

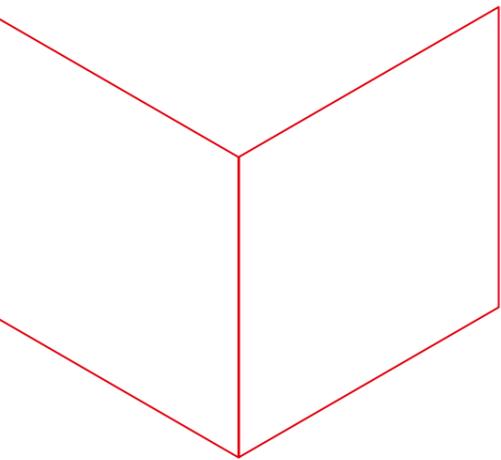


Protective Facilities

for person, machine and plant safety



First in safety



Protective Facilities

for person, machine and plant safety





First in safety

Safety is more than just business to us. Safety is our driver and our promise to you. For more than thirty years, we have characterised protection of man and machine. With our high-quality safety fence systems, we keep setting new standards as one of the leading and largest manufacturers in Europe. We develop and produce machine and plant solutions flexibly, comprehensively and absolutely customised as needed, bringing longevity, function and safety in line. We use our developed know-how as well as many certification and testing procedures for this. We do this knowing that we develop and promote safety – for us, our customers and partners. To keep you on the safe side at all times, we at Brühl offer all services around machine and plant protection from a single source – with the predicate „Made in Germany“.

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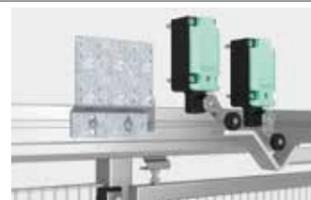
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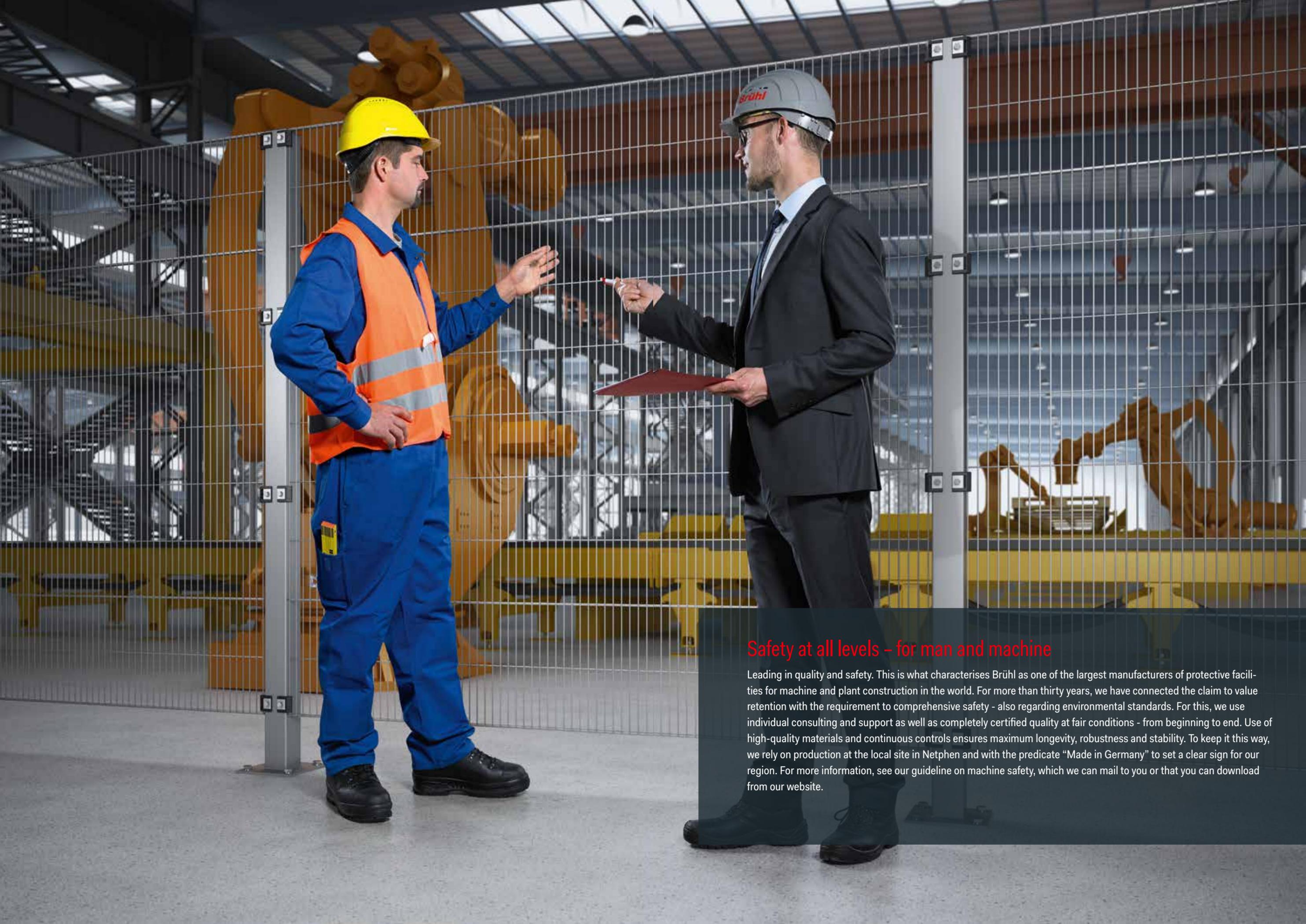
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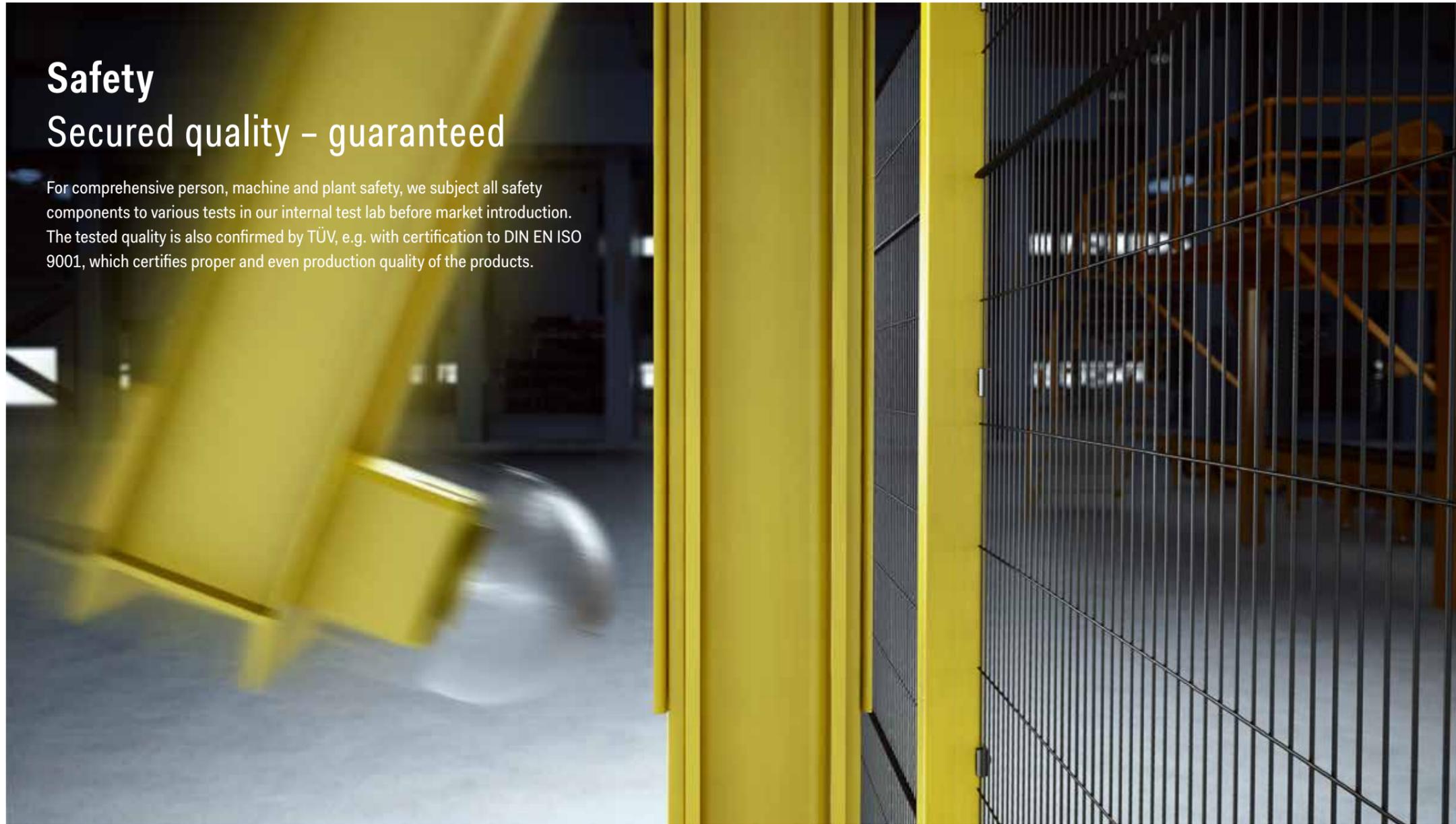
Safety at all levels – for man and machine

Leading in quality and safety. This is what characterises Brühl as one of the largest manufacturers of protective facilities for machine and plant construction in the world. For more than thirty years, we have connected the claim to value retention with the requirement to comprehensive safety - also regarding environmental standards. For this, we use individual consulting and support as well as completely certified quality at fair conditions - from beginning to end. Use of high-quality materials and continuous controls ensures maximum longevity, robustness and stability. To keep it this way, we rely on production at the local site in Netphen and with the predicate "Made in Germany" to set a clear sign for our region. For more information, see our guideline on machine safety, which we can mail to you or that you can download from our website.

Safety

Secured quality – guaranteed

For comprehensive person, machine and plant safety, we subject all safety components to various tests in our internal test lab before market introduction. The tested quality is also confirmed by TÜV, e.g. with certification to DIN EN ISO 9001, which certifies proper and even production quality of the products.



Safety - crash test for safety fences

Safety must be tested! To ensure this continually, we at Brühl also take a pioneering role. In 2009 already, we performed comprehensive test series on safety fence safety in a diploma thesis in the scope of a university cooperation, using a pendulum impact facility. We have since developed these findings continually.

The ISO-standard 14120 "Safety of machinery – separating guards" names measuring procedures like the pendulum impact procedure for reliable assessment of stability of a protective facility. In the pendulum impact procedure, a test body at a defined size and mass controlledly hits different locations in a protective facility. High-speed cameras reliably document the individual test series and subsequently assess them.

Brühl's pendulum impact procedure thus permits reproducible measurements and assessments on the dynamic resilience of protective facilities. Additionally, the procedure grants defined safety targets for safety fences pursuant to ISO 14120 (cf. annex D.5 pendulum impact procedure). It is a fact that secures your Brühl safety fence doubly and promises tested quality to you.



Made in Germany

The separating protective facilities of Brühl Safety GmbH are produced only at the site of Netphen in the Siegerland. We connect the site of Germany to qualified staff, sustainable employment and valuable high-quality products for machine and plant construction as a result.

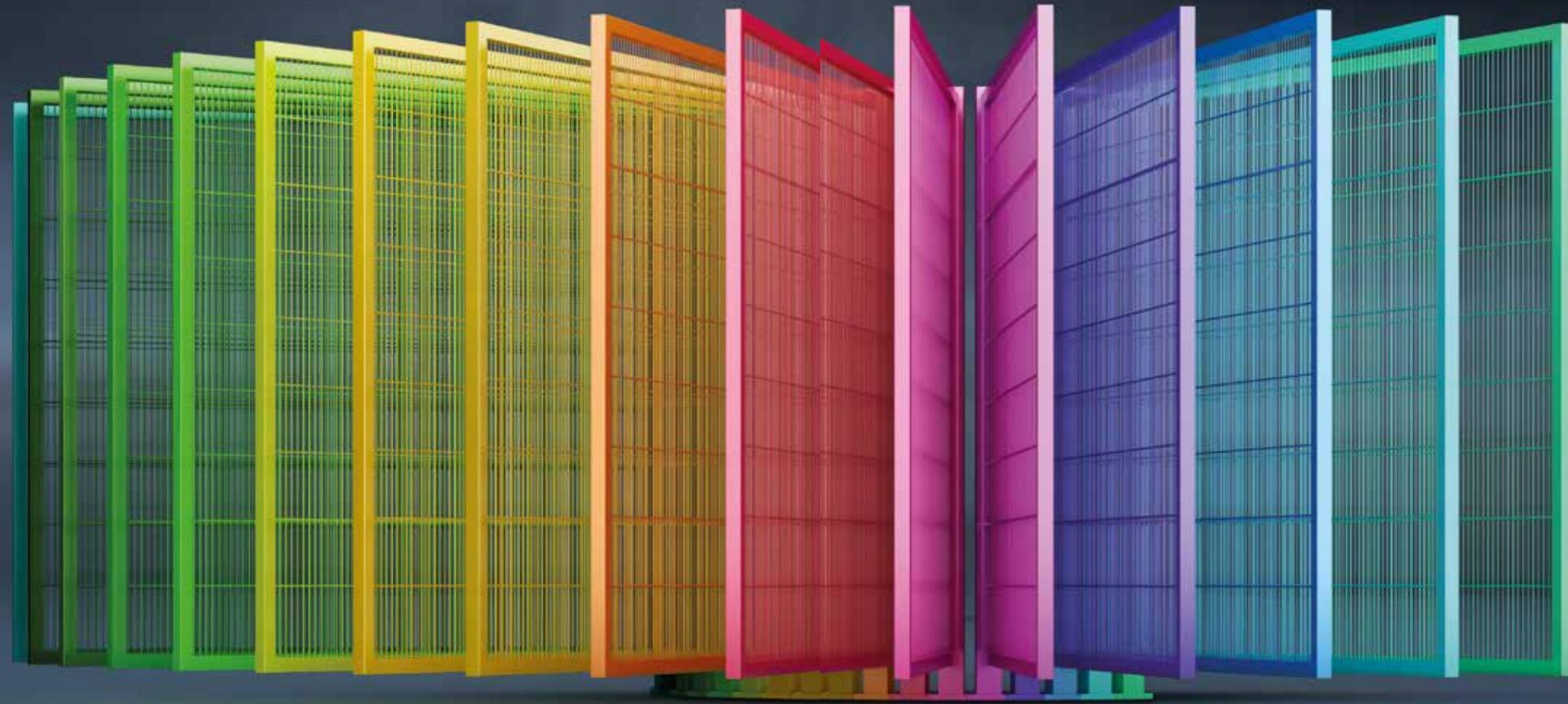


ISO 9001

As an innovative and competitive company, Brühl Safety GmbH meets all requirements to a quality management system according to DIN EN ISO 9001. Our products offer best safety and quality, while also being flexibly adjustable to customer needs. In order to keep meeting the quality management standard, we continually work to improve our products and service offers.

Safely customised – diverse design and development options

Not all fences are made alike for us. Like your company has an individual note, Brühl can also make your safety fence system a unique product. We set limits with our Brühl safety fences, Brühl lifting and rolling gates and the matching switch solutions, exclusively at the scope specified by you.



Brühl shows its colours Choose from more than 200 different RAL-shades/NCS-colours

No matter if you want to have it unobtrusively integrated or deliberately offset from the rest – we at Brühl have no limits to the colours we offer. Our fence surfaces can be painted and processed in your desired colour specifically. Single- or bicoloured, special or standard colours – it's your decision! For best durability, all elements of the desired safety fence system are sand-blasted and then powder-coated or zinc-plated.

Customised safety fence systems – the Brühl special solution

Reliable like a serial product and yet unique like a custom product. We at Brühl make everything in one go with our special solutions. Our highly qualified employees enable us to develop plant and fence systems to precisely meet our customers' needs. This way, the latest CAD-processing and personal support create the perfect framework conditions for your customised solution. For this, we develop a customised safety fence system together with you, based on relevant corner data, to ensure that it matches you properly.

Simply safe support

Brühl's all-round carefree service

Offering the optimal solution for any application is of the utmost relevance at Brühl. With a variety of services, we therefore deliberately rely on comprehensive supplementation of our high-quality protective facilities for machine and plant construction. Our experienced specialists support and accompany you in all matters of development, inspection and maintenance of safety fence solutions - right on site and remotely alike - with the all-round carefree service.



1

Safety check

The annual Brühl safety check according to standards DIN EN ISO 12100, DIN EN ISO 13857, DIN EN 953 and DIN EN 1088 minimise the risk of targeted manipulations and the resulting liability for system operators to a minimum.

3

Gate inspection according to ASR A1.7

The regular inspection of force-actuated machine safety gates is mandatory according to BGR 232. Depending on the number of strokes and the usage area, Brühl will review both own facilities and makes of other manufacturers through internal specialists, including the necessary test documentation.

5

Assembly service world-wide

From instructions to installation, to overall assembly. The globally available Brühl assembly service is used for professional installation of separating protective facilities by qualified specialists on site.

7

CAD processing

Implementing adjustment and change wishes directly in the project layout. With the Brühl contract and project processing and the associated CAD-workplaces, we ensure comprehensive machine and safety construction development.

2

Support at risk assessment

The risk assessment demanded by the legislator is an unavoidable step on the way to CE-marking for every machine and plant constructor. Based on our customers' and stakeholders' risk assessments, we support this by the correct design of a protective facility, in particular if there are any questions on special applications.

4

Maintenance and care

Careful maintenance and care verifiably increase the service life and function of protective facilities. On request, Brühl takes over regular maintenance and care of force-actuated doors and gates.

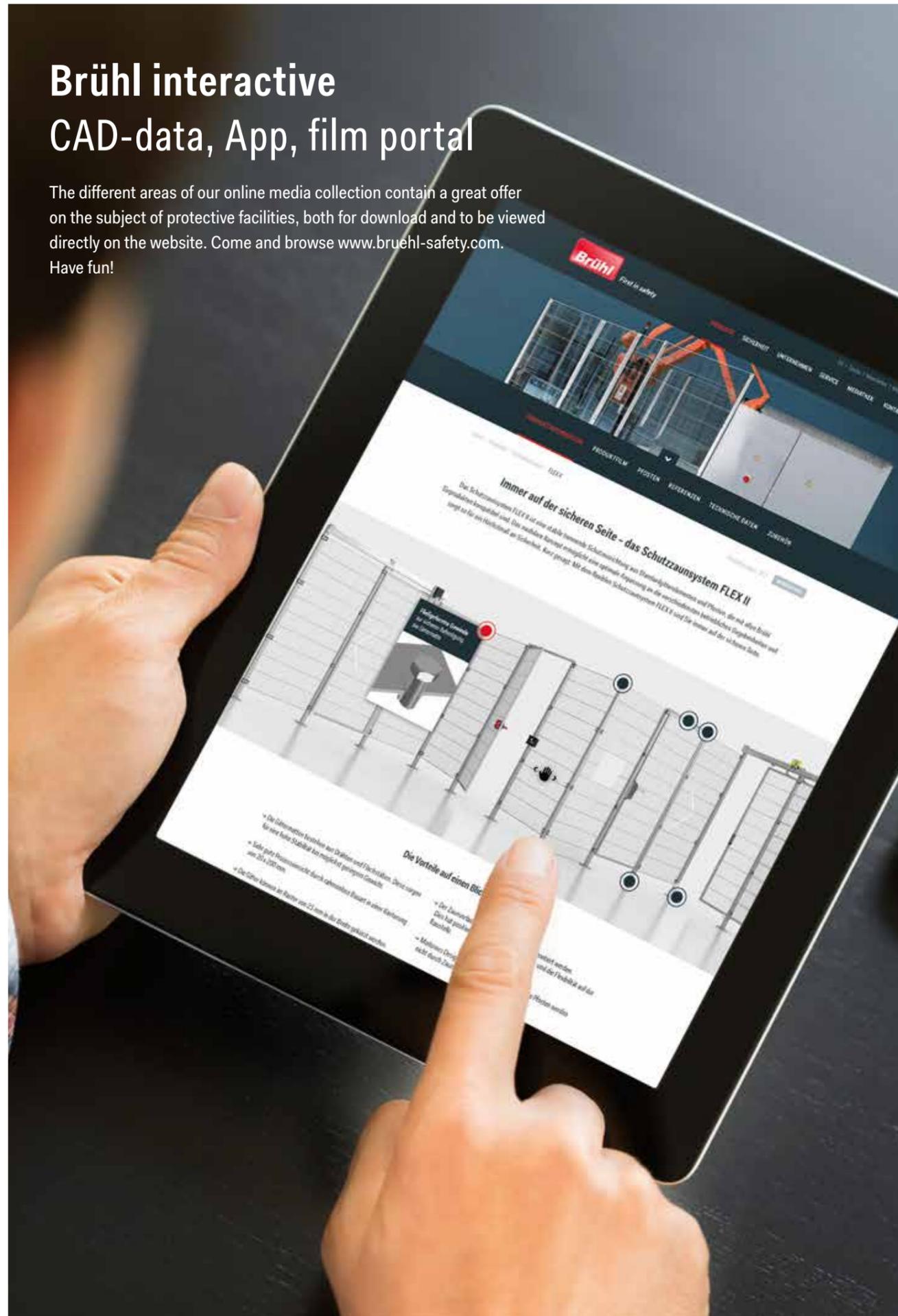
6

Consulting and project support

Individual consulting and planning safety from a single source. No matter if by detailed analysis before commencement of the actual safety fence development or by competent support from a dedicated project manager: Brühl creates perfect framework conditions for any project - from beginning to end.

Brühl interactive CAD-data, App, film portal

The different areas of our online media collection contain a great offer on the subject of protective facilities, both for download and to be viewed directly on the website. Come and browse www.bruehl-safety.com. Have fun!



Brühl Safety Fence Designer



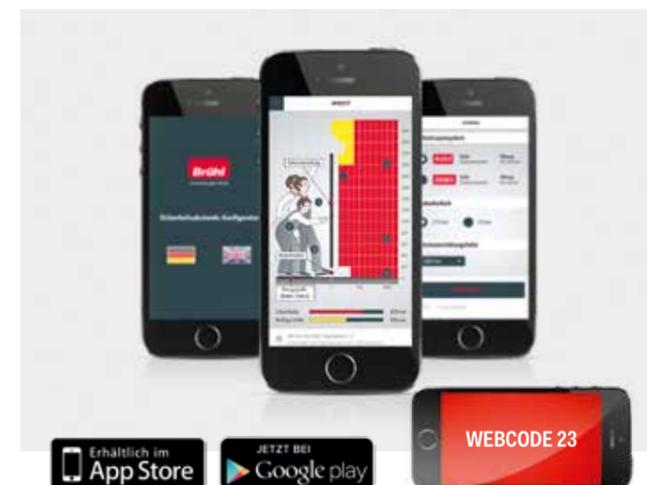
The interactive Brühl fence planning tool permits individual planning of safety fence systems without a dedicated CAD-system or program knowledge. The Brühl Safety Fence Designer developed by CADENAS permits simple generation of 3D-fence models. Use the intuitive user guidance to design whole or partial safety fence facilities with just a few clicks. You can easily integrate planned Brühl safety fences into existing system layouts this way.

Brühl - 3D parts catalogue



Brühl safety fence systems can be precisely planned and created without any problems using the pre-produced 3D-Step-files from the 3D-parts catalogue. After registration, you will have access to the portal and thereby to all existing 3D-parts by Brühl. This way, you will be able – from the beginning – to work with your in-house CAD-system.

Brühl safety clearance configurator app



The Brühl safety clearance configurator is meant for persons who deal with safety clearances ensured by separating guards in development of machines and plants in the scope of the risk and danger assessment, or project managers who have to review safety clearances on site during safety fence installation at the construction site. Users can choose between the Desktop version, the mobile web version or the app version.

Visible safety - the Brühl film portal

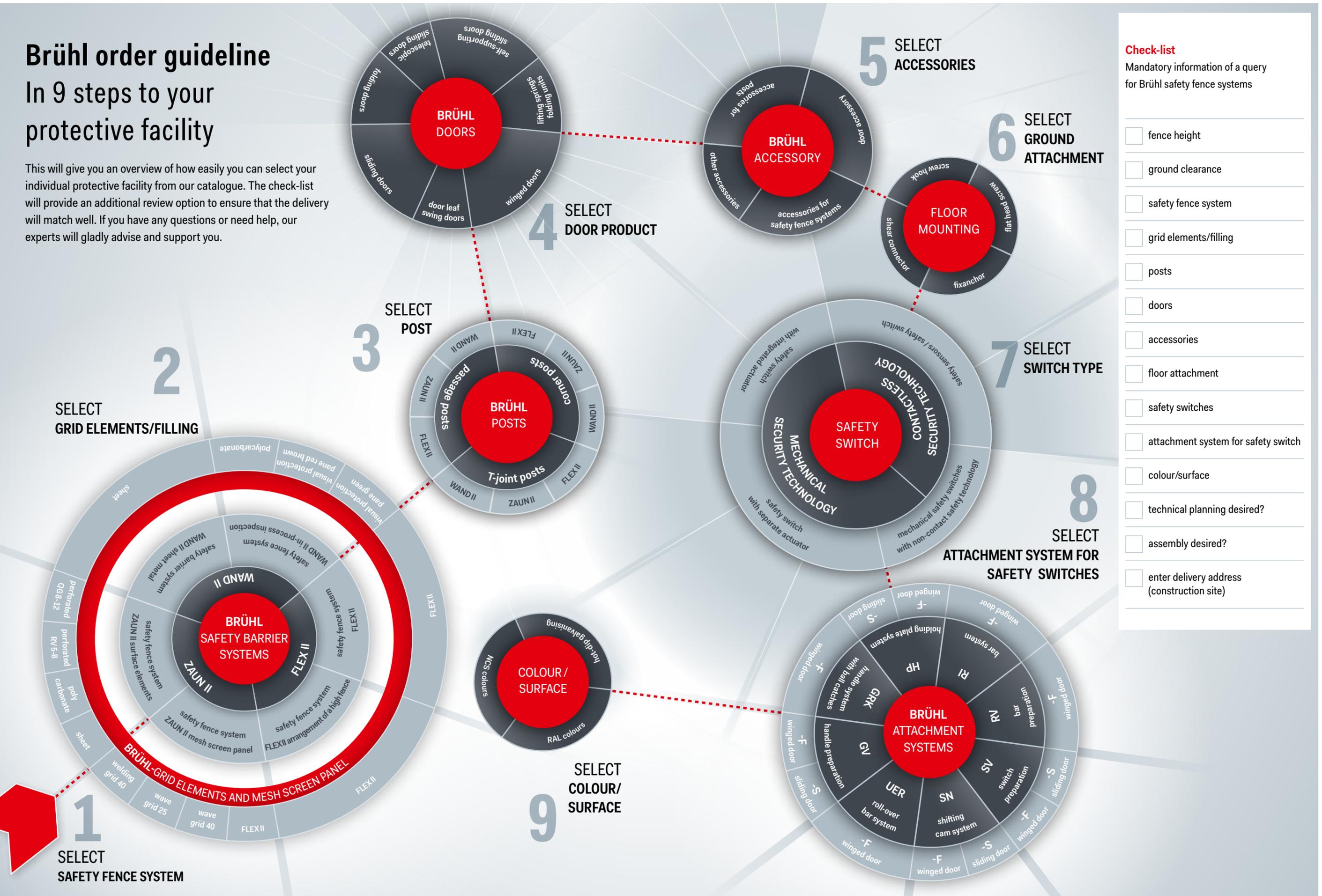


Application, safety and development – we inform! The most important information on Brühl's protective facilities for machine and plant construction can be found on our Brühl film portal and on the Brühl Safety Youtube-Channel. The most important information on our company and our products is provided easily distilled and sorted by various categories. In addition to the new Brühl image film, you can choose from product and 3D-product films.

Brühl order guideline

In 9 steps to your protective facility

This will give you an overview of how easily you can select your individual protective facility from our catalogue. The check-list will provide an additional review option to ensure that the delivery will match well. If you have any questions or need help, our experts will gladly advise and support you.



Check-list
Mandatory information of a query for Brühl safety fence systems

- fence height
- ground clearance
- safety fence system
- grid elements/filling
- posts
- doors
- accessories
- floor attachment
- safety switches
- attachment system for safety switch
- colour/surface
- technical planning desired?
- assembly desired?
- enter delivery address (construction site)



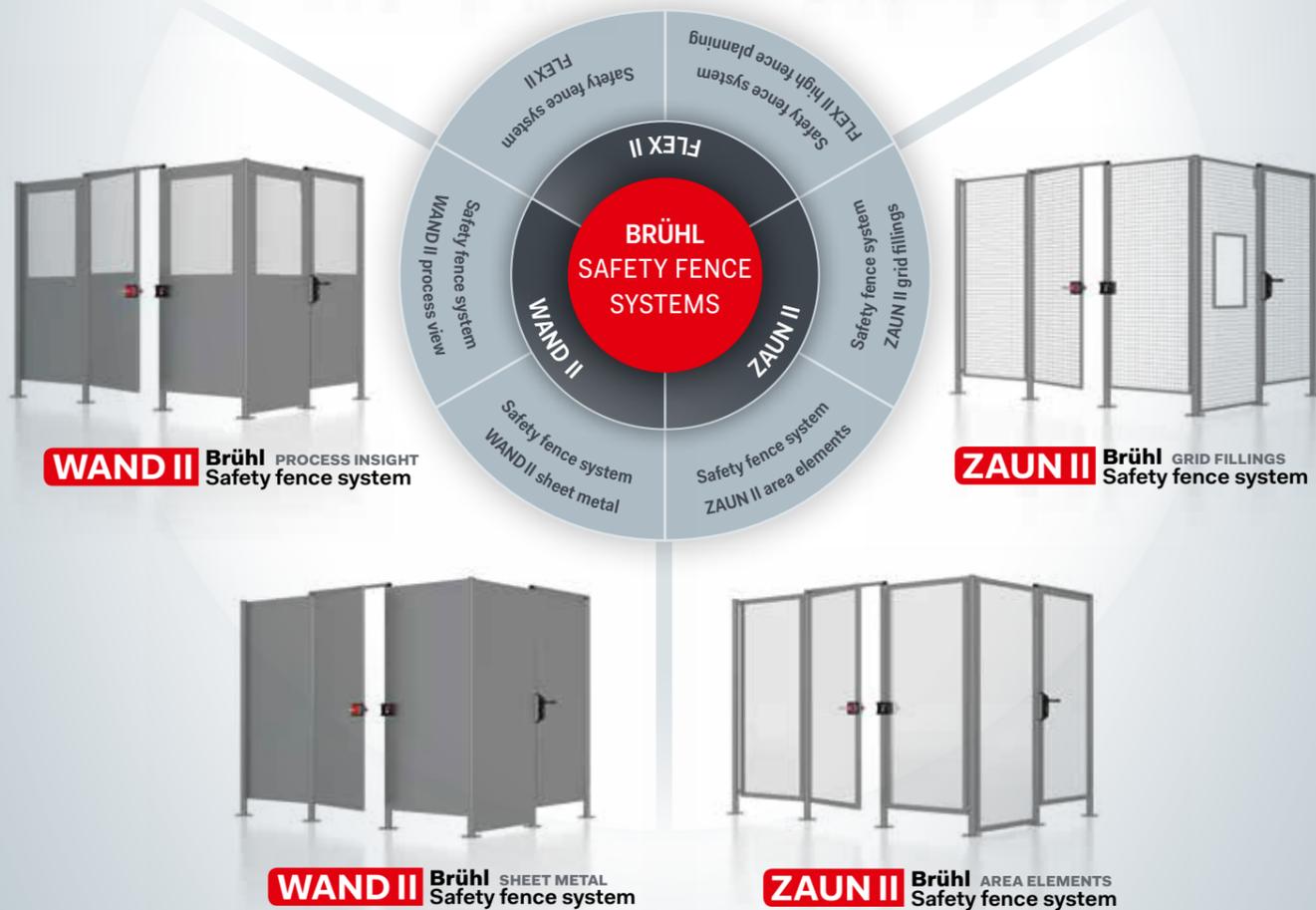
Brühl Safety Fence Systems

After more than 30 years of experience and development in close cooperation with our customers, it has become clear: The applications for safety fences in practice are so diverse that there is no one consistent standard safety fence solution. Therefore, we offer our customers the safety fence systems FLEX II, ZAUN II and WAND II in individual designs. On the following pages, we will show you the "standard designs" of the Brühl safety fence systems adjusted to the respective machine and system situation from project to project. Using the matching safety fence system for security enables our customers to rely on getting the optimal solution for the respective application under consideration of the different operational situations.

Safety fence systems

The matching safety fence system for any application

Which safety fence system is the right one for your application? The assembly-friendly FLEX II-system, the stable system ZAUN II or the full protection system WAND II? You can choose from three basic systems that will be adjusted precisely to your individual requirements.



Surface diversity		Safety fence systems					
		FLEX II	FLEX II High fence planning	ZAUN II Grid fillings	ZAUN II Area elements	WAND II Sheet metal	WAND II Process view
Dimensions	max. height	2600 mm	4835 mm	2600 mm	2600 mm	2600 mm	2600 mm
	min. height	1400 mm	2835 mm	1400 mm	1400 mm	1400 mm	2000 mm
	max. axle size	2210 mm	2230 mm	2410 mm	2410 mm	1510 mm	1510 mm
	min. axle size	300 mm	300 mm	300 mm	300 mm	300 mm	1000 mm
	max. field width	2130 mm	2130 mm	2330 mm	2330 mm	1440 mm	1440 mm
	min. field width	230 mm	230 mm	230 mm	230 mm	240 mm	940 mm
Filling versions	FLEX II	●	●	●	×	×	×
	Wave grid 40	×	×	●	×	×	×
	Wave grid 25	×	×	●	×	×	×
	Welding grid 40	×	×	●	×	×	×
	Polycarbonate	×	×	×	●	×	●
	Sight protection glass reddish-brown (T50)	×	×	×	○	×	●
	Sight protection glass green (T75/T90)	×	×	×	○	×	●
	Sheet metal (t=1.5 mm)	×	×	×	●	●	●
	Perforated sheet round holes Rv 5-8	×	×	×	●	×	×
	Perforated sheet square holes Qg 8-12	×	×	×	●	×	×
Surface diversity	Powder-coating	●	●	●	●	●	●
	Hot-dip galvanisation	●	●	●	●	●	●
Optional accessories	Equipotential bonding	●	●	●	●	●	●
	Cable duct holder	●	●	●	●	●	●
	Panel installation	×	×	●	●	●	●
	Cut-outs	●	●	●	●	○	×

● Combination is possible. × Combination is not possible. ○ Combination is optional.



The frameless build of the safety fence system FLEX II ensures an optimal process view at high safety

Standard product properties for all Brühl-safety fence systems with standard references

Flexible adjustment
Elements can be placed next to or on top of each other (e.g. sections, diagonals, frames, separating points possible)
➔ EN ISO 14120; 5.2.1/5.3.1/5.3.7

Modern design
By flush fence course, posts are not concealed by fence elements, low total depth of the fence
➔ EN ISO 14120; 5.3.7/5.2.3

Single-field disassembly
without destabilisation of the adjacent fields
➔ EN ISO 14120; 5.4.3

Distance only with tool
The attachment material can only be removed with a tool
➔ EN ISO 14120; 5.3.9

Robust post profile strength
of at least 2.0 mm
➔ EN ISO 14120; 5.1.3/5.4.2

Flow-moulded threads
For safe attachment of the elements
➔ EN ISO 14120; 5.3.8/5.4.4

Diversity of colours
Available in different colours and hot-dip galvanised
➔ EN ISO 14120; 5.2.2/5.2.4/5.9

Safe installation and removal
takes place from outside the machine

FLEX II Brühl Safety fence system

ZAUN II Brühl Safety fence system

WAND II Brühl Safety fence system

Position-bound installation
by specified threads in the post profile/avoidance of wrong assembly
➔ EN ISO 13857; 4.2.2/4.3
➔ EN ISO 14120; 5.2.6

Stable four-hole bottom plate
for safe bottom attachment
➔ EN ISO 14120; 5.1.3/5.3.8/5.4.2/5.4.3

Height compensation
for greater irregularities of the ground; available optionally
➔ EN ISO 14120; 5.2.6

No protruding cross-wires
this avoids rising edges at the fence elements
➔ EN ISO 14120; 5.18

Different ground clearances possible
➔ EN ISO 13857; 4.3

Simple alignment of the adjustment post
by adjustability at slightly uneven ground; available as an option
➔ EN ISO 14120; 5.2.1

Optimal stability
by all-round welded connections of the bottom plate and post profile
➔ EN ISO 14120; 5.1.3/5.3.8/5.4.2/5.4.3

Maximum impact resilience of the paint structure
by sand-blasted and powder-coated elements
➔ EN ISO 14120; 5.6

Safety fence system FLEX II

Always on the safe side

The safety fence system FLEX II is a stable separating protective facility made of standard grid elements and posts that are compatible with all Brühl door products. The modular concept permits an optimal adjustment to the different operational situations and can be shortened individually on site. The safety fence system FLEX II thus ensures maximum safety.

Flexible widths

Grids can be shortened in the grid from 23 mm in width

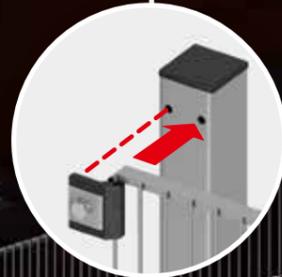
EN ISO 14120; 5.3.7



Captive installation of the attachments

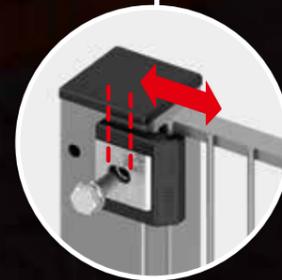
Fixing material is screwed on to the elements.

