



Safety fence ISS 2020

Content

01	About us	
02	Safety fence with mesh	
04	Benefits of safety fence with mesh	
06	Standard parts	
08	Custom parts	
10	Variable segments	
12	Standard doors	
14	Benefits of revolving and slide doors	
16	Safety fence with polycarbonate	
18	Benefits of safety fence with polycarbonate	
20	Standard parts	
22	Custom parts	
24	Post covering plates	
26	Standard doors	
28	Benefits of revolving and slide doors	
30	Options	
32	Signal light	
34	Special angles	
36	Cable ducts	
38	Reinforcement panels	
40	Earthing	
41	Custom lining	
42	Packing	
44	Examples of use and implemented projects	

Competent partner for protection of your machines

LEGRO Slovakia produces protection systems in accordance with all valid DIN and EN standards, so that all requirements for professional machine protection are met. During development we place great emphasis to safety, reliability, stability and economical assembly. In the area of machine protection, we offer you our professional product lines for all kinds of demands and requirements in first-class quality.



Safety fence with mesh

SG ISS 2020

For operations where there is no risk from flying chips from machining, we produce protective systems made of welded steel profiles and mesh infill.



Safety fence with mesh

Specifications

- The protective fence frames are welded together from sturdy steel profiles and grids
- Mesh size 40 × 40 mm
- Wire diameter 3 mm
- Standard system width up to 2000 mm
- Distance to the source of danger 200 mm
- Standard system height is 2000 and 2400 mm
- Powder-coated surface RAL 7043



Safety fence post

Specifications

- Solid design of the post with a 50 × 50 mm large and 3 mm thick hollow profile with a welded base plate
- Standardized post can be used for straight, corner, T and end type installation
- Standard system height is 2000 and 2400 mm
- Powder-coated surface RAL 3001
- Innovative and patented suspension system made from stainless steel
- Tool – free assembly – Click system
- A special tool is required for unlocking
- The safety fence post is supplied fully assembled including spacer, set screws and earthing
- Anchor studs HSA M10×98 mm are included in the scope of delivery



Benefits of safety fence with mesh



Good stability even on uneven floors and high rigidity due to welded safety fence frame construction



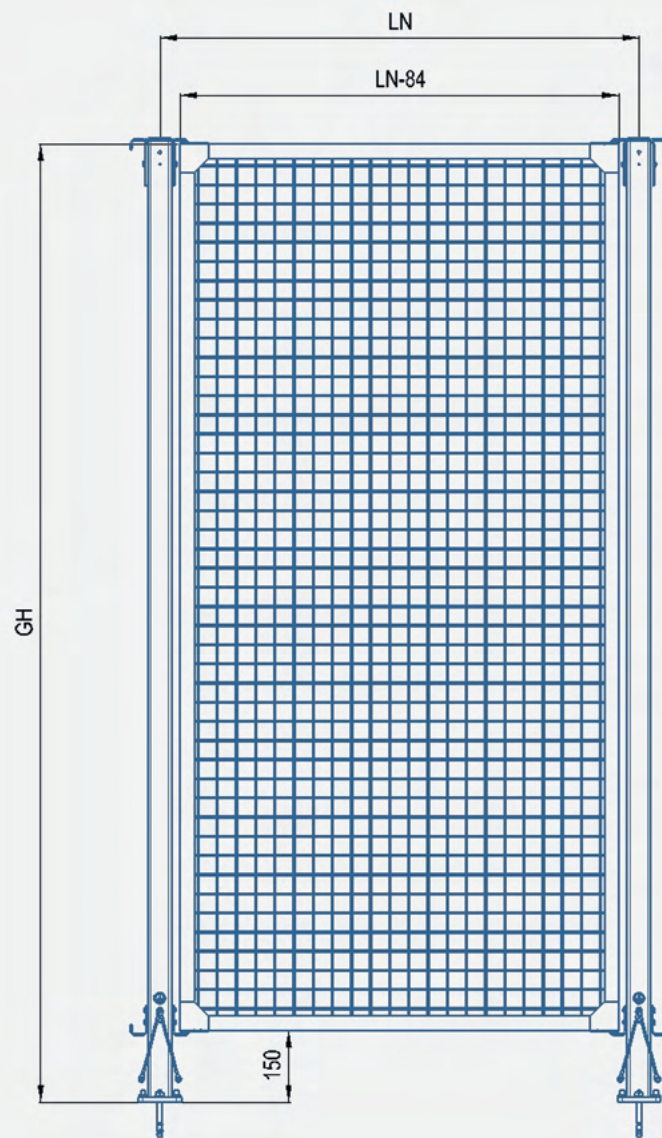
Custom safety fence of various construction shapes can be delivered in specified heights, weights and depths according to request



Optional attachment of cable ducts is possible



Technical information



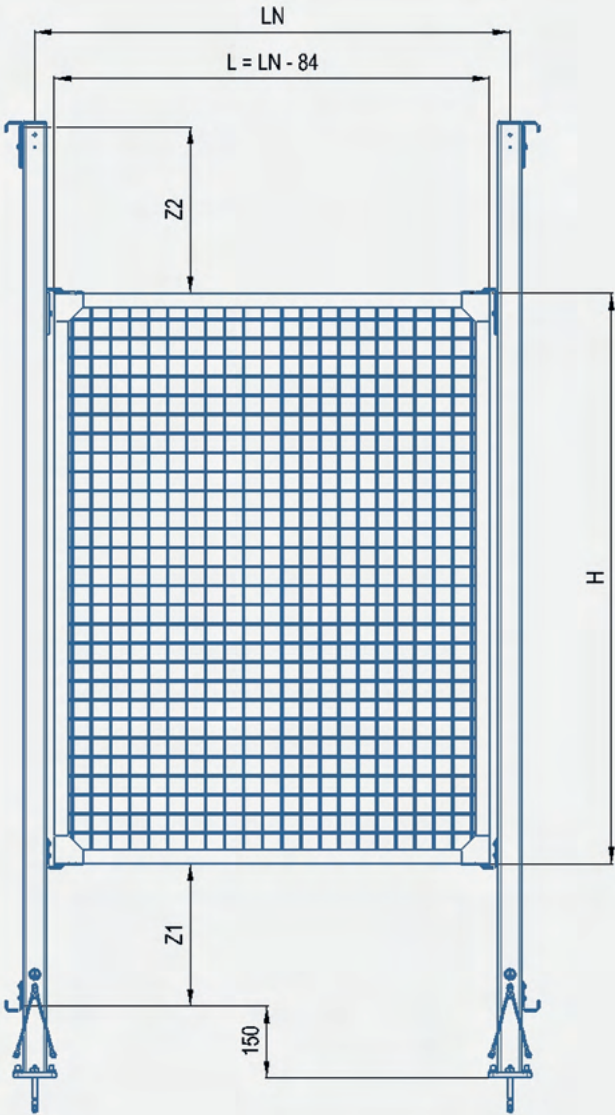
Standard parts

We produce cost effective standard parts in two system heights and standard colors. These are available on stock and can be delivered quickly.

Technical parameters

#	Item Number	Description	LN	GH	Type
1	121.085.9012	SG Post 50 GH=2000	--	2000	System height 2000
2	121.085.2013	SG MA 40×40 LN=300 GH=2000	300	2000	System height 2000
3	121.085.2014	SG MA 40×40 LN=500 GH=2000	500	2000	System height 2000
4	121.085.2015	SG MA 40×40 LN=750 GH=2000	750	2000	System height 2000
5	121.085.2016	SG MA 40×40 LN=1000 GH=2000	1000	2000	System height 2000
6	121.085.2017	SG MA 40×40 LN=1250 GH=2000	1250	2000	System height 2000
7	121.085.2018	SG MA 40×40 LN=1500 GH=2000	1500	2000	System height 2000
8	121.085.2019	SG MA 40×40 LN=1750 GH=2000	1750	2000	System height 2000
9	121.085.2020	SG MA 40×40 LN=2000 GH=2000	2000	2000	System height 2000
10	121.085.9412	SG Post 50 GH=2000	--	2400	System height 2400
11	121.085.2413	SG MA 40×40 LN=300 GH=2400	300	2400	System height 2400
12	121.085.2414	SG MA 40×40 LN=500 GH=2400	500	2400	System height 2400
13	121.085.2415	SG MA 40×40 LN=750 GH=2400	750	2400	System height 2400
14	121.085.2416	SG MA 40×40 LN=1000 GH=2400	1000	2400	System height 2400
15	121.085.2417	SG MA 40×40 LN=1250 GH=2400	1250	2400	System height 2400
16	121.085.2418	SG MA 40×40 LN=1500 GH=2400	1500	2400	System height 2400
17	121.085.2419	SG MA 40×40 LN=1750 GH=2400	1750	2400	System height 2400
18	121.085.2420	SG MA 40×40 LN=2000 GH=2400	2000	2400	System height 2400

Custom parts



We also produce special grid panels and special posts according to customer requirements. A wide range of colors from RAL, metallic, NCS tones o exclusive colors are possible.

