, temp. 73°F (23°C), test object dia. 3.15" (80 mm), measuring point C3

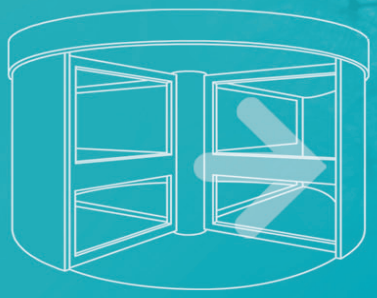
CoverLine

Optimized for vertical mounting or enhanced aesthetics

Visually aesthetic and easy to install

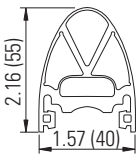
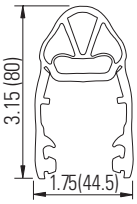
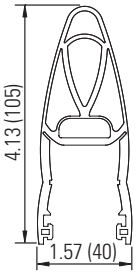
CoverLine edges are designed with a profile that completely covers the aluminum rail and has the following benefits:

- Sleek, aesthetically pleasing design
- Enhanced vertical mounting capability (sliding gate applications)
- Longer overtravel distances possible
- Easy to install (no need to pull profile into retainer from side)
- Most appropriate for applications involving side forces



CoverLine profiles

General technical data on rubber profiles and prefabricated safety edges can be found on the back page.

Dimensions in inches (mm)[1]	 **EPE040/055A0J** Part no. 210766	 **EPE040/081A0J** Part no. 262476	 **EPE040/105A0J** Part no. 219341
Designation for prefabricated edges[2]	ELE040/055A0Jx	ELE040/081A0Jx	ELE040/105A0Jx
Roll length	98 ft (30 m)	65 ft (20 m)	82 ft (25 m)
Retainer	AP-G1	AP-G1	AP-G1
Activation distance	0.39" (10 mm)	0.31" (8 mm)	0.20" (5 mm)
Switch point force	22.5 lbf (100 N)	18.7 lbf (83 N)	15.7 lbf (70 N)
Overtravel[2] **56 lbf (250N)** **90 lbf (400N)**	 0.43" (11 mm) 0.59" (15 mm)	 1.50" (38 mm) 1.61" (41 mm)	 1.26" (32 mm) 2.09" (53 mm)

[1] Tolerances acc. to DIN ISO 3302-1, class E2

[2] See back page for more information on ordering prefabricated edges

[3] Acc. to EN 1760-2, temp. 73°F (23°C), test object dia. 3.15" (80 mm), measuring point C3

StandardLine

Rubber profiles with standard mounting foot

The proven and reliable profile family

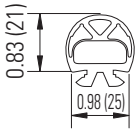
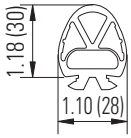
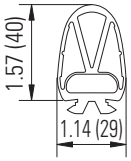
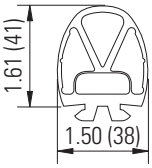
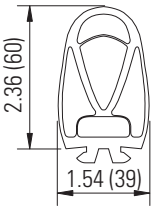
The StandardLine offers the widest range of profile shapes for many applications. This profile type is especially suited for applications with side forces applied. We will be more than happy to design a custom profile for your specific needs.

EPDM, the robust material

All EPDM safety edges from Bircher Reglomat are completely resistant to various substances such as waste water, acetone, manganese sulphate, methyl alcohol, methyl phthalate as well as adequate resistance to acetaldehyde, methyl ethyl ketone, methyl chloride, cold lactic acid and other substances Other materials are available - please contact Bircher Reglomat for information.

StandardLine profiles

General technical data on rubber profiles and prefabricated safety edges can be found on the back page.

Dimensions in inches (mm)[1]	 **EPE025/020A0K** Part no. 210732	 **EPE025/029A0K** Part no. 210733	 **EPE025/040A0K** Part no. 210746	 **EPE036/040A0D** Part no. 210753	 **EPE036/060A0D** Part no. 210753
Designation for prefabricated edges[2]	ELE025/020A0Kx	ELE025/029A0Kx	ELE025/040A0Kx	ELE036/040A0Dx	ELE036/060A0Dx
Roll length	164 ft (50 m)	164 ft (50 m)	164 ft (50 m)	164 ft (50 m)	164 ft (50 m)
Retainer	AP-5	AP-5	AP-5	AP-4	AP-4
Activation distance	0.12" (3 mm)	0.28" (7 mm)	0.16" (4 mm)	0.35" (9 mm)	0.20" (5 mm)
Switch point force	15.7 lbf (70 N)	18.0 lbf (80 N)	15.7 lbf (70 N)	20.2 lbf (90 N)	20.2 lbf (90 N)
Overtravel[3] **56 lbf (250N)** **90 lbf (400N)**	 0.08" (2 mm) 0.16" (4 mm)	 0.24" (6 mm) 0.39" (10 mm)	 0.35" (9 mm) 0.47" (12 mm)	 0.31" (8 mm) 0.63" (16 mm)	 0.51" (13 mm) 1.18" (30 mm)