EN ISO 14120; 5.3.8/5.4.4/5.19



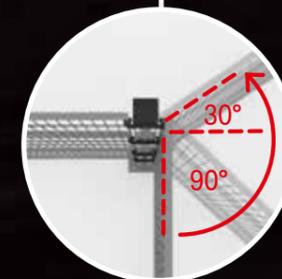
Easy assembly

Lateral compensation tolerance of +/-2.37 mm



Flexible angle adjustment

Fence can be installed in any angle (oval fence planning possible)



High stability at low weight

Grid elements are made up of wires and rounded flat steel

EN ISO 14120; 5.2.5/5.4.3



High plane levelness, optimal process view

from frameless build with a slitted opening of 20 x 200 mm

EN ISO 14120; 5.2.2/5.2.4/5.9



Integrated height compensation

per field +/-1 mm

EN ISO 14120; 5.2.2



Diagonal fence fields

for, e.g., conveyor technology inlets

EN ISO 14120; 5.3.2/5.3.7



Safety fence system FLEX II

Product group/build
SF2



SAFETY FENCE SYSTEMS

Standard grid elements for safety fence system FLEX II

Fence height	Product	Mat height		Planned axle size \ominus from post centre to post centre \ominus																	Number of post attachment material per mat. Please order separately. \ominus s. p. 166			
		Ground clearance 175 mm	Ground clearance 20 mm	real axle size \ominus																				
				Mat width b (axle size - post profile - 20 mm) \ominus																				
				Number of vertical rods																				
11	15	20	24	28	33	37	41	46	50	54	59	63	68	72	76	81	85	89	94	FL2				
1400	SF2	-1225	-1380	-234	-326	-441	-533	-625	-740	-832	-924	-1039	-1131	-1223	-1338	-1430	-1545	-1637	-1729	-1844	-1936	-2028	-2143	6
1600	SF2	-1425	-1580	-234	-326	-441	-533	-625	-740	-832	-924	-1039	-1131	-1223	-1338	-1430	-1545	-1637	-1729	-1844	-1936	-2028	-2143	6
1800	SF2	-1625	-1780	-234	-326	-441	-533	-625	-740	-832	-924	-1039	-1131	-1223	-1338	-1430	-1545	-1637	-1729	-1844	-1936	-2028	-2143	8
2000	SF2	-1825	-1980	-234	-326	-441	-533	-625	-740	-832	-924	-1039	-1131	-1223	-1338	-1430	-1545	-1637	-1729	-1844	-1936	-2028	-2143	8
2200	SF2	-2025	-2180	-234	-326	-441	-533	-625	-740	-832	-924	-1039	-1131	-1223	-1338	-1430	-1545	-1637	-1729	-1844	-1936	-2028	-2143	8
2400	SF2	-2225	-2380	-234	-326	-441	-533	-625	-740	-832	-924	-1039	-1131	-1223	-1338	-1430	-1545	-1637	-1729	-1844	-1936	-	-	10
2600	SF2	-2425	-	-234	-326	-441	-533	-625	-740	-832	-924	-1039	-1131	-1223	-1338	-1430	-1545	-1637	-1729	-	-	-	-	10

Example for item number key

Product-mat height-mat width (rounded up)
SF2-1825-1131

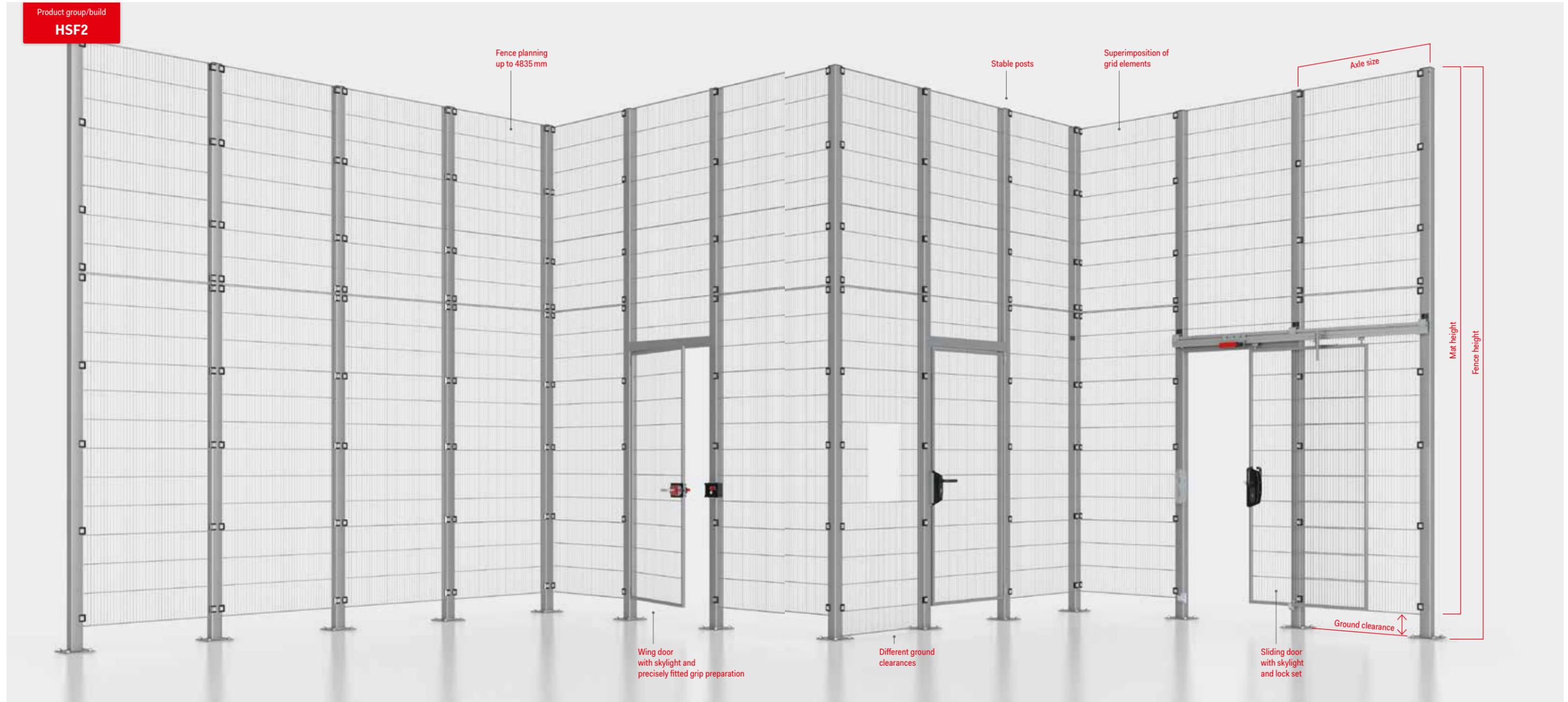
- \ominus Height 2600 mm is executed with post profile QR60, all other heights with post profile QR50.
- \ominus Axle size at post profile QR60 +10 mm.
- \ominus Definition axle size/mat width: See fence scope p. 182.
- \ominus Mat height corresponds to fence height minus ground clearance.
- \ominus Grid pitch 23 x 200 mm, vertical wires \varnothing 3,5 mm, horizontal flat steel 15 x 6 mm, horizontal wires \varnothing 5,5 mm.
- \ominus Maximum tolerances in mat height \pm 2.5 mm, maximum tolerances in mat width \pm 4.5 mm
- \ominus Cable duct holders: see p. 167.
- \ominus For different fence heights the wires and flat bars can drift horizontally.
- \ominus When the fence course contains any doors, there may be a slight height offset at the horizontal wires and flat rods.



FLEX II-grid elements in combination with a ram protection



Safety fence system FLEX II High fence planning



Standard grid elements for safety fence system FLEX II High fence planning

Fence height	Product	Mat height		Planned axle size ② from post centre to post centre ③											Number of post attachment material per mat. Please order separately. ④ s. p. 166
		Ground clearance 175 mm	Ground clearance 20 mm	300	400	600	800	1000	1200	1400	1600	1800	2000	2200	
				Real axle size ②											
				Mat width b (axle size - post profile - 20 mm) ③											
		Number of vertical rods											FL2		
		11	15	24	33	41	50	59	68	76	85	94			
2835 ①	HSF2	-2660	-2815	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	14
3035 ①	HSF2	-2860	-3015	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	14
3235	HSF2	-3060	-3215	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	14
3435	HSF2	-3260	-3415	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	14
3635	HSF2	-3460	-3615	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	16
3835	HSF2	-3660	-3815	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	16
4035	HSF2	-3860	-4015	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	16
4235	HSF2	-4060	-4215	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	18
4435	HSF2	-4260	-4415	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	18
4635	HSF2	-4460	-4615	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	18
4835	HSF2	-4660	-4815	-234	-326	-533	-740	-924	-1131	-1338	-1545	-1729	-1936	-2143	20

Example for item number key
 Product-mat height-mat width (rounded up)
HSF2-3660-1936

- ① Heights 2835 and 3035 mm are executed with post profile QR60, all other heights with post profile QR80.
- ② Axle size at post profile QR60 +10 mm, at post profile QR80 +30 mm.
- ③ Definition axle size/mat width: See fence scope p. 182.
- ④ Mat height corresponds to fence height minus ground clearance.
- ⑤ Grid pitch 23 x 200 mm, vertical wires Ø 3,5 mm, horizontal flat steel 15 x 6 mm, horizontal wires Ø 5,5 mm.
- ⑥ Maximum tolerances in mat height ± 2.5 mm, maximum tolerances in mat width ± 4.5 mm.
- ⑦ The distance between the two superimposed mats is approx. 10 mm.
- ⑧ For different fence heights the wires and flat bars can drift horizontally.
- ⑨ When the fence course contains any doors, there may be a slight height offset at the horizontal wires and flat rods.



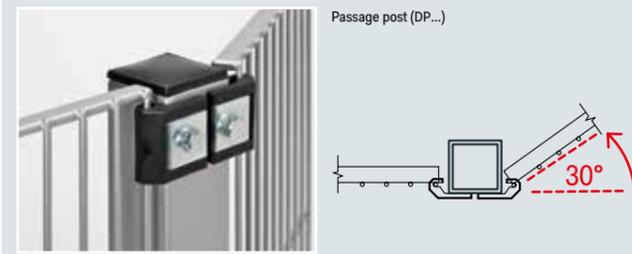
Safety fence system FLEX II High fence planning – Superimposed grid elements in the application

Post for safety fence system FLEX II and safety fence system FLEX II High fence planning

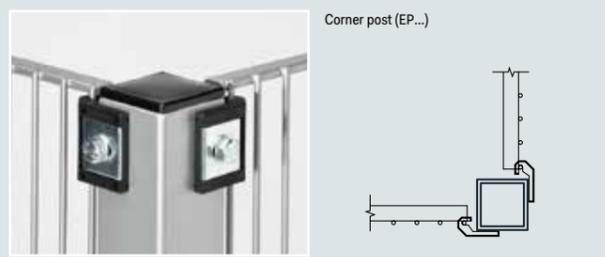
Straight fence course



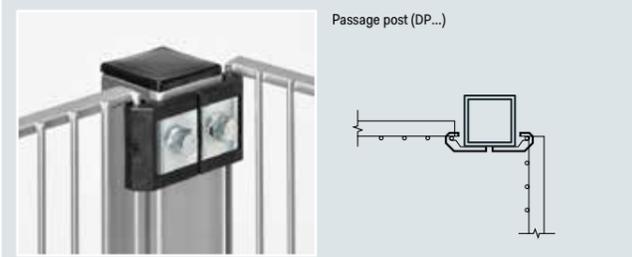
Diagonal fence course



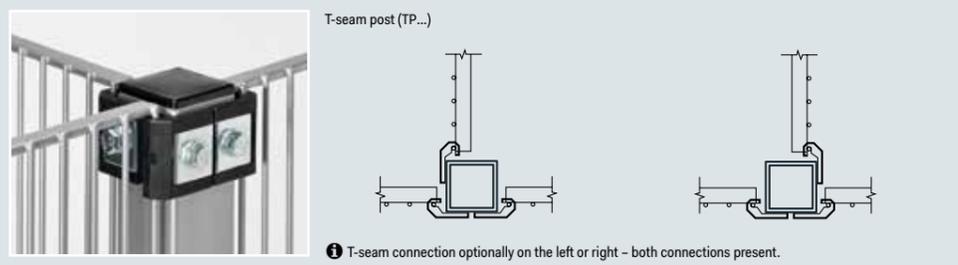
Outer corner



Inner corner



T-seam fence course



T-seam connection optionally on the left or right – both connections present.



Safety fence system FLEX II – Oval fence course

Post for safety fence system FLEX II

Post without height compensation							
Fence height	Passage post	Passage post	Corner post	T-seam post	Passage post adjustable	Corner post adjustable	T-seam post adjustable
1400	DP-QR50-F-1400-0613	DP-QR50-F-1400-1313	EP-QR50-F-1400-1313	TP-QR50-F-1400-1313	DPJ-QR50-F-1400-1313	EPJ-QR50-F-1400-1313	TPJ-QR50-F-1400-1313
1600	DP-QR50-F-1600-0613	DP-QR50-F-1600-1313	EP-QR50-F-1600-1313	TP-QR50-F-1600-1313	DPJ-QR50-F-1600-1313	EPJ-QR50-F-1600-1313	TPJ-QR50-F-1600-1313
1800	DP-QR50-F-1800-0613	DP-QR50-F-1800-1313	EP-QR50-F-1800-1313	TP-QR50-F-1800-1313	DPJ-QR50-F-1800-1313	EPJ-QR50-F-1800-1313	TPJ-QR50-F-1800-1313
2000	DP-QR50-F-2000-0613	DP-QR50-F-2000-1313	EP-QR50-F-2000-1313	TP-QR50-F-2000-1313	DPJ-QR50-F-2000-1313	EPJ-QR50-F-2000-1313	TPJ-QR50-F-2000-1313
2200	DP-QR50-F-2200-0613	DP-QR50-F-2200-1313	EP-QR50-F-2200-1313	TP-QR50-F-2200-1313	DPJ-QR50-F-2200-1313	EPJ-QR50-F-2200-1313	TPJ-QR50-F-2200-1313
2400	DP-QR50-F-2400-0613	DP-QR50-F-2400-1313	EP-QR50-F-2400-1313	TP-QR50-F-2400-1313	DPJ-QR50-F-2400-1313	EPJ-QR50-F-2400-1313	TPJ-QR50-F-2400-1313
2600	DP-QR60-F-2600-0715	DP-QR60-F-2600-1515	EP-QR60-F-2600-1515	TP-QR60-F-2600-1515	DPJ-QR60-F-2600-1515	EPJ-QR60-F-2600-1515	TPJ-QR60-F-2600-1515

Post with height compensation				Transfer post			
Fence height	Passage post with height compensation	Passage post with height compensation	Corner post with height compensation	T-seam post with height compensation	Transfer post as passage post	Transfer post as corner post	Transfer post as T-seam post
Height compensation	+ 52	+ 52	+ 52	+ 52			
	- 7	- 7	- 7	- 7			
1400	DPHV1-QR50-F-1400-0613	DPHV1-QR50-F-1400-1313	EPHV1-QR50-F-1400-1313	TPHV1-QR50-F-1400-1313	UDP-QR50-F-1400-... ^②	UEP-QR50-F-1400-... ^②	UTP-QR50-F-1400-... ^②
1600	DPHV1-QR50-F-1600-0613	DPHV1-QR50-F-1600-1313	EPHV1-QR50-F-1600-1313	TPHV1-QR50-F-1600-1313	UDP-QR50-F-1600-... ^②	UEP-QR50-F-1600-... ^②	UTP-QR50-F-1600-... ^②
1800	DPHV1-QR50-F-1800-0613	DPHV1-QR50-F-1800-1313	EPHV1-QR50-F-1800-1313	TPHV1-QR50-F-1800-1313	UDP-QR50-F-1800-... ^②	UEP-QR50-F-1800-... ^②	UTP-QR50-F-1800-... ^②
2000	DPHV1-QR50-F-2000-0613	DPHV1-QR50-F-2000-1313	EPHV1-QR50-F-2000-1313	TPHV1-QR50-F-2000-1313	UDP-QR50-F-2000-... ^②	UEP-QR50-F-2000-... ^②	UTP-QR50-F-2000-... ^②
2200	DPHV1-QR50-F-2200-0613	DPHV1-QR50-F-2200-1313	EPHV1-QR50-F-2200-1313	TPHV1-QR50-F-2200-1313	UDP-QR50-F-2200-... ^②	UEP-QR50-F-2200-... ^②	UTP-QR50-F-2200-... ^②
2400	DPHV1-QR50-F-2400-0613	DPHV1-QR50-F-2400-1313	EPHV1-QR50-F-2400-1313	TPHV1-QR50-F-2400-1313	UDP-QR50-F-2400-... ^②	UEP-QR50-F-2400-... ^②	UTP-QR50-F-2400-... ^②
2600	DPHV1-QR60-F-2600-0715	DPHV1-QR60-F-2600-1515	EPHV1-QR60-F-2600-1515	TPHV1-QR60-F-2600-1515	UDP-QR60-F-2600-... ^②	UEP-QR60-F-2600-... ^②	UTP-QR60-F-2600-... ^②

① Height 2600 is executed with post profile QR60, all other heights with post profile QR50. ② Transfer post: The item number results from the system and height; for explanations, see p.183.
 ③ When ordering, observe inner corner (DP) and outer corner (EP). ④ T-seam connection optionally on the left or right – both connections present. ⑤ Please order floor attachment media separately. See p.168.

Post for safety fence system FLEX II High fence planning

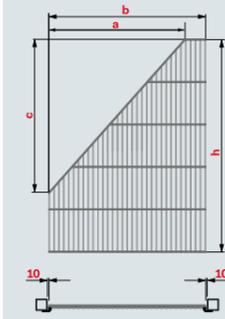
Post without height compensation							
Fence height	High Passage post	High Passage post	High Corner post	High T-seam post	High passage post adjustable	High corner post adjustable	High T-seam post adjustable
2835	HDP-QR60-F-2835-0715	HDP-QR60-F-2835-1515	HEP-QR60-F-2835-1515	HTP-QR60-F-2835-1515	HDPJ-QR60-F-2835-1515	HEPJ-QR60-F-2835-1515	HTPJ-QR60-F-2835-1515
3035	HDP-QR60-F-3035-0715	HDP-QR60-F-3035-1515	HEP-QR60-F-3035-1515	HTP-QR60-F-3035-1515	HDPJ-QR60-F-3035-1515	HEPJ-QR60-F-3035-1515	HTPJ-QR60-F-3035-1515
3235	HDP-QR80-F-3235-1020	HDP-QR80-F-3235-2020	HEP-QR80-F-3235-2020	HTP-QR80-F-3235-2020	HDPJ-QR80-F-3235-2020	HEPJ-QR80-F-3235-2020	HTPJ-QR80-F-3235-2020
3435	HDP-QR80-F-3435-1020	HDP-QR80-F-3435-2020	HEP-QR80-F-3435-2020	HTP-QR80-F-3435-2020	HDPJ-QR80-F-3435-2020	HEPJ-QR80-F-3435-2020	HTPJ-QR80-F-3435-2020
3635	HDP-QR80-F-3635-1020	HDP-QR80-F-3635-2020	HEP-QR80-F-3635-2020	HTP-QR80-F-3635-2020	HDPJ-QR80-F-3635-2020	HEPJ-QR80-F-3635-2020	HTPJ-QR80-F-3635-2020
3835	HDP-QR80-F-3835-1020	HDP-QR80-F-3835-2020	HEP-QR80-F-3835-2020	HTP-QR80-F-3835-2020	HDPJ-QR80-F-3835-2020	HEPJ-QR80-F-3835-2020	HTPJ-QR80-F-3835-2020
4035	HDP-QR80-F-4035-1020	HDP-QR80-F-4035-2020	HEP-QR80-F-4035-2020	HTP-QR80-F-4035-2020	HDPJ-QR80-F-4035-2020	HEPJ-QR80-F-4035-2020	HTPJ-QR80-F-4035-2020
4235	HDP-QR80-F-4235-1020	HDP-QR80-F-4235-2020	HEP-QR80-F-4235-2020	HTP-QR80-F-4235-2020	HDPJ-QR80-F-4235-2020	HEPJ-QR80-F-4235-2020	HTPJ-QR80-F-4235-2020
4435	HDP-QR80-F-4435-1020	HDP-QR80-F-4435-2020	HEP-QR80-F-4435-2020	HTP-QR80-F-4435-2020	HDPJ-QR80-F-4435-2020	HEPJ-QR80-F-4435-2020	HTPJ-QR80-F-4435-2020
4635	HDP-QR80-F-4635-1020	HDP-QR80-F-4635-2020	HEP-QR80-F-4635-2020	HTP-QR80-F-4635-2020	HDPJ-QR80-F-4635-2020	HEPJ-QR80-F-4635-2020	HTPJ-QR80-F-4635-2020
4835	HDP-QR80-F-4835-1020	HDP-QR80-F-4835-2020	HEP-QR80-F-4835-2020	HTP-QR80-F-4835-2020	HDPJ-QR80-F-4835-2020	HEPJ-QR80-F-4835-2020	HTPJ-QR80-F-4835-2020

① Heights 2835 and 3035 are executed with post profile QR60, all other heights with post profile QR80. ② When ordering, observe inner corner (DP) and outer corner (EP).
 ③ T-seam connection optionally on the left or right – both connections present. ④ Please order floor attachment media separately. See p.168.

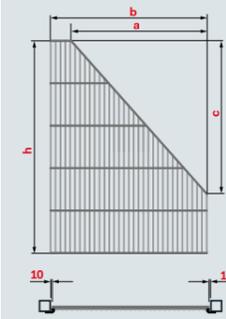
Special grid elements for safety fence system FLEX II

FLEX II-grid elements with diagonal

Diagonal left
Item number key: SF2-h-b-SL-a-c

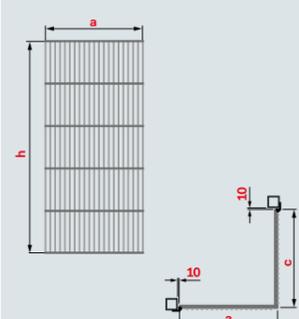


Diagonal right
Item number key: SF2-h-b-SR-a-c

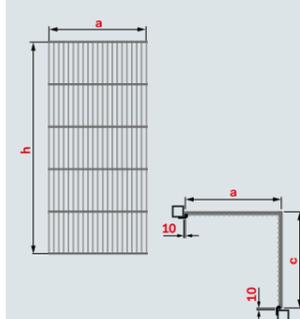


FLEX II-grid elements for corner situation

Outer corner
Item number key: SF2AE-h-a-c

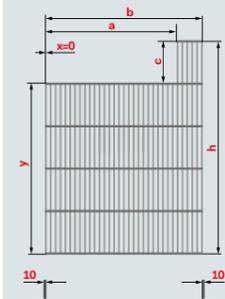


Inner corner
Item number key: SF2IE-h-a-c

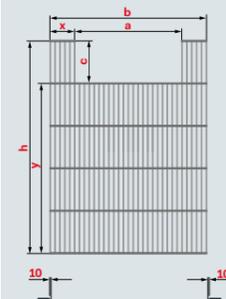


FLEX II-grid elements with cut-out

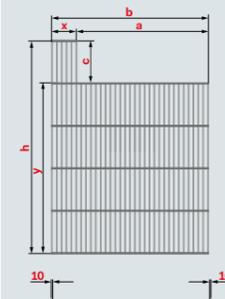
Cut-out top left (x=0)
Item number key: SF2-h-b-AR-0-y-a-c



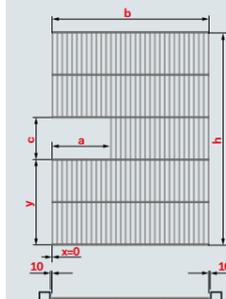
Cut-out top
Item number key: SF2-h-b-AR-x-y-a-c



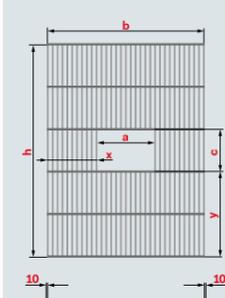
Cut-out top right
Item number key: SF2-h-b-AR-x-y-a-c



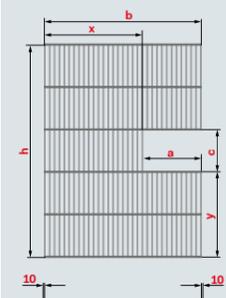
Cut-out left (x=0)
Item number key: SF2-h-b-AR-0-y-a-c



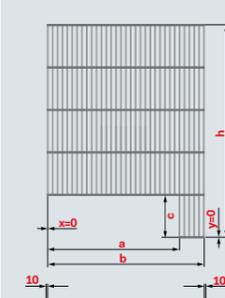
Cut-out inside
Item number key: SF2-h-b-AR-x-y-a-c



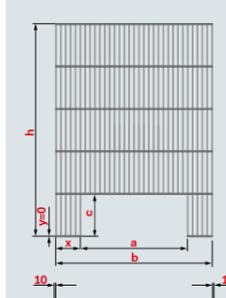
Cut-out right
Item number key: SF2-h-b-AR-x-y-a-c



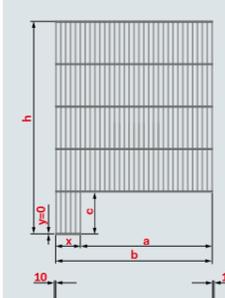
Cut-out down left (x=0 and y=0)
Item number key: SF2-h-b-AR-0-0-a-c



Cut-out down (y=0)
Item number key: SF2-h-b-AR-x-0-a-c



Cut-out down right (y=0)
Item number key: SF2-h-b-AR-x-0-a-c



SF2-h-b-	AR-	x-y-a-c
Designation of the grid element from the safety fence system FLEX II ☺ See p. 31.	Cut-out rectangular	Dimension values of the cut-out

Dimension values:
 x = Distance between the left outer edge of the grid element and the left inner edge of the cut-out
 y = Distance between the lower edge of the grid element and the lower edge of the cut-out
 a = Width of the cut-out
 c = Height of the cut-out

☺ The free-standing remainder of the grid mat on the left and right of the cut-out must not exceed 130 mm.

Reach-through protection of polycarbonate panes for danger areas



Connection element SF2-PCV with polycarbonate disc at FLEX II

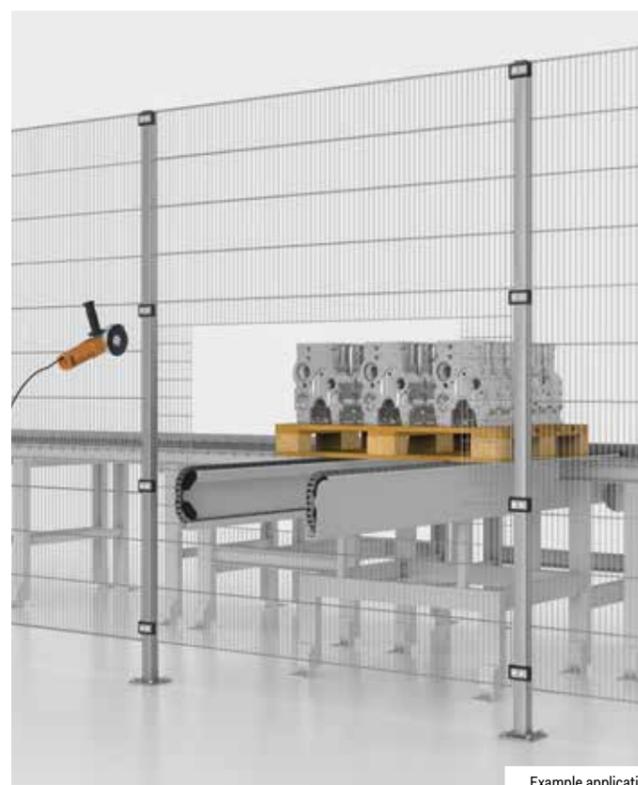
Polycarbonate disc t=5 mm^o as reach-through protection

Fence height	Product	Height		Width				
		Ground clearance 175 mm	Ground clearance 20 mm	234	326	... Ⓣ	2028	2143
1400	PCB	-1225	-1380	-234	-326	...	-2028	-2143
1600	PCB	-1425	-1580	-234	-326	...	-2028	-2143
...	PCB	...	...	...	...	...	...	...
2400	PCB	-2225	-2380	-234	-326	...	-2028	-2143
2600	PCB	-2425	-2580	-234	-326	...	-2028	-2143

- ☺ Other thicknesses available on request. Ⓣ Order sizes of the polycarbonate discs according to FLEX II-grid elements; see tables p. 31 and 33.
- ☺ The polycarbonate disc reduces the angle setting with a passage post of 30 degrees to 22 degrees
- ☺ Order connection element SF2-PCV separately, see p. 166.

The combination of FLEX II-grid elements with polycarbonate discs improves safety in danger areas. Transparency continues to ensure full process view. Polycarbonate is only available cut flush with the grid element. An area of 20 mm that can be used to reach through between the post and element remains (no full protection).

Safety grid cut-out mats



Example application

Safety grid cut-out mat for contour adjustment for cut-outs, e.g. at conveyor technology inlets and outlets

Fence height	SF2-SGA Grid elements for cut-outs		Axle size 1800	Number of the post attachment materials per mat ☺ s. p. 166
	Product	Mat height	Mat width	
2000	SF2-SGA	-1825	-1729	8
2200	SF2-SGA	-2025	-1729	8
2400	SF2-SGA	-2225	-1729	10

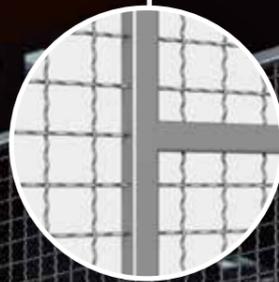
The safety grid cut-out mat has a much narrower mesh in the middle: this permits very precise adjustment of the contour, e.g. to conveyor inlets or outlets. A rail or similar device is not necessary. For lower fences, the cut-out mat is shortened by a horizontal cut.

Safety fence system ZAUN II

One system with many options

The stable, separating safety device is made up of fence elements with square profile frames and different filling versions, so that this system can be divided into two designs: ZAUN II grid fillings and ZAUN II area elements. The system ZAUN II is compatible with all Brühl door products. When the risk and danger assessment indicates a too-high force application to the safety fence, the components of the safety fence are designed more strongly.

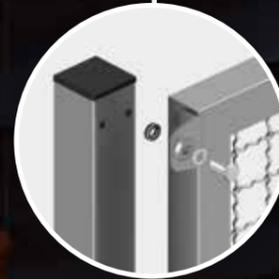
Frame structure
at particularly large heights and widths



Captive installation of the attachments

Attachments remain on the elements with the screws

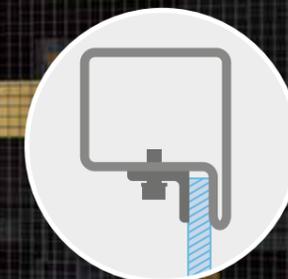
EN ISO 14120; 5.3.8/5.4.4/5.19



High twist resistance/stability

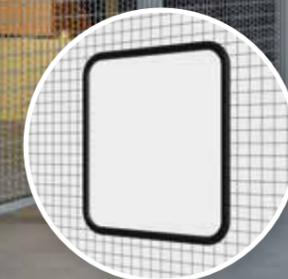
Elements are made up of mitre-welded profile frames (no open frame profiles) with welded-in or inserted fillings

EN ISO 14120; 5.4.3



Panel installation

with clamping angles, no adhesion, easy panel exchange possible



Cut-outs

with angle or clamping profile as edge protection

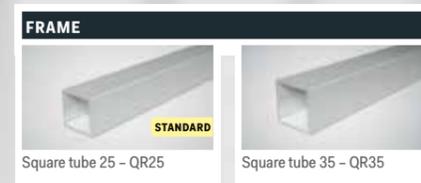
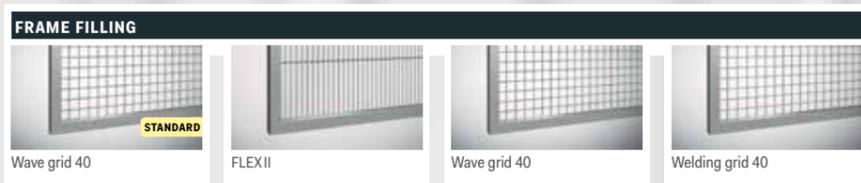
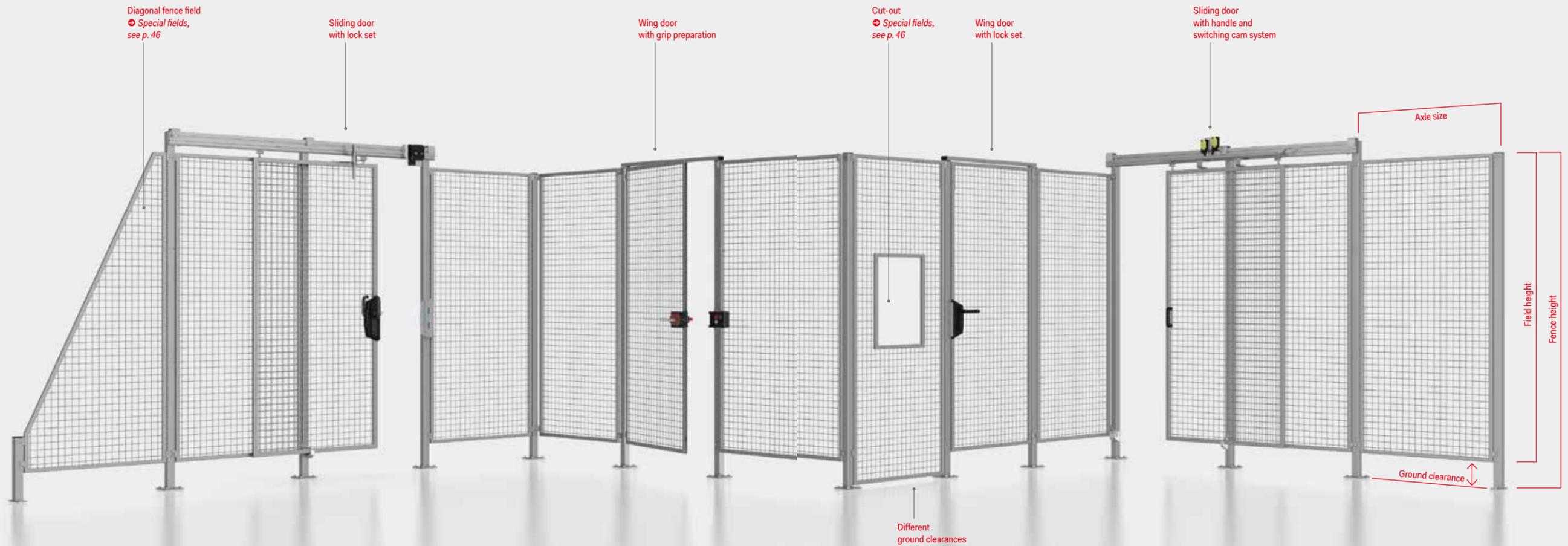


Fastening screw pre-installed
for quick installation

EN ISO 14120; 5.4.4

Safety fence system ZAUN II grid fillings

Product group/build
SZ2-GF

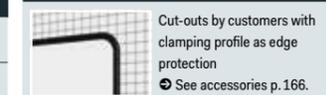


Standard grid elements for safety fence system ZAUN II – grid fillings

Fence height	Product	Fence course		Frame profile		Filling				Field height		Axle size ⌀ from post centre to post centre ⌀																					
		Straight fence course / outer corner	Inner corner	QR25	QR35	Wave grid 40	FLEX II	Wave grid 25	Welding grid 40	Ground clearance 175 mm	Ground clearance 20 mm	Field width b (axle size - post profile - 20) ⌀																					
												Corner tab left	Corner tab right	300	400	500	600	700	800	900	1000	1100	1200	1300									
		1400	1600	1800	2000	2200	2400	2600	230	330	430	530	630	730	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330			
1400	SZ2-GF	-	-EL -ER	-QR25	-QR35	-WG40	-F	-WG25	-SG40	-1225	-1380	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
1600	SZ2-GF	-	-EL -ER	-QR25	-QR35	-WG40	-F	-WG25	-SG40	-1425	-1580	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
1800	SZ2-GF	-	-EL -ER	-QR25	-QR35	-WG40	-F	-WG25	-SG40	-1625	-1780	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
2000	SZ2-GF	-	-EL -ER	-QR25	-QR35	-WG40	-F	-WG25	-SG40	-1825	-1980	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
2200	SZ2-GF	-	-EL -ER	-QR25	-QR35	-WG40	-F	-WG25	-SG40	-2025	-2180	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
2400	SZ2-GF	-	-EL -ER	-QR25	-QR35	-WG40	-F	-WG25	-SG40	-2225	-2380	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
2600	SZ2-GF	-	-EL -ER	-QR25	-QR35	-WG40	-F	-WG25	-SG40	-2425	-2580	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330

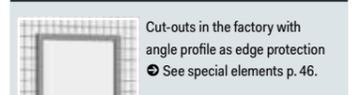
Example for item number key Product-fence course-frame profile-filling-field height-field width SZ2-GF-QR25-WG40-1825-1430

CUT-OUT BY CUSTOMER



- ① Height 2600 mm is executed with post profile QR60, all other heights with post profile QR50.
- ② Axle size at post profile QR60 + 10 mm.
- ③ Definition of axle size/field width: See fence scope p. 182.
- ④ Field height corresponds to fence height minus ground clearance.
- ⑤ Cable duct holders: see p. 167.