Technical parameters

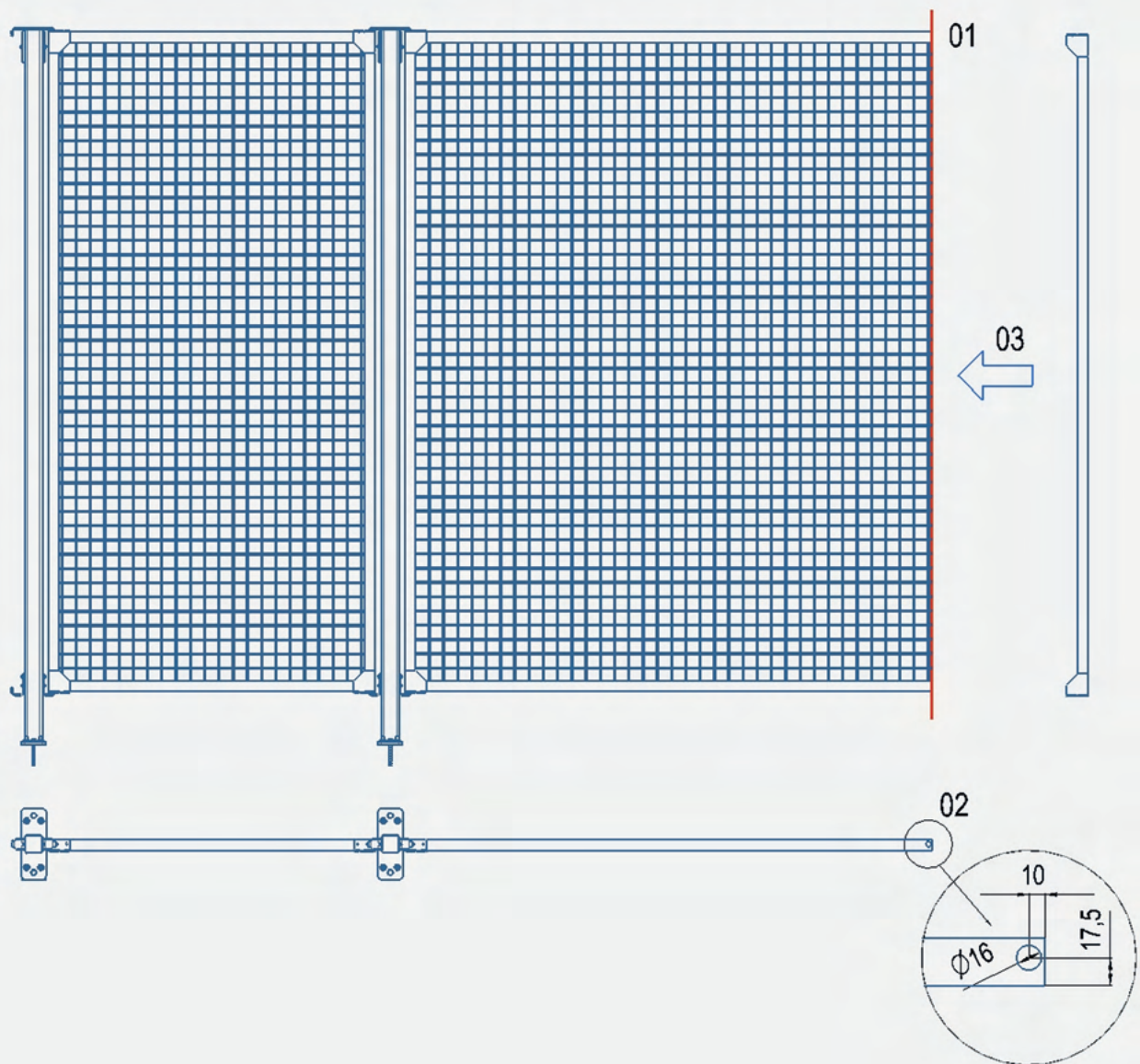
Example designation for custom panels

#	Item Number	Description	L	H
1	121.086.2XXX	SG SMA 40×40 L=516 H=1650	516	1650

Example designation for custom posts

#	Item Number	Description	Z1	Z2	H
1	121.086.9XXX	SG Special post GH=3000 Z500/1000	500	1000	3000
2	121.086.9XXX	SG Special post GH=2500 Z0/500	0	500	2500
3	121.086.9XXX	SG Special post GH=2000 Z1000/0	1000	0	2000

Variable segments



Custom panel lengths are sometimes required on the construction site that are not known beforehand. Variable segments can be used here. Matching standard panels can be purchased for this.

Installation method

01

Cut the standard panel to necessary dimension

02

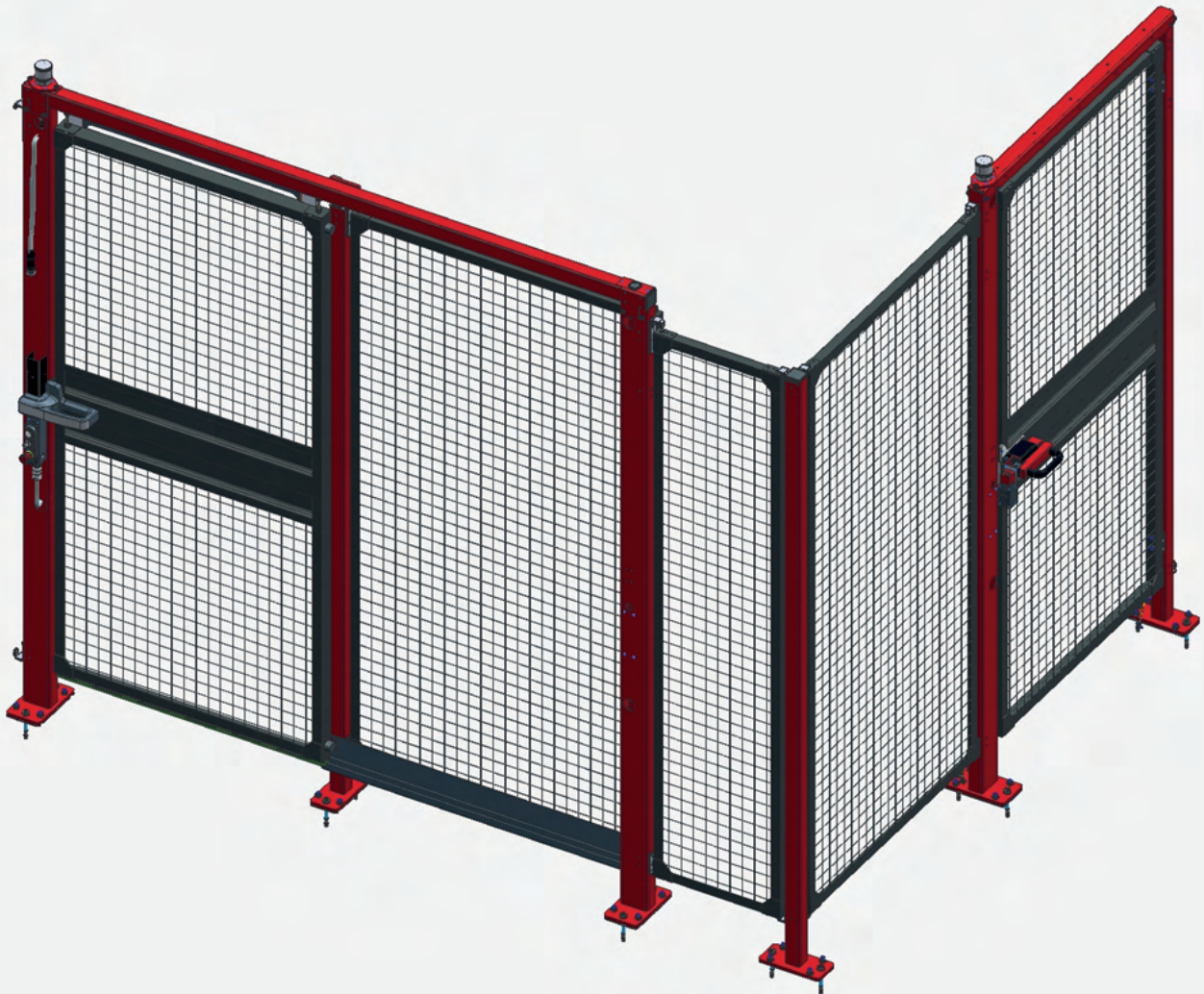
Drill two holes $d=16\text{mm}$ from top to bottom

03

Slide the variable segment into the panel and assemble it with post

Standard doors

We produce cost effective standardized doors in two system heights and standard colors. These are available on stock and can be delivered quickly.



Revolving doors

- Revolving doors are available in two system heights and one system width
- Revolving doors are delivered completely preassembled including posts, earthing, adjusting screws and locking nuts
- Stable welded door frame



Slide doors

- Sliding doors are available in two system heights and two systems widths
- Sliding doors are delivered completely preassembled including sliding door posts, earthing, adjusting screws and locking nuts
- Stable welded door frame with screwed and assembled frame



Benefits of revolving and slide doors

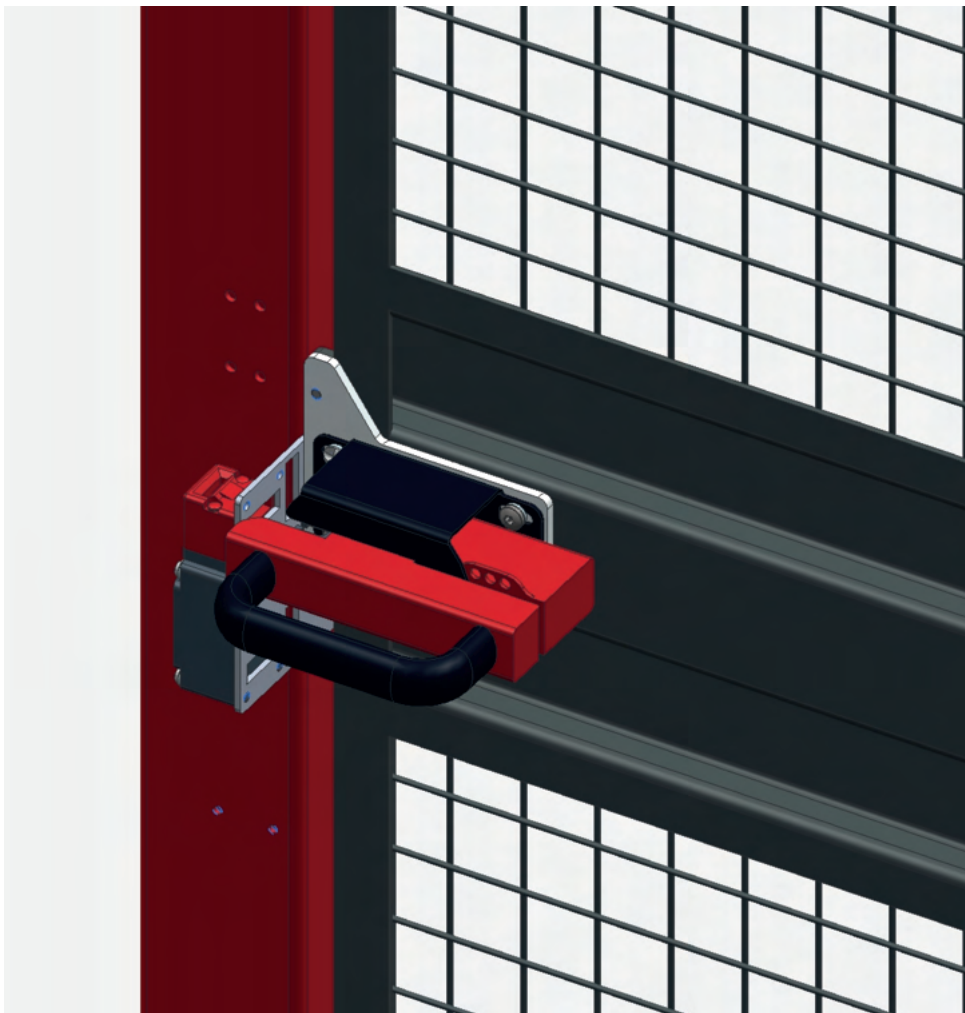
- Optionally, the door can be supplied with signal lights from company Eaton
- Fully tested function of all electrical components
- Version available with and without safety guard locking
- DIN revolving door direction change is possible to do directly on the site within a very short period of time
- Safe and functional alignment is ensured by a strike plate and adjustment screw
- Revolving doors are supplied with safety switches from company Pizzato and signal lights from company Turck