[1] Tolerances acc. to DIN ISO 3302-1, class E2

[2] See back page for more information on ordering prefabricated edges

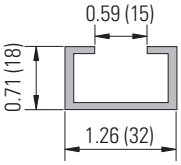
[3] Acc. to EN 1760-2, temp. 73°F (23°C), test object dia. 3.15" (80 mm), measuring point C3

Retainers / Safety Controllers

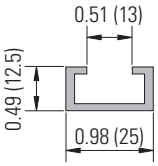
The matching retainer

Aluminum retainers from Bircher Reglomat can be installed quickly and easily. Simply attach with screws & click in or slide on the profile. Please contact Bircher Reglomat for more information about other available retainers including alternate materials.

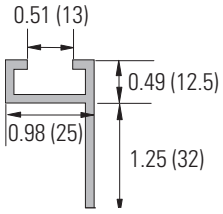
ClickLine & StandardLine Retainers (see profiles in tables on pages 4 & 6)



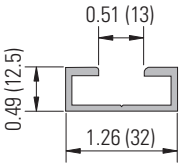
AP-4
Part no. 209580
max. length 9'10" [3 m]



AP-5
Part no. 209583
max. length 19'8" ft [6 m]

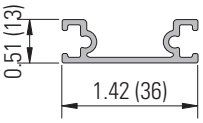


AP-5L
Part no. 991007
max. length 19'8" [6 m]



AP-8
Part no. 209593
max. length 9'10" [3 m]

CoverLine Retainer
(see profiles in table on page 5)



AP-G1
Part no. 209596
max. length 9'10" [3 m]

The right controller for every application

Details and technical data, including additional safety controllers and transmission systems, can be found on our website www.bircherreglomat.com

Controllers for machine safety applications

ESD3 series
Safety category 3 acc. to EN 954-1, 2 channels for 2 sensors, 8.2 kOhm terminating resistor, 2 outputs, mounting on DIN rail, dimensions 1 ¾" x 3" x 4" (45 x 79 x 105 mm).

Voltage for all ESD3 controllers is **24VAC/DC** unless otherwise noted

Version	Reset	Monitoring output (status relay)		
		System operative	Sensor actuated	Wire failure or no voltage
ESD3-04[1]	**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

[1]Also available in 115 VAC or 230 VAC [2]Also available in 230 VAC

Controllers for door and gate applications

EsGate 2/3 - Controllers for doors & gates
Cat. 2/3, (PL c/d) 2 channels for 2 sensors with 8.2 kOhm terminating resistor, 2 outputs, 24 V ACDC/110-230 V AC supply voltage, IP30 (with BOX22: NEMA 4/IP55), Dimensions: ¾" x 3 ¾" x 3 ½" (22 x 94 x 90 mm)

RFGate C2 - Wireless transmission system
Cat. 2 wireless transmission system for automatic sectional, folding and sliding gates, evaluation of mobile safety edges with 8.2 kOhm terminating resistor, 24 V ACDC supply voltage, NEMA 4/IP 55, Dimensions: 6 ¾" x 2 ¼" x 1" (170 x 55 x 23 mm)

InTra6 - Inductive transmission system
Cat. 2 for automatic sliding gates - evaluation of two mobile and two stationary safety edge circuits with 8.2 kOhm terminating resistor, CLOSED and OPEN outputs, 24 V ACDC supply voltage, IP30 (with BOX22: NEMA 4/IP55), Dimensions ¾" x 3 ¾" x 3 ½" (22 x 94 x 90 mm)

Edge selection calculation

Use the following calculations to establish the stopping and overtravel distances in order to achieve the greatest possible safety

Stopping distance of hazardous parts (s_1): $s_1 = ½ \times v \times T$

Minimum overtravel of the safety edge (s): $s = s_1 \times C$

v = Speed of the hazardous movement [mm/s]
T = Overtravel time of the entire system (machine + safety edge) [s]
C = Safety factor, at least 1.2. A greater safety factor should be selected if there are other factors such as a brake system which might be damaged. (See EN1760-2)

Order details

How to order prefabricated safety edge assemblies
Create your part number:

ELE036/045A0V	2	/	1	/	32"	/	20"	/	13'	/	AP-8

Profile type
See designation for prefabricated edges in tables
ClickLine → pg. 4
CoverLine → pg. 5
StandardLine → pg. 6
Contact Bircher Reglomat for special sealed edge requirements