CUT-OUT IN THE FACTORY



COMBINATION POSTS, FRAME PROFILE AND FILLING

Post profile	Frame profile		Fillings			
	QR25	QR35	Shaft grid 40	FLEX II	Shaft grid 25	Welding grid 40
QR50	•	x	•	•	•	•
QR60	•	•	•	•	•	•

• Combination is possible. x Combination is not possible.



Safety fence system ZAUN II area elements

Product group/build
SZ2-FE



Standard elements for safety fence system ZAUN II – area elements

Fence height	Product	Fence course			Frame profile				Filling				Field height		Axle size from post centre to post centre																					
		Straight fence course / outer corner	Corner tab left	Corner tab right	QR25	QR35	RP144	RP106	Polycarbonate	Sheet metal	Perforated sheet Round perforation	Perforated sheet square holes	Ground clearance 175 mm	Ground clearance 20 mm	Axle size from post centre to post centre								Axle size from post centre to post centre													
															300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
		Field width b (axle size - post profile - 20)											Field width b (axle size - post profile - 20)																							
1400	SZ2-FE	-	-EL	-ER	-QR25	-QR35	-RP144	-RP106	-P	-BL	-LBR	-LBQ	-1225	-1380	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
1600	SZ2-FE	-	-EL	-ER	-QR25	-QR35	-RP144	-RP106	-P	-BL	-LBR	-LBQ	-1425	-1580	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
1800	SZ2-FE	-	-EL	-ER	-QR25	-QR35	-RP144	-RP106	-P	-BL	-LBR	-LBQ	-1625	-1780	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
2000	SZ2-FE	-	-EL	-ER	-QR25	-QR35	-RP144	-RP106	-P	-BL	-LBR	-LBQ	-1825	-1980	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
2200	SZ2-FE	-	-EL	-ER	-QR25	-QR35	-RP144	-RP106	-P	-BL	-LBR	-LBQ	-2025	-2180	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
2400	SZ2-FE	-	-EL	-ER	-QR25	-QR35	-RP144	-RP106	-P	-BL	-LBR	-LBQ	-2225	-2380	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330
2600	SZ2-FE	-	-EL	-ER	-QR25	-QR35	-RP144	-RP106	-P	-BL	-LBR	-LBQ	-2425	-2580	-230	-330	-430	-530	-630	-730	-830	-930	-1030	-1130	-1230	-1330	-1430	-1530	-1630	-1730	-1830	-1930	-2030	-2130	-2230	-2330

Example for item number key Product-fence course-frame profile-filling-field height-field width **SZ2-FE-EL-QR25-BL-1225-430**

COMBINATION POSTS, FRAME PROFILE AND FILLING						
Post profile	QR50		QR60			
	QR25	RP144	QR25	RP144	QR35	RP106
Frame profile	Sheet metal	Polycarbonate	Sheet metal	Polycarbonate	Sheet metal	Polycarbonate
Filling	Perforated sheet round perforation	Perforated sheet square holes	Perforated sheet round perforation	Perforated sheet square holes	Perforated sheet round perforation	Perforated sheet square holes

- Field height corresponds to fence height minus ground clearance.
- Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- Sheet fillings in zinc-plated design are screwed on to the frame from the machine side.
- Cable duct holders: see p. 167.



- Height 2600 mm is executed with post profile QR60, all other heights with post profile QR50.
- Axle size at post profile QR60 + 10 mm.
- Definition of axle size/field width: See fence scope p. 182.

SAFETY FENCE SYSTEMS

Post for safety fence system ZAUN II

Straight fence course

Passage post (DP...)

Connection down

Outer corner

Corner post (EP...)

Inner corner

Passage post (DP...)

Corner tab left

T-seam fence course

T-seam post (TP...)

Corner tab right

i T-seam connection optionally on the left or right – both connections present.



Post for safety fence system ZAUN II

Post without height compensation							
Fence height	Passage post	Passage post	Corner post	T-seam post	Passage post adjustable	Corner post adjustable	T-seam post adjustable
1400	DP-QR50-Z-1400-0613	DP-QR50-Z-1400-1313	EP-QR50-Z-1400-1313	TP-QR50-Z-1400-1313	DPJ-QR50-Z-1400-1313	EPJ-QR50-Z-1400-1313	TPJ-QR50-Z-1400-1313
1600	DP-QR50-Z-1600-0613	DP-QR50-Z-1600-1313	EP-QR50-Z-1600-1313	TP-QR50-Z-1600-1313	DPJ-QR50-Z-1600-1313	EPJ-QR50-Z-1600-1313	TPJ-QR50-Z-1600-1313
1800	DP-QR50-Z-1800-0613	DP-QR50-Z-1800-1313	EP-QR50-Z-1800-1313	TP-QR50-Z-1800-1313	DPJ-QR50-Z-1800-1313	EPJ-QR50-Z-1800-1313	TPJ-QR50-Z-1800-1313
2000	DP-QR50-Z-2000-0613	DP-QR50-Z-2000-1313	EP-QR50-Z-2000-1313	TP-QR50-Z-2000-1313	DPJ-QR50-Z-2000-1313	EPJ-QR50-Z-2000-1313	TPJ-QR50-Z-2000-1313
2200	DP-QR50-Z-2200-0613	DP-QR50-Z-2200-1313	EP-QR50-Z-2200-1313	TP-QR50-Z-2200-1313	DPJ-QR50-Z-2200-1313	EPJ-QR50-Z-2200-1313	TPJ-QR50-Z-2200-1313
2400	DP-QR50-Z-2400-0613	DP-QR50-Z-2400-1313	EP-QR50-Z-2400-1313	TP-QR50-Z-2400-1313	DPJ-QR50-Z-2400-1313	EPJ-QR50-Z-2400-1313	TPJ-QR50-Z-2400-1313
2600 Ⓢ	DP-QR60-Z-2600-0715	DP-QR60-Z-2600-1515	EP-QR60-Z-2600-1515	TP-QR60-Z-2600-1515	DPJ-QR60-Z-2600-1515	EPJ-QR60-Z-2600-1515	TPJ-QR60-Z-2600-1515

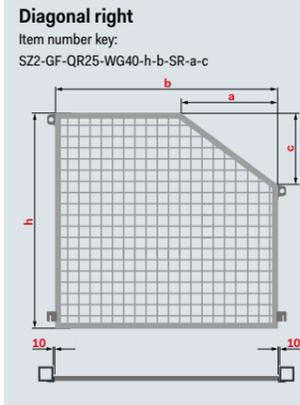
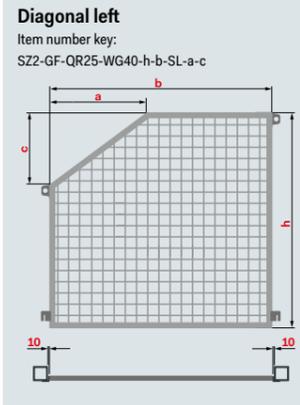
Post with height compensation				Transfer post			
Fence height	Passage post with height compensation	Passage post with height compensation	Corner post with height compensation	T-seam post with height compensation	Transfer post as passage post	Transfer post as corner post	Transfer post as T-seam post
Height compensation	+ 52	+ 52	+ 52	+ 52			
	- 7	- 7	- 7	- 7			
1400	DPHV1-QR50-Z-1400-0613	DPHV1-QR50-Z-1400-1313	EPHV1-QR50-Z-1400-1313	TPHV1-QR50-Z-1400-1313	UDP-QR50-Z-1400-... Ⓢ	UEP-QR50-Z-1400-... Ⓢ	UTP-QR50-Z-1400-... Ⓢ
1600	DPHV1-QR50-Z-1600-0613	DPHV1-QR50-Z-1600-1313	EPHV1-QR50-Z-1600-1313	TPHV1-QR50-Z-1600-1313	UDP-QR50-Z-1600-... Ⓢ	UEP-QR50-Z-1600-... Ⓢ	UTP-QR50-Z-1600-... Ⓢ
1800	DPHV1-QR50-Z-1800-0613	DPHV1-QR50-Z-1800-1313	EPHV1-QR50-Z-1800-1313	TPHV1-QR50-Z-1800-1313	UDP-QR50-Z-1800-... Ⓢ	UEP-QR50-Z-1800-... Ⓢ	UTP-QR50-Z-1800-... Ⓢ
2000	DPHV1-QR50-Z-2000-0613	DPHV1-QR50-Z-2000-1313	EPHV1-QR50-Z-2000-1313	TPHV1-QR50-Z-2000-1313	UDP-QR50-Z-2000-... Ⓢ	UEP-QR50-Z-2000-... Ⓢ	UTP-QR50-Z-2000-... Ⓢ
2200	DPHV1-QR50-Z-2200-0613	DPHV1-QR50-Z-2200-1313	EPHV1-QR50-Z-2200-1313	TPHV1-QR50-Z-2200-1313	UDP-QR50-Z-2200-... Ⓢ	UEP-QR50-Z-2200-... Ⓢ	UTP-QR50-Z-2200-... Ⓢ
2400	DPHV1-QR50-Z-2400-0613	DPHV1-QR50-Z-2400-1313	EPHV1-QR50-Z-2400-1313	TPHV1-QR50-Z-2400-1313	UDP-QR50-Z-2400-... Ⓢ	UEP-QR50-Z-2400-... Ⓢ	UTP-QR50-Z-2400-... Ⓢ
2600 Ⓢ	DPHV1-QR60-Z-2600-0715	DPHV1-QR60-Z-2600-1515	EPHV1-QR60-Z-2600-1515	TPHV1-QR60-Z-2600-1515	UDP-QR60-Z-2600-... Ⓢ	UEP-QR60-Z-2600-... Ⓢ	UTP-QR60-Z-2600-... Ⓢ

Ⓢ Height 2600 is executed with post profile QR60, all other heights with post profile QR50. **Ⓢ** Transfer post: The item number results from the system and height; for explanations, see p.183.
i When ordering, observe inner corner (DP) and outer corner (EP). **i** T-seam connection optionally on the left or right – both connections present. **Ⓢ** Please order floor attachment media separately. See p.168.

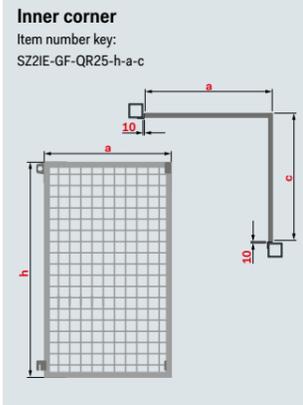
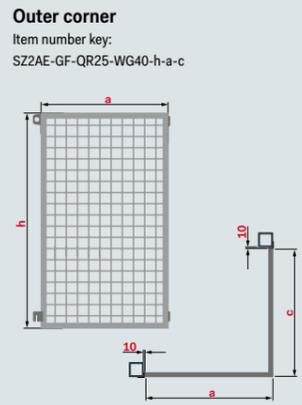


Special elements for safety fence system ZAUN II Mesh screens

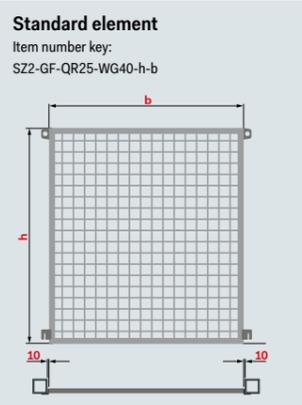
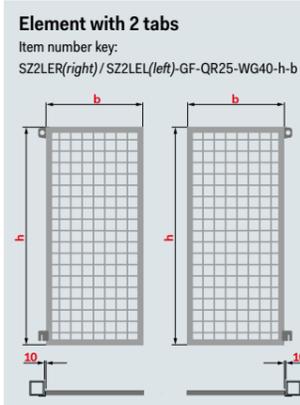
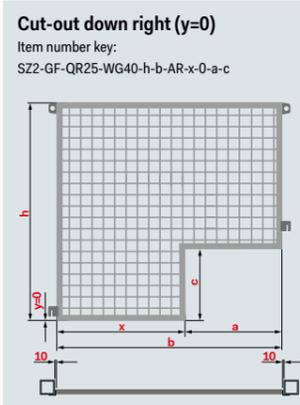
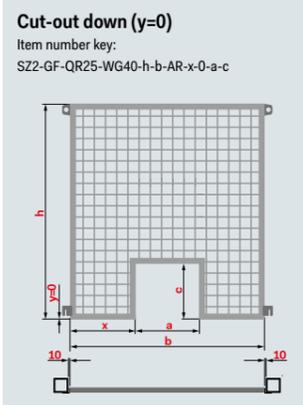
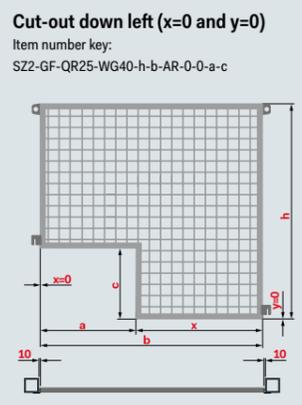
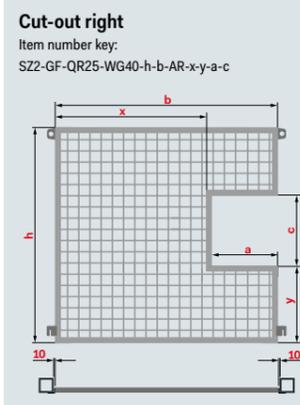
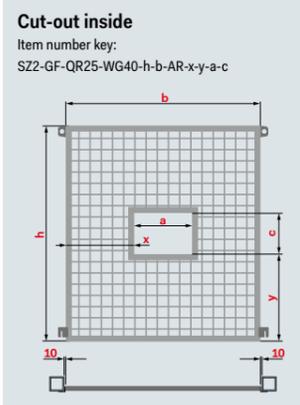
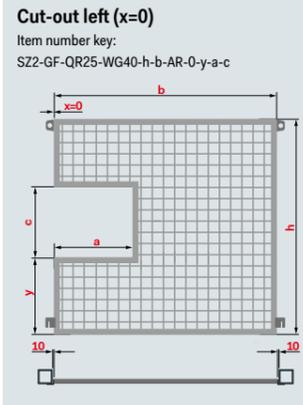
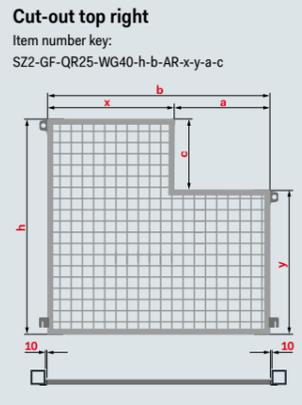
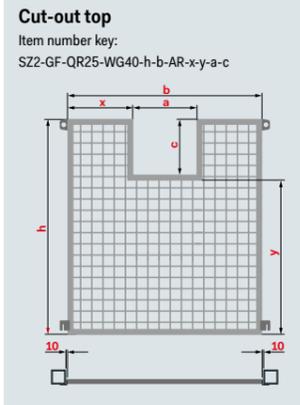
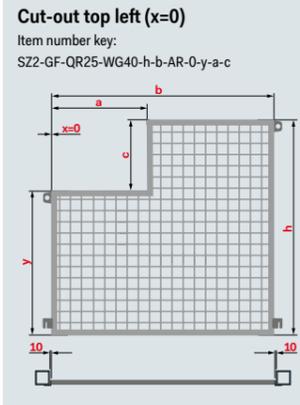
ZAUN II-grid elements with diagonal



ZAUN II-grid elements for corner situation



ZAUN II-grid elements with rectangular cut-out



SZ2-GF-QR25-WG40-h-b-AR-x-y-a-c
Design of the grid element from the safety fence system ZAUN II ☺ See p. 40/41.
SZ2-GF-WG40-h-b-AR-x-y-a-c
Cut-out rectangular
SZ2-GF-WG40-h-b-AR-x-y-a-c
Dimension values of the cut-out

Dimension values:
 x = Distance between the left outer edge of the grid element and the left inner edge of the cut-out
 y = Distance between the lower edge of the grid element and the lower edge of the cut-out
 a = Width of the cut-out
 c = Height of the cut-out
 ☺ When placing the order, observe the fence course in the item number. ☺ See p. 44.



Precisely fitting ZAUN II-elements with individual cut-outs



System example with tunnel, constructed of special fields

Safety fence system WAND II

Modular all-round protection

The safety fence system WAND II by Brühl is made up of sheet metal elements and posts that are compatible with all Brühl door products. This stable, separating safety device is used in particular where system safety through safety grids cannot be ensured and where additional mbience conditions – such as protection from smoke formation, protection from sight, sound or very small parts – must be considered. The system WAND II process view was developed specifically for areas where a view of the system is required.

Process view window

Large view, square window = simple exchange possible

EN ISO 14120; 5.2.4/5.4.2/5.9/5.10/5.16/5.17



Integrated height compensation

per field +5/-5 mm

EN ISO 14120; 5.2.2



Sight protection

Support of sheet metal walls on post

EN ISO 14120; 5.1.3/5.1.4/5.1.5/5.1.6/5.3.7/5.5/5.16/5.17



High quality

Sheet elements are made of laser-cut and canted sheet metal

EN ISO 14120; 5.4.3



Sight window installation

Sight windows of polycarbonate, sight protection panels and prevention of break through can be supplemented

EN ISO 14120; 5.2.4/5.4.2/5.9/5.10/5.16/5.17



Full protection

Sight protection, spray protection, protection against particles, protection from bright light, smoke, heat, dust, laser, draft

EN ISO 14120; 5.1.3/5.1.4/5.1.5/5.1.6/5.3.7/5.5/5.16/5.17



Safety fence system WAND II sheet metal



SAFETY FENCE SYSTEMS

Standard sheet metal elements for safety fence system WAND II sheet metal

Fence height	Product	Fence course		Wall height		Axle size ② from post centre to post centre ③													
		Straight fence course / outer corner	Inner corner		Ground clearance: 175 mm	Ground clearance: 20 mm	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
			Corner bend left	Corner bend right			Wall width b (axle size - post profile - 10 mm) ④												
						240	340	440	540	640	740	840	940	1040	1140	1240	1340	1440	
1400	SW2-BL	-	-EL	-ER	-1225	-1380	-240	-340	-440	-540	-640	-740	-840	-940	-1040	-1140	-1240	-1340	-1440
1600	SW2-BL	-	-EL	-ER	-1425	-1580	-240	-340	-440	-540	-640	-740	-840	-940	-1040	-1140	-1240	-1340	-1440
1800	SW2-BL	-	-EL	-ER	-1625	-1780	-240	-340	-440	-540	-640	-740	-840	-940	-1040	-1140	-1240	-1340	-1440
2000	SW2-BL	-	-EL	-ER	-1825	-1980	-240	-340	-440	-540	-640	-740	-840	-940	-1040	-1140	-1240	-1340	-1440
2200	SW2-BL	-	-EL	-ER	-2025	-2180	-240	-340	-440	-540	-640	-740	-840	-940	-1040	-1140	-1240	-1340	-1440
2400	SW2-BL	-	-EL	-ER	-2225	-2380	-240	-340	-440	-540	-640	-740	-840	-940	-1040	-1140	-1240	-1340	-1440
2600 ⑤	SW2-BL	-	-EL	-ER	-2425	-2580	-240	-340	-440	-540	-640	-740	-840	-940	-1040	-1140	-1240	-1340	-1440

Example for item number key Product-fence course-wall height-wall width SW2-BL-ER-1980-1240

- ① Height 2600 mm is executed with post profile QR60, all other heights with post profile QR50.
- ② Axle size at post profile QR60 + 10 mm.
- ③ Definition axle size/wall width: See fence scope p. 183.
- ④ Wall height corresponds to fence height minus ground clearance.
- ⑤ Cable duct holders: see p. 167.

MATERIAL OPTION



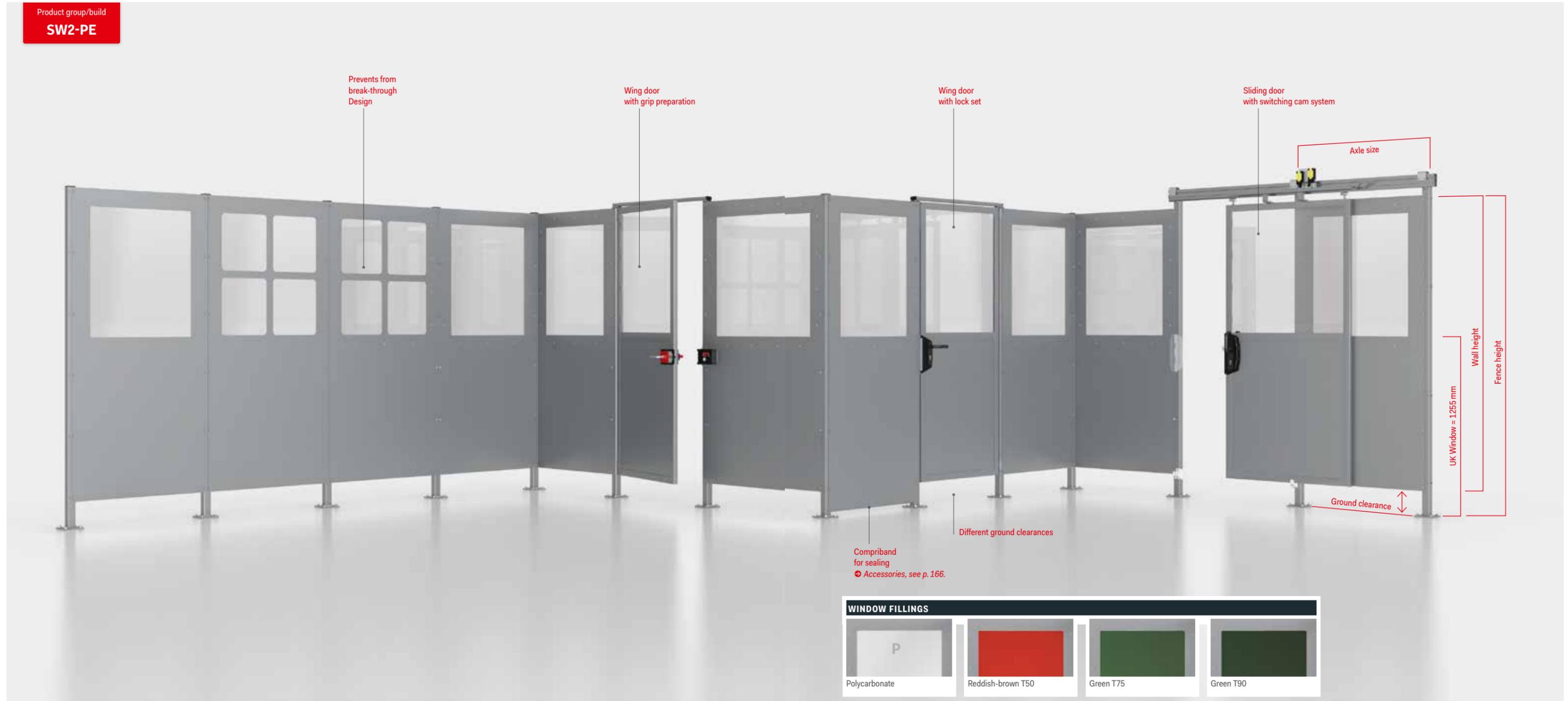
also sendzimir zinc-plated
Sheet metal design available

COLOUR RECOMMENDATION

For the safety fence system WAND II, we recommend designing the post and sheet-metal elements in the same colour. We also recommend (if available) a fine-structure varnish so that the surface is less sensitive.



Safety fence system WAND II Process view, prevents from break-through



Standard sheet metal elements for safety fence system WAND II Process view, prevents from break-through

Fence height	Product	Option Prevent break through	Fence course			Window filling			Wall height		Axle size ② from post centre to post centre ③					
			Straight fence course / outer corner	Inner corner		Polycarbonate	Sight protection glass reddish-brown	Sight protection glass green	Ground clearance: 175 mm	Ground clearance: 20 mm	1000	1100	1200	1300	1400	1500
				Corner tab left	Corner tab right						Wall width b (axle size - post profile - 10 mm) ④					
2000	SW2-PE	-D	-	-EL	-ER	-P	-SSB	-SSG	-1825	-1980	-940	-1040	-1140	-1240	-1340	-1440
2200	SW2-PE	-D	-	-EL	-ER	-P	-SSB	-SSG	-2025	-2180	-940	-1040	-1140	-1240	-1340	-1440
2400	SW2-PE	-D	-	-EL	-ER	-P	-SSB	-SSG	-2225	-2380	-940	-1040	-1140	-1240	-1340	-1440
2600 ⑤	SW2-PE	-D	-	-EL	-ER	-P	-SSB	-SSG	-2425	-2580	-940	-1040	-1140	-1240	-1340	-1440

Example for item number key Product-(Option penetration protection)-fence course-window filling-wall height-wall width **SW2-PE-D-SSB-1980-1240**

COLOUR RECOMMENDATION
For the safety fence system WAND II, we recommend designing the post and sheet-metal elements in the same colour. We also recommend (if available) a fine-structure varnish so that the surface is less sensitive.

MATERIAL OPTION
also sendzimir zinc-plated Sheet metal design available

PANEL INSTALLATION



Windows of the process view are clamped with a Z-profile.
② Square window installation, easy changeability
③ Dimension maximum: 1195 x 1195 mm

- ① Height 2600 mm is executed with post profile QR60, all other heights with post profile QR50.
- ② Axle size at post profile QR60 + 10 mm.
- ③ Definition axle size/wall width: See fence scope p. 183.
- ④ Wall height corresponds to fence height minus ground clearance.
- ⑤ The height from the bottom to the lower edge of the process view windows always is 1255 mm.
- ⑥ In a fence course with doors, the frames of the doors are completely filled with te process view windows; therefore, a slight offset at the horizontal upper edge of the process view windows from the doors to the wall elements results.
- ⑦ Cable duct holders: see p. 167.



Safety fence system WAND II Process view with penetration protection



Post for safety fence system WAND II

Straight fence course

Passage post (DP...)

Connection on the left

Passage post (DP...)

Outer corner

Corner post (EP...)

Inner corner

Passage post (DP...)

Corner canting left

Corner canting right

T-seam fence course

T-seam post (TP...)

❗ T-seam connection optionally on the left or right – both connections present..



Post for safety fence system WAND II

Post without height compensation							
Fence height	Passage post	Passage post	Corner post	T-seam post	Passage post adjustable	Corner post adjustable	T-seam post adjustable
1400	DP-QR50-W-1400-0613	DP-QR50-W-1400-1313	EP-QR50-W-1400-1313	TP-QR50-W-1400-1313	DPJ-QR50-W-1400-1313	EPJ-QR50-W-1400-1313	TPJ-QR50-W-1400-1313
1600	DP-QR50-W-1600-0613	DP-QR50-W-1600-1313	EP-QR50-W-1600-1313	TP-QR50-W-1600-1313	DPJ-QR50-W-1600-1313	EPJ-QR50-W-1600-1313	TPJ-QR50-W-1600-1313
1800	DP-QR50-W-1800-0613	DP-QR50-W-1800-1313	EP-QR50-W-1800-1313	TP-QR50-W-1800-1313	DPJ-QR50-W-1800-1313	EPJ-QR50-W-1800-1313	TPJ-QR50-W-1800-1313
2000	DP-QR50-W-2000-0613	DP-QR50-W-2000-1313	EP-QR50-W-2000-1313	TP-QR50-W-2000-1313	DPJ-QR50-W-2000-1313	EPJ-QR50-W-2000-1313	TPJ-QR50-W-2000-1313
2200	DP-QR50-W-2200-0613	DP-QR50-W-2200-1313	EP-QR50-W-2200-1313	TP-QR50-W-2200-1313	DPJ-QR50-W-2200-1313	EPJ-QR50-W-2200-1313	TPJ-QR50-W-2200-1313
2400	DP-QR50-W-2400-0613	DP-QR50-W-2400-1313	EP-QR50-W-2400-1313	TP-QR50-W-2400-1313	DPJ-QR50-W-2400-1313	EPJ-QR50-W-2400-1313	TPJ-QR50-W-2400-1313
2600	DP-QR60-W-2600-0715	DP-QR60-W-2600-1515	EP-QR60-W-2600-1515	TP-QR60-W-2600-1515	DPJ-QR60-W-2600-1515	EPJ-QR60-W-2600-1515	TPJ-QR60-W-2600-1515

Post with height compensation				Transfer post			
Fence height	Passage post with height compensation	Passage post with height compensation	Corner post with height compensation	T-seam post with height compensation	Transfer post as passage post	Transfer post as corner post	Transfer post as T-seam post
Height compensation	+ 52	+ 52	+ 52	+ 52			
	- 7	- 7	- 7	- 7			
1400	DPHV1-QR50-W-1400-0613	DPHV1-QR50-W-1400-1313	EPHV1-QR50-W-1400-1313	TPHV1-QR50-W-1400-1313	UDP-QR50-W-1400-... ②	UEP-QR50-W-1400-... ②	UTP-QR50-W-1400-... ②
1600	DPHV1-QR50-W-1600-0613	DPHV1-QR50-W-1600-1313	EPHV1-QR50-W-1600-1313	TPHV1-QR50-W-1600-1313	UDP-QR50-W-1600-... ②	UEP-QR50-W-1600-... ②	UTP-QR50-W-1600-... ②
1800	DPHV1-QR50-W-1800-0613	DPHV1-QR50-W-1800-1313	EPHV1-QR50-W-1800-1313	TPHV1-QR50-W-1800-1313	UDP-QR50-W-1800-... ②	UEP-QR50-W-1800-... ②	UTP-QR50-W-1800-... ②
2000	DPHV1-QR50-W-2000-0613	DPHV1-QR50-W-2000-1313	EPHV1-QR50-W-2000-1313	TPHV1-QR50-W-2000-1313	UDP-QR50-W-2000-... ②	UEP-QR50-W-2000-... ②	UTP-QR50-W-2000-... ②
2200	DPHV1-QR50-W-2200-0613	DPHV1-QR50-W-2200-1313	EPHV1-QR50-W-2200-1313	TPHV1-QR50-W-2200-1313	UDP-QR50-W-2200-... ②	UEP-QR50-W-2200-... ②	UTP-QR50-W-2200-... ②
2400	DPHV1-QR50-W-2400-0613	DPHV1-QR50-W-2400-1313	EPHV1-QR50-W-2400-1313	TPHV1-QR50-W-2400-1313	UDP-QR50-W-2400-... ②	UEP-QR50-W-2400-... ②	UTP-QR50-W-2400-... ②
2600	DPHV1-QR60-W-2600-0715	DPHV1-QR60-W-2600-1515	EPHV1-QR60-W-2600-1515	TPHV1-QR60-W-2600-1515	UDP-QR60-W-2600-... ②	UEP-QR60-W-2600-... ②	UTP-QR60-W-2600-... ②

② Height 2600 is executed with post profile QR60, all other heights with post profile QR50. ③ Transfer post: The item number results from the system and height; for explanations, see p. 183.
 ④ When ordering, observe inner corner (DP) and outer corner (EP). ⑤ T-seam connection optionally on the left or right – both connections present. ⑥ Please order floor attachment media separately. See p. 168.





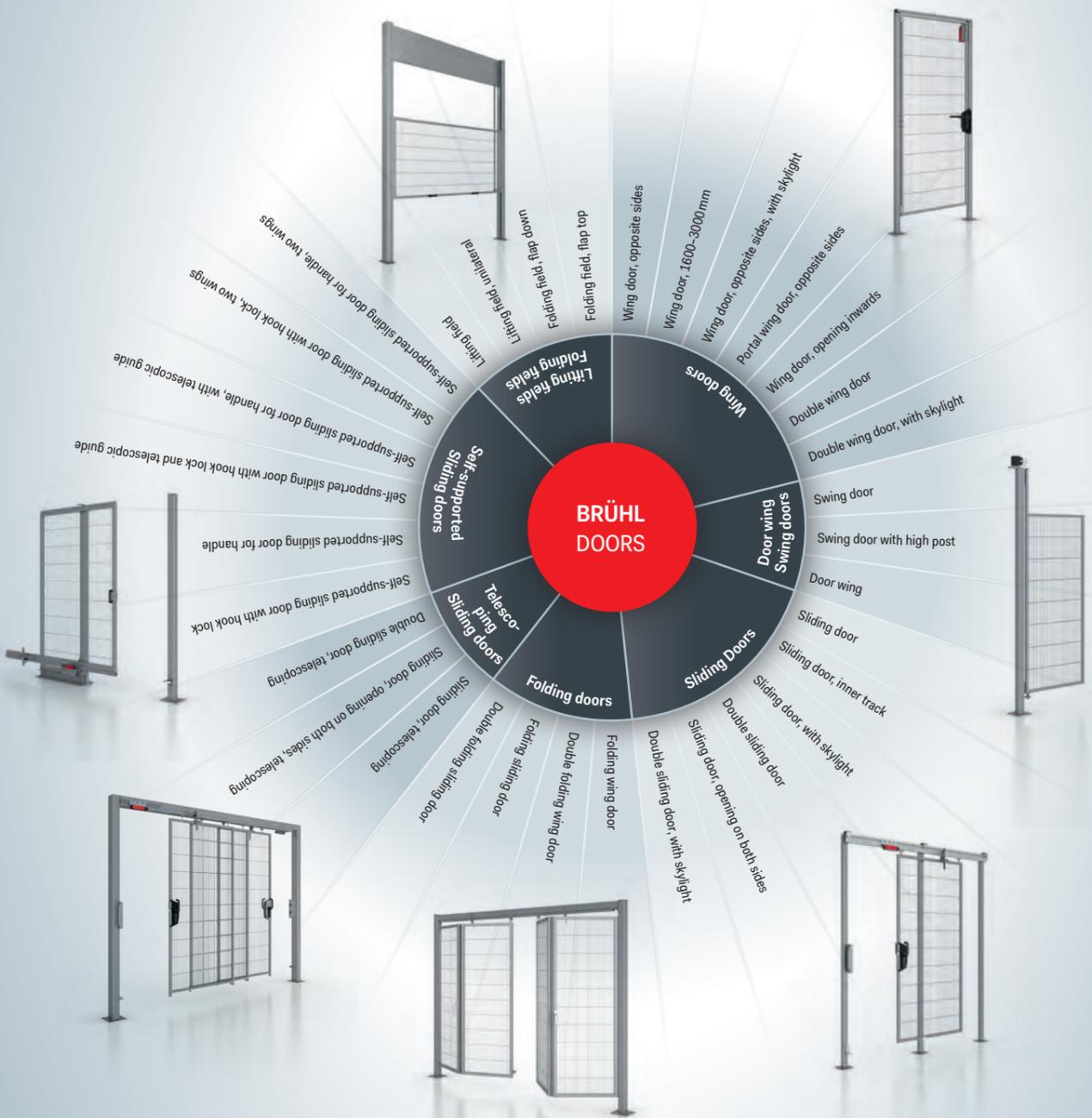
Brühl Safety Doors – Solutions for any application

The following pages provide an overview of many different door assemblies of Brühl Safety GmbH. The chapter is broken down into the assemblies of wing, sliding, swing and special doors. The product tables contain all technical specifications. The corresponding door accessories, such as precisely fitting attachment systems for safety switches, are referred to on the individual product pages.

Safety doors

The matching door for any opening area

Which door is the right one for your facility access? A functional wing door, a comfortable sliding door, a self-supported sliding door without annoying guide elements in the opening area or a particularly space-saving version like the folding door or the telescopic sliding door? You can use many different door systems that meet your individual production runs.



Combination overview doors and safety fence systems/frame fillings

Product description	Product group / build	Safety fence systems						
		FLEX II s.p. 30/31	FLEX II High fence planning s.p. 32/33	ZAUN II Grid fillings s.p. 40/41	ZAUN II Area elements s.p. 42/43	WAND II Sheet metal s.p. 50/51	WAND II Process view s.p. 52/53	
Wing doors	Wing door for handle, latch or deadlock slam lock, opposite sides	FTW	●	○	●	●	●	●
	Wing door for handle, latch or deadlock slam lock, 1600-3000 mm	FT	●	○	●	●	●	●
	Wing door for handle, latch or deadlock slam lock, opposite sides with skylight	FTWO	●	●	○	○	○	○
	Portal wing door for handle, latch or deadlock slam lock, opposite sides	PFTW	●	○	●	●	●	●
	Wing door for handle, latch or deadlock slam lock, opening inwards	FTEO	●	○	●	●	●	●
	Double wing door for handle, latch or deadlock slam lock	DFT	●	○	●	●	●	●
	Double wing door for handle, latch or deadlock slam lock, with skylight	DFTO	●	●	○	○	○	○
Swing doors, door wings	Swing door	PT	●	○	●	●	●	●
	Swing door with high post	HPT	●	○	●	●	●	●
	Door wing for handle, latch or deadlock slam lock	TF	●	○	●	●	●	●
Sliding doors	Sliding door for handle or hook lock	ST	●	○	●	●	●	●
	Sliding door for handle or hook lock, inner track	STI	●	○	●	●	●	●
	Sliding door for handle or hook lock, with skylight	STO	●	●	○	○	○	○
	Double sliding door for handle or hook lock	DST	●	○	●	●	●	●
	Sliding door for handle or hook lock, opening on both sides	STB	●	○	●	●	●	●
	Double sliding door for handle or hook lock, with skylight	DSTO	●	●	○	○	○	○
Folding wing doors, folding sliding doors	Folding hinged door for latch	FAFTR	●	○	●	●	●	●
	Double folding hinged door for latch	DFAFTR	●	○	●	●	●	●
	Double folding sliding door	FASTG	●	○	●	●	●	●
	Double folding sliding door for handle	DFASTG	●	○	●	●	●	●
Telescopic sliding doors	Sliding door for handle or hook lock, telescoping	STT	●	○	●	●	●	●
	Sliding door for handle or hook lock, opening on both sides, telescoping	STBT	●	○	●	●	●	●
	Double sliding door for handle or hook lock, telescoping	DSTT	●	○	●	●	●	●
Self-supported sliding doors	Self-supported sliding door with hook lock	FSTS	●	○	●	●	●	●
	Self-supported sliding door for handle	FSTG	●	○	●	●	●	●
	Self-supported sliding door with hook lock and telescopic guide	FSTST	●	○	●	●	●	●
	Self-supported sliding door for handle, with telescopic guide	FSTGT	●	○	●	●	●	●
	Self-supported sliding door with hook lock, two wings	FSTS-2	●	○	●	●	●	●
	Self-supported sliding door for handle, two wings	FSTG-2	●	○	●	●	●	●
Lifting fields, Folding fields	Lifting field	HF	●	○	●	●	●	●
	Lifting field, unilateral	HFE	●	○	●	●	●	●
	Folding field, flap down	KF-U	●	○	●	●	●	●
	Folding field, flap top	KF-O	●	○	●	●	●	●

● Combination is possible. × Combination is not possible. ○ Combination is optional.