Technical parameters

#	Item Number	Description	LN	GH	Door width	Type
1	121.085.9009	SG Door OZ LN=1000 GH=2000	1000	2000	900	System height 2000
2	121.085.9010	SG Door MZ LN=1000 GH=2000	1000	2000	900	System height 2000
3	121.085.9011	SG Sliding door MZ LN=2000 GH=2000	2000	2000	880	System height 2000
4	121.085.9031	SG Sliding door MZ LN=3000 GH=2000	3000	2000	1380	System height 2000
5	121.085.9409	SG Door OZ LN=1000 GH=2400	1000	2400	900	System height 2400
6	121.085.9410	SG Door MZ LN=1000 GH=2400	1000	2400	900	System height 2400
7	121.085.9411	SG Sliding door MZ LN=2000 GH=2400	2000	2400	880	System height 2400
8	121.085.9431	SG Sliding door MZ LN=3000 GH=2400	3000	2400	1380	System height 2400

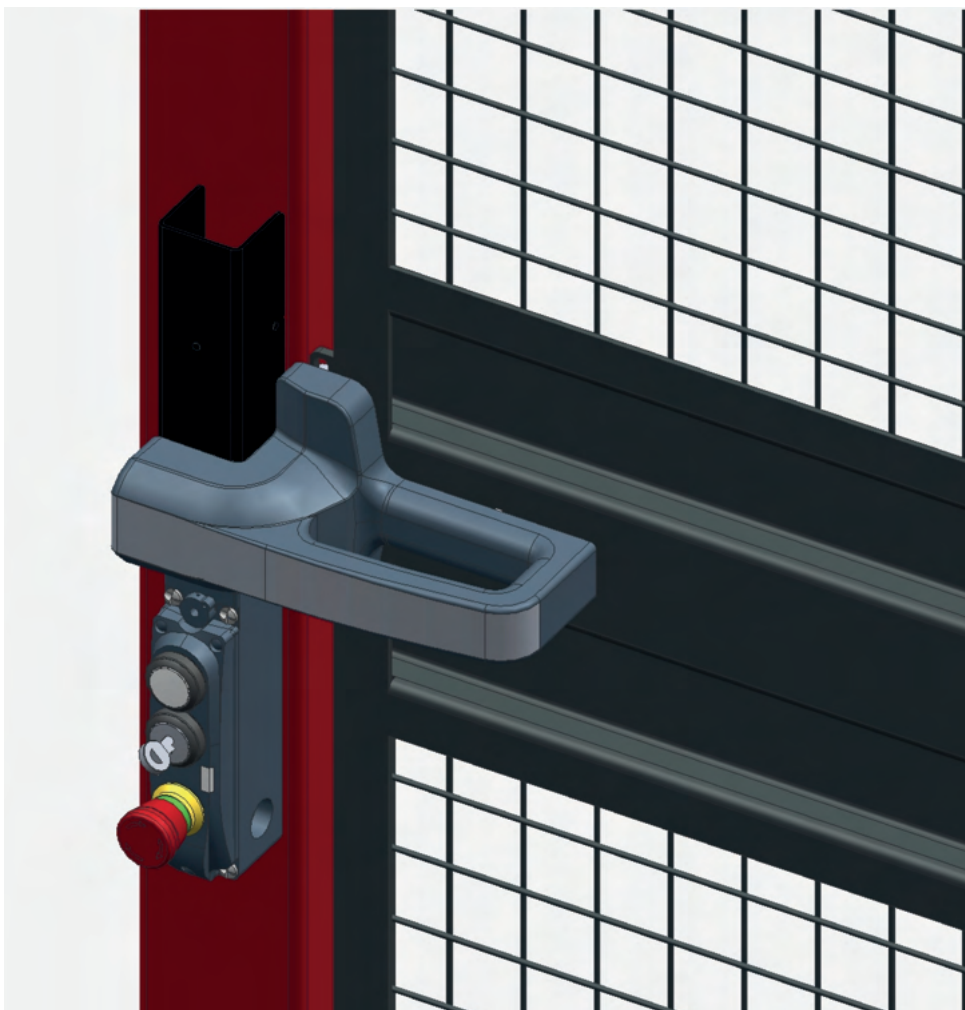
Version wit guard locking

- Safety switch Pizzato NG2D7D415D-S 1000
- Door handle with guard Pizzato AN-G9A000
- The Door is delivered as standard with an electric cable and Turck signal light



Version without guard locking

- Safety switch Pizzato FD-2093-M2K40
- Handle and actuator Pizzato VFAP-S13AZ-301
- Doors are delivered without electric cable as standard



Safety fence with polycarbonate

MS ISS 2020

For operations where security fences with mesh are not suitable, we produce protective systems with polycarbonate panels.



Safety fence with polycarbonate

Specifications

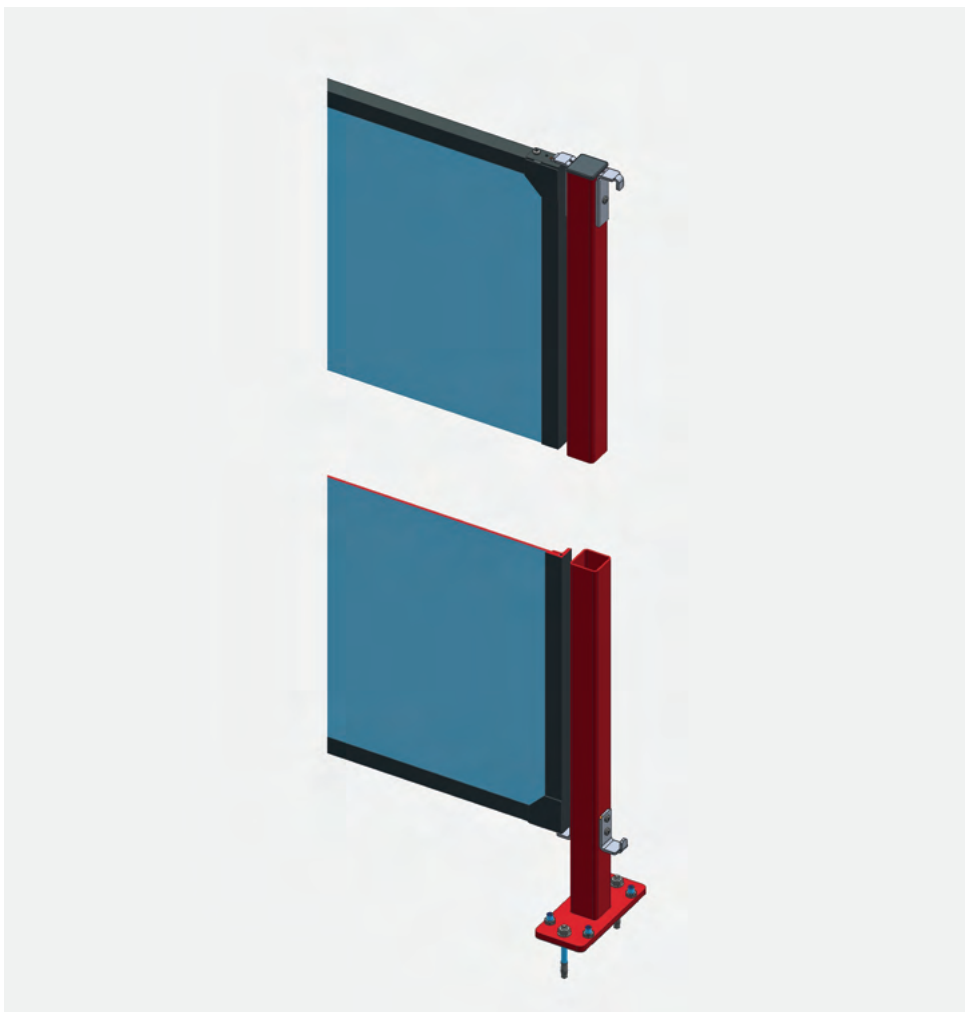
- The safety frame is screwed together with stable steel profiles and polycarbonate panels
- Polycarbonate panel IMPEX
- Polycarbonate thickness 5 mm
- Standard system height is 2000 and 2400 mm
- Standard system width up to 1500 mm
- Powder – coated surface RAL 7043



Safety fence post

Specifications

- Solid design of the post with a 50×50 mm large and 3 mm thick hollow profile with a welded base plate
- Standardized post can be used for straight, corner, T and end type installation
- Standard system height is 2000 and 2400 mm
- Powder-coated surface RAL 3001
- Innovative and patented suspension system made from stainless steel
- Tool-free assembly Click-system
- A special tools is required for unlocking
- Safety fence post is supplied fully assembled including spacer, set screws and earthing
- Anchor studs HSA M10×98 mm are included in the scope of delivery



Benefits of safety fence with polycarbonate



IMPEX is an extruded, unbreakable polycarbonate panel with excellent optical and mechanical properties. These high-quality panels have a very high impact strength and therefore offer comprehensive solutions for indoor and outdoor areas.



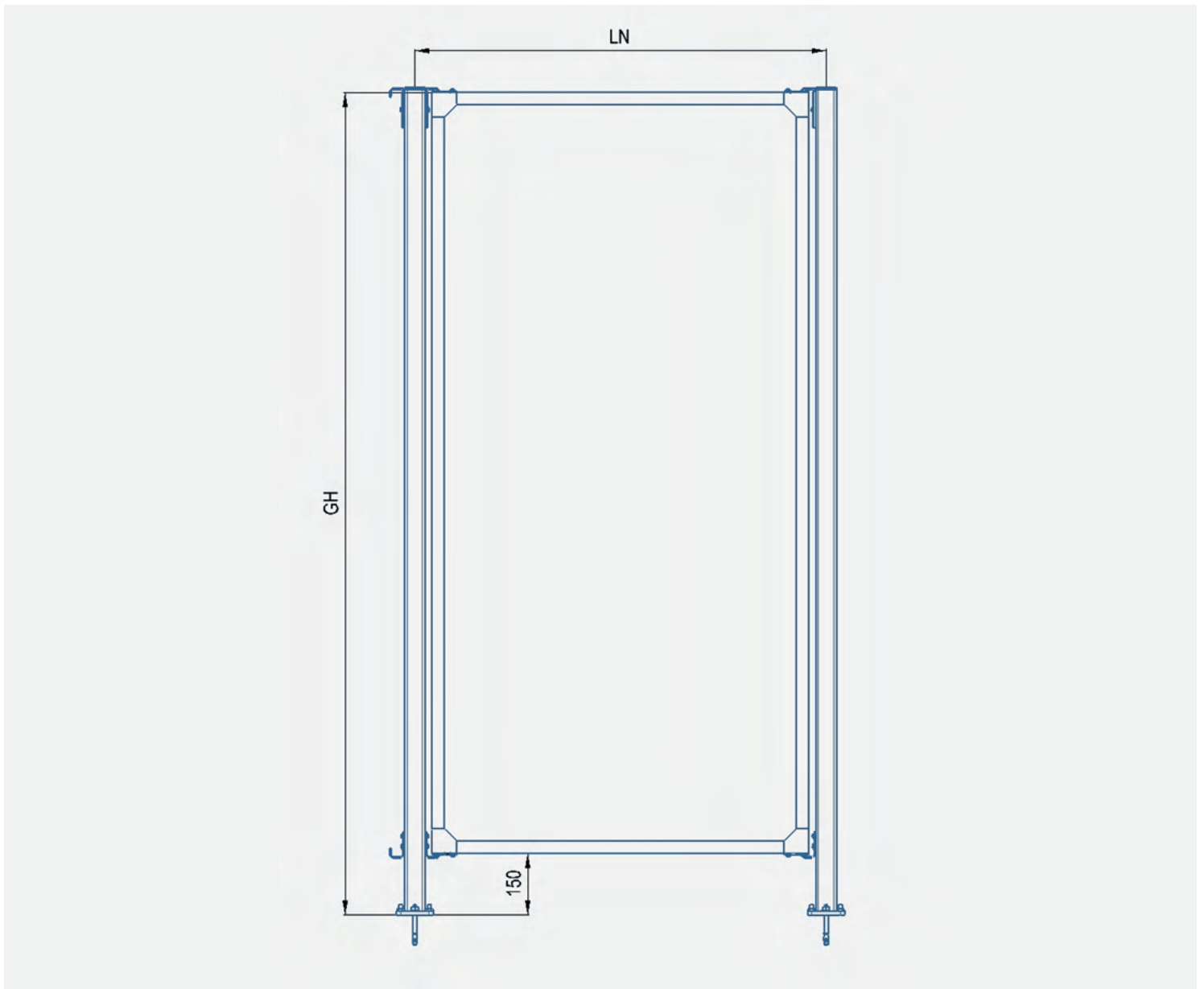
All IMPEX panels are compliant with the REACH regulation and in particular do not contain any substances that are named in the currently valid version of the ECHA candidate list of (SVHC) „ Substances of Very High Concern".