Contact strip
2 = ENT-R
0 = ENT-20

End piece/Retainer configuration
With retainer:
1 = 1 cable + 8.2kOhm resistor
2 = 2 cables
3 = 1 cable + blank end piece
Without retainer:
4 = 1 cable + 8.2kOhm resistor
5 = 2 cables
6 = 1 cable + blank end piece

Length
Length of edge in inches (mm also accepted)

1st Cable*
Length (inches or feet)

2nd Cable*
Length (inches or feet)
00 = no 2nd cable

*Cable length options:
20" (0.5 m), 6'6" (2 m)
13' (4 m) , 32' (10 m)

Retainer Type
See profile info for correct retainer.
WO = without retainer

How to order individual components (for self-assembly ONLY)

Contact strip

	Roll length	82 ft (25 m)	164 ft (50 m)	328 ft (100 m)
ENT-R	Type	ENT-R/25	ENT-R/50	ENT-R/100
	Part no.	238947	210718	210715
ENT-20	Type	ENT-20/25	ENT-20/50	ENT-20/100
	Part no.	210708	210710	210706

End pieces

	Terminator	8k2	No resistor	1k2	Diode
Terminating end pieces	Type	ENEH-8	ENEH-0	ENEH-1	ENEH-D
	Part no.	210642	210626	210627	210643

	Length	20" (0.5 m)	6.5' (2 m)	13' (4 m)	32' (10 m)
Cable end pieces	Type	ENEH-K05	ENEH-K2	ENEH-K4	ENEH-K10
	Part no.	210649	210661	210670	210654

Standard end cap

221785	EN-KAS	**Standard end cap** for all rubber profiles

Sealing end caps (special applications only)

210616	ENA-10	**Sealing band** for all rubber profiles, 32' (10 m) roll
	EN-CXX	**Sealing cap** for specific rubber profiles
		Contact Bircher Reglomat for more information and specific part numbers for each profile

Tools & accessories

210624	EN-DS	Sealing plug for arcing chamber, bag of 10
210622	EN-DL	Sealing plug with hole for cable, bag of 10
210964	ES-BD	Sealing compound for profile seal, sufficient for approx. 40 edges
211010	ES-K20	Contact adhesive for sealing plugs, 1 oz (28 g) tube
211739	ES-PRESS	Pliers with jaws for pressing the end pieces onto the contact strips
212876	ELE RUBBER-CUTTER	Profile cutter for cutting rubber profile
254924	EN-PHC	Profile holder for CoverLine
262494	EN-PHK	Profile holder for ClickLine and StandardLine

Supplementary product

S-Line
Miniature electrical safety edge system for narrow edges or crushing/shearing points

Technical data

ENT-R contact strip	
Dimensions (max.)	¼" x ¾" (7 x 19 mm)
Operating temperature	–13°F to +140°F (–25°C to +60°C)
Storage temperature	–40°F to +180°F (–40°C to +80°C)
Material	EPDM
Contact material	Conductive EPDM
Current (min. / max.)	1 mA / 100 mA
Max. voltage	30 V ACDC
Resistance per unit length	< 0.6 Ohm/ft (2 Ohm/m)
Contact resistance	typ. < 200 Ohm, max. < 500 Ohm
Response power	approx. 1.1 lbf (5 N) (with test object dia 0.79" [20 mm])
Contact travel	approx. 0.04" (1 mm)
Switching frequency	>100'000 (with test object dia 3 ¼" (80 mm)

ENT-20 contact strip	
Dimensions (max.)	½" x ¾" (7 x 19 mm)
Operating temperature	–13°F to +140°F (–25°C to +60°C)
Storage temperature	–13°F to +160°F (–25°C to +70°C)
Material	TPE
Contact material	Nickel-plated bronze
Current (min. / max.)	1 mA / 1 A
Max. voltage	42 V ACDC
Resistance per unit length	0.15 Ohm/ft (0.5 Ohm/m)
Contact resistance	< 10 Ohm
Response power	approx. 2.2 lbf (10 N) (with test object dia 0.79" [20 mm])
Contact travel	approx. 0.04" (1 mm)
Switching frequency	>100'000 (with test object dia 3.15" (80 mm)

Prefabricated safety edges	
Temperature range	–4°F to +130°F (–20°C to +55°C)
Max. length	19.6 ft [6 m] (longer lengths on requ.)
Insulating strength	1500 V AC
Max. load capacity	112 lbf (500 N)
Dead zone	0.79" [20 mm] (ELE040/105A0J2: 0 mm)
Switching frequency	>10'000 (with test object dia 3.15" [80 mm])
Connection cable	Double-jacketed cable, PVC, ø 0.19" (4.7 mm), strain relief wire 2 x AWG 22 (0.34 mm²), min. bending, radius 0.4" (10 mm), non-detachable
Protection class	NEMA 4 (IP 65)
Standards conformity	EN 12978, EN 1760-2

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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