SAFETY DOORS

Wing doors for effective work processes

The Brühl wing doors are an optimal solution of or particularly cost-efficient and functional fence facilities. Thanks to the great diversity of this build, you will surely find the right product for any application to be integrated into your individual production processes.

Removable assembly aid – no interfering elements in the opening area

High twist resilience of the door wing

Large, stable, firmly welded four-hole ground plate

Overview: Advantages of the wing doors

Fast installation

Brühl wing doors are highly stable and ensure quick installation – without any time loss on the construction site.

Different ground clearances

All wing doors are delivered by default with a ground clearance of 175 mm or 20 mm.

Compatible

All wing doors are available in combination with our attachment systems for safety switches.

Assembly aid that can be removed

No interfering elements within the opening area.

Large opening

For the wing doors, an opening by up to 180° is possible.

Customer-specific solutions

An individual execution is possible depending on demand – in different colours and with hot-dip galvanisation.

Simple height adjustment

Height adjustment at irregular ground for easy alignment of the posts is optionally available.

Flexible planning

The door posts are provided for transit and for corner situations. These have a positive influence on the assembly time and the flexibility at the site

Maximum shock resilience

All elements are sand-blasted and powder-coated.

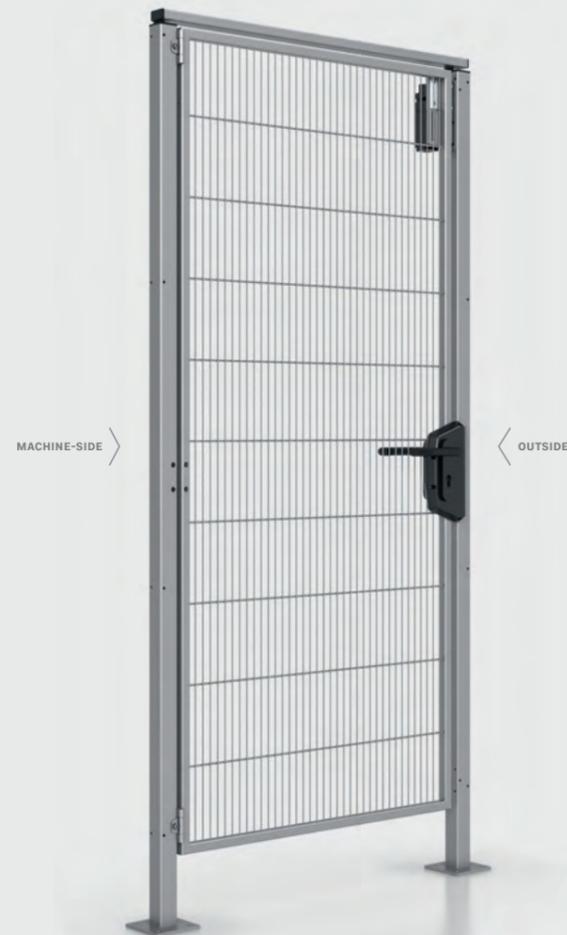
Technical data for standard wing doors <small>Special productions on request.</small>							
Product group/build	FTW	FT	FTWO	PFTW	FTEO	DFT	DFTO
Dimensions							
max. axle size in mm	1410	3010	1430	1410	1410	6030	2830
max. door-/fence height in mm	2600	2600	4835	2600	2600	2600	4835
Frame filling							
FLEX II	●	●	●	●	●	●	●
Wave grid 40	●	●	○	●	●	●	○
Wave grid 25	●	●	○	●	●	●	○
Welding grid 40	●	●	○	●	●	●	○
Sheet metal	●	●	○	●	●	●	○
Polycarbonate	●	●	○	●	●	●	○
Perforated sheet round holes Rv 5-8	●	●	○	●	●	●	○
Perforated sheet square holes Qg 8-12	●	●	○	●	●	●	○
Process view – Sight protection glass reddish-brown (T50)	●	●	○	●	●	●	○
Process view – Sight protection glass green (T75/T90)	●	●	○	●	●	●	○
Process view – Polycarbonate	●	●	○	●	●	●	○
Brühl door accessories							
Handle set	●	●	●	●	●	●	●
Shutting protection	●	●	●	●	×	●	●
Attachment systems for safety switches							
Handle preparation BRÜHL-GV	●	●	●	●	×	●	●
Handle system with bullet crossbow BRÜHL-GRK®	●	●	●	●	●	●	●
Retaining plate system BRÜHL-HP-F®	●	●	●	●	●	●	●
Latch system BRÜHL-RI®	●	●	●	●	×	●	●
Latch preparation BRÜHL-RV	●	●	●	●	×	●	●
Switching cam system BRÜHL-SN-F	×	●	×	×	●	●	×
Safety switch preparation BRÜHL-SV	●	●	●	●	●	●	●
Rollover latch system BRÜHL-UER®	●	●	●	●	●	●	●
Surfaces							
Powder-coating/paint	●	●	●	●	●	●	●
Hot-dip galvanised surface	●	●	●	●	●	●	●
Ground clearance							
Standard	175 mm	175 mm	175 mm	175 mm	175 mm	175 mm	175 mm
Reduced	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm

● Combination is possible. × Combination is not possible. ○ Combination is optional.

Wing door for handle, latch or mortise lock, opposite sides

Product group/build
FTW

Illustration shows FTW with door set TG-V2.



DOOR ACCESSORIES



Door sets



Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



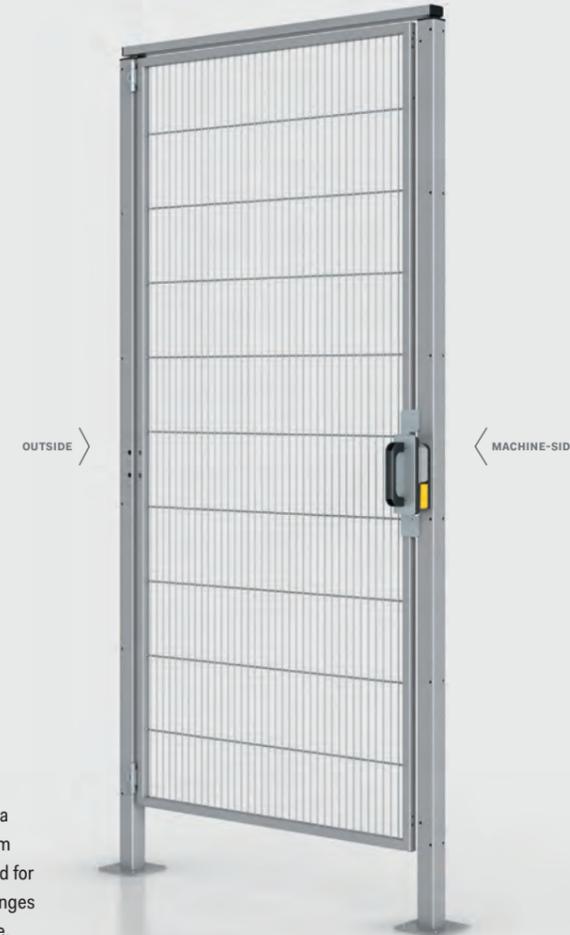
Retaining plate system



Switch preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows FTW with a grip system.



DOOR ACCESSORIES



Handle with bullet crossbow



Latch

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Handle system



Latch system



Latch preparation



Handle preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The posts of the bilateral wing door are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation. The screw-on hinges permit exchange of the stop direction at any time. The FTW build is particularly flexible and compatible with any attachment system for wing doors.

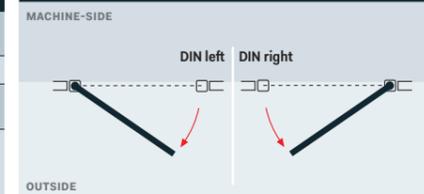
PATENT PROTECTION

Wing door for handle, latch or mortise lock, opposite sides

Build	Post profile	Wing profile		Safety fence system / filling										Ground clearance		Axle size ① from post centre to post centre ②							
				ZAUN II					WAND II							800	1000	1200	1400				
		QR25	RP106	FLEX II	Grid fillings				Area elements				Process view				Open width ③						
					FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square perforation	Sheet metal	Polycarbonate	Sight protection glass red-dish-brown	Sight protection glass green	700	900	1100	1300			
FTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1400	-800	-1000	-1200	-1400
FTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1600	-800	-1000	-1200	-1400
FTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1800	-800	-1000	-1200	-1400
FTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-800	-1000	-1200	-1400
FTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-800	-1000	-1200	-1400
FTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-800	-1000	-1200	-1400
FTW	-QR60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-800	-1000	-1200	-1400

Example for item number key Build-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size FTW-QR50-QR25-Z-GF-WG40-175-1400-1000
For dimensions that are not in the table, SO- must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. SO-FTW-QR50-QR25-Z-GF-WG40-175-1400-1150 for special axle size 1150).

DOOR OPENING



PRODUCT OPTION: HEIGHT COMPENSATION



FLOOR ATTACHMENT

Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example FTW 2000 × 1000 mm	27.53 kg

- Axle size in post profile QR60 +10 mm
- For axle size definition, see p. 184.
- Width and height of lights can be reduced according to the system for safety switches, door accessories, door hinges or opening degree.
- The doors are not pre-installed by default – the opening direction can be chosen freely on site. Optionally, pre-installation is possible as well; please indicated with your order.
- Please order floor attachment media separately. See p. 188.
- Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- Doors by default with 175 mm ground clearance.
- Floor plates centred in the middle by default.
- For specific floor plate positioning, see p. 187.
- Doors are designed opening outwards by default.
- For doors opening inwards, see p. 70 and following.

Wing door for handle, latch or mortise lock, 1600–3000 mm

Product group/build FT

Illustration shows FT with door set TG-V2.

OUTSIDE

DOOR ACCESSORIES

- TG** Door sets
- SG-F** Lock set
- STR-BR** Fixed caster

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

- HP-F®** Retaining plate system
- SN-F** Switching can system
- SV** Switch preparation

Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.

For a combination overview of all matching door accessories and attachment systems, see p. 185.

Please indicate safety switch and actuator types.

MACHINE-SIDE

OUTSIDE

DOOR ACCESSORIES

- TZ-GRK-F** Handle with bullet crossbow
- TZ-RI-F** Latch
- STR-BR** Fixed caster

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

- GRK-F®** Handle system
- RV-F** Latch preparation
- GV-F** Handle preparation

Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.

For a combination overview of all matching door accessories and attachment systems, see p. 185.

Please indicate safety switch and actuator types.

The posts of the wing door are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation. The stable welded-on hinges implement an opening width of up to 3000 mm.

Wing door for handle, latch or mortise lock, 1600–3000 mm

Build	Stop direction		Post profile		Wing profile				Safety fence system / filling												Ground clearance		Axle size ① from post centre to post centre ②									
									ZAUN II						WAND II								175 mm	20 mm	1600	1800	2000	2200	2400	2600	2800	3000
	DIN left	DIN right	for axle size ≤ 2000 mm	for axle size > 2000 mm	QR25	RP106	QR35	RP1191	Grid fillings				Area elements				Process view				Open width ③											
									FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Sheet metal	Polycarbonate	Sight protection-pane reddish-brown	Sight protection-pane green	1500	1700	1900	2100	2300	2500	2700	2900			
FT	-L	-R	-QR50	-QR60	-QR25	-RP106	-QR35	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000
FT	-L	-R	-QR50	-QR60	-QR25	-RP106	-QR35	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1600	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000
FT	-L	-R	-QR50	-QR60	-QR25	-RP106	-QR35	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-1800	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000
FT	-L	-R	-QR50	-QR60	-QR25	-RP106	-QR35	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000
FT	-L	-R	-QR50	-QR60	-QR25	-RP106	-QR35	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000
FT	-L	-R	-QR50	-QR60	-QR25	-RP106	-QR35	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000
FT	-L	-R	-QR50	-QR60	-QR25	-RP106	-QR35	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000

Example for item number key Build-stop direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **FT-L-QR50-QR25-Z-GF-WG40-175-1400-1600**
 For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-FT-L-QR50-QR25-Z-GF-WG40-175-1400-1550** for special axle size 1550).

FLOOR ATTACHMENT ④

Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example FT 2000 × 1600 mm	36.82 kg

DOOR OPENING

MACHINE-SIDE

DIN left DIN right

OUTSIDE

PRODUCT OPTION: HEIGHT COMPENSATION

Optional with post -J for height adjustment.

- ① Axle size in post profile QR60 +10 mm
- ② For axle size definition, see p. 184.
- ③ Width and height of lights can be reduced according to the system for safety switches, door accessories, door hinges or opening degree.
- ④ Please order floor attachment media separately. See p. 168.
- ⑤ Perforated sheet: Round holes Rv5-8 / square holes Qg 8-12
- ⑥ Doors by default with 175 mm ground clearance.
- ⑦ Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.
- ⑧ Fixed caster included in the delivery.

CAD
MOV
PICT

Wing door for handle, latch or mortise lock, opposite sides, with skylight

Product group/build
FTWO

Illustration shows FTWO with door set TG-V2.

DOOR ACCESSORIES

TG
Door sets

SG-F
Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

HP-F
Retaining plate system

SV
Switch preparation

Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.

For a combination overview of all matching door accessories and attachment systems, see p. 185.

Please indicate safety switch and actuator types.

Illustration shows FTWO with a grip system.

DOOR ACCESSORIES

TZ-GRK-F
Handle with bullet crossbow

TZ-RI-F
Latch

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

GRK-F
Handle system

RI-F
Latch system

GV-F
Handle preparation

RV-F
Latch preparation

Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.

For a combination overview of all matching door accessories and attachment systems, see p. 185.

Please indicate safety switch and actuator types.

Wing door for handle, latch or mortise lock, opposite sides, with skylight														
Build	Post profile	Wing profile	Safety fence system	Ground clearance		Fence height	Axle size ① from post centre to post centre ②							
				QR25	FLEX II		175 mm	20 mm	800	1000	1200	1400		
									Open width ③					
				700	900	1100	1300							
FTWO	-QR50	-QR25	-F	-175	-20	-2400	-800	-1000	-1200	-1400				
FTWO	-QR60	-QR25	-F	-175	-20	-2600	-800	-1000	-1200	-1400				
FTWO	-QR60	-QR25	-F	-175	-20	-2835	-800	-1000	-1200	-1400				
FTWO	-QR60	-QR25	-F	-175	-20	-3035	-800	-1000	-1200	-1400				
FTWO	-QR80	-QR25	-F	-175	-20	-3235	-800	-1000	-1200	-1400				
FTWO	-QR80	-QR25	-F	-175	-20	-3435	-800	-1000	-1200	-1400				
FTWO	-QR80	-QR25	-F	-175	-20	-3635	-800	-1000	-1200	-1400				
FTWO	-QR80	-QR25	-F	-175	-20	-3835	-800	-1000	-1200	-1400				
FTWO	-QR80	-QR25	-F	-175	-20	-4035	-800	-1000	-1200	-1400				
FTWO	-QR80	-QR25	-F	-175	-20	-4235	-800	-1000	-1200	-1400				
FTWO	-QR80	-QR25	-F	-175	-20	-4435	-800	-1000	-1200	-1400				
FTWO	-QR80	-QR25	-F	-175	-20	-4635	-800	-1000	-1200	-1400				
FTWO	-QR80	-QR25	-F	-175	-20	-4835	-800	-1000	-1200	-1400				

Example for item number key Build-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **FTWO-QR50-QR25-F-175-2400-1000**
For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-FTWO-QR50-QR25-F-175-2400-1350** for special axle size 1350).

FLOOR ATTACHMENT ④	
Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm M12 · 145/160 mm ⑤
Weight example FTWO 2400x1000 mm	34.5 kg

① Axle size at post profile QR60 +10 mm, at post profile QR80 +30 mm
② For axle size definition, see p. 184.
③ Width and height of lights can be reduced according to the system for safety switches, door accessories, door hinges or opening degree.
④ The doors are not pre-installed by default – the opening direction can be chosen freely on site. Optionally, pre-installation is possible as well; please indicated with your order.
⑤ Please order floor attachment media separately. See p. 168.
⑥ As of a height of 3235 mm, use M12.
⑦ Doors by default with 175 mm ground clearance.
⑧ Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.



The posts of the wing door with skylight are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation. The screw-on hinges permit exchange of the stop direction at any time. The FTWO build is particularly flexible and compatible with any attachment system for wing doors. Both posts are connected to each other with a transom profile and a skylight grid mat.

SAFETY DOORS

Portal wing door for handle, latch or mortise lock, opposite sides

Product group/build
PFTW

Illustration shows PFTW with door set TG-V2.

MACHINE-SIDE
OUTSIDE

DOOR ACCESSORIES

TG
Door sets

SG-F
Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

HP-F®
Retaining plate system

SV
Switch preparation

Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.

For a combination overview of all matching door accessories and attachment systems, see p. 185.

Please indicate safety switch and actuator types.

Illustration shows PFTW with a grip system.

OUTSIDE
MACHINE-SIDE

DOOR ACCESSORIES

TZ-GRK-F
Handle with bullet crossbow

TZ-RI-F
Latch

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

GRK-F®
Handle system

RI-F®
Latch system

GV-F
Handle preparation

RV-F
Latch preparation

Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.

For a combination overview of all matching door accessories and attachment systems, see p. 185.

Please indicate safety switch and actuator types.

The posts of the portal wing doors are connected to each other by a welded steel profile. By default, the two door posts are prepared for a corner and passage situation. The screw-on hinges permit exchange of the stop direction at any time.

Portal wing door for handle, latch or mortise lock, opposite sides

Product group/build	Post profile	Wing profile		Safety fence system / filling													Ground clearance		Fence height	Axle size ① from post centre to post centre ②				Passage height
				ZAUN II						WAND II										Open width ③				
		QR25	RP106	ZAUN II - Grid fillings			ZAUN II - Area elements			WAND II - Process view (-PE)							175 mm	20 mm		700	900	1100	1300	
				FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square perforation	Sheet metal	Polycarbonate	Sight protection glass red-dish-brown	Sight protection glass green								
PFTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1400	-800	-1000	-1200	-1400	2210
PFTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1600	-800	-1000	-1200	-1400	2210
PFTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1800	-800	-1000	-1200	-1400	2210
PFTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-800	-1000	-1200	-1400	2210
PFTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-800	-1000	-1200	-1400	2210
PFTW	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-800	-1000	-1200	-1400	2410
PFTW	-QR60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-800	-1000	-1200	-1400	2610

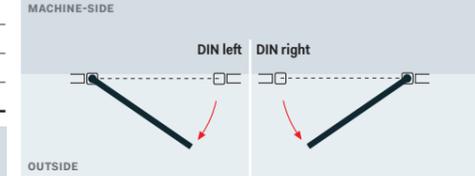
Example for item number key Build-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **PFTW-QR50-QR25-Z-GF-WG40-175-1400-1000**
 For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-PFTW-QR50-QR25-Z-GF-WG40-175-2400-1350** for special axle size 1350).

FLOOR ATTACHMENT ④

Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example PFTW 2000x1000 mm	31.83 kg

- ① Axle size in post profile QR60 +10 mm
- ② For axle size definition, see p. 184.
- ③ Width and height of lights can be reduced according to the system for safety switches, door accessories, door hinges or opening degree.
- ④ The doors are **not** pre-installed by default – the opening direction can be chosen freely on site. Optionally, pre-installation is possible as well; please indicated with your order.
- ⑤ Please order floor attachment media separately. See p. 168.
- ⑥ Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- ⑦ Doors by default with 175 mm ground clearance.
- ⑧ Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.

DOOR OPENING ⑨



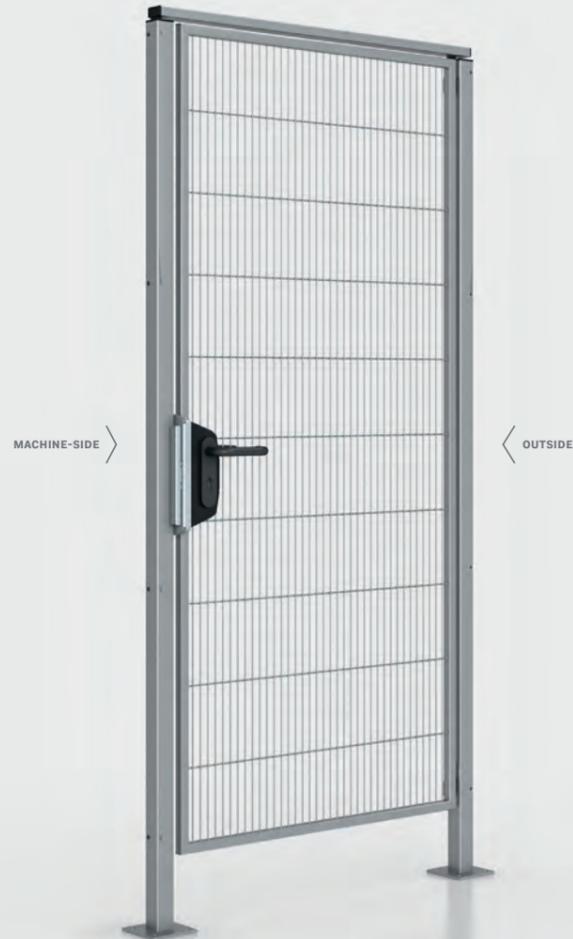
RODUCT OPTION: HEIGHT COMPENSATION



Wing door for handle, latch or mortise lock, opening inwards

Product group/build
FTEO

Illustration shows FTEO with door set TG-V2.



DOOR ACCESSORIES

TG
Door sets

SG-FEO
Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

HP-FEO
Retaining plate system

SN-F
Switching cam system

SV
Switch preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows FTEO with a grip system.



DOOR ACCESSORIES

TZ-GR-S
Handle

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

GRK-FEO
Handle system

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The posts of the wing door opening inwards are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation. The door wing is constructionally designed to open inwards.

Wing door for handle, latch or mortise lock, opening inwards

Build	Stop direction		Post profile	Wing profile		Safety fence system / filling													Ground clearance		Fence height	Axle size ① from post centre to post centre ②			
						ZAUN II						WAND II										Open width ③			
	DIN left	DIN right		QR25	RP106	FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square perforation	Sheet metal	Polycarbonate	Sight protection glass red-dish-brown	Sight protection glass green	175 mm	20 mm		800	1000	1200	1400
FTEO	-L	-R	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1400	-800	-1000	-1200	-1400
FTEO	-L	-R	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1600	-800	-1000	-1200	-1400
FTEO	-L	-R	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1800	-800	-1000	-1200	-1400
FTEO	-L	-R	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-800	-1000	-1200	-1400
FTEO	-L	-R	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-800	-1000	-1200	-1400
FTEO	-L	-R	-QR50	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-800	-1000	-1200	-1400
FTEO	-L	-R	-QR60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-800	-1000	-1200	-1400

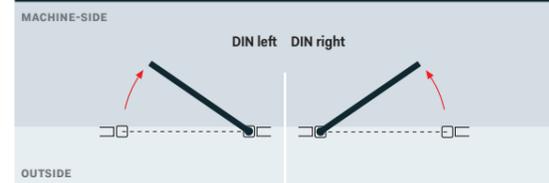
Example for item number key Build-stop direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **FTEO-L-QR50-QR25-Z-GF-WG40-20-1400-1000**
For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-FTEO-L-QR50-QR25-Z-GF-WG40-20-1400-1350** for special axle size 1350).

FLOOR ATTACHMENT ④

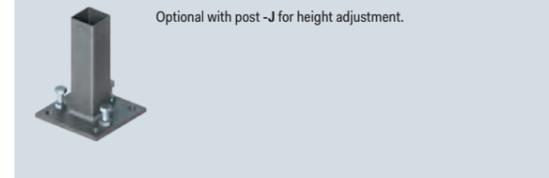
Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example FTEO 2000x1000 mm	27.53 kg

- ① Axle size at post profile QR60 + 10 mm
 - ② For axle size definition, see p. 184.
 - ③ Width and height of lights can be reduced according to the system for safety switches, door accessories, door hinges or opening degree.
 - ④ Please order floor attachment media separately. See p. 168.
 - ⑤ Perforated sheet: Round holes Rv5-8 / square holes Qg8-12
 - ⑥ Doors by default with 175 mm ground clearance.
 - ⑦ Floor plates centred in the middle by default.
- For specific floor plate positioning, see p. 187.

DOOR OPENING



PRODUCT OPTION: HEIGHT COMPENSATION



Double wing door for handle, latch or mortise lock

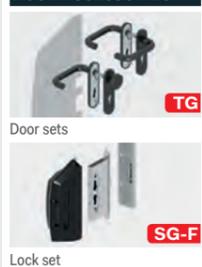
Product group/build
DFT

Illustration shows DFT with door set TG-V2.

Illustration shows DFT with an overroll latch system.



DOOR ACCESSORIES



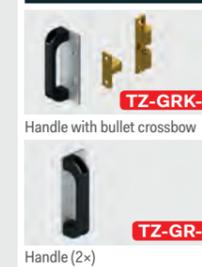
ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.



DOOR ACCESSORIES



ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The stop posts of the double wing door are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation. The welded-on hinges implement an opening width of up to 4000 mm.

Double wing door for handle, latch or mortise lock

Build	Stop direction	Post profile	Wing profile		Safety fence system / filling														Ground clearance			Axle size ① from post centre to post centre ②							
					ZAUN II							WAND II										Open width ③							
					Grid fillings				Area elements			Process view				175 mm	20 mm	Fence height				1445	1645	...	5625	5825			
					for axle size ≤ 2800 mm	for axle size > 2800 mm	QR35	RP106	QR35	RP1191	FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation				Perforated sheet Square perforation	Sheet metal	Polycarbonate	Sight protection glass red-dish-brown	Sight protection glass green			
DFT	-L	-R	QR60	QR80	QR35	RP106	QR35	RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1400	-1600	-1800	...	-5800	-6000
DFT	-L	-R	QR60	QR80	QR35	RP106	QR35	RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1600	-1600	-1800	...	-5800	-6000
DFT	-L	-R	QR60	QR80	QR35	RP106	QR35	RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-20	-1800	-1600	-1800	...	-5800	-6000
DFT	-L	-R	QR60	QR80	QR35	RP106	QR35	RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-1600	-1800	...	-5800	-6000
DFT	-L	-R	QR60	QR80	QR35	RP106	QR35	RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-1600	-1800	...	-5800	-6000
DFT	-L	-R	QR60	QR80	QR35	RP106	QR35	RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-1600	-1800	...	-5800	-6000
DFT	-L	-R	QR60	QR80	QR35	RP106	QR35	RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-1600	-1800	...	-5800	-6000

Example for item number key Build-stop direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **DFT-L-QR60-QR35-Z-GF-F-20-2200-2410**
For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-DFT-L-QR60-QR35-Z-GF-F-20-2200-2410-1750** for special axle size 1750).



FLOOR ATTACHMENT ④

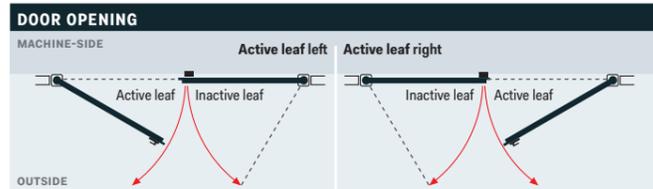
Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm / M12 · 145/160 mm ⑤
Weight example DFT 2000×2010 mm	48.45 kg

PRODUCT OPTION: HEIGHT COMPENSATION

Optional with post -J for height adjustment.

- ① Axle size at post profile QR60 +10 mm, at post profile QR80 +30 mm
- ② For axle size definition, see p. 184.
- ③ Width and height of lights can be reduced according to the system for safety switches, door accessories, door hinges or opening degree.
- ④ Please order floor attachment media separately. See p. 168.
- ⑤ As of an axle size of 2610 mm, use M12.
- ⑥ Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- ⑦ Doors by default with 175 mm ground clearance.
- ⑧ Floor plates centred in the middle by default.

For specific floor plate positioning, see p. 187.



Double wing door for handle, latch or mortise lock, with skylight

Product group/build
DFTO

Illustration shows DFTO with door set TG-V2.



DOOR ACCESSORIES



Door sets



Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Retaining plate system



Switch preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows DFTO with an overroll latch system.



DOOR ACCESSORIES



Handle with bullet crossbow



Handle (2x)

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Handle system



Latch system



Overroll latch system



Latch preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The stop posts of the double wing door with skylight are made of a stable steel profile with welded-on square bottom plate. Both posts are connected to each other with a transom profile and a skylight grid mat. By default, the two door posts are prepared for a corner and passage situation. The welded-on hinges implement an opening width of up to 2800 mm.

Double wing door for handle, latch or mortise lock, with skylight

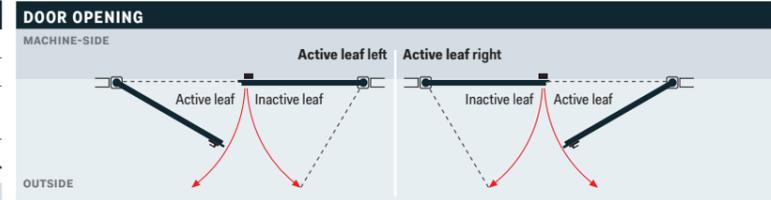
Build	Stop direction		Post profile	Wing profile	Safety fence system FLEX II	Ground clearance		Fence height	Axle size ① from post centre to post centre ②						
	Active leaf left	Active leaf right				175 mm	20 mm		1600	1800	2000	2200	2400	2600	2800
									Open width ③						
DFTO	-L	-R	-QR50	-QR35	-F	-175	-20	-2400	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR60	-QR35	-F	-175	-20	-2600	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR60	-QR35	-F	-175	-20	-2835	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR60	-QR35	-F	-175	-20	-3035	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR80	-QR35	-F	-175	-20	-3235	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR80	-QR35	-F	-175	-20	-3435	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR80	-QR35	-F	-175	-20	-3635	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR80	-QR35	-F	-175	-20	-3835	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR80	-QR35	-F	-175	-20	-4035	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR80	-QR35	-F	-175	-20	-4235	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR80	-QR35	-F	-175	-20	-4435	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR80	-QR35	-F	-175	-20	-4635	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DFTO	-L	-R	-QR80	-QR35	-F	-175	-20	-4835	-1600	-1800	-2000	-2200	-2400	-2600	-2800

Example for item number key Build-stop direction-post profile-wing profile-safety fence system-ground clearance-fence height-axle size **DFTO-L-QR80-QR35-F-175-4035-2800**

For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-DFTO-L-QR50-QR35-F-175-2400-1750** for special axle size 1750).

FLOOR ATTACHMENT ④	
Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm M12 · 145/160 mm ⑤
Weight example DFTO 2000x2000 mm	58.04 kg

- ① Axle size at post profile QR60 +10 mm, at post profile QR80 +30 mm
 - ② For axle size definition, see p. 184.
 - ③ Width and height of lights can be reduced according to the system for safety switches, door accessories, door hinges or opening degree.
 - ④ Please order floor attachment media separately. See p. 168.
 - ⑤ As of a height of 3235 mm, use M12.
 - ⑥ Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
 - ⑦ Doors by default with 175 mm ground clearance.
 - ⑧ DFT is also available in different wing sizes.
 - ⑨ Floor plates centred in the middle by default.
- For specific floor plate positioning, see p. 187.



SAFETY DOORS



Swing doors and door wing

Individuality for effective work processes

Swing doors permit quick access to the machine area and are particularly suitable for use on turning tables or assembly belts. Door wings are integrated directly at your machine and usually used in removal and equipment stations.

Fastest access to the machine area

Safety switch attachment in combination with switching cam system SN-F

Swing doors permit adjustment to the contour of the machine

Overview: Advantages...

... of the swing doors

High stability

Robust and durable hinges corresponding to the size.

Quick access

Quick access to the machine area is ensured.

Individuality

Individual contour adjustment to the machine is possible.

... of the door wing

Integration

The door wings can be integrated into any access of machines or systems in which attachment options are constructionally present. This permits a consistent appearance of the entire course of the fence.

Different ground clearances

All doors are delivered by default with a ground clearance of 175 mm or 20 mm.

Compatible

The door wings are compatible with the Brühl attachment system for safety switches.

... both

Fast installation

Brühl doors are highly stable and ensure quick installation – without any time loss on the construction site.

Maximum shock resilience

All elements are sand-blasted and powder-coated.

Technical data for standard swing doors and door wings Special productions on request.

Product group/build	PT	HPT	TF
Dimensions			
max. distance from the outer edge of the post to the outer edge of the wing	1400	1400	x
max. open width in mm	x	x	1350
max. door-/fence height in mm	2600	2600	2600
Frame filling			
FLEX II	●	●	●
Wave grid 40	●	●	●
Wave grid 25	●	●	●
Welding grid 40	●	●	●
Sheet metal	●	●	●
Polycarbonate	●	●	●
Perforated sheet round holes Rv 5-8	●	●	●
Perforated sheet square holes Qg 8-12	●	●	●
Process view – Sight protection glass reddish-brown	x	x	●
Process view – Sight protection glass green	x	x	●
Process view – Polycarbonate	x	x	●
Attachment systems for safety switches			
Handle preparation BRÜHL-GV	x	x	●
Handle system with bullet crossbow BRÜHL-GRK®	x	x	●
Retaining plate system BRÜHL-HP-F®	x	x	●
Latch system BRÜHL-Ri®	x	x	●
Latch preparation BRÜHL-RV	x	x	●
Switching cam system BRÜHL-SN-F	●	●	x
Safety switch preparation BRÜHL-SV	x	x	●
Rollover latch system BRÜHL-UER®	x	x	●
Surfaces			
Powder-coating/paint	●	●	●
Hot-dip galvanised surface	●	●	●
Ground clearance			
Standard	175 mm	175 mm	175 mm
Reduced	x	x	20 mm

● Combination is possible. x Combination is not possible. ○ Combination is optional.

Swing door

Swing door with high post

Product group/build
PT

Illustration shows PT with a switching can system.

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Switching can system

- Attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Product group/build
HPT

Illustration shows HPT with a switching can system.

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Switching can system

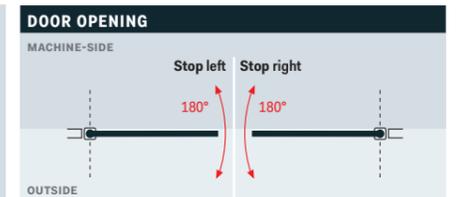
The door post of the swing doors is made of a stable steel profile with welded-on four-hole floor plate and long-lived hinges. A ball catch in the middle position prevents punching through of the door wing.

- Attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Swing door / Swing door with high post

Build	Stop direction		Post profile	Wing profile		Safety fence system / filling										Fence height	Wing height (minus 175 mm ground clearance)	Outer size from the outer edge of the post to the outer edge of the wing					
						ZAUN II					WAND II							625	825	1025	1225	1425	
	left	right		QR25	RP106	FLEX II	Grid fillings					Area elements						Open width					
							FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square perforation	Sheet metal			460	660	860	1060	1260	
PT	-L	-R	QR-60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-1400	-1225	-625	-825	-1025	-1225	-1425	
PT	-L	-R	QR-60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-1600	-1425	-625	-825	-1025	-1225	-1425	
PT	-L	-R	QR-60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-1800	-1625	-625	-825	-1025	-1225	-1425	
PT	-L	-R	QR-60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-2000	-1825	-625	-825	-1025	-1225	-1425	
PT	-L	-R	QR-60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-2200	-2025	-625	-825	-1025	-1225	-1425	
PT	-L	-R	QR-60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-2400	-2225	-625	-825	-1025	-1225	-1425	
PT	-L	-R	QR-60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-2600	-2425	-625	-825	-1025	-1225	-1425	
HPT	-L	-R	QR-60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-2200	-1825	-625	-825	-1025	-1225	-1425	
HPT	-L	-R	QR-60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-2400	-1825-2025	-625	-825	-1025	-1225	-1425	
HPT	-L	-R	QR-60	-QR25	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-2600	-1825-2025-2225	-625	-825	-1025	-1225	-1425	

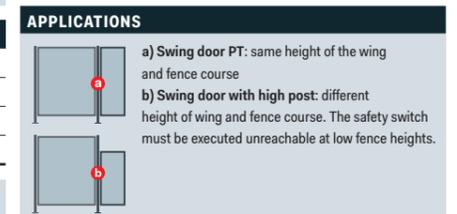
Example for item number key Build-stop direction-post profile-wing profile-safety fence system/filling-fence height-wing height-outer size PT-L-QR60-QR25-W-BL-1400-1225-1025 or HPT-L-QR60-QR25-W-BL-2400-1825-1025
For dimensions that are not in the table, SO- must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. SO-PT-L-QR60-QR25-W-BL-1400-1225-1150 for special axle size 1150).