IMPEX boards are produced in accordance with DIN EN ISO 11963 and are free from toxic substances or heavy metals that pose a risk to the environment or health.



Technical information



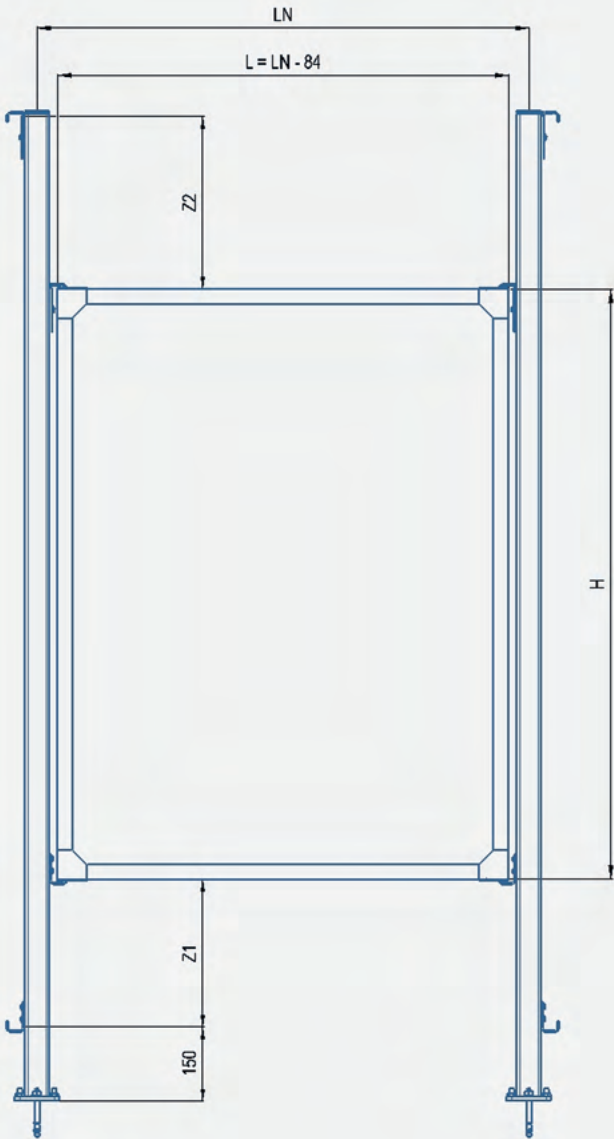
Standard parts

We produce cost effective standardized parts in two system heights and standard colors. These are available on stock and can be delivered quickly.

Technical parameters

#	Item Number	Description	LN	GH	Type
1	121.085.9012	SG Post 50 GH=2000	--	2000	System height 2000
2	121.090.9013	MS Panel LN=300 GH=2000	300	2000	System height 2000
3	121.090.9014	MS Panel LN=500 GH=2000	500	2000	System height 2000
4	121.090.9015	MS Panel LN=750 GH=2000	750	2000	System height 2000
5	121.090.9016	MS Panel LN=1000 GH=2000	1000	2000	System height 2000
6	121.090.9018	MS Panel LN=1500 GH=2000	1500	2000	System height 2000
7	121.085.9412	SG Post 50 GH=2400	--	2400	System height 2400
8	121.090.9413	MS Panel LN=300 GH=2400	300	2400	System height 2400
9	121.090.9414	MS Panel LN=500 GH=2400	500	2400	System height 2400
10	121.090.9415	MS Panel LN=750 GH=2400	750	2400	System height 2400
11	121.090.9416	MS Panel LN=1000 GH=2000	1000	2400	System height 2400

Custom parts



We also produce special panels and special posts according to customer requirements. A wide range of colors from RAL, metallic, NCS tones to exclusive colors are possible.

Technical parameters

Example designation for custom panels

#	Item Number	Description	L	H
1	121.091.9XXX	MS Special panel L=516 H=1650	516	1650

Example designation for custom posts

#	Item Number	Description	Z1	Z2	H
1	121.086.9XXX	SG Special post GH=3000 Z500/1000	500	1000	3000
2	121.086.9XXX	SG Special post GH=2500 Z0/500	0	500	2500
3	121.086.9XXX	SG Special post GH=2000 Z1000/0	1000	0	2000

Post covering plates

If no gap is allowed between the post and the panel, post plates should be used.

Workflow

01

holes for panel mounting are drilled on three sides of the post

02

The post plates can be screwed on the free side

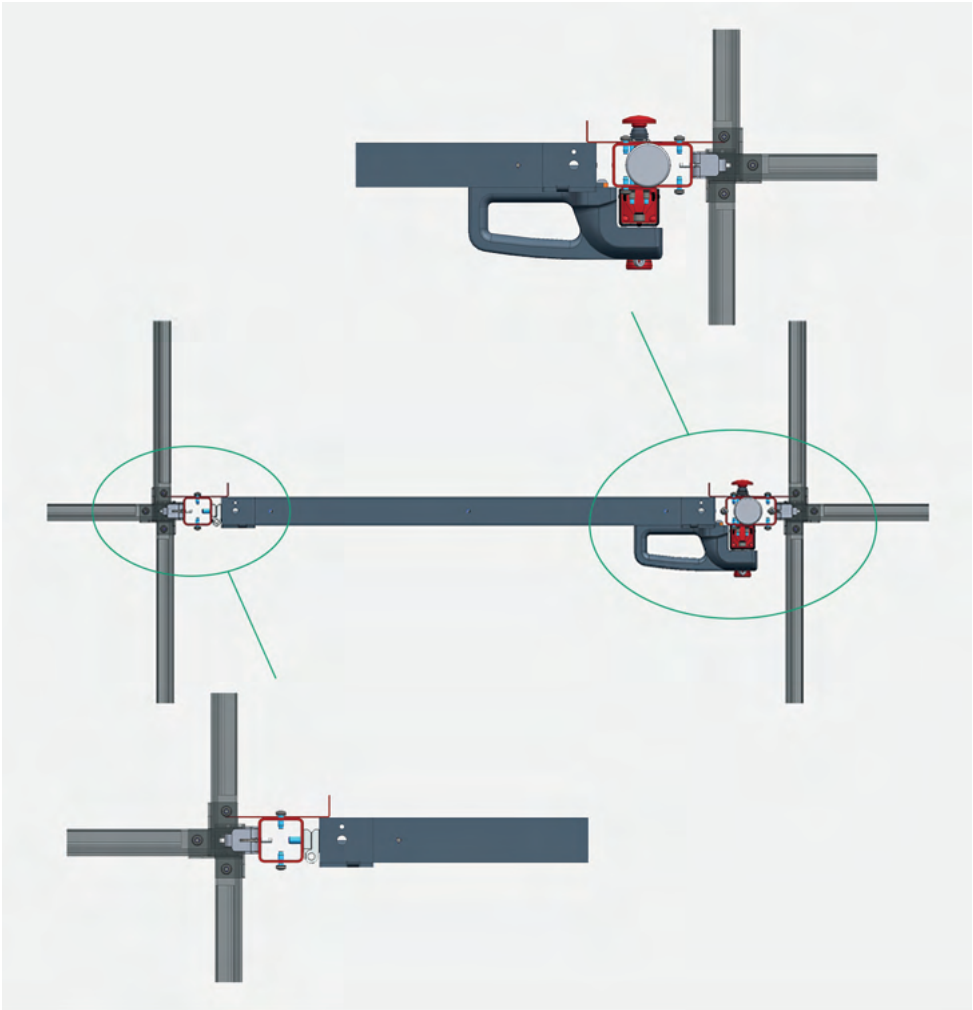
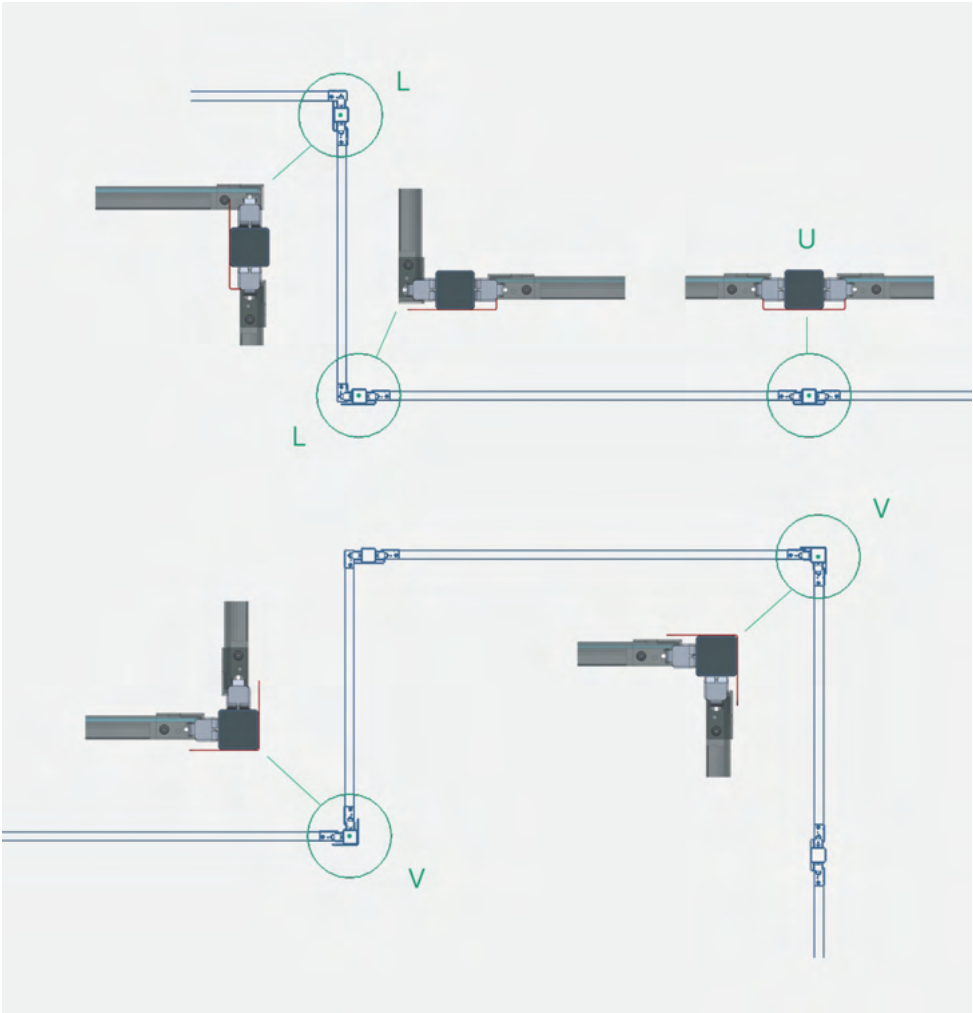
03

The metal plates must be screwed on from the inside

Example designation for custom posts

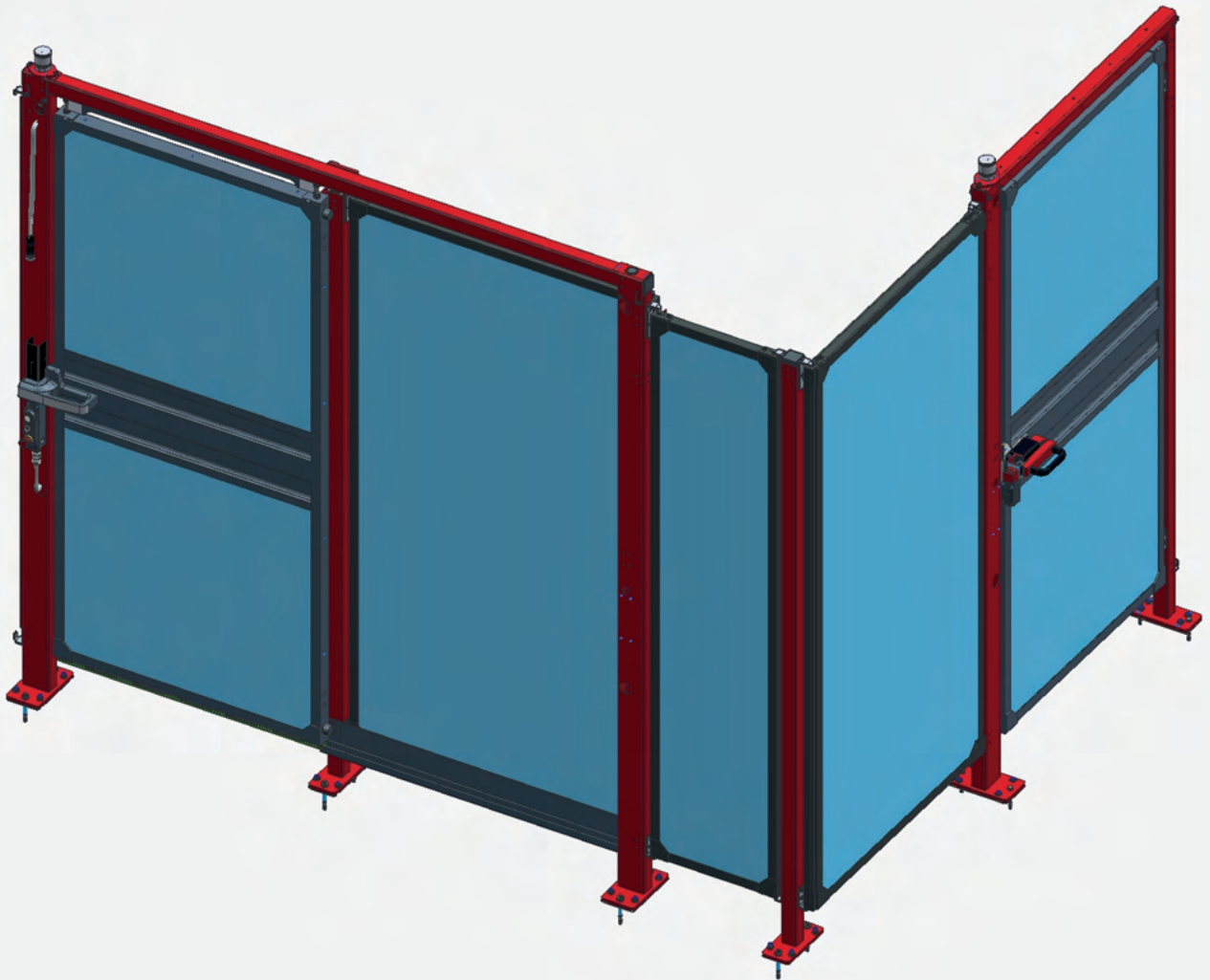
#	Item Number	Description	Shape	GH	Type
1	121.090.2002	MS Post covering plate U GH=2000	U	2000	System height 2000
2	121.090.2003	MS Post covering plate L GH=2000	L	2000	System height 2000
3	121.090.2004	MS Post covering plate V GH=2000	V	2000	System height 2000
4	121.090.2402	MS Post covering plate U GH=2400	U	2400	System height 2400
5	121.090.2403	MS Post covering plate L GH=2400	L	2400	System height 2400
6	121.090.2403	MS Post covering plate V GH=2400	V	2400	System height 2400

Doors are delivered together with post plates. In the door area, MS Panels can be oriented only as shown on the picture



Standard doors

We produce cost effective standardized doors in two system heights and standard colors. These are available on stock and can be delivered quickly.



Revolving doors

- Stable welded door frame, Lining - IMPEX Polycarbonate
- Revolving doors are delivered completely preassembled including posts, earthing, adjusting screws and lock nuts
- Revolving doors are available in two system heights and one system width



Slide door

- Stable welded door frame, screwed and assembled frame
- Sliding doors are delivered completely preassembled including sliding door posts, earthing, adjusting screw and locking nuts
- Sliding doors are available in two system heights and two systems widths



Benefits of revolving and slide doors

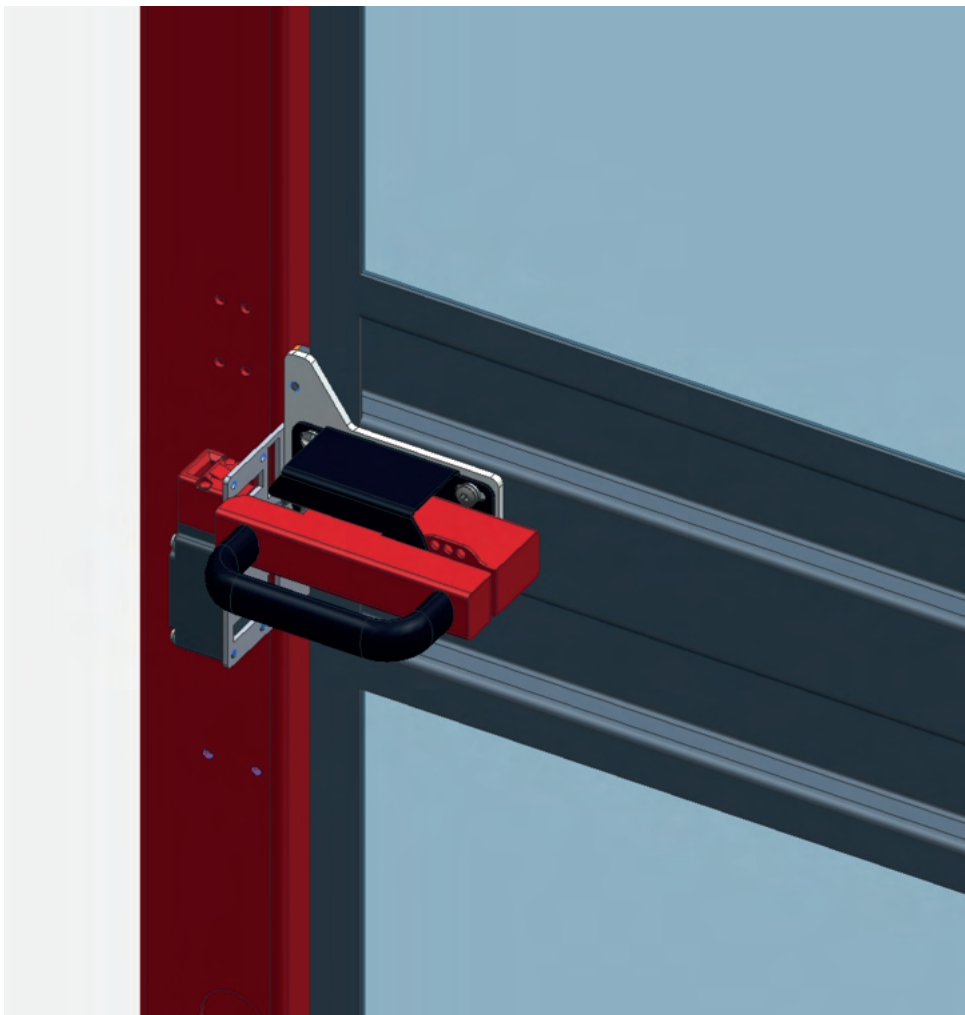
- Safe and functional alignment is ensured by a strike plate and adjustment screw
- Different combinations are possible
- Optionally, the door can be supplied with signal lights from company Eaton
- Revolving doors are supplied with safety switches from company Pizzato and signal lights from company Turck
- Version available with and without safety guard locking
- DIN revolving door direction change is possible to do directly on the site within a very short period of time

Standard door dimensions

#	Item Number	Description	LN	GH	Door width	Type
1	121.090.9009	SG Door OZ LN=1000 GH=2000	1000	2000	900	System height 2000
2	121.090.9010	SG Door MZ LN=1000 GH=2000	1000	2000	900	System height 2000
3	121.090.9011	SG Sliding door MZ LN=2000 GH=2000	2000	2000	880	System height 2000
4	121.090.9031	SG Sliding door MZ LN=3000 GH=2000	3000	2000	1380	System height 2400
5	121.090.9409	SG Door OZ LN=1000 GH=2400	1000	2400	900	System height 2400
6	121.090.9410	SG Door MZ LN=1000 GH=2400	1000	2400	900	System height 2400
7	121.090.9411	SG Sliding door MZ LN=2000 GH=2400	2000	2400	880	System height 2400
8	121.090.9431	SG Sliding door MZ LN=3000 GH=2400	3000	2400	1380	System height 2400