FLOOR ATTACHMENT PT/ HPT

Required number	4 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example PT 2200x810 mm	27.5 kg

- Please order floor attachment media separately. See p. 168.
- Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- Doors by default with 175 mm ground clearance.
- Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.



Door wings for handle, latch or deadlock slam lock

Product group/build
TF

Illustration shows TF with door set TG-V2.

DOOR ACCESSORIES

TG
Door sets

SG-F
Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

HP-F®
Retaining plate system

SV
Switch preparation

DOOR ACCESSORIES

TZ-GRK-F
Handle with bullet crossbow

TZ-RI-F
Latch

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

GRK-F®
Handle system

RI-F®
Latch system

GV-F
Handle preparation

RV-F
Latch preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows TF with a latch system.

DOOR ACCESSORIES

TG
Door sets

SG-F
Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

HP-F®
Retaining plate system

SV
Switch preparation

DOOR ACCESSORIES

TZ-GRK-F
Handle with bullet crossbow

TZ-RI-F
Latch

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

GRK-F®
Handle system

RI-F®
Latch system

GV-F
Handle preparation

RV-F
Latch preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Door wing for handle, latch or deadlock slam lock																							
Fence height	Build	Stop direction		Wing profile	Filling											Wing height		Door opening					
		left	right		QR25	RP106	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Process view - Polycarbonate	Process view - Sight protection glass reddish-brown	Process view - Sight protection glass green	(minus 175 mm ground clearance)	(minus 20 mm ground clearance)	750	950	1150	1350
1400	TF	-L	-R	-QR25	-RP106	-F	-WG40	-WG25	-SG40	-BL	-P	-LBR	-LBQ	-	-	-	-1225	-1380	-750	-950	-1150	-1350	
1600	TF	-L	-R	-QR25	-RP106	-F	-WG40	-WG25	-SG40	-BL	-P	-LBR	-LBQ	-	-	-	-1425	-1580	-750	-950	-1150	-1350	
1800	TF	-L	-R	-QR25	-RP106	-F	-WG40	-WG25	-SG40	-BL	-P	-LBR	-LBQ	-	-	-	-1625	-1780	-750	-950	-1150	-1350	
2000	TF	-L	-R	-QR25	-RP106	-F	-WG40	-WG25	-SG40	-BL	-P	-LBR	-LBQ	-PE-P	-PE-SSB	-PE-SSG	-1825	-1980	-750	-950	-1150	-1350	
2200	TF	-L	-R	-QR25	-RP106	-F	-WG40	-WG25	-SG40	-BL	-P	-LBR	-LBQ	-PE-P	-PE-SSB	-PE-SSG	-2025	-2180	-750	-950	-1150	-1350	
2400	TF	-L	-R	-QR25	-RP106	-F	-WG40	-WG25	-SG40	-BL	-P	-LBR	-LBQ	-PE-P	-PE-SSB	-PE-SSG	-2225	-2380	-750	-950	-1150	-1350	
2600	TF	-L	-R	-QR25	-RP106	-F	-WG40	-WG25	-SG40	-BL	-P	-LBR	-LBQ	-PE-P	-PE-SSB	-PE-SSG	-2425	-2580	-750	-950	-1150	-1350	

Example for item number key Build-stop direction-wing profile-filling-wing height-door opening **TF-L-QR25-BL-1825-1000**
For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-TF-L-25-F-1425-870** for special size 870).

DOOR OPENING

MACHINE-SIDE

OUTSIDE

DIN left DIN right

Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12

DETAIL VIEW

The hinge is welded to the door wing and is screwed, e.g. to a steel carrier on site.

INSTALLATION SKETCH

20 mm 14 mm

Door opening

WEIGHT

Weight example TF 2000x916 mm 13.64 kg

The door wings are used in opening areas for machine and system accesses. The frame elements of the door wing are welded together with a mitre and can be equipped with different fillings. The scope of delivery includes hinges such as splints and pins, including the means of attachment.

SAFETY DOORS



Sliding doors

One door, many uses

The sliding doors by Brühl are the right choice at a limited space offer. Thanks to the continuous sill rockers, the door wing can be moved freely. The guide rail has stoppers installed as limitation. These stoppers also serve to protect the safety switch.

Smooth-running guide profile of aluminium or steel

Maintenance-free polyamide guide elements

Large stable, robust four-hole bottom plate for stop posts

Overview: Advantages of the sliding doors

Comfortable operation

The standard design contains a precise aluminium guide profile – optionally also as a steel guide profile.

Different ground clearances

All sliding doors are delivered by default with a ground clearance of 175 mm or 20 mm.

Compatible

The sliding doors are compatible with the Brühl attachment system for safety switches.

Safe movement of the wings

Robust stops by stoppers and inlet centring.

Flexible planning

The fence route can be installed in any manner. This positively influences the assembly time and flexibility on the construction site.

Customer-specific solutions

An individual execution is possible depending on demand – in different colours and with hot-dip galvanisation.

Fast installation

Brühl sliding doors are highly stable and ensure quick installation – without any time loss on the construction site.

Maximum shock resilience

All elements are sand-blasted and powder-coated.

SAFETY DOORS

Technical data for standard sliding doors <small>Special productions on request.</small>						
Product group/build	ST	STI	STO	DST	STB	DSTO
Dimensions						
max. axle size in mm	2910	2910	1430	2810	6030	2830
max. door-/fence height in mm	2600	2600	4835	2600	2600	4835
Rail running profile						
Aluminium guide profile with ball-bearing casters	●	●	●	●	●	●
Fillings						
FLEX II	●	●	●	●	●	●
Wave grid 40	●	●	○	●	●	○
Wave grid 25	●	●	○	●	●	○
Welding grid 40	●	●	○	●	●	○
Sheet metal	●	●	○	●	●	○
Polycarbonate	●	●	○	●	●	○
Perforated sheet round holes Rv 5-8	●	●	○	●	●	○
Perforated sheet square holes Qg 8-12	●	●	○	●	●	○
Process view – Sight protection glass reddish-brown	●	●	○	●	●	○
Process view – Sight protection glass green	●	●	○	●	●	○
Process view – Polycarbonate	●	●	○	●	●	○
Brühl door accessories						
Handle set	●	●	●	●	●	●
Attachment systems for safety switches						
Handle preparation BRÜHL-GV	●	×	●	●	●	●
Retaining plate system BRÜHL-HP-S®	●	●	●	●	●	●
Switching cam system BRÜHL-SN-S	●	●	●	●	●	●
Safety switch preparation BRÜHL-SV	●	●	●	●	●	●
Special latch	on request					
Surfaces						
Powder-coating/paint	●	●	●	●	●	●
Hot-dip galvanised surface	●	●	●	●	●	●
Ground clearance						
Standard	175 mm	175 mm	175 mm	175 mm	175 mm	175 mm
Reduced	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm

● Combination is possible. × Combination is not possible. ○ Combination is optional.

Sliding door for handle or hook lock

Product group/build
ST

Illustration shows ST with door set TG-V2.



DOOR ACCESSORIES

Door sets **TG**

Lock set **SG-S**

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Retaining plate system **HP-S®**

Switching can system **SN-S**

Switch preparation **SV**

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows ST with a grip system.



DOOR ACCESSORIES

Handle **TZ-GR-S**

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Retaining plate system **HP-S®**

Handle preparation **GV-S**

Switching can system **SN-S**

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The special aluminium profile, long-lived rolls of steel and a guide of polyamid guarantee for a very smooth and precise opening and closing of the door wing. The posts of the sliding door are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation.

Sliding door for handle or hook lock

Build	Opening direction		Wing profile				Safety fence system / filling												Ground clearance		Axle size ① from post centre to post centre ②														
	Opening to the left	Opening to the right	Axle size ≤ 1400 mm		Axle size > 1400 mm		ZAUN II						WAND II						175 mm	20 mm	Open width ③														
			QR35	RP106	RR50x34	RP1191	Grid fillings			Area elements			Process view			800	1000	1200			1400	1600	1800	2000	2200	2400	2600	2800	2900						
							FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Sheet metal	Polycarbonate	Sight protection-pane reddish-brown	Sight protection-pane green	630	830	1030	1230	1430	1630	1830	2030	2230	2430	2630	2730				
ST	-L	-R	-QR50	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-2900
ST	-L	-R	-QR50	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-2900
ST	-L	-R	-QR50	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-2900
ST	-L	-R	-QR60	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-2900

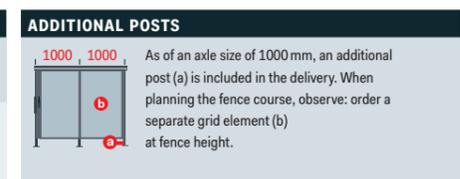
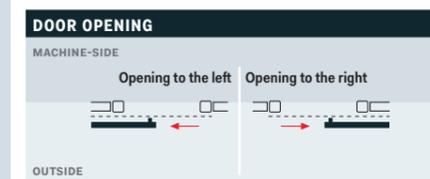
Example for item number key Build-opening direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **ST-L-QR50-QR35-Z-GF-20-SG40-2400-1000**
For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-ST-L-QR50-QR35-Z-GF-20-SG40-2400-1750** for special axle size 1750).

FLOOR ATTACHMENT ④

Required number	8/12 pieces ⑤
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example ST 2000x1000 mm	42.42 kg



- ① Axle size in post profile QR60 +10 mm
- ② For axle size definition, see p. 184.
- ③ Width and height of lights can be reduced according to the system for safety switches, door accessories.
- ④ Please order floor attachment media separately. See p. 168.
- ⑤ As of an axle size of 1000 mm, 12 floor attachments are needed.
- ⑥ Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- ⑦ Doors by default with 175 mm ground clearance.
- ⑧ Lock parts, zinc-plated steel.
- ⑨ Floor plates at the front centre by default. For specific floor plate positioning, see p. 187.



Sliding door for handle or hook lock, inner track

Product group/build
STI

Illustration shows STI with handle set TG-V2.



DOOR ACCESSORIES



ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows STI with a grip system.



DOOR ACCESSORIES



ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The special aluminium profile, long-lived rolls of steel and a guide of polyamid guarantee for a very smooth and precise opening and closing of the door wing. The door wing is designed with an inner track and is used, e.g., when a control cabinet is attached to the outside of the safety device in the return or if a parking position of a pallet is located there.

Sliding door for handle or hook lock, inner track

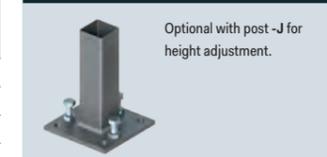
Build	Opening direction		Wing profile				Safety fence system / filling												Ground clearance		Axle size from post centre to post centre														
	Opening to the left	Opening to the right	Axle size ≤ 1400 mm		Axle size > 1400 mm		ZAUN II						WAND II						175 mm	20 mm	Open width														
			QR35	RP106	RR50x34	RP1191	Grid fillings				Area elements		Process view				630	830			1030	1230	1430	1630	1830	2030	2230	2430	2630	2900					
							FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Sheet metal															Polycarbonate	Sight protection-pane reddish-brown	Sight protection-pane green		
STI	-L	-R	-QR50	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-2900
STI	-L	-R	-QR50	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-2900
STI	-L	-R	-QR50	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-2900
STI	-L	-R	-QR60	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-2900

Example for item number key Build-opening direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **STI-L-QR50-QR35-Z-GF-20-SG40-2400-1000**
For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-STI-L-QR50-QR35-Z-GF-20-SG40-2400-1750** for special axle size 1750).

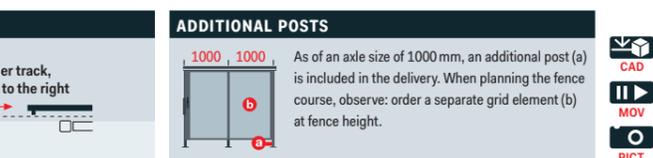
FLOOR ATTACHMENT

Required number	8/12 pieces
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example STI 2000x1000 mm	42.42 kg

PRODUCT OPTION: HEIGHT COMPENSATION



- Axle size in post profile QR60 +10 mm
- For axle size definition, see p. 184.
- Width and height of lights can be reduced according to the system for safety switches, door accessories.
- Please order floor attachment media separately. See p. 168.
- As of an axle size of 1000 mm, 12 floor attachments are needed.
- Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- In assembly STI, the attachment system for the safety switches is on the machine side.
- Doors by default with 175 mm ground clearance.
- Lock parts, zinc-plated steel.
- Floor plates at the rear centre by default. For specific bottom plate positioning, see p. 187.



Sliding door for handle or hook lock, with skylight

Product group/build
STO

Illustration shows STO with door set TG-V2.



DOOR ACCESSORIES



Door sets



Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Retaining plate system



Switching can system



Switch preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows STO with a grip system.



DOOR ACCESSORIES



Handle



Handle with bullet crossbow

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Retaining plate system



Handle preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Sliding door for handle or hook lock, with skylight

Build	Opening direction		Post profile	Wing profile	Safety fence system	Ground clearance		Fence height	Axle size from post centre to post centre			
	left	right				175 mm	20 mm		800	1000	1200	1400
	Open width					630	830		1030	1230		
STO	-L	-R	-QR50	-QR35	-F	-175	-20	-2400	-800	-1000	-1200	-1400
STO	-L	-R	-QR60	-QR35	-F	-175	-20	-2600	-800	-1000	-1200	-1400
STO	-L	-R	-QR60	-QR35	-F	-175	-20	-2835	-800	-1000	-1200	-1400
STO	-L	-R	-QR60	-QR35	-F	-175	-20	-3035	-800	-1000	-1200	-1400
STO	-L	-R	-QR80	-QR35	-F	-175	-20	-3235	-800	-1000	-1200	-1400
STO	-L	-R	-QR80	-QR35	-F	-175	-20	-3435	-800	-1000	-1200	-1400
STO	-L	-R	-QR80	-QR35	-F	-175	-20	-3635	-800	-1000	-1200	-1400
STO	-L	-R	-QR80	-QR35	-F	-175	-20	-3835	-800	-1000	-1200	-1400
STO	-L	-R	-QR80	-QR35	-F	-175	-20	-4035	-800	-1000	-1200	-1400
STO	-L	-R	-QR80	-QR35	-F	-175	-20	-4235	-800	-1000	-1200	-1400
STO	-L	-R	-QR80	-QR35	-F	-175	-20	-4435	-800	-1000	-1200	-1400
STO	-L	-R	-QR80	-QR35	-F	-175	-20	-4635	-800	-1000	-1200	-1400
STO	-L	-R	-QR80	-QR35	-F	-175	-20	-4835	-800	-1000	-1200	-1400

Example for item number key
Build-opening direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size
STO-L-QR50-QR35-F-20-2400-800
For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-STO-L-QR50-QR35-F-20-2400-1750** for special axle size 1750).

ADDITIONAL POSTS



As of an axle size of 1000 mm, an additional post (a) is included in the delivery. Please consider the following when planning the fence course: Order a separate grid element (b1) and skylight grid mat (b2). Grid element (c) above the door enclosed.

- Axle size at post profile QR60 +10 mm, at post profile QR80 +30 mm
- For axle size definition, see p. 184.
- Width and height of lights can be reduced according to the system for safety switches or door accessories.
- Please order floor attachment media separately. See p. 168.
- As of an axle size of 1000 mm, 12 floor attachments are needed.
- As of a height of 3235 mm, use M12.
- Doors by default with 175 mm ground clearance.
- Floor plates at the front centre by default. For specific floor plate positioning, see p. 187.

FLOOR ATTACHMENT

Required number	8/12 pieces
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm M12 · 145/160 mm
Weight example STO 3035x1000 mm	85.8 kg

DOOR OPENING



PRODUCT OPTION: HEIGHT COMPENSATION



The special aluminium profile, long-lived rolls of steel and a guide of polyamid guarantee for a very smooth and precise opening and closing of the door wing. The door post of the sliding door with skylight are made of a stable steel profile with welded-on square bottom plate. Both posts are connected to each other with a transom profile and a skylight grid mat. By default, the two door posts are prepared for a corner and passage situation.

SAFETY DOORS



Double sliding door for handle or hook lock

Product group/build
DST

Illustration shows DST with door set TG-V2.



DOOR ACCESSORIES



Door sets



Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Retaining plate system (2x)



Switching can system (2x)

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows DST with a grip system.



DOOR ACCESSORIES



Handle (2x)



Handle with bullet crossbow

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Handle preparation



Retaining plate system (2x)

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The special aluminium profile, long-lived rollers of steel and a guide of polyamide ensure a very smooth and precise opening and closing of the two door wings that can be opened to the left and right outside of the open width. The door posts of the double sliding door are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation.

Double sliding door for handle or hook lock

Build	Opening direction		Post profile	Wing profile		Safety fence system / filling													Ground clearance		Axle size ① from post centre to post centre ②							
						ZAUN II						WAND II									1600	1800	2000	2200	2400	2600	2800	
	Active leaf opening to the left	Active leaf opening to the right		FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Sheet metal	Polycarbonate	Sight protection-pane reddish-brown	Sight protection-pane green	Open width ③											
DST	-L	-R	-QR50	-QR35	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DST	-L	-R	-QR50	-QR35	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DST	-L	-R	-QR50	-QR35	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-1600	-1800	-2000	-2200	-2400	-2600	-2800
DST	-L	-R	-QR60	-QR35	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-1600	-1800	-2000	-2200	-2400	-2600	-2800

Example for item number key Build-opening direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size DST-L-QR50-QR35-Z-GF-SG40-175-2400-1600

For dimensions that are not in the table, SO- must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. SO-DST-L-QR50-QR35-Z-GF-SG40-175-2400-1750 for special axle size 1750).

FLOOR ATTACHMENT ④

Required number	8/16 pieces ⑤
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example DST 2000x2000 mm	81.94 kg

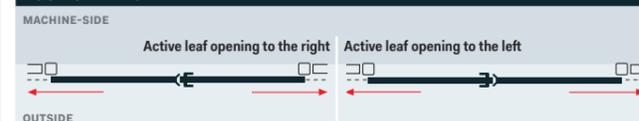
PRODUCT OPTION: HEIGHT COMPENSATION



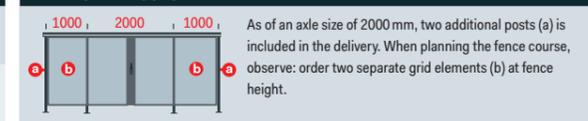
Optional with post -J for height adjustment.

- ① Axle size at post profile QR60 +10 mm, at post profile QR80 +30 mm
- ② For axle size definition, see p. 184.
- ③ Width and height of lights can be reduced according to the system for safety switches or door accessories.
- ④ Please order floor attachment media separately. See p. 168.
- ⑤ As of an axle size of 2000 mm, 16 floor attachments are needed.
- ⑥ Perforated sheet: Round holes Rv5-8 / square holes Qg 8-12
- ⑦ Doors by default with 175 mm ground clearance.
- ⑧ Floor plates at the front centre by default. For specific floor plate positioning, see p. 187.

DOOR OPENING



ADDITIONAL POSTS



As of an axle size of 2000 mm, two additional posts (a) is included in the delivery. When planning the fence course, observe: order two separate grid elements (b) at fence height.



Sliding door for handle or hook lock, opening on both sides

Product group/build
STB

Illustration shows STB with door set TG-V2.

Illustration shows STB with a grip system.



DOOR ACCESSORIES



Door sets (2x)



Lock set (2x)

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Retaining plate system (2x)



Switch preparation (2x)

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

DOOR ACCESSORIES



Handle (2x)



Handle with bullet crossbow (2x)

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Handle preparation (2x)



Retaining plate system (2x)

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The aluminium profile, long-lived rolls of steel and a guide of polyamid guarantee for a very smooth and precise movement of the two door wings. The door post of the sliding door opening to both sides are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation. The outer wing is opens to the right, the inner wing to the left within the portal.

Sliding door for handle or hook lock, opening on both sides

Build	Opening direction	Post profile	Wing profile		Safety fence system / filling														Ground clearance		Axle size from post centre to post centre											
			≤ 4000 mm axle size	> 4000 mm axle size	ZAUN II							WAND II							175 mm	20 mm	Open width											
					Grid fillings				Area elements			Process view																				
			QR35	RP106	RR50x34	RP1191	FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square perforation	Sheet metal	Polycarbonate	Sight protection-pane reddish-brown	Sight protection-pane green	1600	1800	...	3800	4000	4200	4400	...	5800	6000			
STB	-R	-QR80	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-1600	-1800	...	-3800	-4000	-4200	-4400	...	-5800	-6000
STB	-R	-QR80	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-1600	-1800	...	-3800	-4000	-4200	-4400	...	-5800	-6000
STB	-R	-QR80	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-1600	-1800	...	-3800	-4000	-4200	-4400	...	-5800	-6000
STB	-R	-QR80	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-1600	-1800	...	-3800	-4000	-4200	-4400	...	-5800	-6000

Example for item number key Build-opening direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **STB-R-QR80-RP106-Z-FE-P-20-2600-2630**

For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number

(e.g. **SO-STB-R-QR80-RP106-Z-FE-P-20-2600-1750** for special axle size 1750).

FLOOR ATTACHMENT

Required number	10 pcs.
Attachment type	Fixed or shear connector
Size · Length	M12 · 145/160 mm
Weight example STB 2000x2030 mm	69.25 kg

DOOR OPENING



PRODUCT OPTION: HEIGHT COMPENSATION



- Axle size at post profile QR80 +30 mm
- Open width and height may reduce depending on the Width and height of lights can be reduced according to the system for safety switches or door accessories.
- Please order floor attachment media separately. See p. 168.
- Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- Doors by default with 175 mm ground clearance.
- Design of lock set: Outer wing is provided for a Euro profile cylinder dia 17mm with a length of 30/10 mm. The inner wing is provided for a Euro profile cylinder dia 17mm with a length of 30/65 mm
- Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.
- Compare telescopic sliding door STBT Page 106.

Double sliding door for handle or hook lock, with skylight

Product group/build
DSTO

Illustration shows DSTO with door set TG-V2.



DOOR ACCESSORIES



Door sets



Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Retaining plate system (2x)



Switching can system (2x)

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows DSTO with a grip system.



DOOR ACCESSORIES



Handle (2x)



Handle with bullet crossbow

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Retaining plate system (2x)



Handle preparation

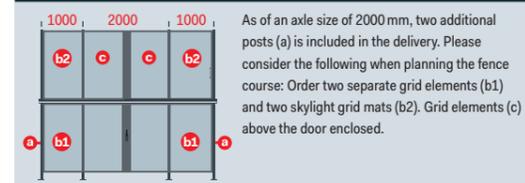
- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Double sliding door for handle or hook lock with top light

Build	Opening direction		Post profile	Wing profile	Safety fence system	Ground clearance		Fence height	Axle size ① from post centre to post centre ②							
	Active leaf opening to the left	Active leaf opening to the right				175 mm	20 mm		Open width ③							
									1600	1800	2000	2200	2400	2600	2800	
DSTO	-L	-R	-QR50	-QR35	-F	-175	-20	-2400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR60	-QR35	-F	-175	-20	-2600	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR60	-QR35	-F	-175	-20	-2835	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR80	-QR35	-F	-175	-20	-3035	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR80	-QR35	-F	-175	-20	-3235	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR80	-QR35	-F	-175	-20	-3435	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR80	-QR35	-F	-175	-20	-3635	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR80	-QR35	-F	-175	-20	-3835	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR80	-QR35	-F	-175	-20	-4035	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR80	-QR35	-F	-175	-20	-4235	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR80	-QR35	-F	-175	-20	-4435	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR80	-QR35	-F	-175	-20	-4635	-1600	-1800	-2000	-2200	-2400	-2600	-2800	
DSTO	-L	-R	-QR80	-QR35	-F	-175	-20	-4835	-1600	-1800	-2000	-2200	-2400	-2600	-2800	

Example for item number key
Build-opening direction-post profile-wing profile-safety fence system-ground clearance-fence height-axle size
DSTO-L-QR80-QR35-F-20-4635-2830
For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number
(e.g. **SO-DSTO-L-QR80-QR35-F-20-4635-1750** for special axle size 1750).

ADDITIONAL POSTS



As of an axle size of 2000 mm, two additional posts (a) is included in the delivery. Please consider the following when planning the fence course: Order two separate grid elements (b1) and two skylight grid mats (b2). Grid elements (c) above the door enclosed.

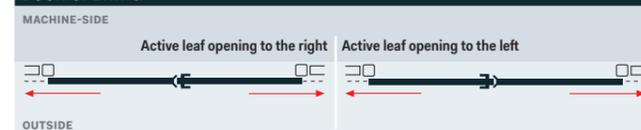
PRODUCT OPTION: HEIGHT COMPENSATION



- Axle size at post profile QR60 +10 mm, at post profile QR80 +30 mm
- For axle size definition, see p. 184.
- Width and height of lights can be reduced according to the system for safety switches or door accessories.
- Please order floor attachment media separately. See p. 168.
- As of an axle size of 2000 mm, 16 floor attachments are needed.
- As of a height of 3235 mm, use M12.
- Doors by default with 175 mm ground clearance.
- Floor plates at the front centre by default. For specific floor plate positioning, see p. 187.

The special aluminium profile, long-lived rollers of steel and a guide of po each other with a transom profile and a skylight grid mat. The door post of the double sliding door with skylight are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation.

DOOR OPENING



FLOOR ATTACHMENT ①

Required number	8/16 pieces ②
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm M12 · 145/160 mm ③
Weight example DSTO 3035x2010 mm	143.7 kg



Folding wing and folding sliding doors

The space-saving version

Folding doors are a particularly space-saving version with strongly limited opening and movement paths, or if no guide elements can be placed in the opening area (folding wing doors).

Folding wing doors without interfering guide elements in the opening area

Use with strongly limited opening/movement paths in the outer area of the machine

Stable welded-on hinges and wing stops

Overview: Advantages of folding wing and folding sliding doors

Fast installation

Brühl doors are highly stable and ensure quick installation – without any time loss on the construction site.

Safe movement of the wings

Robust stops by stoppers and inlet centring.

Compatible

The folding wing and folding doors are compatible with the Brühl attachment system for safety switches.

For large openings

Smallest space demand in the open condition – even with large openings.

Different ground clearances

The doors are delivered by default with a ground clearance of 175 mm or 20 mm.

Customer-specific solutions

An individual execution is possible depending on demand – in different colours and with hot-dip galvanisation.

Comfortable operation

The sliding doors are equipped with a smooth-running steel guide profile.

Flexible planning

The door posts are provided for transit and also for corner situations. These have a positive influence on the assembly time and the flexibility at site.

Maximum shock resilience

All elements are sand-blasted and powder-coated.

SAFETY DOORS

Technical data for folding wing doors and folding sliding doors <small>Special productions on request.</small>				
Product group/build	FAFTR	DFAFTR	FASTG	DFASTG
Dimensions				
max. axle size in mm	4000	8000	5000	5000
max. door-/fence height in mm	2600	2600	2600	2600
Frame filling				
FLEX II	●	●	●	●
Wave grid 40	●	●	●	●
Sheet metal 1.5 mm	●	●	●	●
Polycarbonate 5 mm	●	●	●	●
Wave grid 25	●	●	●	●
Welding grid 40	●	●	●	●
Perforated sheet round holes Rv 5-8	●	●	●	●
Perforated sheet square holes Qg 8-12	●	●	●	●
Process view – Sight protection glass reddish-brown	●	●	●	●
Process view – Sight protection glass green	●	●	●	●
Process view – Polycarbonate	●	●	●	●
Attachment systems for safety switches				
Rollover latch system BRÜHL-UER®	●	●	×	×
Surfaces				
Powder-coating/paint	●	●	●	●
Hot-dip galvanised surface	●	●	●	●
Ground clearance				
Standard	175 mm	175 mm	175 mm	175 mm
Reduced	20 mm	20 mm	20 mm	20 mm

● Combination is possible. × Combination is not possible. ○ Combination is optional.

Folding wing door for latch

Product group/build
FAFTR

Illustration shows FAFTR with overroll latch.



DOOR ACCESSORIES



TZ-GR-F
Handle



STR-LR
Caster

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



UER-F®
Overroll latch system



SV
Switch preparation

Door accessories (see p.170) and attachment systems for safety switches (as of p.127) must be ordered separately.

For a combination overview of all matching door accessories and attachment systems, see p.185.

Please indicate safety switch and actuator types.

Double folding wing door for latch

Product group/build
DFAFTR

Illustration shows DFAFTR with overroll latch.



DOOR ACCESSORIES



TZ-GR-F
Handle



STR-LR
Caster

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



UER-F®
Overroll latch system



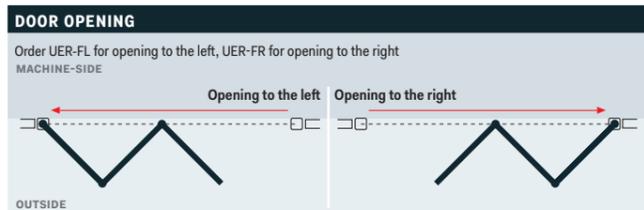
SV
Switch preparation

Door accessories (see p.170) and attachment systems for safety switches (as of p.127) must be ordered separately.

For a combination overview of all matching door accessories and attachment systems, see p.185.

Please indicate safety switch and actuator types.

The folding wing doors have no interrupting guiding elements in the thin opening and only have a small space requirement in open condition. They are executed as latch doors and equipped with a floor latch, which prevents the pushing in of the door wings. The door posts of the folding wing door for latches are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation.

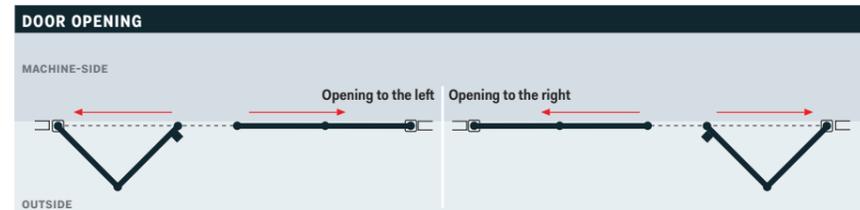


FLOOR ATTACHMENT	
Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M12 · 145/160 mm
Weight example FAFTR 2200x3030 mm	84.6 kg

- ➊ Please order floor attachment media separately. See p.168.
- ➋ Available with 2 or 3 wings.
- ➌ Available in axle sizes from 1.6 to 4 m.
- ➍ Doors by default with 175 mm ground clearance.
- ➎ Floor latch is enclosed in the delivery.
- ➏ The wing number is determined by the space needed in the outer area.
- ➐ For frame filling, see table p.186.
- ➑ Floor plates centred in the middle by default. For specific floor plate positioning, see p.187.
- ➒ Caster is not included in the delivery. Please order it separately, see p.171



The folding wing doors have no interrupting guiding elements in the thin opening and only have a small space requirement in open condition. They are executed as latch doors and equipped with a floor latch, which prevents the pushing in of the door wings. The door posts of this door are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation.



- ➊ Please order floor attachment media separately. See p.168.
- ➋ Available with 3 to 6 wings.
- ➌ Available in axle sizes from 3 to 8 m.
- ➍ Doors by default with 175 mm ground clearance.
- ➎ Floor latch is enclosed in the delivery.
- ➏ The wing number is determined by the space needed in the outer area.
- ➐ For frame filling, see table p.186.
- ➑ Floor plates centred in the middle by default. For specific floor plate positioning, see p.187.
- ➒ Caster is not included in the delivery. Please order it separately, see p.171

FLOOR ATTACHMENT	
Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M12 · 145/160 mm
Weight example DFAFTR 2200x3030 mm	95.4 kg



SAFETY DOORS

Folding sliding door

Product group/build
FASTG

Illustration shows FASTG with door dead bolt.

DOOR ACCESSORIES

TZ-GR-S

Handle

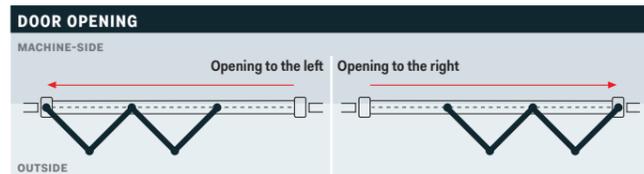
ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

SV

Switch preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- ⓘ Please indicate safety switch and actuator types.

The folding sliding door have only a small space requirement in the open condition. The door posts of this door are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation. Long-lived guide rails and casters give the folding sliding doors very accurate and precise wing movement paths.



FLOOR ATTACHMENT ⓘ	
Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M12 · 145/160 mm
Weight example FASTG 2200×3030 mm	116 kg

- ⓘ Please order floor attachment media separately. See p. 168.
- ⓘ Available with 2 or 4 wings.
- ⓘ Available in axle sizes from 2.8 to 5 m.
- ⓘ Doors by default with 175 mm ground clearance.
- ⓘ The wing number is determined by the space needed in the outer area.
- ⓘ Door dead bolt included in the door delivery.
- For frame filling, see table p. 186.
- Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.



Double folding sliding door

Product group/build
DFASTG

Illustration shows DFASTG with door dead bolt.

DOOR ACCESSORIES

TZ-GR-S

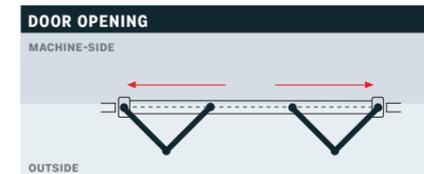
Handle

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

SV

Switch preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- ⓘ Please indicate safety switch and actuator types.



FLOOR ATTACHMENT ⓘ	
Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M12 · 145/160 mm
Weight example DFASTG 2200×3030 mm	135.7 kg

- ⓘ Please order floor attachment media separately. See p. 168.
- ⓘ Available with 4 or 8 wings.
- ⓘ Available in axle sizes from 2.8 to 5 m.
- ⓘ Doors by default with 175 mm ground clearance.
- ⓘ The wing number is determined by the space needed in the outer area.
- ⓘ Door dead bolt included in the door delivery.
- For frame filling, see table p. 186.
- Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.

The double folding sliding door have only a small space requirement in the open condition. The door posts of this door are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation. Long-lived guide rails and casters give the folding sliding doors very accurate and precise wing movement paths.

SAFETY DOORS



Telescopic sliding doors Maximum opening width

Narrow space and the wish for maximum access width determine the application of the telescopic sliding doors. Due to the variable applications, the sliding doors are ideal for, e.g. material storage.

Robust, long-lived guide rails and carriages

Multiple-wing versions are extremely space-saving in their opening/movement paths (STT/DSTT)

Door wing openings to outside of the open width (STT/DSTT)

Large stable, robust four-hole bottomplate for stop posts

Overview: Advantages of telescopic sliding doors

Different ground clearances

All sliding doors are delivered by default with a ground clearance of 175 mm or 20 mm.

Small space demand

This build contains a telescoping wing guide to minimise the overall space demand, at maximum opening width.

Simple height adjustment

A height adjustment of the guide elements is quickly possible via adjustment screws.

Comfortable operation

The standard design contains a precise aluminium guide profile – can optionally be combined with a steel guide profile.

Flexible planning

The door posts are provided for transit and also for corner situations. These have a positive influence on the assembly time and the flexibility at site.

Maximum shock resilience

All elements are sand-blasted and powder-coated.

Suitable for large openings

The sliding doors of the build STT are completely outside of the open width.

Fast installation

Brühl doors are highly stable and ensure quick installation – without any time loss on the construction site.

Customer-specific solutions

An individual execution is possible depending on demand – in different colours and with hot-dip galvanisation. Telescoping sliding doors are available in combination with our attachment systems for safety switches.

SAFETY DOORS

Technical data for telescopic sliding doors Special productions on request.

Product group/build	STT	STBT	DSTT
Dimensions			
max. axle size in mm	5430	6030	5030
max. door-/fence height in mm	2600	2600	2600
Rail running profile			
Aluminium guide profile	●	×	●
Steel guide profile	×	●	×
Frame filling			
FLEX II	●	●	●
Wave grid 40	●	●	●
Wave grid 25	●	●	●
Welding grid 40	●	●	●
Polycarbonate	●	●	●
Sheet metal	●	●	●
Perforated sheet round holes Rv 5-8	●	●	●
Perforated sheet square holes Qg 8-12	●	●	●
Process view – Sight protection glass reddish-brown	●	●	●
Process view – Sight protection glass green	●	●	●
Process view – Polycarbonate	●	●	●
Brühl door accessories			
Door sets	●	●	●
Handles	●	●	●
Attachment systems for safety switches			
Retaining plate system BRÜHL-HP-S®	●	●	●
Handle preparation BRÜHL-GV	●	●	●
Switching cam system BRÜHL-SN-S	●	●	●
Safety switch preparation BRÜHL-SV	●	●	●
Surfaces			
Powder-coating	●	●	●
Hot-dip galvanised surface	●	●	●
Ground clearance			
Standard	175 mm	175 mm	175 mm
Reduced	20 mm	20 mm	20 mm

● Combination is possible. × Combination is not possible. ○ Combination is optional.

Sliding door for handle or hook lock, telescoping

Product group/build
STT

Illustration shows STT with door set TG-V2.



DOOR ACCESSORIES



Door sets



Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Retaining plate system



Switch preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows STT with a grip system.



DOOR ACCESSORIES



Handle



Handle with bullet crossbow

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Handle preparation



Retaining plate system

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The telescoping sliding doors are equipped with a special aluminium profile that ensures highly precise movement paths. The wings are arranged in parallel in the guide profiles and can be opened easily to the left or right outside of the open width. The door posts of this door are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation.