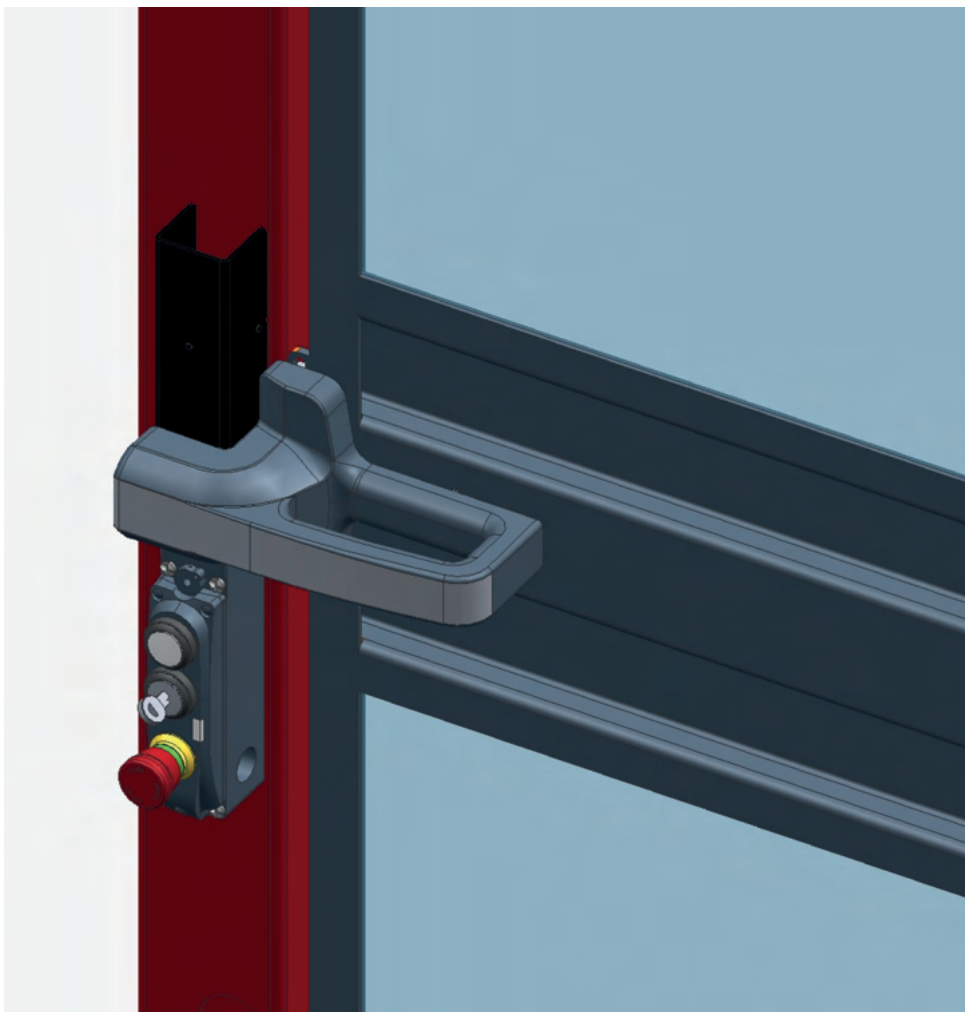
Version without guard locking

- Safety switch Pizzato FD-2093-M2K40
- Handle and actuator Pizzato VFAP-S13AZ-301
- Doors are delivered without electric cable as standard



Version with guard locking

- Safety switch Pizzato FD-2093-M2K40
- Handle and actuator Pizzato VFAP-S13AZ-301
- Doors are delivered without electric cable as standard



Options

ISS 2020

According to customer requirements, we offer a wide range of beacons, clamping segments for various angles, cable trays including clamping components, panel reinforcements for non-standard heights or widths and additional grounding kits. We also offer special fillings according to customer requirements.



Signal light



Special angles



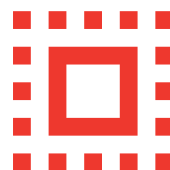
Cable ducts



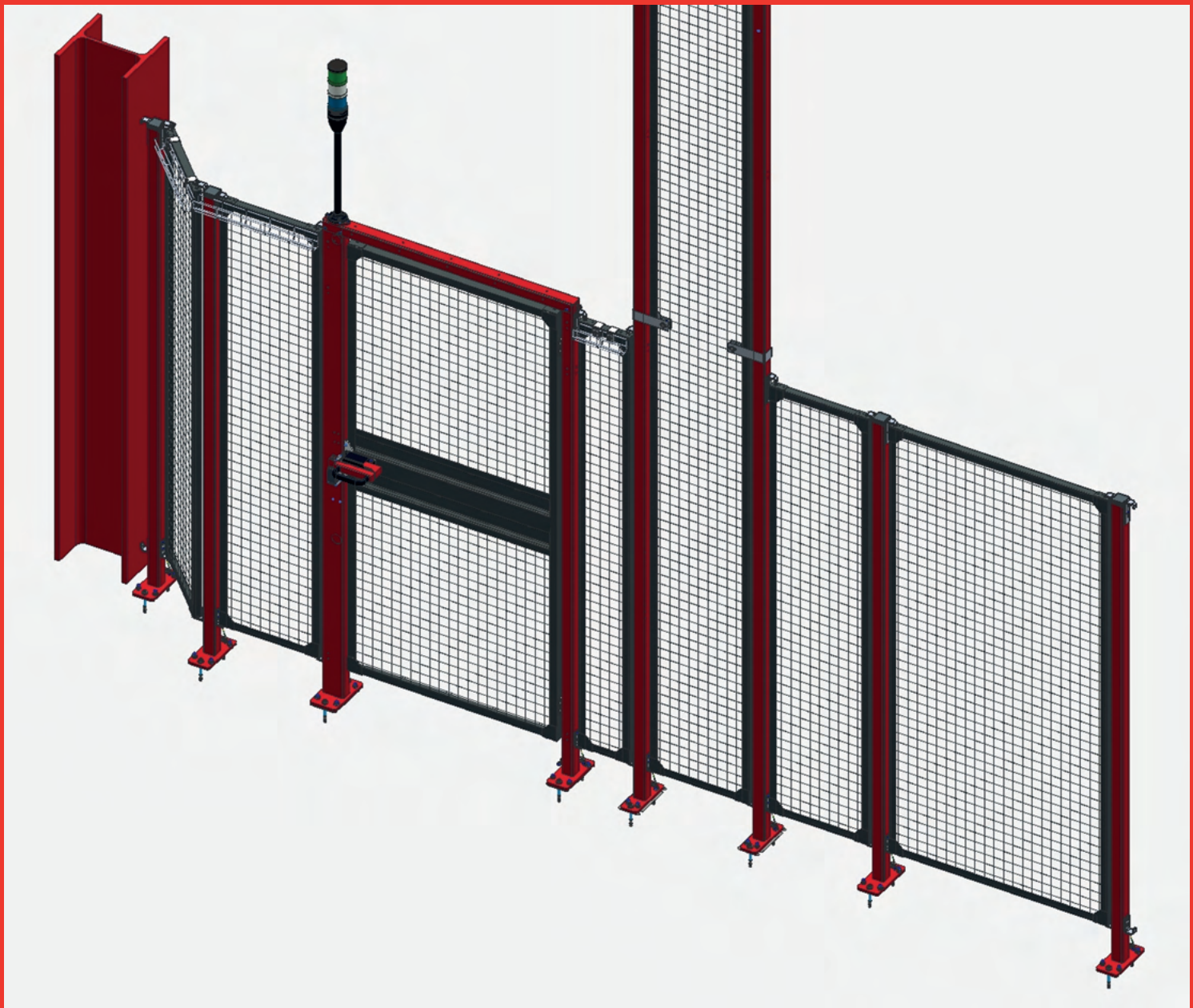
Reinforcement panels



Earthing



Custom lining



Legro Slovakia s. r. o.

Signal light

Turck complete signal tower with base and yellow light is included in the scope delivery