Sliding door for handle or hook lock, telescoping

Build	Opening direction		Wing profile				Safety fence system / filling												Ground clearance		Axle size from post centre to post centre												
	Opening to the left	Opening to the right	≤ 4000 mm axle size		>4000 mm axle size		ZAUN II						WAND II						175 mm	20 mm	Open width												
			QR35	RP106	RR50x34	RP1191	Grid fillings			Area elements			Process view			800	1000	...			3800	4000	4200	4400	...	5200	5400						
	Post profile	Post profile	Post profile	Post profile	FLEX II	FLEX II	Wave grid 40	Wave grid 25	Weiding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Sheet metal	Polycarbonate	Sight protection glass reddish-brown	Sight protection glass green	600	800	...	3600	3800	4000	4200	...	5000	5200						
STT	-L	-R	-QR80	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-800	-1000	...	-3800	-4000	-4200	-4400	...	-5200	-5400
STT	-L	-R	-QR80	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-800	-1000	...	-3800	-4000	-4200	-4400	...	-5200	-5400
STT	-L	-R	-QR80	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-800	-1000	...	-3800	-4000	-4200	-4400	...	-5200	-5400
STT	-L	-R	-QR80	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-800	-1000	...	-3800	-4000	-4200	-4400	...	-5200	-5400

Example for item number key Build-opening direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **STT-R-QR80-RP106-Z-FE-P-175-2600-2630**
For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-STT-R-QR80-RP106-Z-FE-P-20-2600-1750** for special axle size 1750).

FLOOR ATTACHMENT

Required number	12 pcs.
Attachment type	Fixed or shear connector
Size · Length	M12 · 145/160 mm
Weight example STT 2000x2030 mm	105.96 kg

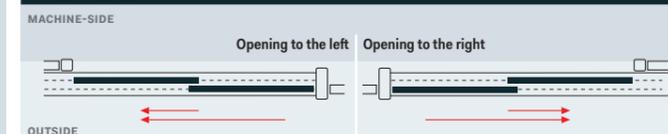
PRODUCT OPTION: HEIGHT COMPENSATION



Optional with post -J for height adjustment.

- Axle size in post profile QR80 +30 mm
- Width and height of the lights can be reduced according to the system for safety switches or door accessories.
- Please order floor attachment media separately. See p. 168.
- Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- Available with 2 wings.
- Doors by default with 175 mm ground clearance.
- For frame filling, see table p. 186.
- Bottom plate for handle posts centred in the middle by default; centred at the front for guide and additional posts by default. For specific floor plate positioning, see p. 187.

DOOR OPENING



Sliding door for handle or hook lock, opening on both sides, telescoping

Product group/build
STBT

Illustration shows STBT with door set TG-V2.



DOOR ACCESSORIES

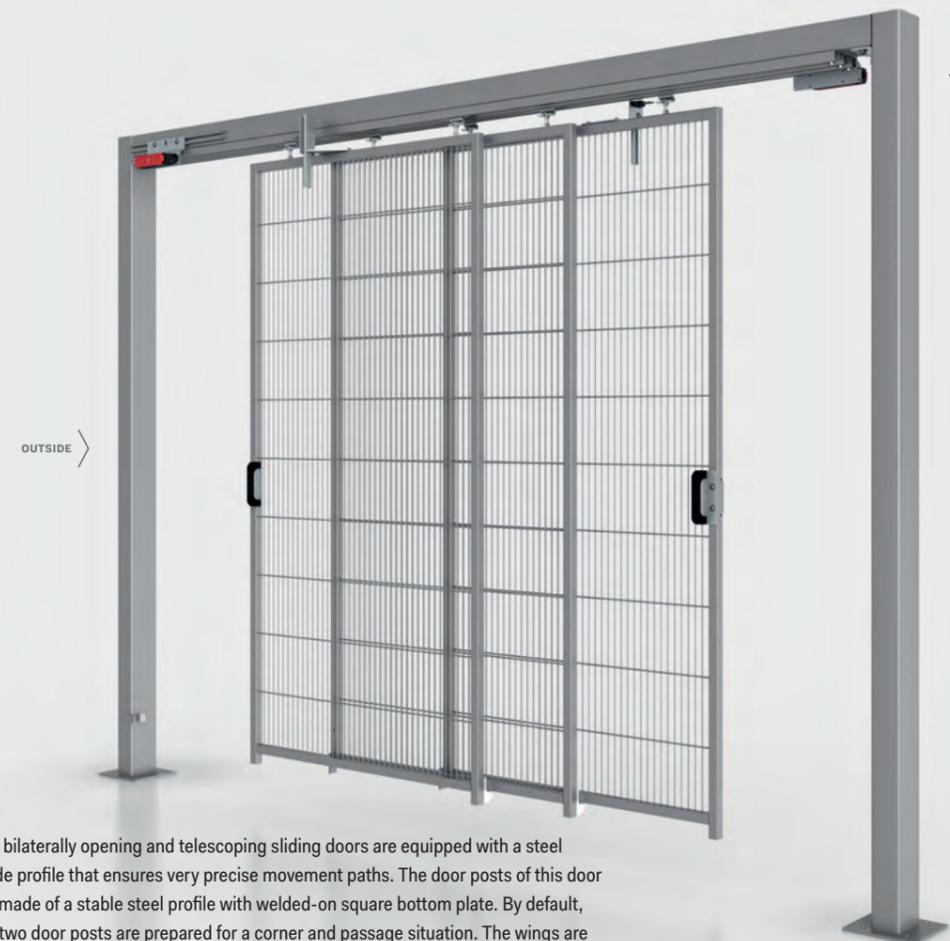


ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows STBT with a grip system.



DOOR ACCESSORIES



ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

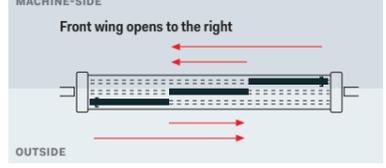
The bilaterally opening and telescoping sliding doors are equipped with a steel guide profile that ensures very precise movement paths. The door posts of this door are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation. The wings are arranged in parallel in the guide profiles and within the portal and can be opened easily to the left or right outside of the open width.

Sliding door for handle or hook lock, opening on both sides, telescoping

Build	Opening direction	Post profile	Wing profile				Safety fence system / filling												Ground clearance	Fence height	Axle size from post centre to post centre											
			≤ 4000 mm axle size		>4000 mm axle size		ZAUN II						WAND II								Open width											
			QR35	RP106	RR50x34	RP1191	Grid fillings				Area elements				Process view						1600	1800	...	3800	4000	4200	4400	...	5800	6000		
			FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Sheet metal	Polycarbonate	Sight protection glass reddish-brown	Sight protection glass green	790	930	...			2260	2390	2530	2660	...	3590	3730					
STBT	-R	-RR80x120	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-1600	-1800	...	-3800	-4000	-4200	-4400	...	-5800	-6000
STBT	-R	-RR80x120	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-1600	-1800	...	-3800	-4000	-4200	-4400	...	-5800	-6000
STBT	-R	-RR80x120	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-1600	-1800	...	-3800	-4000	-4200	-4400	...	-5800	-6000
STBT	-R	-RR80x120	-QR35	-RP106	-RR50x34	-RP1191	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-1600	-1800	...	-3800	-4000	-4200	-4400	...	-5800	-6000

Example for item number key Build-opening direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **STBT-R-RR80x120-QR35-Z-GF-SG40-175-2200-2830**
 For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-STBT-R-RR80x120-RP106-Z-FE-P-20-2600-1750** for special axle size 1750).

DOOR OPENING



PRODUCT OPTION: HEIGHT COMPENSATION



- Axle size in post profile QR80 +30 mm
- Width and height of the lights can be reduced according to the system for safety switches or door accessories.
- Please order floor attachment media separately. See p. 168.
- Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- Available with 3 wings.
- Doors by default with 175 mm ground clearance.
- Design of lock set: Outer wing is provided for a Euro profile cylinder dia 17mm with a length of 30/10 mm. The inner wing is provided for a Euro profile cylinder dia 17mm with a length of 30/65 mm
- For frame filling, see table p. 186.
- Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.
- Compare door STB p. 92.

FLOOR ATTACHMENT

Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M12 · 145/160 mm
Weight example STBT 2200x3000 mm	134.9 kg

SAFETY DOORS



Double sliding door for handle or hook lock, telescoping

Product group/build
DSTT

Illustration shows DSTT with door set TG-V2.



DOOR ACCESSORIES



Door sets



Lock set

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Retaining plate system (2x)



Switch preparation (2x)

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Illustration shows DSTT with a grip system.



DOOR ACCESSORIES



Handle (2x)



Handle with bullet crossbow

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Retaining plate system (2x)



Handle preparation

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

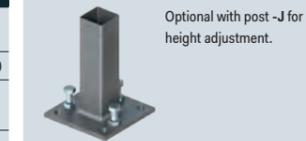
The telescoping double sliding doors are equipped with a special aluminium profile that ensures highly precise movement paths. The door wings of the door can be opened to the left and right outside of the open width. The door posts are made of a stable steel profile with welded-on square bottom plate. By default, the two door posts are prepared for a corner and passage situation.

Double sliding door for handle or hook lock, telescoping

Build	Opening direction		Post profile	Wing profile	Safety fence system / filling												Ground clearance		Axle size from post centre to post centre														
	Opening to the left	Opening to the right			ZAUN II						WAND II						175 mm	20 mm	Open width														
					Grid fillings						Area elements								Process view														
					FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Sheet metal	Polycarbonate	Sight protection-pane reddish-brown			Sight protection-pane green	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000
DSTT	-L	-R	-QR80	-QR35	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2000	-2800	-3000	-3200	-3400	-3600	-3800	-4000	-4200	-4400	-4600	-4800	-5000
DSTT	-L	-R	-QR80	-QR35	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2200	-2800	-3000	-3200	-3400	-3600	-3800	-4000	-4200	-4400	-4600	-4800	-5000
DSTT	-L	-R	-QR80	-QR35	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2400	-2800	-3000	-3200	-3400	-3600	-3800	-4000	-4200	-4400	-4600	-4800	-5000
DSTT	-L	-R	-QR80	-QR35	-RP106	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-20	-2600	-2800	-3000	-3200	-3400	-3600	-3800	-4000	-4200	-4400	-4600	-4800	-5000

Example for item number key Build-opening direction-post profile-wing profile-safety fence system/filling-ground clearance-fence height-axle size **DSTT-L-QR80-QR35-Z-GF-F-175-2400-3630**
 For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-DSTT-L-QR80-QR35-Z-GF-F-175-2400-2750** for special axle size 2750).

PRODUCT OPTION: HEIGHT COMPENSATION

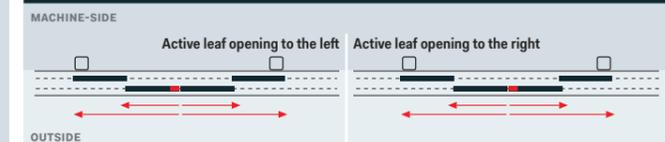


- Optional with post -J for height adjustment.
- Axle size in post profile QR80 +30 mm
- Width and height of the lights can be reduced according to the system for safety switches or door accessories.
- Please order floor attachment media separately. See p. 168.
- Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- Available with 4 wings.
- Doors by default with 175 mm ground clearance.
- For frame filling, see table p. 186.
- Floor plates at the front centre by default.
- For specific floor plate positioning, see p. 187.

FLOOR ATTACHMENT

Required number	16 pcs.
Attachment type	Fixed or shear connector
Size · Length	M12 · 145/160 mm
Weight example DSTT 2200x3010 mm	145.7 kg

DOOR OPENING



Self-supported sliding doors

No limitation of the open height

Where use of guide elements on the floor (stacker traffic) or in the upper area (crane) is not possible, self-supported sliding doors are used. If you need particularly space-saving solutions, choose telescoping or two-wing sliding doors.

No interfering elements in the opening area

Telescoping or two-wing versions minimise the overall space demand

Highly stable portal construction with firmly welded guide strut – no construction kit system

Overview: Advantages of the self-supported sliding doors

No interfering guide elements

No guide elements on the floor or above the open height. Smoothly running, long-lived guide elements. Precise ball-carriage guide available as an option.

Suitable for large openings

The opposite arrangement of two self-supported sliding doors for securing openings permits use in openings of up to 8 m. Two-wing design to bridge large openings is possible.

Fast installation

Brühl doors are highly stable and ensure quick installation – without any time loss on the construction site, since they are entirely pre-installed.

Simple height adjustment

A height adjustment of the guide elements is quickly possible via adjustment screws.

Maximum shock resilience

All elements are sand-blasted and powder-coated.

Flexible planning

The fence route can be installed in any manner. This positively influences the assembly time and flexibility on the construction site.

Small space demand

The FSTST/FSTGT builds are given a telescoping wing guide to minimise the overall space demand. The two-wing build FSTG-2/FSTS-2 is used for further space demand reduction.

Customer-specific solutions

An individual execution is possible depending on demand – in different colours and with hot-dip galvanisation. Self-supported sliding doors are available in combination with our attachment systems for safety switches.

Technical data for self-supported sliding doors Special productions on request.

Product group/build	FSTS	FSTG	FSTST	FSTGT	FSTS-2	FSTG-2
Dimensions						
max. axle size in mm	4830	4830	4030	4030	4030	4030
max. door-/fence height in mm	2600	2600	2600	2600	2600	2600
Build						
Telescopic guide	x	x	•	•	x	x
Frame filling						
FLEX II	•	•	•	•	•	•
Wave grid 40	•	•	•	•	•	•
Sheet metal 1.5 mm	•	•	•	•	•	•
Polycarbonate 5 mm	•	•	•	•	•	•
Wave grid 25	•	•	•	•	•	•
Welding grid 40	•	•	•	•	•	•
Perforated sheet round holes Rv 5-8	•	•	•	•	•	•
Perforated sheet square holes Qg 8-12	•	•	•	•	•	•
Process view – Sight protection glass reddish-brown	•	•	•	•	•	•
Process view – Sight protection glass green	•	•	•	•	•	•
Process view – Polycarbonate	•	•	•	•	•	•
Attachment systems for safety switches						
Retaining plate system BRÜHL-HP-S®	•	•	•	•	x	x
Handle preparation BRÜHL-GV	x	•	x	•	x	•
Safety switch preparation BRÜHL-SV	•	•	•	•	•	•
Surfaces						
Powder-coating/paint	•	•	•	•	•	•
Hot-dip galvanised surface	•	•	•	•	•	•
Ground clearance						
Standard	175 mm	175 mm	175 mm	175 mm	175 mm	175 mm
Reduced	50 mm	50 mm	x	x	x	x

• Combination is possible. x Combination is not possible. o Combination is optional.

Self-supported sliding door with hook lock

Product group/build
FSTS

① Illustration shows FSTS (inner track) with door set TG-V2.

MACHINE-SIDE >

< OUTSIDE

DOOR ACCESSORIES

Door sets

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Retaining plate system

② Door accessories (see p.170) and attachment systems for safety switches (as of p.127) must be ordered separately.

③ For a combination overview of all matching door accessories and attachment systems, see p.185.

④ Please indicate safety switch and actuator types.

The stop post of the self-supported sliding door with hook lock is prepared for a corner and passage situation by default. The guide of steel profile with ball-bearing casters ensures particularly precise movement paths. The door has no interfering guide elements in the opening area.

Self-supported sliding door for handle

Product group/build
FSTG

① Illustration shows FSTG (running on outside) with a grip system.

OUTSIDE >

< MACHINE-SIDE

DOOR ACCESSORIES

Handle

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Handle preparation

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Retaining plate system

② Door accessories (see p.170) and attachment systems for safety switches (as of p.127) must be ordered separately.

③ For a combination overview of all matching door accessories and attachment systems, see p.185.

④ Please indicate safety switch and actuator types.

The guide of steel profile with ball-bearing casters ensures particularly precise movement paths in the self-supported sliding door. The door has no interfering elements in the opening area, and the stop post is prepared for a corner and passage situation by default.

Self-supported sliding door with hook lock / self-supported sliding door for handle

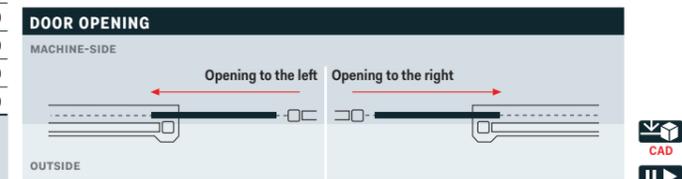
Build	Opening direction		Post profile	Floor guide		Wing profile		Safety fence system / filling																Ground clearance		Axle size ② from post centre to post centre																		
								ZAUN II								WAND II										175 mm		50 mm		Fence height														
	Opening to the left	Opening to the right		≤ 2500 mm	≥ 2500 mm	QR40	RP1008	Grid fillings				Area elements				Process view				800	1000	...	2200	2400	2600	2800	...	4600	4800															
								FLEX II	FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Sheet metal	Polycarbonate	Sight protection - pane reddish-brown											Sight protection glass green	Open width ③													
FSTS	FSTG	-L	-R	-QR80	-408	-510	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-50	-1400	-800	-1000	...	-2200	-2400	-2600	-2800	...	-4600	-4800	590	790	...	1990	2190	2390	2590	...	4390	4590
FSTS	FSTG	-L	-R	-QR80	-408	-510	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-50	-1600	-800	-1000	...	-2200	-2400	-2600	-2800	...	-4600	-4800	590	790	...	1990	2190	2390	2590	...	4390	4590
FSTS	FSTG	-L	-R	-QR80	-408	-510	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-1800	-800	-1000	...	-2200	-2400	-2600	-2800	...	-4600	-4800	590	790	...	1990	2190	2390	2590	...	4390	4590
FSTS	FSTG	-L	-R	-QR80	-408	-510	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2000	-800	-1000	...	-2200	-2400	-2600	-2800	...	-4600	-4800	590	790	...	1990	2190	2390	2590	...	4390	4590
FSTS	FSTG	-L	-R	-QR80	-408	-510	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2200	-800	-1000	...	-2200	-2400	-2600	-2800	...	-4600	-4800	590	790	...	1990	2190	2390	2590	...	4390	4590
FSTS	FSTG	-L	-R	-QR80	-408	-510	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2400	-800	-1000	...	-2200	-2400	-2600	-2800	...	-4600	-4800	590	790	...	1990	2190	2390	2590	...	4390	4590
FSTS	FSTG	-L	-R	-QR80	-408	-510	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2600	-800	-1000	...	-2200	-2400	-2600	-2800	...	-4600	-4800	590	790	...	1990	2190	2390	2590	...	4390	4590

Example for item number key Build-opening direction-post profile-helmet and bottom guide-wing profile-safety fence system/filling-ground clearance-fence height-axle size
FSTS-L-QR80-510-QR40-Z-GF-F-175-1800-3630 or **FSTG-L-QR80-510-QR40-Z-GF-F-175-1800-3630**
 For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-FSTS-L-QR80-510-QR40-Z-GF-F-175-1800-2750** for special axle size 2750).

FLOOR ATTACHMENT ④

Required number	10 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example FSTS 2000x3030 mm	144.37 kg
Weight example FSTG 2000x3030 mm	141.48 kg

- ④ Axle size in post profile QR80 +30 mm
- ⑤ Width and height of the lights can be reduced according to the system for safety switches or door accessories.
- ⑥ Please order floor attachment media separately. See p.168.
- ⑦ Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- ⑧ Doors are delivered with inner track by default. Available with outer track on request.
- ⑨ Formula for calculation of the space demand see p.184.



SAFETY DOORS



Self-supported sliding door with hook lock and telescopic guide

Self-supported sliding door for handle, with telescopic guide

Product group/build
FSTST

Illustration shows FSTST (inner track) with door set TG-V2.

MACHINE-SIDE >
< OUTSIDE

DOOR ACCESSORIES

Door sets

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Retaining plate system

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The stop post of the telescoping self-supported sliding door with hook lock is prepared for a corner and passage situation by default. The telescoping guide of steel profile with ball-bearing casters ensures particularly precise movement paths. The door has no interfering guide elements in the opening area.

Product group/build
FSTGT

Illustration shows FSTGT (outer track) with a grip system.

OUTSIDE >
< MACHINE-SIDE

DOOR ACCESSORIES

Handle

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Handle preparation

Retaining plate system

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The stop post of the telescoping self-supported sliding door for grip is prepared for a corner and passage situation by default. The door has no interfering guide elements in the opening area. The telescoping guide of steel profile with ball-bearing casters ensures particularly precise movement paths of the door.

SAFETY DOORS

Self-supported sliding door with hook lock and telescopic guide / self-supported sliding door for handle and telescopic guide

Build	Opening direction		Post profile	Floor guide		Interim guide		Wing profile		Safety fence system / filling										Safety fence system / filling		Ground clearance	Axle size from post centre to post centre													
	Opening to the left	Opening to the right		≤ 2530 mm	≥ 2530 mm	≤ 2530 mm	≥ 2530 mm	QR40	RP1008	ZAUN II					WAND II					WAND II	Process view		175 mm	50 mm	Open width											
										Grid fillings					Area elements										Polycarbonate	Sight protection glass reddish-brown	Sight protection glass green	800	1000	...	2200	2400	2600	2800	...	3800	4000
	FLEX II	FLEX II		Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Sheet metal	Polycarbonate	Sight protection glass reddish-brown	Sight protection glass green	590	790	...	1990	2190	2390	2590		...	3590														3790
FSTST	FSTGT	-L	-R	-QR80	-508	-510	-407	-409	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-50	-1400	-800	-1000	...	-2200	-2400	-2600	-2800	...	-3800	-4000
FSTST	FSTGT	-L	-R	-QR80	-508	-510	-407	-409	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-50	-1600	-800	-1000	...	-2200	-2400	-2600	-2800	...	-3800	-4000
FSTST	FSTGT	-L	-R	-QR80	-508	-510	-407	-409	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-50	-1800	-800	-1000	...	-2200	-2400	-2600	-2800	...	-3800	-4000
FSTST	FSTGT	-L	-R	-QR80	-508	-510	-407	-409	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2000	-800	-1000	...	-2200	-2400	-2600	-2800	...	-3800	-4000
FSTST	FSTGT	-L	-R	-QR80	-508	-510	-407	-409	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2200	-800	-1000	...	-2200	-2400	-2600	-2800	...	-3800	-4000
FSTST	FSTGT	-L	-R	-QR80	-508	-510	-407	-409	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2600	-800	-1000	...	-2200	-2400	-2600	-2800	...	-3800	-4000

FLOOR ATTACHMENT

Required number	10 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example FSTGT 2000×1000 mm	92.81 kg
Weight example FSTST 2000×1000 mm	95.8 kg

DETAIL VIEW

Bullet crossbow is included in the delivery of the FSTGT.

- Axle size in post profile QR80 +30 mm
- Width and height of the lights can be reduced according to the system for safety switches or door accessories.
- Please order floor attachment media separately. See p. 168.
- Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
- Doors are delivered with inner track by default. Available with outer track on request.
- Formula for calculation of the space demand see p. 184.

Example for item number key Build-opening direction-post profile-helmet and bottom guide-interim guide-wing profile-safety fence system/filling-ground clearance-fence height-axle size
FSTST-L-QR80-510-QR40-Z-GF-F-175-1800-3630 or **FSTGT-L-QR80-510-QR40-Z-GF-175-1800-3630**
 For dimensions that are not in the table, SO- must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-FSTGT-L-QR80-510-QR40-Z-GF-F-175-1800-2750** for special axle size 2750).

DOOR OPENING

MACHINE-SIDE
OUTSIDE

Opening to the left Opening to the right



Self-supported sliding door with hook lock, two wings

Product group/build
FSTS-2

Illustration shows FSTS-2 (outer track) with door set TG-V2.

DOOR ACCESSORIES

Door sets **TG**

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Switch preparation **SV**

- ➊ Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- ➋ For a combination overview of all matching door accessories and attachment systems, see p. 185.
- ➌ Please indicate safety switch and actuator types.

The stop post of the two-wing self-supported sliding door with hook lock is prepared for a corner and passage situation by default.

The guide of steel profile with ball-bearing casters ensures particularly precise movement paths. The door has no interfering guide elements in the opening area.

Self-supported sliding door for handle, two wings

Product group/build
FSTG-2

Illustration shows FSTG-2 (inner track) with a grip system.

DOOR ACCESSORIES

Handle **TZ-GR-S**

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Handle preparation **GV-S**

- ➊ Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- ➋ For a combination overview of all matching door accessories and attachment systems, see p. 185.
- ➌ Please indicate safety switch and actuator types.

The guide of steel profile with ball-bearing casters ensures particularly precise movement paths in the self-supported sliding door with two wings. The door has no interfering elements in the opening area, and the stop post is prepared for a corner and passage situation by default.

Self-supported sliding door with hook lock, two wings / self-supported sliding door for handle, two wings

Build	Opening direction		Post profile	Bottom guide	Interim guide	Safety fence system / filling														Ground clearance		Axle size ① from post centre to post centre						
						Wing profile							WAND II									Open width ②						
	Opening to the left	Opening to the right				QR40	RP1008	FLEX II	ZAUN II				Area elements			Process view				175 mm	50 mm	Fence height	515	715	...	3515	3715	
									FLEX II	Wave grid 40	Wave grid 25	Welding grid 40	Sheet metal	Polycarbonate	Perforated sheet Round perforation	Perforated sheet Square holes	Sheet metal	Polycarbonate	Sight protection-pane reddish-brown									Sight protection glass green	800	1000	...	3800	4000
FSTS-2	FSTG-2	-L -R	-QR80	-510	-408	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-50	-1400	-800	-1000	...	-3800	-4000
FSTS-2	FSTG-2	-L -R	-QR80	-510	-408	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-50	-1600	-800	-1000	...	-3800	-4000
FSTS-2	FSTG-2	-L -R	-QR80	-510	-408	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-	-	-	-175	-50	-1800	-800	-1000	...	-3800	-4000
FSTS-2	FSTG-2	-L -R	-QR80	-510	-408	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2000	-800	-1000	...	-3800	-4000
FSTS-2	FSTG-2	-L -R	-QR80	-510	-408	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2200	-800	-1000	...	-3800	-4000
FSTS-2	FSTG-2	-L -R	-QR80	-510	-408	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2400	-800	-1000	...	-3800	-4000
FSTS-2	FSTG-2	-L -R	-QR80	-510	-408	-QR40	-RP1008	-F	-Z-GF-F	-Z-GF-WG40	-Z-GF-WG25	-Z-GF-SG40	-Z-FE-BL	-Z-FE-P	-Z-FE-LBR	-Z-FE-LBQ	-W-BL	-W-PE-P	-W-PE-SSB	-W-PE-SSG	-175	-50	-2600	-800	-1000	...	-3800	-4000

Example for item number key Build-opening direction-post profile-helmet and bottom guide-interim guide-wing profile-safety fence system/filling-ground clearance-fence height-axle size
FSTS-2-L-QR80-510-QR40-Z-GF-WG40-175-1800-3630 or **FSTG-2-L-QR80-510-QR40-Z-GF-WG40-175-1800-3630**
 For dimensions that are not in the table, **SO-** must be put in front of the item number and the special size must be entered in the corresponding location in the item number (e.g. **SO-FSTS-2-L-QR80-510-QR40-Z-GF-F-175-1800-2750** for special axle size 2750).

DOOR OPENING

MACHINE-SIDE

Opening to the left

OUTSIDE

MACHINE-SIDE

Opening to the right

OUTSIDE

FLOOR ATTACHMENT ③

Required number	16 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example FSTG-2 2200x3030 mm	189.6 kg
Weight example FSTS-2 2200x3030 mm	194.2 kg

- ① Axle size in post profile QR80 +30 mm
 - ② Width and height of the lights can be reduced according to the system for safety switches or door accessories.
 - ③ Please order floor attachment media separately. See p. 168.
 - ④ Perforated sheet: Round holes Rv 5-8 / square holes Qg 8-12
 - ⑤ Formula for calculation of the space demand see p. 184.
- DETAIL VIEW**
-
- Bullet crossbow is included in the scope of delivery.



Lifting and folding fields

The slightly facility system access

The vertical movement direction makes hand-actuated lifting fields particularly space-saving. The weight runs concealed in the post to protect the machine operator. The wing is secured against falling off by several carrying elements. You do not always need a door to perform maintenance and adjustment work on the machines and systems. The folding fields by Brühl can be used for this.

Particularly smooth operation thanks to the concealed counter-weight

All wing fillings are available to match the safety fence system

Safety-switch attachment possible

Overview: Advantages...

... of the lifting fields

Low installation depth

The lifting fields move horizontally and therefore have a very low installation depth.

Comfortable operation

The optional linear guide makes the lifting fields particularly smooth and highly comfortable to operate.

No danger of injury

Safety is important to Brühl. All lifting fields are delivered with the gear covered.

Comprehensive safety equipment

The lifting fields are equipped with several carrying elements for optimal safety.

... of the folding fields

Flexible planning

The fence route can be installed in any manner. This positively influences the assembly time and flexibility on the construction site.

Fast installation

Brühl folding fields are highly stable and ensure quick installation – without any time loss on the construction site.

Customer-specific solutions

An individual execution is possible depending on demand – in different colours and with hot-dip galvanisation.

Maximum shock resilience

All elements are sand-blasted and powder-coated.

SAFETY DOORS

Technical data for lifting and folding fields ⓘ Special productions on request.				
Product group/build	HF	HFE	KF-U	KF-O
Dimensions				
max. width in mm	2900	2900	2900	2900
max. installation height in mm	3500	3500	×	×
max. folding field height in mm	×	×	1000	1000
Frame filling				
FLEX II	●	●	●	●
Wave grid 40	●	●	●	●
Sheet metal 1.5 mm	●	●	●	●
Polycarbonate 5 mm	●	●	●	●
Wave grid 25	●	●	●	●
Welding grid 40	●	●	●	●
Perforated sheet round holes Rv 5-8	●	●	●	●
Perforated sheet square holes Qg 8-12	●	●	●	●
Process view – Sight protection glass reddish-brown	●	●	●	●
Process view – Sight protection glass green	●	●	●	●
Process view – Polycarbonate	●	●	●	●
Attachment systems for safety switches				
Retaining plate system BRÜHL-HP-F®	×	×	●	●
Retaining plate system BRÜHL-HP-S®	●	●	×	×
Surfaces				
Powder-coating/paint	●	●	●	●
Hot-dip galvanised surface	●	●	●	●

● Combination is possible. × Combination is not possible. ○ Combination is optional.

Lifting field

Product group/build
HF

① Illustration shows HF with handle.



DOOR ACCESSORIES



TZ-GR-S

Handle

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



HP-S®

Retaining plate system

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The lifting field is opened and closed manually. It is made of a stable steel structure with concealed weight. The lifting field is prepared for position switches and rails for adjustment. A fall protection via several carrying elements serves to protect against falling.

SCREEN FITTING



Clamping profile type 5 Screen fitting with clamping angles art no SKP-V5

- Visible screen parts is reduced circumferentially by about 13 mm.

FLOOR ATTACHMENT

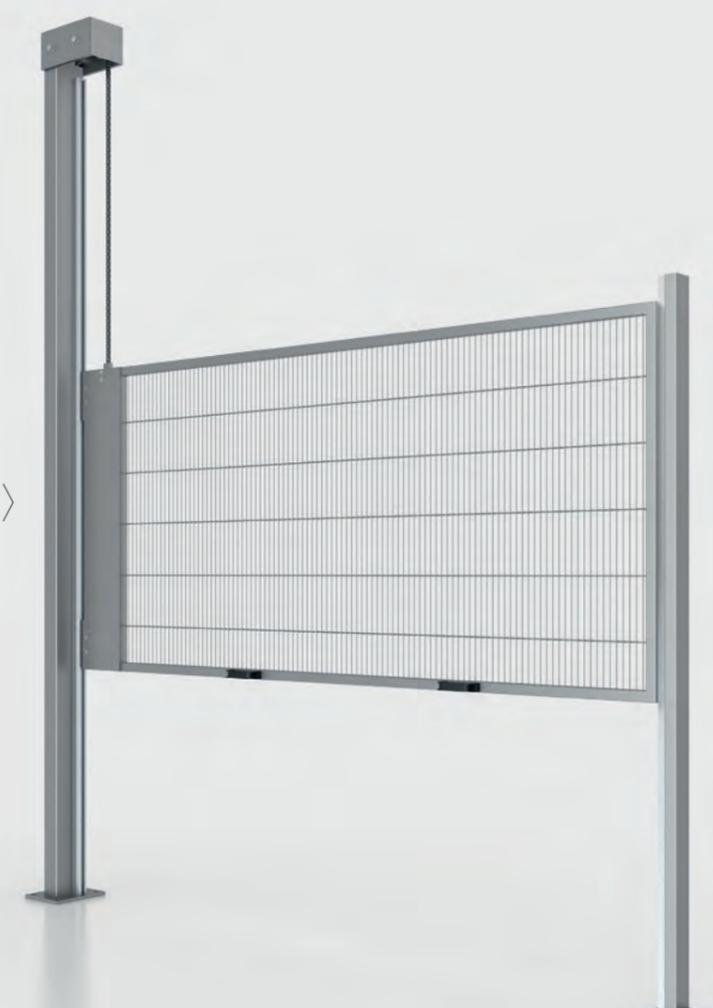
Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M12 · 145/160 mm

- Please order floor attachment media separately. See p. 168.
- Available in open widths of 0.6 to 2.9 m.
- Available in installation heights from 1.5 to 3.5 m.
- Lifting fields with 175 mm ground clearance by default.
- Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.

Lifting field, unilateral

Product group/build
HFE

① Illustration shows HFE with handle.



DOOR ACCESSORIES



TZ-GR-S

Handle

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



HP-S®

Retaining plate system

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.



FLOOR ATTACHMENT

Required number	4 pcs.
Attachment type	Fixed or shear connector
Size · Length	M16 · 130/190 mm

- Please order floor attachment media separately. See p. 168.
- Available in open widths of 0.6 to 2.9 m.
- Available in installation heights from 1.5 to 3.5 m.
- Optionally available with additional guide profile.
- Lifting fields with 175 mm ground clearance by default.
- Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.

The unilateral lifting field is opened and closed manually. It is made of a stable steel structure with concealed weight. The lifting field is prepared for position switches and rails for adjustment. A fall protection via several carrying elements serves to protect against falling.

Folding field, flap down

Product group/build
KF-U

Illustration shows KF-U with handle.

MACHINE-SIDE

OUTSIDE

DOOR ACCESSORIES

TZ-GR-S

Handle

TZ-RI-F

Latch

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

HP-F®

Retaining plate system

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

Folding field, flap top

Product group/build
KF-O

Illustration shows KF-O with handle.

MACHINE-SIDE

OUTSIDE

DOOR ACCESSORIES

TZ-GR-S

Handle

TZ-RI-F

Latch

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

HP-F®

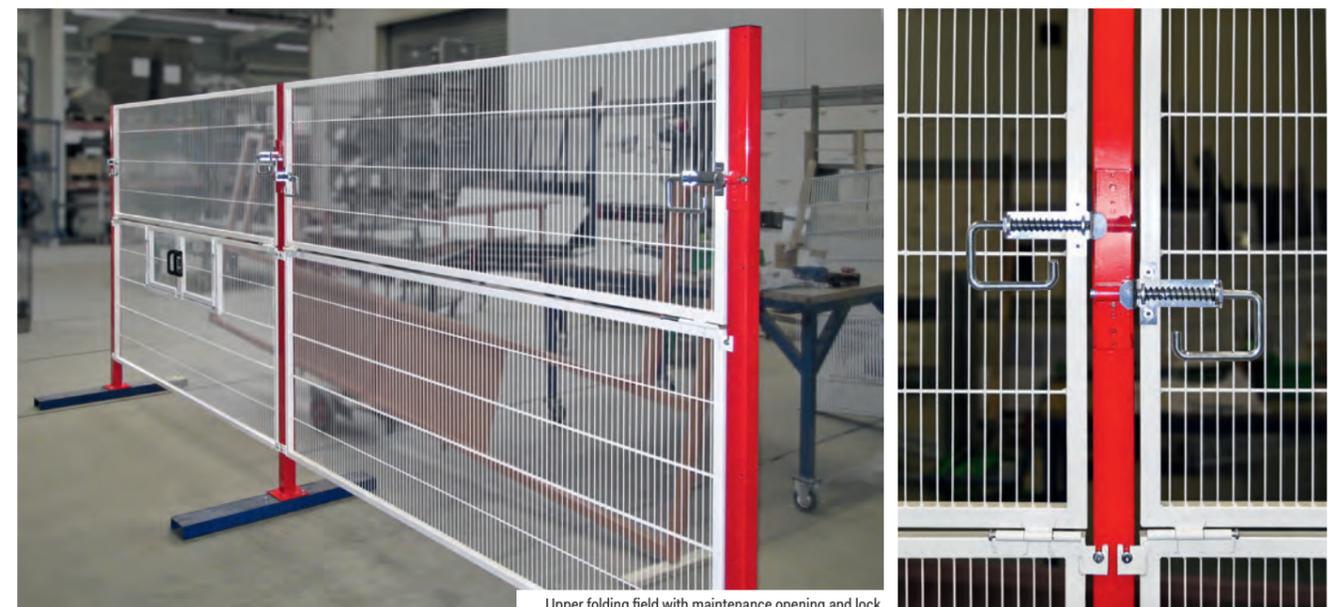
Retaining plate system

- Door accessories (see p. 170) and attachment systems for safety switches (as of p. 127) must be ordered separately.
- For a combination overview of all matching door accessories and attachment systems, see p. 185.
- Please indicate safety switch and actuator types.

The folding fields are built particularly stable and optionally equipped with gas return springs. The posts of the structure are made of a stable steel profile with welded-on four-hole bottom plate and are prepared for corner and passage situations by default.

FLOOR ATTACHMENT KF-U / KF-O	
Required number	8 pcs.
Attachment type	Fixed or shear connector
Size · Length	M10 · 120/130 mm
Weight example KF-U 1600×2000 mm	58.5 kg
Weight example KF-O 2200×3030 mm	58.5 kg

- Please order floor attachment media separately. See p. 168.
- Available in open widths of 0.6 to 2.9 m.
- Available in installation heights from 1.5 to 3.5 m.
- Floor plates centred in the middle by default. For specific floor plate positioning, see p. 187.
- Folding fields by default with 175 mm ground clearance.



Upper folding field with maintenance opening and lock





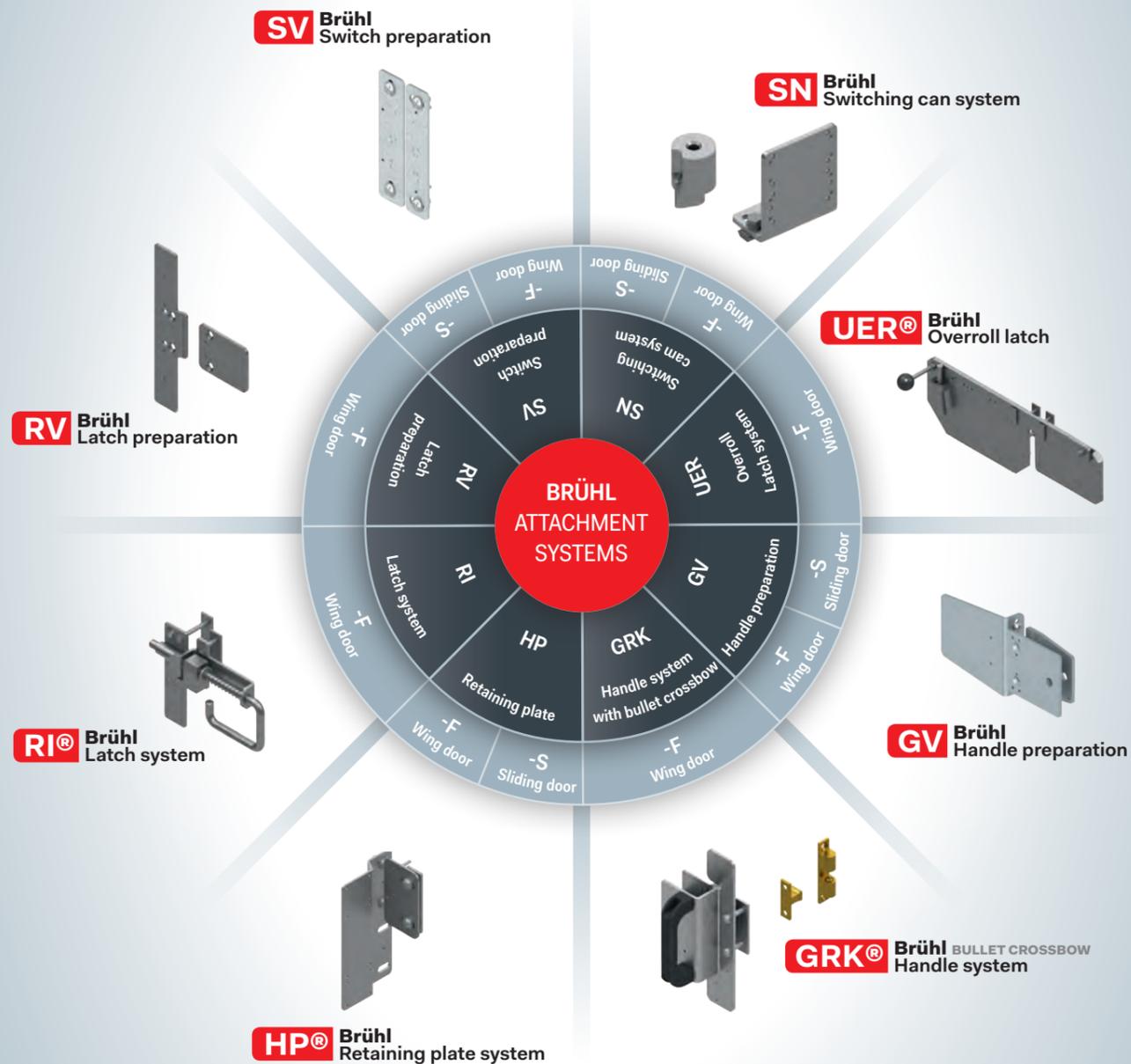
Precisely fitting attachment systems for each safety switch

In addition to all safety doors, Brühl offers a comprehensive range of attachment systems for safety switches that meets every customer wish. Brühl relies both on high-quality goods from renowned manufacturers and on high-quality components from own production. These products have proven their worth where handling and wear is concerned in thousands of applications in the past

Attachment systems for safety switches

Brühl combination overview

This figure provides a first overview of our diverse attachment systems. We provide the precisely fitting attachment system for every door build. We rely on cooperation with renowned manufacturers or our internally developed and produced preparations.



Overview: Advantages of the Brühl attachment systems for safety switches

Diverse possible combinations

Thanks to the diversity of attachment systems for safety switch, access doors of all kinds with different closure or opening options can be put together. The right safety switch or the right attachment system for any application will be available.

Flexible and modular uses

Many accessory elements can be replaced easily at any time thanks to their modular build (e.g. handles or latch). Simple adjustment of the many attachment systems.

Quality and reliability

The cooperation with renowned manufacturers ensures bet reliability and quality in all products.

Assembly instructions included

The complete delivery includes an understandable assembly instruction for each product.

Prevention of mechanical manipulation

Brühl protective facilities with the corresponding attachment systems are designed to avoid mechanical manipulations by users as far as possible.

Combination overview for door attachment systems with door product groups

Product description	Product type/ construction type	GV-F	GV-S	GRK-F®	GRK-FEO®	HP-F®	HP-FEO®	HP-S®	RI-F®	RV-F	SN-F®	SN-S	SV	UER-FR®	UER-FL®	GR-S®
Wing doors	Wing door for handle, latch or deadlock slam lock, opposite sides	FTW	●	×	●	×	●	×	●	●	×	×	●	●	●	×
	Wing door for handle, latch or deadlock slam lock, 1600-3000 mm	FT	●	×	●	×	●	×	●	●	×	×	●	●	●	×
	Wing door for handle, latch or deadlock slam lock, opposite sides, with skylight	FTWO	●	×	●	×	●	×	●	●	×	×	●	●	●	×
	Portal wing door for handle, latch or deadlock slam lock, opposite sides	PFTW	●	×	●	×	●	×	●	●	×	×	●	●	●	×
	Wing door for handle, latch or deadlock slam lock, opening inwards	FTEO	×	×	×	●	×	●	×	×	×	×	●	●	●	×
	Double wing door for handle, latch or deadlock slam lock	DFT	●	×	●	×	●	×	●	●	●	×	●	●	●	×
Swing doors	Swing door	PT	×	×	×	×	×	×	×	×	●	×	×	×	×	
	Swing door with high post	HPT	×	×	×	×	×	×	×	×	●	×	×	×	×	
	Door wing for handle, latch or deadlock slam lock	TF ^②	●	×	●	×	●	×	●	●	×	×	●	●	●	×
Sliding doors	Sliding door for handle or hook lock	ST	×	●	×	×	×	●	×	×	×	●	●	×	×	
	Sliding door for handle or hook lock, inner track	STI	×	×	×	×	×	●	×	×	×	●	●	×	×	
	Sliding door for handle or hook lock, with skylight	STO	×	●	×	×	×	●	×	×	×	●	●	×	×	
	Double sliding door for handle or hook lock	DST	×	●	×	×	×	●	×	×	×	●	●	×	×	
	Sliding door for handle or hook lock, opening on both sides	STB	×	●	×	×	×	●	×	×	×	●	●	×	×	
	Double sliding door for handle or hook lock, with skylight	DSTO	×	●	×	×	×	●	×	×	×	●	●	×	×	
Folding doors	Folding wing door for latch	FAFTR	×	×	×	×	×	×	×	×	×	×	●	●	×	
	Double folding wing door for latch	DFAFTR	×	×	×	×	×	×	×	×	×	×	●	●	×	
	Folding sliding door	FASTG	×	×	×	×	×	×	×	×	×	×	●	×	×	
	Double folding sliding door	DFASTG	×	×	×	×	×	×	×	×	×	×	●	×	×	
Telescoping sliding doors	Sliding door for handle or hook lock, telescoping	STT	×	●	×	×	×	●	×	×	×	●	●	×	●	
	Sliding door for handle or hook lock, opening on both sides, telescoping	STBT	×	●	×	×	×	●	×	×	×	●	●	×	●	
	Double sliding door for handle or hook lock, telescoping	DSTT	×	●	×	×	×	●	×	×	×	●	●	×	●	
Self-supported sliding doors	Self-supported sliding door with hook lock	FSTS	×	×	×	×	×	●	×	×	×	×	●	×	×	
	Self-supported sliding door for handle	FSTG	×	●	×	×	×	●	×	×	×	×	●	×	●	
	Self-supported sliding door with hook lock and telescopic guide	FSTST	×	×	×	×	×	●	×	×	×	×	●	×	×	
	Self-supported sliding door for handle, with telescopic guide	FSTGT	×	●	×	×	×	●	×	×	×	×	●	×	●	
	Self-supported sliding door with hook lock, two wings	FSTS-2	×	×	×	×	×	×	×	×	×	×	●	×	×	
	Self-supported sliding door for handle, two wings	FSTG-2	×	●	×	×	×	×	×	×	×	×	●	×	●	

① Possible with adjustment. ② Possible with on-site adjustment. ● Combination is possible. × Combination is not possible. ○ Combination possible optionally.

① Please indicate the complete designation of the safety switch and actuator in your order/request at all times. ② Call us if the attachment system for safety switch chosen by you is not available in our product selection. ③ For product combinations, see p. 185.

Product group/build
GV

MACHINE-SIDE >

Mechanical stop to avoid damage to the door and safety switch

Flight unlatching possible

< OUTSIDE

Standard for all Brühl-attachment systems:

- Robust zinc-plated surface
☞ ISO 14120, 5.6
- Symmetrical construction for door stop device DIN left/ DIN right
- Rounded laser canting parts
☞ ISO 14120, 5.3.7
- Precisely fitting threads for switch attachment
☞ ISO 14119, 5.2/(j)
- Precisely fitting provisions for safety switch
- All screw-connections are manipulation-proof

Handle preparation BRÜHL-GV

The grip system BRÜHL-GV is a precisely fitting preparation for attachment of compact and multifunctional safety holding-shut devices for different safety switchgear manufacturers. Depending on the switch build, the product properties include an additional mechanical stop to

avoid damage to the door and safety switch, robust zinc-plated surfaces and precisely fitting threads for quick installation.

This is how it works:



➤ You have already chosen a safety switch: e.g. Euchner MGB. ☞

☞ DIN EN ISO 14119



➤ We supply the attachment system to match: Grip preparation BRÜHL-GV with matching provision.



➤ You will receive a precisely fitting attachment system for your safety switch.

Overview of grip preparations BRÜHL-GV for wing doors

Manufacturer	Switch assembly	Item no.
Euchner	EUCHNER MGB	GV-F-V2-MGB-B004
Fortress Interlocks	amGardpro EI-I6	GV-F-V4-EI16-B090
	amGardpro EN-T6	GV-F-V4-EN4T6SL-B085
Jokab Safety	Knox	GV-F-V3-KNOX-B069
Schmersal	AZM200	GV-F-V2-AZM200-B003
	AZM200-SZ200	GV-FR-V2-AZM200-SZ200-B035
	AZ200-SZ200	GV-FR-V2-AZ200-SZ200-B035
	AZM200-SZ200	GV-FL-V2-AZM200-SZ200-B036
AZ200-SZ200	GV-FL-V2-AZ200-SZ200-B036	

Overview of grip preparations BRÜHL-GV for sliding doors

Manufacturer	Switch assembly	Item no.
Euchner	EUCHNER MGB	GV-S-V2-MGB-B059
Schmersal	SCHMERSAL AZM200	GV-S-V2-AZM200-B060

Explanation of attachment situation abbreviations:

FL = wing door DIN left (doors attached on the left),
FR = wing door DIN right (doors attached on the right),
F = wing door, S = sliding door

- ☞ Safety switches are **not** enclosed.
- ☞ Screws for switch attachments are **not** enclosed.
Cf. EN ISO 14119, 7.2 c and table 3.
- ☞ Attachment elements can only be released with tools. Cf. EN ISO 14119, 52 (a).
- ☞ Observe for fence planning: For grip preparations, the attachment system may protrude in one outer corner; at inner corners, you may need to plan for an additional fence element (e.g. Euchner MGB).
- ☞ To prevent reaching over and actuation of the flight unlatching mechanism, we recommend that the door height be at least 1800 mm and a transfer with a diagonal element at low fence heights. ☞ See special elements p. 36 and 46.
- ☞ See combination overview on p. 185.

PRODUCT OPTION



Protection against reaching through for safety switch with flight unlatching
☞ Ordering options s. p. 171.



Product example: Grip preparation with safety switch by Fortress



Product example: Protection against reaching through

Product group/build
GRK®

MACHINE-SIDE >

Mechanical stop to avoid damage to the door and safety switch

Switch protection thanks to coverage by the grip system

Bullet crossbow for fastening of the door wing

Stable PA-handle

< OUTSIDE

Standard for all Brühl-attachment systems:

- Robust zinc-plated surface
☞ ISO 14120, 5.6
- Symmetrical construction for door stop device DIN left/DIN right
- Rounded laser cutting parts
☞ ISO 14120, 5.3.7
- Precisely fitting threads for switch attachment
☞ ISO 14119, 5.2/(j)
- Precisely fitting provisions for safety switch
- All screw-connections are manipulation-proof

Handle system with bullet crossbow BRÜHL-GRK®

The attachment system BRÜHL-GRK® is the standard attachment system for the precisely fitting attachment of safety switches at Brühl-wing doors. The safety switch is attached from the outside of the machine at the height of the stable plastic handle. The system is characterised by an optional bullet crossbow that is used accord-

ing to the Brühl product recommendation for safety switches with a latching force below 30 N. The attachment system can be used for doors attached on the right or on the left. The Brühl grip system can be combined with different manufacturer-comprehensive safety switches.

This is how it works:

- You have already chosen a safety switch, e.g. Siemens 3SE5.☞
- We supply the attachment system to match: Grip system with bullet crossbow BRÜHL-GRK® with matching provision.
- You will receive a precisely fitting attachment system for your safety switch.

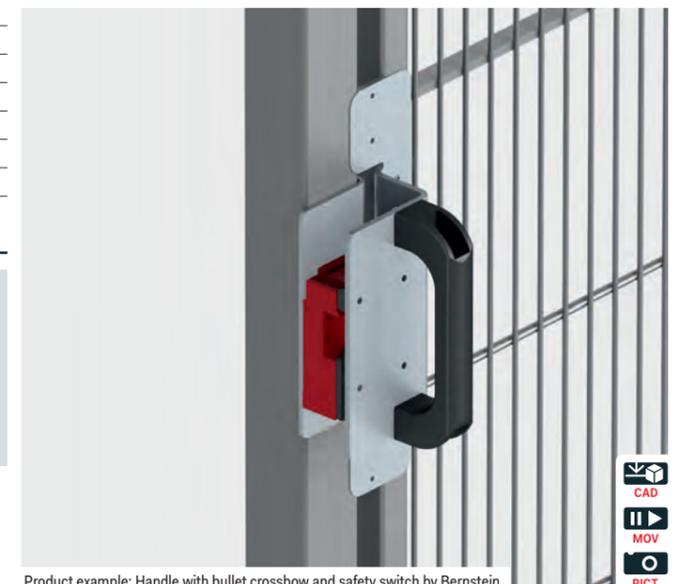
☞ DIN EN ISO 14119

Overview grip system with bullet crossbow BRÜHL-GRK® for wing doors

Manufacturer	Switch assembly	Item no.
Bernstein	SK	GRK-F-V4-SK-B001
	SKC	GRK-F-V4-SKC-B001
Honeywell	GKN	GRK-F-V4-GKN-B001
ABB	Magne	GRK-F-V2-MAGNE-B071
Pilz	PSENme2	GRK-F-V4-PSENME2-B001
	PSENme3	GRK-F-V4-PSENME3-B001
	PSENslock	GRK-F-V2-PSENSL-B043
Schmersal	MZM100	GRK-FEO-V1-MZM100-B005
	AZ15	GRK-F-V4-AZ15-B001
	AZ16	GRK-F-V4-AZ16-B001
	AZ300	GRK-F-V2-AZ300-B078
	AZM161	GRK-F-V4-AZM161-B002
	AZM170	GRK-F-V4-AZM170-B055
	AZM300	GRK-F-V2-AZM300-B078
	EX-AZ16	GRK-F-V4-EX-AZ16-B001
	EX-AZM161	GRK-F-V4EX-AZM161-B002
	MZM100	GRK-F-V2-MZM100-B006
Sick	BNS-B20	GRK-F-V3-BNS-B20-B007
	i16	GRK-F-V4-i16-B001
Siemens	i17	GRK-F-V4-i17-B001
	3SE2	GRK-F-V4-3SE2-B001
Rockwell Automation	3SE5	GRK-F-V2-3SE5-B040
	440K-T	GRK-F-V4-440K-T-B001

Explanation of attachment situation abbreviations: F = wing door, FEO = wing door opening inwards

- ☞ Safety switches are **not** enclosed.
- ☞ Screws for switch attachments are **not** enclosed.
Cf. EN ISO 14119, 7.2 c and table 3.
- ☞ Attachment elements can only be released with tools. Cf. EN ISO 14119, 52 (a).
- ☞ See combination overview on p. 185.



Product group/build
HP-F®

MACHINE-SIDE >

Simple adjustability of the switch and actuator plate

Mechanical stop to avoid damage to the door and safety switch in handle, grip or latch system

< OUTSIDE

Standard for all Brühl-attachment systems:

➤ Robust zinc-plated surface
ISO 14120, 5.6

➤ Symmetrical construction for door stop device DIN left/DIN right

➤ Rounded laser cutting parts
ISO 14120, 5.3.7

➤ Precisely fitting threads for switch attachment
ISO 14119, 5.2/(j)

➤ Precisely fitting provisions for safety switch

➤ All screw-connections are manipulation-proof

Retaining plate system BRÜHL-HP-F® for wing doors

The retaining plate system BRÜHL-HP-F® is supplemented according to access comfort with a handle set, a handle or latch. The safety switch is attached with the Brühl retaining plate system in the upper area of the door wing on the machine side. The system can be used for doors attached on the left or right equally. Aluminium plugs serve

manipulation protection. The retaining plate system BRÜHL-HP-F® can be combined easily with safety switches of build 2 (with or without safety holding-shut device).

This is how it works:

➤ You have already chosen a safety switch, e.g. Schmersal AZM161. Ⓢ

Ⓢ DIN EN ISO 14119

➤ We supply the attachment system to match: Retaining plate system BRÜHL-HP-F® for wing doors with matching provision.

➤ You will receive a precisely fitting attachment system for your safety switch.

Overview of retaining plate system BRÜHL-HP-F® for wing doors

Manufacturer	Switch assembly	Item no.	Manufacturer	Switch assembly	Item no.
Bernstein	BERNSTEIN	SK	Pilz	PILZ	PSENme1
		SKC			HP-F-V1-PSENME2-B052
		SLK			HP-F-V1-PSENME3-B052
Comitronic-BTI	AMX	HP-F-V1-AMX-B067	Rockwell Automation	440K-T	HP-F-V1-440K-T-B052
Euchner	EUCHNER	CET		Schmersal	SCHMERSAL	AZ15
		GP	HP-F-V1-AZ15-B052		
		NZ	HP-F-V1-AZ16-B052		
		SGP	HP-F-V1-AZ17-B058		
		STA	HP-F-V1-AZ300-B079		
		STP	HP-F-V1-AZM161-B038		
		TP	HP-F-V1-AZM170-B038		
TZ	HP-F-V1-AZM300-B079				
Honeywell	Honeywell	GKN	BNS16	HP-F-V1-BNS16-B052	
		GKS	HP-F-V1-BZ16-B052		
Leuze electronic	Leuze electronic	L200	BZ16	HP-F-V1-BZ16-B052	
		S20	HP-F-V1-EX-AZ16-B052		
Omron Electronics	OMRON	D4NL	EX-AZM161	HP-F-V1-EX-AZM161-B038	
		D4NS	HP-F-V1-EX-AZM161-B038		

Overview of retaining plate system BRÜHL-HP-FEO® for wing doors opening inwards

Manufacturer	Switch assembly	Item no.	Manufacturer	Switch assembly	Item no.	
Rockwell Automation		440K-T	Telemecanique Sensors	Telemecanique Sensors	XCS-A	
Bernstein	BERNSTEIN	SK			XCS-B	HP-F-V1-XCS-A-B011
		SKC			HP-F-V1-XCS-B-B011	
					HP-F-V1-XCS-C-B011	
Honeywell	Honeywell	GKN			XCS-E	HP-F-V1-XCS-E-B030
					HP-F-V1-XCS-PA-B052	
Pilz	PILZ	PSENme2	XCS-TA	HP-F-V1-XCS-TA-B052		
		PSENme3	HP-F-V1-XCS-TE-B030			
		AZ15	HP-F-V1-i10-B013			
Schmersal	SCHMERSAL	AZ16	Sick	SICK	i12	
		AZM161			HP-F-V1-i12-B058	
		AZ16			HP-F-V1-i16-B052	
Sick	SICK	i16	i17	HP-F-V1-i17-B052		
		i17	HP-F-V1-i17-B052			
Siemens	SIEMENS	3SE2	Siemens	SIEMENS	3SE2	
		3SE5			HP-F-V1-3SE2-B052	
		3SE5	HP-F-V1-3SE5-B010			
		3SE5	HP-F-V1-3SE5-B051			

Explanation of attachment situation abbreviations: F = wing door, FEO = wing door opening inwards
 Ⓢ Safety switches are not enclosed. Cf. EN ISO 14119, 7.2 c and table 3.
 Ⓢ Attachment elements can only be released with tools. Cf. EN ISO 14119, 5.2 (a).
 Ⓢ See combination overview on p. 185.

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Product group/build

HP-S®

MACHINE-SIDE

Adjustability of the switch and actuator plate

Mechanical stop to avoid damage to the door and safety switch by stopper in the aluminium profile

Optimal run-in of actuator and switch guaranteed

Standard for all Brühl-attachment systems:

- Robust zinc-plated surface
☞ ISO 14120, 5.6
- Symmetrical construction for door stop device DIN left/DIN right
- Rounded laser cutting parts
☞ ISO 14120, 5.3.7
- Precisely fitting threads for switch attachment
☞ ISO 14119, 5.2/(j)
- Precisely fitting provisions for safety switch
- All screw-connections are manipulation-proof

Retaining plate system BRÜHL-HP-S® for sliding doors

The retaining plate system BRÜHL-HP-S® is supplemented with a handle set or handle according to the access comfort and can be used for doors attached on the left or right. A mechanical stop in the aluminium profile avoids damage to the safety switch and actuator. The position of the safety switches depends on the door build and

wing availability. The retaining plate system BRÜHL-HP-S® can be combined easily with safety switches of build 2 (with or without safety holding-shut device).

This is how it works:



➤ You have already chosen a safety switch: e.g. Euchner TZ.®

☞ DIN EN ISO 14119



➤ We supply the attachment system to match: Retaining plate system BRÜHL-HP-S® for sliding doors with matching provision.



➤ You will receive a precisely fitting attachment system for your safety switch.

Overview of the retaining plate system BRÜHL-HP-S® for sliding doors

Manufacturer	Switch assembly	Item no.	Manufacturer	Switch assembly	Item no.
Bernstein	BERNSTEIN	SK	Schmersal	AZ15	HP-S-V3-AZ15-B053
		SKC		AZ16	HP-S-V3-AZ16-B053
		SLK+ENK		AZ17	HP-S-V3-AZ17-B058
		SLK		AZM161	HP-S-V3-AZM161-B039
Comitronic-BTI		AMX		AZM170	HP-S-V3-AZM170-B039
				BNS16	HP-S-V3-BNS16-B053
Euchner	EUCHNER	NZ		BZ16	HP-S-V3-BZ16-B053
		STA		AZM400	HP-S-V3-AZM400-B086
		STP		XCS-A	HP-S-V3-XCS-A-B037
		TP		XCS-B	HP-S-V3-XCS-B-B037
		TZ		XCS-C	HP-S-V3-XCS-C-B037
		CET		XCS-E	HP-S-V3-XCS-E-B031
Honeywell	Honeywell	CES	XCS-PA	HP-S-V6-XCS-PA-B053	
		GKN	XCS-PA	HP-S-V6-XCS-PA-B072	
Jokab Safety		GKS	XCS-TA	HP-S-V3-XCS-TA-B053	
		EDEN	XCS-TE	HP-S-V3-XCS-TE-B031	
Leuze electronic	Leuze electronic	L200	i10	HP-S-V3-i10-B014	
		S20	i12	HP-S-V3-i12-B058	
Omron Electronics	OMRON	D4NS	i16	HP-S-V3-i16-B053	
			i17	HP-S-V3-i17-B053	
Pilz	PILZ	PSENme1	T400-DNA	HP-S-V6-T400-DNA-B070	
		PSENme2	3SE2	HP-S-V3-3SE2-B053	
		PSENme3	3SE5	HP-S-V3-3SE5-B010	
		PSENslook	3SE5	HP-S-V3-3SE5-B051	
		PSENcs3			
		PSENcs4			
		PSENma1			
		PSENma2			
		PSENma1			
		PSENma2			
Rockwell Automation		440G-T			
		440K			

Explanation of attachment situation abbreviations: S = sliding door

- ① Safety switches are not enclosed.
- ② Screws for switch attachments are not enclosed.
Cf. EN ISO 14119, 7.2 c and table 3.
- ③ Attachment elements can only be released with tools. Cf. EN ISO 14119, 52 (a).
- ④ See combination overview on p. 185.



Product example: Retaining plate with safety switch by Euchner

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Product group/build
RI®

MACHINE-SIDE

Very robust low-maintenance and low-cleaning system

With latch guide and latch holder

With pressure spring for forced positioning "latch closed"

Mechanical stop to avoid damage to the door and safety switch

OUTSIDE

Standard for all Brühl-attachment systems:

- Robust zinc-plated surface
ISO 14120, 5.6
- Symmetrical construction for door stop device DIN left/DIN right
- Rounded laser cutting parts
ISO 14120, 5.3.7
- Precisely fitting threads for switch attachment
ISO 14119, 5.2/(j)
- Precisely fitting provisions for safety switch
- All screw-connections are manipulation-proof

Latch system BRÜHL-RI® for wing doors

The latch bolt mechanically guides the actuator when it moves into the safety switch. The BRÜHL-RI® latch system has an integrated protection against falling shut; a pressure spring holds the latch tab in the position "latch closed" without actuation. Aluminium plugs serve manipulation protection. This system is very robust, requires little

maintenance and cleaning and has proven its worth in the industrial environment for more than 30 years. The attachment system BRÜHL-RI® can be combined easily with safety switches of build 2 (with or without safety holding-shut device).

This is how it works:

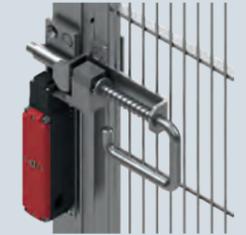


You have already chosen a safety switch: e.g. Euchner TP.®

DIN EN ISO 14119



We supply the attachment system to match: Latch system BRÜHL-RI® for wing doors with matching provision.



You will receive a precisely fitting attachment system for your safety switch.

Overview of the latch system BRÜHL-RI® for wing doors

Manufacturer	Switch assembly	Item no.
Bernstein	SLK	RI-F-V1-SLK-B016
	SK	RI-F-V5-SK-B021
	SKC	RI-F-V5-SKC-B021
Euchner	CTP	RI-F-V1-CTP-B017
	NZ	RI-F-V1-NZ-B054
	STA	RI-F-V1-STA-B017
	STP	RI-F-V1-STP-B017
	TP	RI-F-V1-TP-B017
	TZ	RI-F-V1-TZ-B018
Honeywell	GKS	RI-F-V1-GKS-B017
	GKN	RI-F-V5-GKN-B021
Leuze electronic	L200	RI-F-V1-L200-B017
Pilz	PSENme1	RI-F-V1-PSENME1-B016
	PSENme2	RI-F-V5-PSENME2-B021
	PSENme3	RI-F-V5-PSENME3-B021
Rockwell Automation	440K-C	RI-F-V1-440K-C-B054
	440K-C	RI-F-V5-440K-C-B021
	440K-T	RI-F-V5-440K-T-B021
Schmersal	AZ15	RI-F-V5-AZ15-B021
	AZ16	RI-F-V5-AZ16-B021
	AZM161	RI-F-V5-AZM161-B022
	AZM190	RI-F-V5-AZM190-B057
	BNS16	RI-F-V5-BNS16-B021
	TZK	RI-F-V5-TZK-B057
Telemecanique Sensors	XCS-E	RI-F-V1-XCS-E-B018
Sick	i10	RI-F-V1-i10-B017
	i16	RI-F-V5-i16-B021
	i17	RI-F-V5-i17-B021
Siemens	3SE5	RI-F-V1-3SE5-B015
	3SE2	RI-F-V5-3SE2-B021

Explanation of attachment situation abbreviations: F = wing door

- ① Safety switches are not enclosed.
- ② Screws for switch attachments are not enclosed. Cf. EN ISO 14119, 7.2 c and table 3.
- ③ Attachment elements can only be released with tools. Cf. EN ISO 14119, 5.2 (a).
- ④ See combination overview on p.185.



Product example: Latch system with safety switch by Pilz



Product example: Latch system with safety switch by Euchner in attachment situation

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES

Product group/build
RV

MACHINE-SIDE

Can be combined with many safety switches

Escape unlatching device as switch preparation (SV) possible

Mechanical stop to avoid damage to the door and safety switch

Standard for all Brühl-attachment systems:

- Robust zinc-plated surface
ISO 14120, 5.6
- Symmetrical construction for door stop device DIN left/DIN right
- Rounded laser canting parts
ISO 14120, 5.3.7
- Precisely fitting threads for switch attachment
ISO 14119, 5.2(i)
- Precisely fitting provisions for safety switch
- All screw-connections are manipulation-proof

OUTSIDE

Latch preparation BRÜHL-RV for wing doors

This system is a preparation for safety switches that is made of a combination of safety switch, attachment plates/elements and latches of many different safety switchgear manufacturers. The BRÜHL-RV-system is used to install the safety switch precisely to ensure long-lived

latching function. A high assembly effort is avoided by using standard hole patterns at Brühl wing doors.

This is how it works:



You have already chosen a safety switch, e.g. Fortress Interlocks AMS1STOP.

DIN EN ISO 14119



We supply the attachment system to match: Latch preparation BRÜHL-RV for wing doors with matching provision.



You will receive a precisely fitting attachment system for your safety switch.

Overview of latch preparation BRÜHL-GV for wing doors

Manufacturer	Switch assembly	Item no.
Dold	DOLD	STS RV-F-V4-STS3-B063
Euchner	EUCHNER	CTP RV-F-V3-CTP-B020
		GP RV-F-V3-GP-B020
		NZ RV-F-V3-NZ-B020
		SGP RV-F-V3-SGP-B020
		STA RV-F-V3-STA-B020
		STP RV-F-V3-STP-B020
		TP RV-F-V3-TP-B020
		TX RV-F-V3-TX-B020
TZ RV-F-V3-TZ-B020		
Fortress Interlocks	Fortress Interlocks	AMA1STOP RV-F-V2-AMA1STOP-B019
		AMS1STOP RV-F-V2-AMS1STOP-B019
		DM1 RV-F-V4-DM1-B033
		DM2 RV-F-V4-DM2-B033
Pilz	PILZ	PSEncs1 RV-F-V3-PSENCs-B032
		PSEncs2 RV-F-V3-PSENCs-B032
		PSEnme1 RV-F-V3-PSENME1-B032
		PSEnsgate RV-F-V6-PSENSG-B064
Telemecanique Sensors	Telemecanique Sensors	XCS-A RV-F-V2-XCS-A-B066
		XCS-B RV-F-V2-XCS-B-B066
		XCS-C RV-F-V2-XCS-C-B066
		XCS-E RV-F-V2-XCS-E-B066

Explanation of attachment situation abbreviations: F = wing door

- ① Safety switches are not enclosed.
- ② Screws for switch attachments are not enclosed.
Cf. EN ISO 14119, 7.2 c and table 3.
- ③ Attachment elements can only be released with tools. Cf. EN ISO 14119, 52 (a).
- ④ To prevent reaching over and actuation of the flight unlatching mechanism, we recommend that the door height be at least 1800 mm and a transfer with a diagonal element at low fence heights.
- ⑤ See special elements p. 36 and 46.
- ⑥ See combination overview on p. 185.



Product example: Latch preparation with safety switch by Dold

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Product group/build
SN-F

MACHINE-SIDE >

Two-channel
signal emission of the
safety switch

Simple
adjustability
of the
switch panel



< OUTSIDE

Standard for all Brühl-attachment systems:

- Robust zinc-plated surface
☞ ISO 14120, 5.6
- Symmetrical construction for door stop device DIN left/DIN right
- Rounded laser cutting parts
☞ ISO 14120, 5.3.7
- Precisely fitting threads for switch attachment
☞ ISO 14119, 5.2/(j)
- Precisely fitting provisions for safety switch
- All screw-connections are manipulation-proof

Switching cam system BRÜHL-SN-F for wing doors

The switching cam system BRÜHL-SN-F is used only on pendulum and wing doors due to the effective principle. This attachment system is highly beneficial when a very fast system access is desired. It is combined with two roller plunger switches (Build 1) that permit safe

two-channel signal query that can have a positive effect on the Performance-Level or the safety category in the scope of risk assessment.

This is how it works:



➤ You have already chosen a safety switch: e.g. Siemens 3SE5 (2x).^①

☞ DIN EN ISO 14119



➤ We supply the attachment system to match: Switching cam system BRÜHL-SN-F for wing doors with matching provision.



➤ You will receive a precisely fitting attachment system for your safety switch.

Overview of the switching cam system BRÜHL-SN-F for wing doors

Manufacturer	Switch assembly	Item no.
Bernstein	BERNSTEIN ENK	SN-F-V1-ENK-B034
Euchner	EUCHNER NZ	SN-F-V1-NZ-B034
Rockwell Automation	440P-MR	SN-F-V1-440P-B034
Schmersal	SCHMERSAL 332ZR	SN-F-V1-332-B034
	335TR	SN-F-V1-335-B034
Siemens	SIEMENS 3SE5	SN-F-V1-3SE5-B034

Explanation of attachment situation abbreviations: F = Wing door

- ① Safety switches are not enclosed.
- ② Screws for switch attachments are not enclosed.
Cf. EN ISO 14119, 7.2 c and table 3.
- ③ Attachment elements can only be released with tools. Cf. EN ISO 14119, 52 (a).
- ☞ See combination overview on p. 185.



Product example: Hinge switch with Schmersal TV10 on a swing door



Product example: Switching cam system with safety switch by Euchner

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Product group/build
SN-S

MACHINE-SIDE

Simple adjustability of the switch and actuator plate

Mechanical stop to avoid damage to the door and safety switch by stopper in the aluminium profile

Two-channel signal emission of the safety switch

OUTSIDE

Standard for all Brühl-attachment systems:

- Robust zinc-plated surface
ISO 14120, 5.6
- Symmetrical construction for door stop device DIN left/DIN right
- Rounded laser cutting parts
ISO 14120, 5.3.7
- Precisely fitting threads for switch attachment
ISO 14119, 5.2/(j)
- Precisely fitting provisions for safety switch
- All screw-connections are manipulation-proof

Switching cam system BRÜHL-SN-S for sliding doors

The attachment panels of the switching cam system BRÜHL-SN-S are rounded laser-edge parts that are made of robust, zinc-plated steel. The switching cam profile has a powder-coated surface in wing colour. Two roller lever switches (build 1) can be installed on the switching

cam system across manufacturers and precisely fitting for safe two-channel signal query; they can have a positive effect on the Performance-Level or the safety category in the scope of risk assessment.

This is how it works:

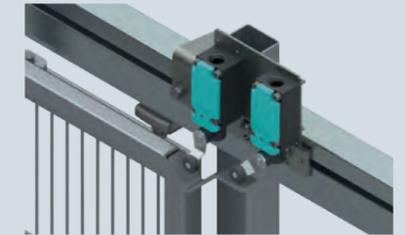


You have already chosen a safety switch: e.g. Siemens 3SE5 (2x).

DIN EN ISO 14119



We supply the attachment system to match: Switching cam system BRÜHL-SN-S for sliding doors with matching provision.



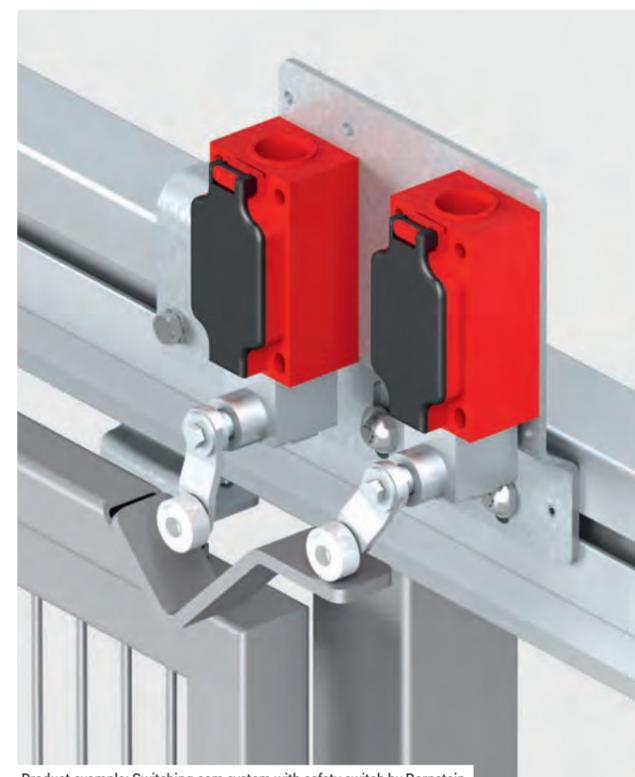
You will receive a precisely fitting attachment system for your safety switch.