Eaton system: the components can be selected as required

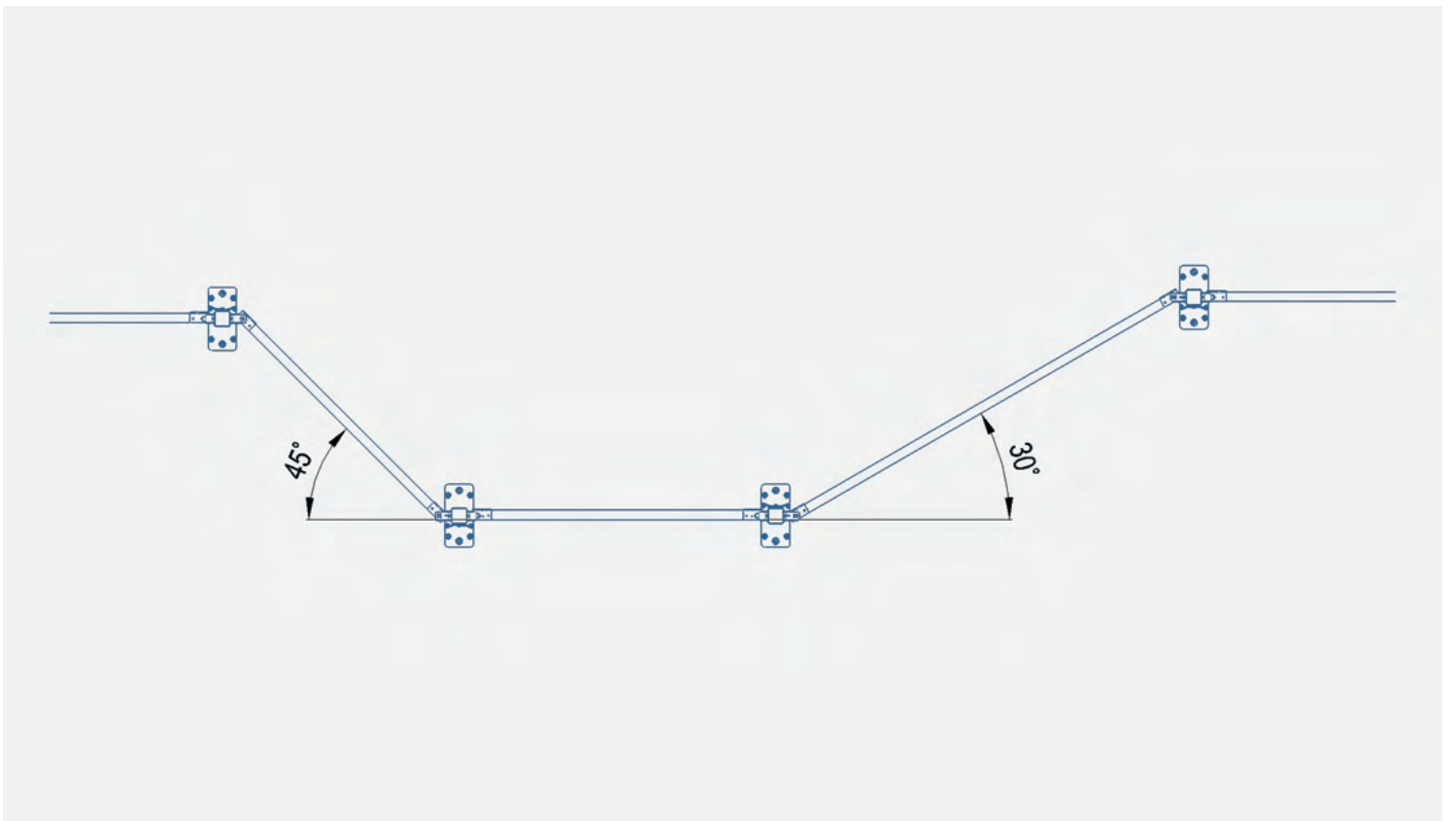
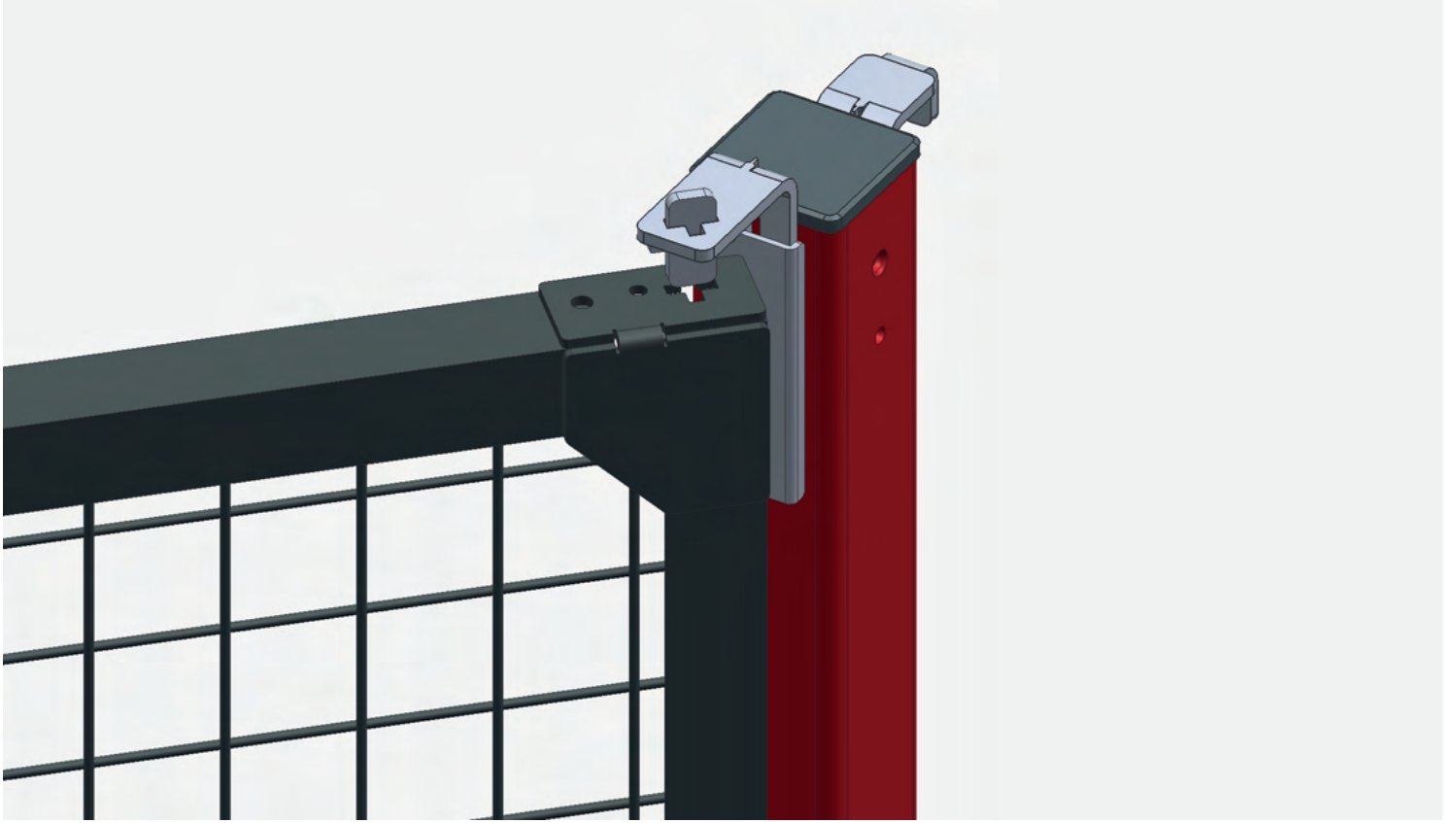


We can equip the gate with signal lights.

Technical parameters

#	Item Number	Description	Type	Type	E-Number
1	210324	Turck Signal post TL50YQ	Yellow	Light	3010067
2	IMA-10821076	Eaton Light SL7-CB-400	Base	400mm	171445
3	IMA-10821080	Eaton Light SL7-L24-W	White	Light	171464
4	IMA-10821083	Eaton Light SL7-L24-B	Blue	Light	171461
5	IMA-10821084	Eaton Light SL7-L24-Y	Yellow	Light	171465
6	IMA-10821085	Eaton Light SL7-L24-G	Green	Light	171462
7	IMA-10821086	Eaton Light SL7-L24-R	Red	Light	171463
8	IMA-10821089	Eaton Acoustic element SL7-AP24	Acoustic	Element	171281

Special angles



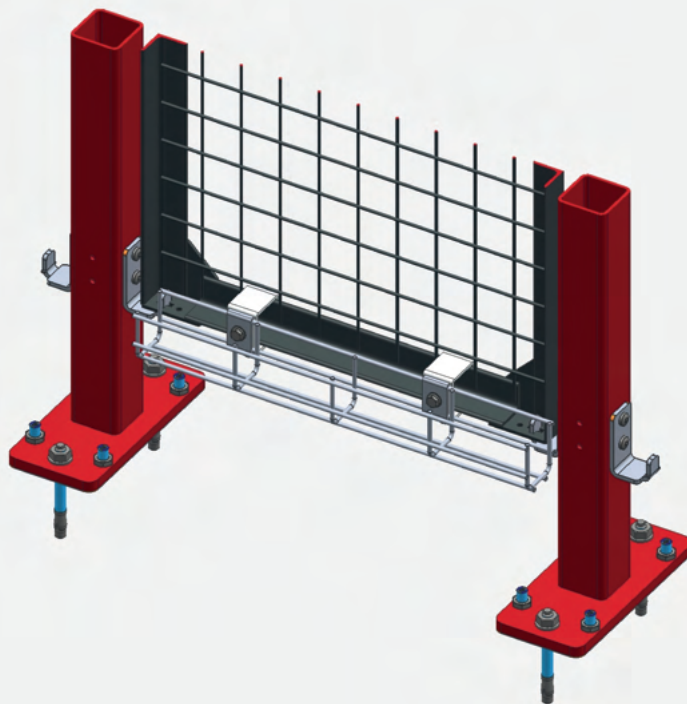
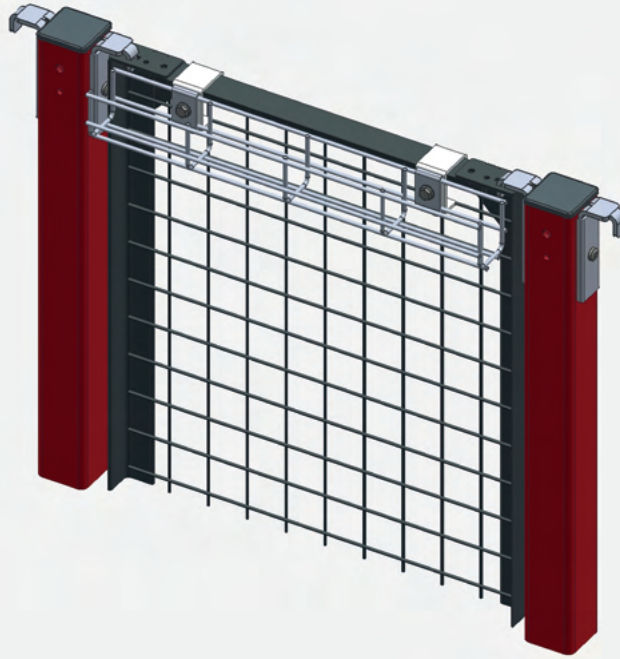
According to the standard, the panels cannot be assembled to be swiveled. No hinges can be used. Then the safety fence can be used like a gate.

- A special bracket set with connection material is available for special angles
- During assembly, standard suspension parts are replaced by special angle sets

Technical parameters

#	Item Number	Description
1	121.085.9020	Standard angle set 90° with screws
2	121.085.9030	Special angle set 30° with screws
3	121.085.9045	Special angle set 45° with screws

Optional attachment of cable ducts possible



We supply cable ducts including clamping components for our system and earthing options.

Technical parameters

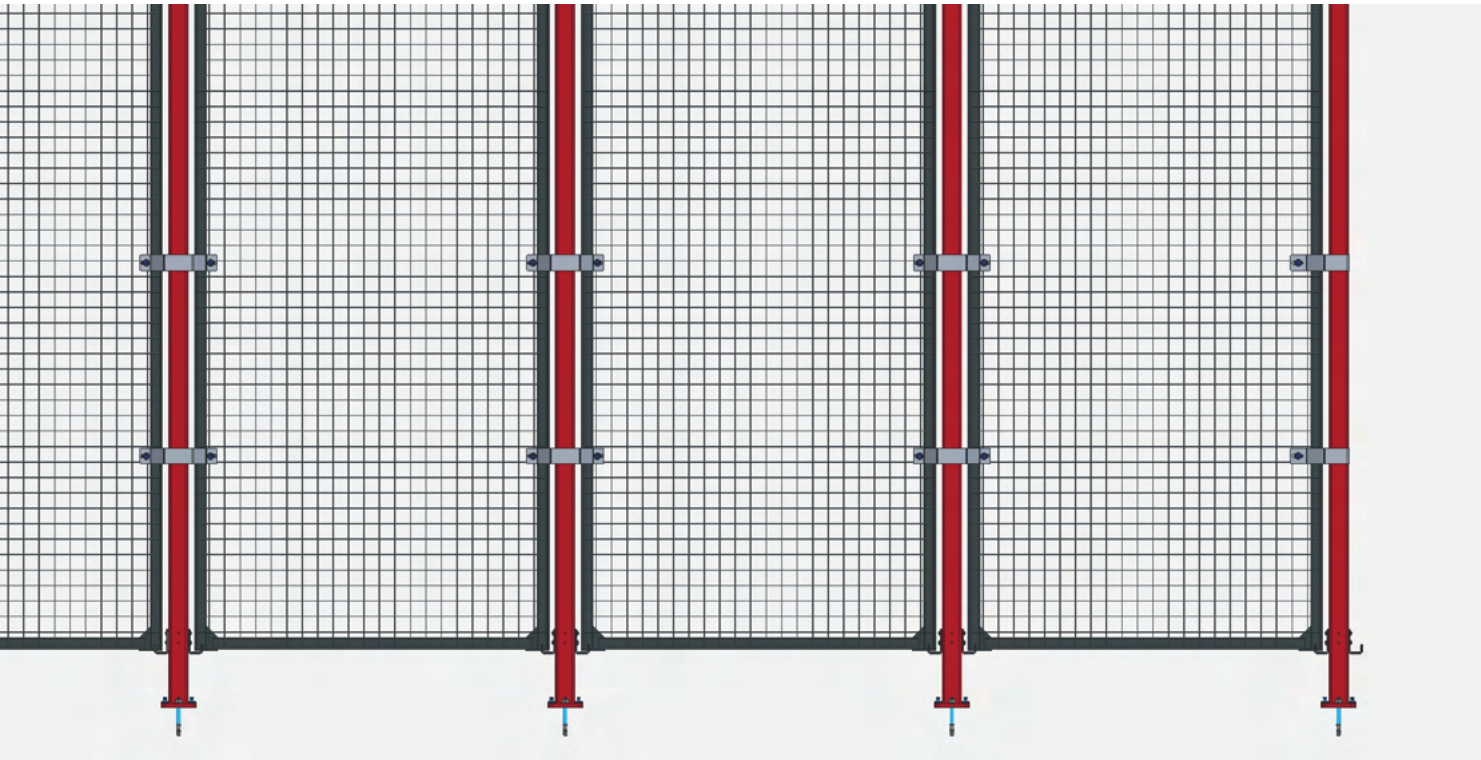
#	Item Number	Description
1	121.085.9029	Connection element
2	208 490	Cable channel

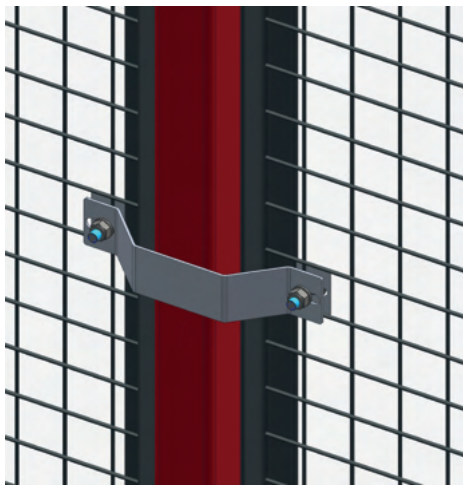
Safety panel reinforcement with steel mesh

We also produce special mesh panels according to customer requirements. For steel mesh panels taller than 2250 mm or wider than 1916 mm, reinforcements are required to keep the panel stable on the post during collision.

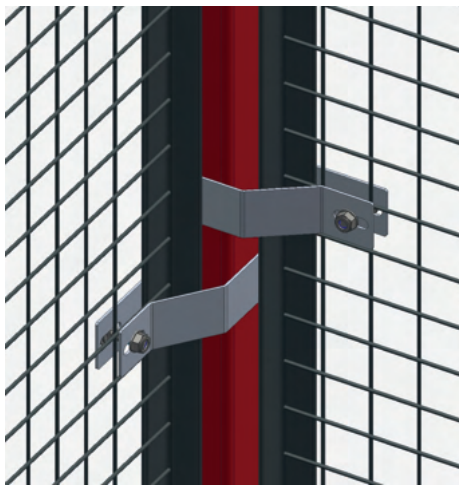
Technical parameters

#	Item Number	Description	Application
1	121.085.9046	Centre reinforcement	Center post 50×50
2	121.085.9047	Lateral reinforcement	End post or corner post 50×50
3	121.085.9048	Lateral reinforcement	Door post 90×50

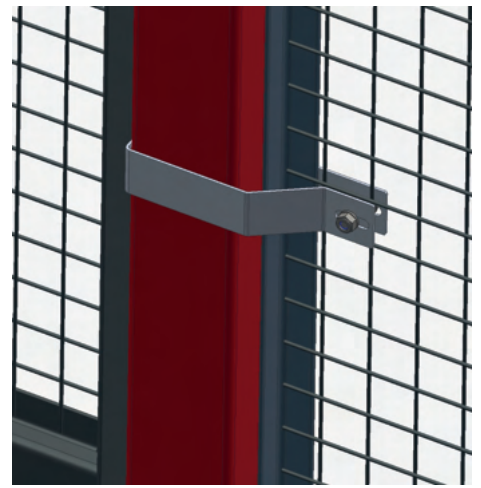




121.085.9046



121.085.9047



121.085.9048

The number of stiffeners per post depends on the impact energy. The calculation is shown in the table below.

Technical parameters

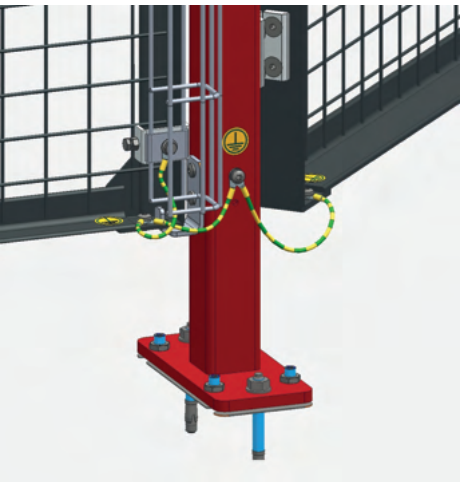
#	Impact energy	Number of stiffeners for higher frames [N1]	Number of stiffeners for wider frames [N2]	Total number per post [N]
1	E = 176 J	$N1 = \text{ROUNDDOWN}(H/2300;0)$	$N2 = \text{ROUNDDOWN}(L/2000;0)$	$N = N1 + N2$
2	E = 370 J	$N1 = \text{ROUNDDOWN}(H/2300;0)$	$N2 = \text{ROUNDDOWN}(L/2000;0)$	$N = N1 + N2$
3	E = 882 J	$N1 = \text{ROUNDDOWN}(H/2300;0)$	$N2 = \text{ROUNDDOWN}(L/2000;0)$	$N = N1 + N2$

Preliminary setup for earthing

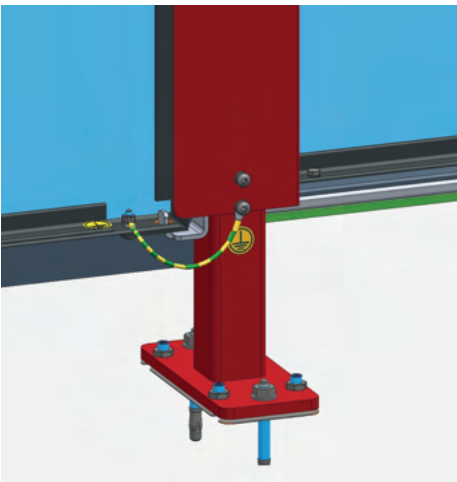
The protective fence components are prepared for electrical connection with a copper conductor H07V-K 10 mm². The components are provided with pre-drilled holes with a diameter of 5.3 mm for self-tapping M6 screws. Complete cable sets with screws and washers are also supplied.

Technical parameters

#	Item Number	Description	Application	Quantity
1	121.085.9027	Earthing cable 150 mm with connecting material	For all SG and MS panels and cable channels	5
2	121.085.9028	Earthing cable 200 mm with connecting material	For all SG and MS revolving doors	5



Example of earthing the SG protective panel and hinged door

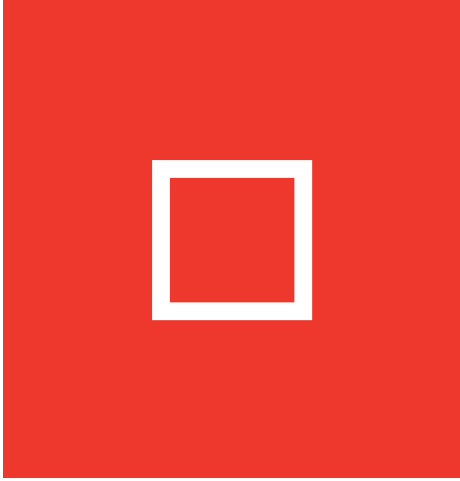


Example of earthing the MS protective panel

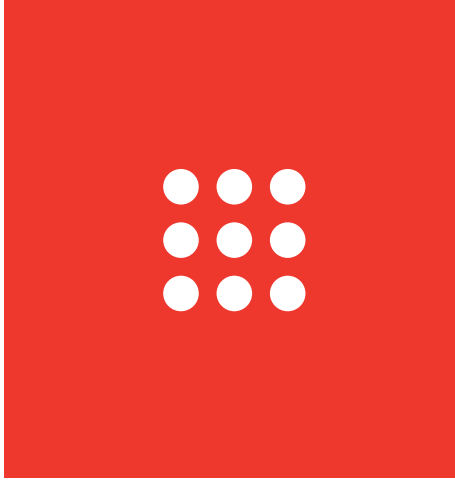


Example of earthing the cable ducts

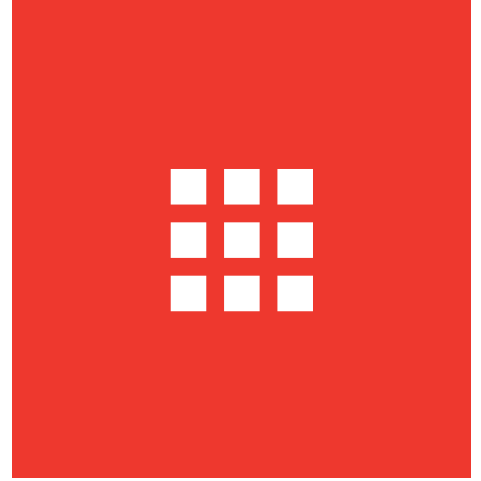
Custom panel lining



Alucobond



Perforated metal
sheets - holes



Perforated metal
sheets - squared

Packing

ISS 2020



Box



T-Pallet

Professional and safe packing on wooden pallets. The pallets are treated against damage by bacteria according to FAOISPM 15/2002.

Technical parameters

#	Pallet description	Length (mm)	Depth (mm)	Height (mm)	Max. weight (kg)
1	SP0-Box	2400	750	1600	1500
2	SP1-Box	2400	750	2165	1500
3	SP2-Box	2600	750	2165	1500
4	SP3-Box	2600	750	1600	1500
5	SP4-T-Pallet	2200	750	2045	1500

Examples of use and implemented projects





Ing. Štefan Čabra
CEO

M +421 905 418 100
T +421 55 611 40 11
stefan.cabra@legro.sk

LEGRO Slovakia s.r.o.

Perínska cesta 289
SK-04458 Kechnec
T +421 55 611 40 10
info@legro.sk