Overview of the switching cam system BRÜHL-SN-S for sliding doors

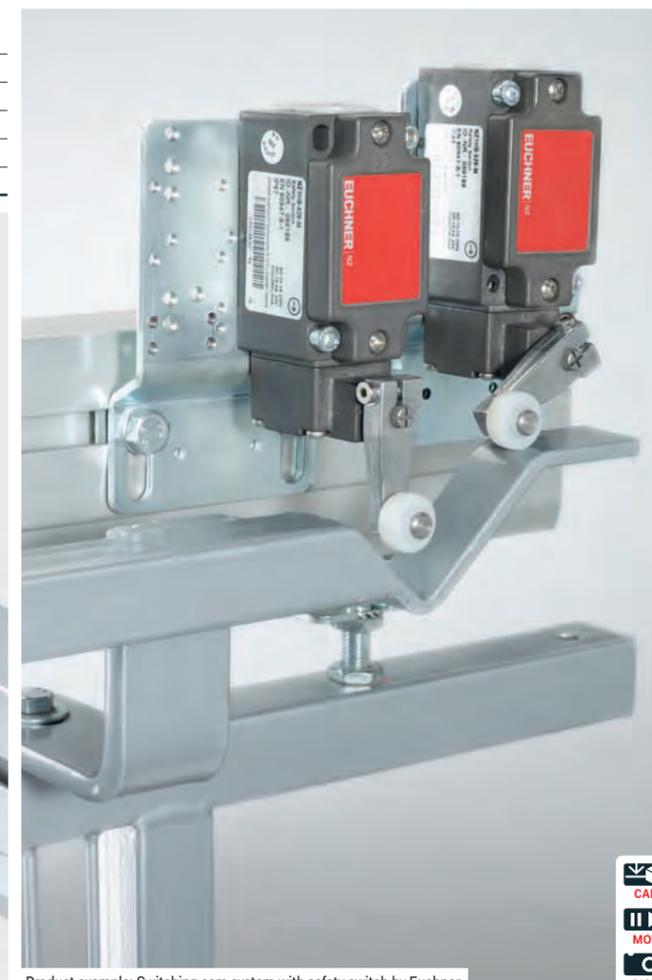
Manufacturer		Switch assembly	Item no.
Bernstein	BERNSTEIN	ENK	SN-S-V1-ENK-B023
Euchner	EUCHNER	NZ	SN-S-V1-NZ-B023
Rockwell Automation		440P-M	SN-S-V1-440P-B023
Schmersal	SCHMERSAL	Z4VH332	SN-S-V1-332-B023
		T4VH335	SN-S-V1-335-B023
		Z4VH336	SN-S-V1-336-B023
Sick	SICK	i110R	SN-S-V1-i110P-B023
Siemens	SIEMENS	3SE5	SN-S-V1-3SE5-B023

Explanation of attachment situation abbreviations: S = sliding door

- ① Safety switches are not enclosed.
- ② Screws for switch attachments are not enclosed.
Cf. EN ISO 14119, 7.2 c and table 3.
- ③ Attachment elements can only be released with tools. Cf. EN ISO 14119, 52 (a).
- ④ See combination overview on p.185.



Product example: Switching cam system with safety switch by Bernstein



Product example: Switching cam system with safety switch by Euchner

Product group/build
SV

MACHINE-SIDE

Factory-side switch preparation for special switches or flight/emergency unlatching

Hinge switches are prepared optimally, e.g. with attachment plates and welded parts

Flight unlatching preparation by hole pattern adjustment at the post or door wing

OUTSIDE

Standard for all Brühl-attachment systems:

- Robust zinc-plated surface
☞ ISO 14120, 5.6
- Symmetrical construction for door stop device DIN left/DIN right
- Rounded laser canting parts
☞ ISO 14120, 5.3.7
- Precisely fitting threads for switch attachment
☞ ISO 14119, 5.2/(j)
- Precisely fitting provisions for safety switch
- All screw-connections are manipulation-proof

Safety switch preparation BRÜHL-SV

The switch preparation BRÜHL-SV is mostly used in any Brühl-doors when safety switches are prepared precisely fitting in the factory (for quick installation on site). With this system preparation, the safety switch is function-dependent and may take the form of, e.g., hole

pattern adjustment at the post/door wing as preparation of a flight unlatching, special hole pattern and welding substructure adjustment.

This is how it works:



➤ You have already chosen a safety switch: e.g. Pilz PSENcode. ①

☞ DIN EN ISO 14119



➤ We supply the attachment system to match with door adjustment: Safety switch preparation BRÜHL-SV e.g. by supporting the post and/or wing preparation.



➤ You will receive a precisely fitting attachment system for your safety switch.

Overview of safety switch preparation BRÜHL-SV for wing doors

Manufacturer	Switch assembly	Item no.
ABB	EDEN	SV-F-V5-EDEN-B077
Bernstein	SLK+ENK	SV-F-V4-SLK+ENK-B044
	MAK	SV-F-V5-MAK-B077
Euchner	CES	SV-F-V5-CES-B077
	CMS	SV-F-V5-CMS-B077
	MGB-PN	SV-F-V6-MGB-PN
Fortress Interlocks	SBILOKIR	SV-F-V7-SBILOKIR-B076
	SBNLOCK	SV-F-V7-SBNLOCK-B076
	SBSLOCK	SV-F-V7-SBSLOCK-B076
	tGard THE-RX/RZ	SV-F-V7-THE-B084
	tGard THH-RX/RZ	SV-F-V7-THH-B084
Leuze electronic	MC336	SV-F-V5-MC3-B077
	MC336	SV-F-V5-MC3-B077
Omron Electronics	F3S-TGR	SV-F-V5-F3S-TGR-B077
Pilz	PSEN1.1	SV-F-V5-PSENMA-B077
	PSEN2.1	SV-F-V5-PSENMA-B077
	PSENcode	SV-F-V5-PSENCB-B077
	PSENcs3	SV-F-V5-PSENCB-B077
	PSENcs4	SV-F-V5-PSENCB-B077
	PSENm	SV-F-V5-PSENMA-B077
Rockwell Automation	440N-S	SV-F-V5-440N-S-B077
	440N-Z	SV-F-V5-440N-Z-B077
Schmersal	AZM161-ST30	SV-F-V1-AZM161-ST30-01
		(...)
		SV-F-V1-AZM161-ST30-08
	AZM415-ST30	SV-F-V1-AZM415-ST30-01
		(...)
		SV-F-V1-AZM415-ST30-08
	AZM161-ST30	SV-F-V1-EX-AZM161-ST30-01
		(...)
		SV-F-V1-EX-AZM161-ST30-08
	AZM415-ST30	SV-F-V1-EX-AZM415-ST30-01
		(...)
		SV-F-V1-EX-AZM415-ST30-08

Overview of safety switch preparation BRÜHL-SV for wing doors opening inwards

Manufacturer	Switch assembly	Item no.
ABB	EDEN	SV-FEO-V5-EDEN-B077
Bernstein	MAK	SV-FEO-V5-MAK-B077
Euchner	CES-A-LNN	SV-FEO-V5-CES-B077
	CMS-R-B	SV-FEO-V5-CMS-B077
Leuze electronic	MC336	SV-FEO-V5-MC3-B077
Omron Electronics	F3S-TGR	SV-FEO-V5-FEO3S-TGR-B077
Pilz	PSEN1.1	SV-FEO-V5-PSENMA-B077
	PSEN2.1	SV-FEO-V5-PSENMA-B077
	PSENcode	SV-FEO-V5-PSENCB-B077
	PSENcs3	SV-FEO-V5-PSENCB-B077
	PSENcs4	SV-FEO-V5-PSENCB-B077
	PSENm	SV-FEO-V5-PSENMA-B077
Rockwell Automation	440N-S	SV-FEO-V5-440N-S-B077
	440N-Z	SV-FEO-V5-440N-Z-B077
Schmersal	BNS250	SV-FEO-V5-BNS250-B077
	BNS250	SV-FEO-V5-BNS250-B077

Explanation of attachment situation abbreviations: FEO = wing door opening inwards, F = wing door

- ① Safety switches are not enclosed.
- ② Screws for switch attachments are not enclosed.
Cf. EN ISO 14119, 7.2 c and table 3.
- ③ Attachment elements can only be released with tools. Cf. EN ISO 14119, 5.2 (a).
- ④ To prevent reaching over and actuation of the flight unlatching mechanism, we recommend that the door height be at least 1800 mm and a transfer with a diagonal element at low fence heights.
- ⑤ See special elements p. 36 and 46.
- ⑥ See combination overview on p. 185.

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES



Product group/build
UER®

Latch with ball knob and centring mandrel

Protection against pushing through of the door wing at folding or double wing doors

Mechanical stop to avoid damage to the door and safety switch

Standard for all Brühl-attachment systems:

- Robust zinc-plated surface
☞ ISO 14120, 5.6
- Symmetrical construction for door stop device DIN left/ DIN right
- Rounded laser cutting parts
☞ ISO 14120, 5.3.7
- Precisely fitting threads for switch attachment
☞ ISO 14119, 5.2/(j)
- Precisely fitting provisions for safety switch
- All screw-connections are manipulation-proof

Overroll latch system BRÜHL-UER®

The overroll latch system BRÜHL-UER® prevents pushing through of the wings at folding or double folding wing doors, which permits compliance with the safety distances of the risk and danger assessment. This system is very robust, requires little maintenance and cleaning

and has proven its worth in the industrial environment for many years. Combinations are available with many safety switches – Brühl recommends the combination of safety switch and a contact free principle of effect.

This is how it works:



➤ You have already chosen a safety switch: e.g. Schmersal MZM100. ☞

☞ DIN EN ISO 14119



➤ We supply the attachment system to match: Overroll latch system BRÜHL-UER® with matching provision.



➤ You will receive a precisely fitting attachment system for your safety switch.

Overview of the overroll latch system BRÜHL-UER®

Manufacturer	Switch assembly	Item no.
Euchner	EUCHNER TZ	UER-FR-V1-TZ-B028
	TZ	UER-FL-V1-TZ-B025
Schmersal	SCHMERSAL MZM100	UER-FL-V2-MZM100-B073
	MZM100	UER-FR-V2-MZM100-B073

Explanation of attachment situation abbreviations: FL = wing door DIN left (doors with left attachment)
FR = wing door DIN right (doors with right attachment)

- ☞ Safety switches are not enclosed.
- ☞ Screws for switch attachments are not enclosed.
Cf. EN ISO 14119, 7.2 c and table 3.
- ☞ Attachment elements can only be released with tools. Cf. EN ISO 14119, 52 (a).
- ☞ See combination overview on p. 185.



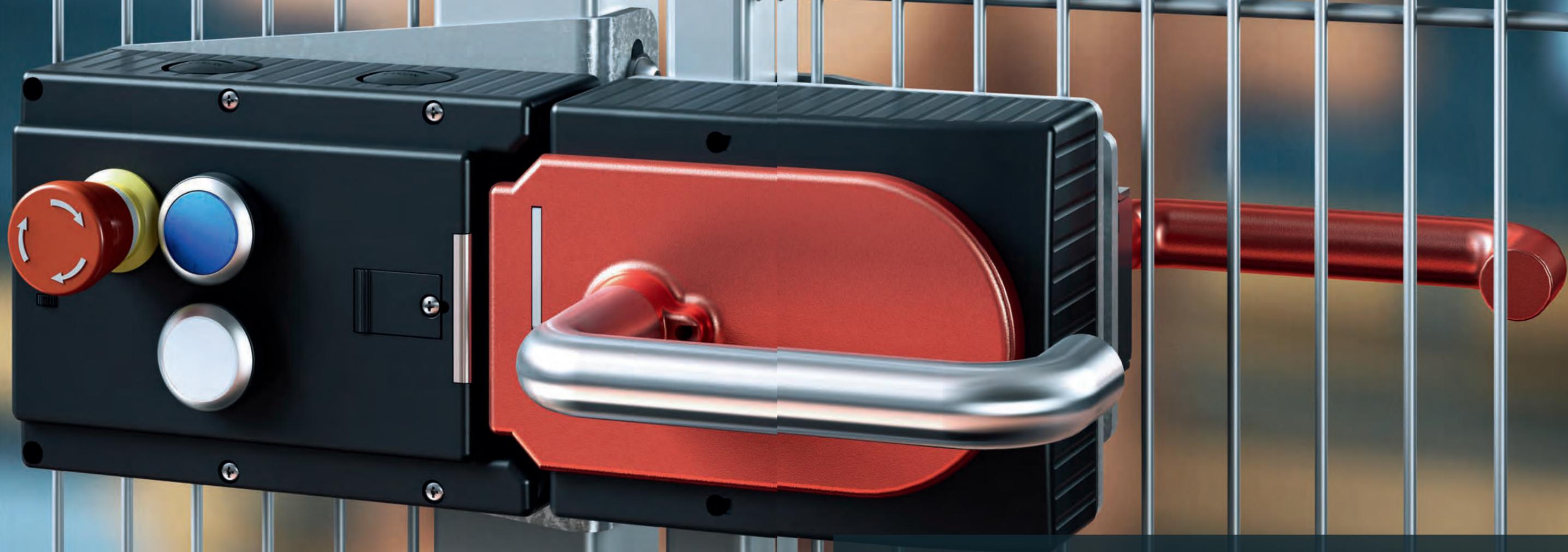
Product example: Overroll latch system with safety switch by Schmersal



Product example: Overroll latch system without safety switch

ATTACHMENT SYSTEMS FOR SAFETY SWITCHES





Safety switches

The applications for the installed safety switches are just as diverse as the applications for our protective facilities. The optimal solution for our customers is of the utmost priority for us. Therefore, we rely on strong partners. The next pages will tell you all that is interesting about the subject of safety switches and will provide an overview of the different manufacturers with whom we cooperate closely for our customers at all times.

Safety switches

The right switch for any use

Our partners offer many different safety switches for you to choose from. A safety switch is part of a safety chain – it supplies a safe signal in the input circuit. Opening the protective facility produces a stop signal, prevents undesired machine start-up and thus ensures latching. An overview of the safety switch types can be found in this figure:



Overview: General safety switch knowledge

Flight unlatching

Flight unlatching must permit unlocking without tools from the danger area/from the machine side in case of danger. The facility must be hand-operated and force-act on the latching element. The actuation must permanently block the holding-shut device (also see auxiliary unlatching).

Emergency unlatching/ emergency unlocking

The emergency unlocking serves to unlatch a holding-shut device in emergency. Unlatching is possible without tools from the access side/outside. At emergency unlatching, the switch latches in the unlatched position and can only be reset to the initial position with a repair-like effort.

Safety Integrity Level (SIL)

The Safety Integrity Level is the level that describes the probability that a safety-related system meets the required safety functions under all specified conditions within a specified period according to requirements. For this, compare the required Safety Integrity Level (SILr; the "r" meaning "required") and the "actual" SIL that is in fact achieved.

Auxiliary unlatching

When the holding-shut device fails, it can be unlocked with an auxiliary unlatching device from the access side/outside. A tool or key is used to unlock. The auxiliary unlatching mechanism should be secured against abuse (seal, varnish).

Performance Level (PL)

Discrete level that specifies the ability of safety-related parts of a control to perform a safety function under foreseeable conditions (definition according to standard EN 13849). Putting it more simply, the Performance Level is a measure for reliability of a safety function. We distinguish between the Performance Level required (PLr; with "r" for "required") and the "actual" PL that is in fact reached. There are five performance levels that reflect different residual risks.

Strong partners of Brühl: Manufacturers of safety switches

Manufacturer	Page	Manufacturer	Page
Euchner	EUCHNER Page 152	Telemecanique Sensors	 Page 157
Siemens	SIEMENS Page 153	Bernstein	 Page 158
Schmersal	 SCHMERSAL Page 154	Leuze electronic	 Leuze electronic Page 159
Pilz	PILZ Page 155	Dold	 DOLD Page 160
Sick	SICK Page 156	Fortress Interlocks	 Fortress Interlocks Page 161

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Safety switches by EUCHNER



The link to the manufacturer's page can be found at www.bruehl-safety.com/euchner

Mechanical safety switches by EUCHNER As of 2017			
Switch type	Safety switches with integrated actuator	Safety switches with separate actuator	Safety holding-shut devices with separate actuator
Example			
Valid for the following products	all safety switches of build 1 NZ, N1A, NB01, NM, ESH (latches)	all safety switches of build 2 NZ.VZ, NX, NM.VZ, NQ, NP, GP, SGP (latches)	all safety switches of build 2 with holding-shut devices TZ, TX, TP, TQ, STP, STA, STM, TK
Which standards were considered in product development?			
The products meet the requirements of the following standards	EN 60947-5-1, annex K force-opening contacts EN ISO 14119	EN 60947-5-1, annex K force-opening contacts EN ISO 14119	EN 60947-5-1, annex K force-opening contacts EN ISO 14119
What is required, for example, to achieve a specific category/PL?			
For category 1/PL c according to EN ISO 13849-1	1 EUCHNER safety switch 1 safety relay (e.g. ESM)	1 EUCHNER safety switch 1 safety relay (e.g. ESM)	1 EUCHNER safety switch 1 safety relay (e.g. ESM)
For category 3/PL d according to EN ISO 13849-1	solution a) 1 EUCHNER safety switch 1 safety relay (e.g. ESM) exclusion of errors or solution b) 2 EUCHNER safety switch 1 safety relay (e.g. ESM)	solution a) 1 EUCHNER safety switch 1 safety relay (e.g. ESM) exclusion of errors or solution b) 2 EUCHNER safety switch 1 safety relay (e.g. ESM)	solution a) 1 EUCHNER safety switch 1 safety relay (e.g. ESM) exclusion of errors or solution b) 2 EUCHNER safety switch 1 safety relay (e.g. ESM)
For category 4/PL e according to EN ISO 13849-1	2 EUCHNER safety switch 1 safety relay (e.g. ESM)	2 EUCHNER safety switch 1 safety relay (e.g. ESM)	2 EUCHNER safety switch 2 safety relay (e.g. ESM)

Contact-free safety switch by EUCHNER as of 2017			
Electronic devices	System family CES-AZ (System comprising a reading head and evaluation unit with relay outputs)	System families CES-A-5, CES-AH, CES-AP, CET-AP, CTP-AP, MGB-AP for operation as a single unit	System families CES-AR, CET-AR, CTP-AR, CEM-AR, MGB-AR for serial circuit
Example			
Valid for the following products	Evaluation units CES with the reading heads CES-A-L... and the reading heads with holding-shut device CEM, CET-AX of build 4	Safety switch CES-A-5, CES-AH, CES-AP, safety switch with holding-shut device CET-AP, CTP-AP and MGB-AP with and without holding-shut device of build 4	Safety switch CES-AR, ESL-AR, safety switch with holding-shut device CET-AR, CEM-AR, CTP-AR and MGB-AR with and without holding-shut device of build 4
Which standards were considered in product development?			
The products meet the requirements of the following standards	EN 60947-5-2 EN 60947-5-3 EN ISO 14119 EN ISO 13849-1	EN 60947-5-2 EN 60947-5-3 EN ISO 14119 EN ISO 13849-1	EN 60947-5-2 EN 60947-5-3 EN ISO 14119 EN ISO 13849-1
What is required, for example, to achieve a specific category/PL?			
For category 1/PL c according to EN ISO 13849-1	1 reading head 1 evaluation unit CES-AZ	1 safety switch CES, CTP, CET, MGB	1 safety switch CES, CET, ESL, CTP, CEM or 1 MGB
For category 3/PL d according to EN ISO 13849-1	1 reading head 1 evaluation unit CES-AZ	1 safety switch CES, CTP, CET, MGB	1 safety switch CES, CET, ESL, CTP, CEM or 1 MGB
For category 4/PL e according to EN ISO 13849-1	1 reading head 1 evaluation unit CES	1 safety switch CES, CTP, CET, MGB	1 safety switch CES, CET, ESL, CTP, CEM or 1 MGB

⚠ Depending on the product used. **Disclaimer:** Technical changes and errors reserved (2017). All information is provided without liability. Liability claims of any kind are generally excluded. Brühl assumes no liability for the information provided being accurate, up to date, complete or of good quality. Damages claims against Brühl or its employees based on the provided information shall be excluded, except in case of gross negligence or intent. The information and examples provided on this page do not relieve the constructor from his risk assessment or analysis obligations; the original standard must be viewed and information must be collected from the safety switch manufacturer independently of this information.

Safety switches by Siemens



The link to the manufacturer's page can be found at www.bruehl-safety.com/siemens

Mechanical safety switches by Siemens As of 2017			
Switch type	Safety switches with integrated actuator	Safety switches with separate actuator	Safety holding-shut devices with separate actuator
Example			
Valid for the following products	all safety switches of build 1 3SE51/52, 3SE54 (latches)	all safety switches of build 2 3SE51/52 (latches)	all safety switches of build 2 with holding-shut devices 3SE53
Which standards were considered in product development?			
The products meet the requirements of the following standards	EN 60947-5-1, annex K force-opening contacts DIN EN ISO 14119, TÜV certificate	EN 60947-5-1, annex K force-opening contacts DIN EN ISO 14119, TÜV certificate	EN 60947-5-1, annex K force-opening contacts DIN EN ISO 14119, TÜV certificate
What is required, for example, to achieve a specific category/PL?			
For category 1/PL c according to EN ISO 13849-1	1 Siemens safety switch 1 safety evaluation unit (e.g. 3SK)	1 Siemens safety switch 1 safety evaluation unit (e.g. 3SK)	1 Siemens safety switch 1 safety evaluation unit (e.g. 3SK)
For category 3/PL d according to EN ISO 13849-1	solution a) 1 safety evaluation unit (e.g. 3SK) or solution b) 2 Siemens safety switch 1 safety evaluation unit (e.g. 3SK)	solution a) 1 Siemens safety switch 1 safety evaluation unit exclusion of errors or solution b) 2 Siemens safety switch 1 safety evaluation unit (e.g. 3SK)	solution a) 1 Siemens safety switch 1 safety evaluation unit (e.g. 3SK) exclusion of errors or solution b) 2 Siemens safety switch 1 safety evaluation unit (e.g. 3SK)
For category 4/PL e according to EN ISO 13849-1	2 Siemens safety switch 1 safety evaluation unit (e.g. 3SK)	2 Siemens safety switch 1 safety evaluation unit (e.g. 3SK)	2 Siemens safety switch 1 safety evaluation unit (e.g. 3SK)

Contact-free safety switch by Siemens As of 2017		
Electronic units	RFID-safety switch	SIRIUS-magnetic switch
Example		
Valid for the following products	3SE63	3SE66, 3SE67
Which standards were considered in product development?		
The products meet the requirements of the following standards	EN ISO 13849-12 EN 60947-5-2 EN 60947-5-3 EN ISO 14119	EN 60947-5-2 EN 60947-5-3 EN ISO 14119
What is required, for example, to achieve a specific category/PL?		
For category 1/PL c according to EN ISO 13849-1	1 Siemens safety switch 1 Siemens actuator	1 Siemens safety switch 1 Siemens actuator
For category 3/PL d according to EN ISO 13849-1	1 Siemens safety switch 1 Siemens actuator	1 Siemens safety switch 1 Siemens actuator
For category 4/PL e according to EN ISO 13849-1	1 Siemens safety switch 1 Siemens actuator	1 Siemens safety switch 1 Siemens actuator

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Safety switches by Schmersal



The link to the manufacturer's page can be found at www.bruehl-safety.com/schmersal

Mechanical safety switches by Schmersal As of 2017		
Switch type	Safety switches with integrated actuator	Safety switches with separate actuator
Example		
Valid for the following products	Series TV and similar Effective principle electromechanical	Series AZM and similar Effective principle electromechanical
Which standards were considered in product development?		
The products meet the requirements of the following standards	EN 60947-5-1, annex K force-opening contacts EN ISO 14119	EN 60947-5-1, annex K force-opening contacts EN ISO 14119
What is required, for example, to achieve a specific category/PL?		
For category 1/PL c according to EN ISO 13849-1	1 Schmersal safety switch 1 safety evaluation unit	1 Schmersal safety switch 1 safety evaluation unit
For category 3/PL d according to EN ISO 13849-1	solution a) 1 safety evaluation unit (e.g. 3SK) or solution b) 2 Schmersal safety switch 1 safety evaluation unit (e.g. 3SK)	solution a) 1 Schmersal safety switch 1 safety evaluation unit exclusion of errors or solution b) 2 Schmersal safety switch 1 safety evaluation unit
For category 4/PL e according to EN ISO 13849-1	2 Schmersal safety switch 1 safety evaluation unit	2 Schmersal safety switch 1 safety evaluation unit

Contact-free safety switches by Schmersal As of 2017		
	Magnetic switch	Electronic units
Example		
Valid for the following products	Series BNS Effective principle: contact-free	Series CSS, AZ/AZM 200/201, MZM Effective principle: Pulse-echo procedure/RFID
Which standards were considered in product development?		
The products meet the requirements of the following standards	EN 60947-5-2 EN 60947-5-3 EN ISO 14119 EN ISO 13849-1	EN 60947-5-2 EN 60947-5-3 EN ISO 14119 EN ISO 13849-1
What is required, for example, to achieve a specific category/PL?		
For category 1/PL c according to EN ISO 13849-1	1 Schmersal safety switch 1 Schmersal actuator	1 Schmersal safety switch 1 Schmersal actuator
For category 3/PL d according to EN ISO 13849-1	1 Schmersal safety switch 1 Schmersal actuator	1 Schmersal safety switch 1 Schmersal actuator
For category 4/PL e according to EN ISO 13849-1	1 Schmersal safety switch 1 Schmersal actuator	1 Schmersal safety switch 1 Schmersal actuator

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Safety switches by Pilz



The link to the manufacturer's page can be found at www.bruehl-safety.com/pilz

Mechanical safety switches by Pilz As of 2017				
Switch type	Hinge switch PSEnhinge	Mechanical safety switch PSEnmech	Safety latch PSEnbolt	Encoded safety switch PSEncode
Example				
Valid for the following products	PSEN hs1 (web150410)	PSEN me3 (other types under web150414)	PSEN b2 (other types under web150411)	PSEN cs4 (other types under web150412)
Which standards were considered in product development?				
The products meet the requirements of the following standards	EN 60947-5-1 EN ISO 13849-1 EN/IEC 62061	EN 60947-5-3 EN ISO 13849-1 EN/IEC 62061	EN ISO 13849-1 EN/IEC 62061	EN ISO 13849-1 EN/IEC 62061
Which category/PL is reached?				
	PL d SIL CL 2 PL e at two switches SIL CL 3 at two switches	PL d SIL CL 2 PL e at two switches SIL CL 3 at two switches	PL e SIL CL 3 depending on combination with safety switches	PL e SIL CL 3

Safe safety door systems (combination of sensor and actor) by Pilz As of 2017			
Switch type	Electromagnetic holding-shut device (process) PSEnlock	Person and process protection PSEnmlock	Safety door system PSEnsgate
Example			
Valid for the following products	PSEN sl-0.5p (other types under web150408)	PSEN ml b 1 (other types under web150409)	PSEN sg2c-3LPE (other types under web150407)
Which standards were considered in product development?			
The products meet the requirements of the following standards	EN 60947-5-3 EN ISO 13849-1 EN/IEC 62061	EN 60947-5-3 EN ISO 13849-1 EN/IEC 62061	EN 60947-5-3 EN ISO 13849-1 EN/IEC 62061
Which category/PL is reached?			
	PL e (latch/sensor) SIL CL 3 (latch/sensor)	PL e SIL CL 3	PL e SIL CL 3

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Safety switches by Sick



The link to the manufacturer's page can be found at www.bruehl-safety.com/sick

Mechanical safety switches by Sick As of 2017			
Switch type	Safety switches with integrated actuator	Safety switches with separate actuator	Safety holding-shut devices with separate actuator
Example			
Valid for the following products	i110R Effective principle: Snap-action contact/slow-action contact	i16 Effective principle: Slow-action contact	i10 Effective principle: Slow-action contact
Which standards were considered in product development?			
The products meet the requirements of the following standards	EN 60947-5-1, annex K force-opening contacts EN ISO 14119	EN 60947-5-1, annex K force-opening contacts EN ISO 14119	EN 60947-5-1, annex K force-opening contacts EN ISO 14119
What is required, for example, to achieve a specific category/PL?			
For category 1/PL c according to EN ISO 13849-1	1 Sick safety switch 1 safety relay	1 Sick safety switch 1 safety relay (e.g. UEs)	1 Sick safety switch 1 safety relay (e.g. UEs)
For category 3/PL d according to EN ISO 13849-1	solution a) 1 Sick safety switch 1 safety relay exclusion of errors or solution b) 2 Sick safety switch 1 safety relay	solution a) 1 Sick safety switch 1 safety relay exclusion of errors or solution b) 2 Sick safety switch 1 safety relay	solution a) 1 Sick safety switch 1 safety relay exclusion of errors or solution b) 2 Sick safety switch 1 safety relay
For category 4/PL e according to EN ISO 13849-1	2 Sick safety switch 1 safety relay	2 Sick safety switch 1 safety relay	2 Sick safety switch 1 safety relay

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Safety switch by Telemecanique Sensors



The link to the manufacturer's page can be found at www.bruehl-safety.com/telemecanique-sensors

Safety switches by Telemecanique Sensors As of 2017				
Switch type	Safety switches with integrated actuator	Safety switches with separate actuator	Safety holding-shut devices	Encoded magnetic switches
Example				
Valid for the following products	XCS P, XCS M, XCS D	XCS MP, XCS PA, XCS TA	XCS LE, XCS LF	XCS DMD, XCS DMR, XCS DMC
Which standards were considered in product development?				
The products meet the requirements of the following standards	EN 60947-5-3 EN ISO 1349-1 EN/IEC 62061			
What is required, for example, to achieve a specific category/PL?				
For category 2/PL c according to EN ISO 13849-1	1 Telemecanique Sensors safety switch 1 safety relay	1 Telemecanique Sensors safety switch 1 safety relay	1 Telemecanique Sensors safety switch 1 safety relay	1 Telemecanique Sensors safety switch 1 safety relay
For category 3/PL d according to EN ISO 13849-1	solution a) 1 Telemecanique Sensors safety switch 1 safety relay exclusion of errors or solution b) 2 Telemecanique Sensors safety switch 1 safety relay	solution a) 1 Telemecanique Sensors safety switch 1 safety relay exclusion of errors or solution b) 2 Telemecanique Sensors safety switch 1 safety relay	solution a) 1 Telemecanique Sensors safety switch 1 safety relay exclusion of errors or solution b) 2 Telemecanique Sensors safety switch 1 safety relay	solution a) 1 Telemecanique Sensors safety switch 1 safety relay exclusion of errors or solution b) 2 Telemecanique Sensors safety switch 1 safety relay
For category 4/PL e according to EN ISO 13849-1	2 Telemecanique Sensors safety switch 1 safety relay			

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Safety switches by BERNSTEIN



The link to the manufacturer's page can be found at www.bruehl-safety.com/bernstein

Safety switches by BERNSTEIN As of 2017			
Switch type	Safety switches with integrated actuator	Safety switches with separate actuator	Safety holding-shut devices with separate actuator
Example			
Valid for the following products	Product group IN65 Product group ENK	Product group SK	Product group SLK
Which standards were considered in product development?			
The products meet the requirements of the following standards	EN 60947-5-1 ISO 14119	EN 60947-5-1 ISO 14119	EN 60947-5-1 ISO 14119
What is required, for example, to achieve a specific category/PL?			
For category 1/PL c according to EN ISO 13849-1	1 BERNSTEIN safety switch Optional 1 safety relay	1 BERNSTEIN safety switch Optional 1 safety relay	1 BERNSTEIN safety switch Optional 1 safety relay
For category 3/PL d according to EN ISO 13849-1	solution a) 1 BERNSTEIN safety switch 1 safety relay and exclusion of errors or solution b) 2 BERNSTEIN safety switch 1 safety relay	solution a) 1 BERNSTEIN safety switch 1 safety relay and exclusion of errors or solution b) 2 BERNSTEIN safety switch 1 safety relay	solution a) 1 BERNSTEIN safety switch 1 safety relay and exclusion of errors or solution b) 2 BERNSTEIN safety switch 1 safety relay
For category 4/PL e according to EN ISO 13849-1	2 BERNSTEIN safety switch 1 safety relay	2 BERNSTEIN safety switch 1 safety relay	2 BERNSTEIN safety switch 1 safety relay

Safety switches by BERNSTEIN As of 2017		
Switch type	Magnetic switch, encoded	RFID-safety sensors, high and low coded
Example		
Valid for the following products	Product group MAK	Product group CSMS
Which standards were considered in product development?		
The products meet the requirements of the following standards	EN 60947-5-3 ISO 14119	EN 60947-3 ISO 14119
What is required, for example, to achieve a specific category/PL?		
For category 1/PL c according to EN ISO 13849-1	1 BERNSTEIN safety switch 1 safety relay	1 BERNSTEIN CSMS
For category 3/PL d according to EN ISO 13849-1	1 BERNSTEIN safety switch 1 safety relay	1 BERNSTEIN CSMS
For category 4/PL e according to EN ISO 13849-1	1 BERNSTEIN safety switch 1 safety relay	1 BERNSTEIN CSMS

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Safety switches by Leuze electronic



The link to the manufacturer's page can be found at www.bruehl-safety.com/leuze

Mechanical safety switches by Leuze electronic As of 2017			
Switch type	Safety switches with integrated actuator	Safety switches with separate actuator	Safety holding-shut devices
Example			
Valid for the following products	Series S300, position switches Series S400, hinge switches	S20 S200	L10 L100 L200 L300
Which standards were considered in product development?			
The products meet the requirements of the following standards	EN ISO 14119 EN ISO 13849-1 EN/IEC 62061	EN ISO 14119 EN ISO 13849-1 EN/IEC 62061	EN ISO 14119 EN ISO 13849-1 EN/IEC 62061
What is required, for example, to achieve a specific category/PL?			
For category 1/PL c according to EN ISO 13849-1	1 Leuze electronic safety switch 1 safety relay	1 Leuze electronic safety switch 1 safety relay	1 Leuze electronic safety holding-shut device 1 safety relay
For category 3/PL d according to EN ISO 13849-1	solution a) 1 Leuze electronic safety switch 1 safety relay exclusion of errors or solution b) 2 Leuze electronic safety switch 1 safety relay	solution a) 1 Leuze electronic safety switch 1 safety relay exclusion of errors or solution b) 2 Leuze electronic safety switch 1 safety relay	solution a) 1 Leuze electronic safety holding-shut device 1 safety relay exclusion of errors or solution b) 2 Leuze electronic safety holding-shut devices 1 safety relay
For category 4/PL e according to EN ISO 13849-1	solution a) 2 Leuze electronic safety switch 1 safety relay or solution b) 1 Leuze electronic S420 safety switch with OSSD-outputs 1 safety relay	2 Leuze electronic safety switch 1 safety relay	solution a) 2 Leuze electronic safety holding-shut devices 1 safety relay or solution b) 1 Leuze electronic L300 safety holding-shut devices with OSSD-outputs 1 safety relay

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Safety switches by Dold



The link to the manufacturer's page can be found at www.bruehl-safety.com/dold

Safety switches, holding-shut devices, key transfer by Dold As of 2017				
Switch type	Safety switches with separate actuator	Safety holding-shut devices with separate actuator	Mechanical Safety holding-shut device with separate actuator and key transfer function	Safety holding-shut devices and switches with separate actuator, key transfer function and command functions
Example				
Valid for the following products	For SAFEMASTER STS-units (latches) based on switch modules in stainless steel or plastic designs	For SAFEMASTER STS-units (latches) based on holding-shut modules in stainless steel or plastic designs	For SAFEMASTER STS-units based on mechanical modules in stainless steel or plastic designs	For SAFEMASTER STS-systems in stainless steel or plastic designs
Which standards were considered in product development?				
The products meet the requirements of the following standards	EN60947-5-1, Annex K EN ISO 14119 GS-ET-15 GS-ET-31 EC type-testing certificate pursuant to MRL 2006/42/EG, Annex IV, p.21	EN60947-5-1, Annex K EN ISO 14119 GS-ET-19 GS-ET-31 EC type-testing certificate pursuant to MRL 2006/42/EG, Annex IV, p.21	EN60947-5-1, Annex K EN ISO 14119 GS-ET-31 EC type-testing certificate pursuant to MRL 2006/42/EG, Annex IV, p.21	EN60947-5-1, Annex K EN ISO 14119 GS-ET-15 GS-ET-19 GS-ET-31 EC type-testing certificate pursuant to MRL 2006/42/EG, Annex IV, p.21
What is required, for example, to achieve a specific category/PL?				
For category 2/PL d according to EN ISO 13849-1	1 SAFEMASTER STS-unit with e.g. 1 Emergency off module LG 5925	1 SAFEMASTER STS-unit with e.g. 1 sensor-less standstill monitor LH5946	1 mechanical SAFEMASTER STS-unit in connection with 1 key-operated safety holding-shut device or switch	1 SAFEMASTER STS-system in combination with, e.g. 1 modular, software-free safety system SAFEMASTER M
For category 3/PL d or e according to EN ISO 13849-1	1 SAFEMASTER STS-unit with 1 or 2 actuators (application-dependent) with e.g. 1 Emergency off module LG 5925	1 SAFEMASTER STS-unit with 1 or 2 actuators (application-dependent) with e.g. 1 sensor-less standstill monitor LH5946	1 mechanical SAFEMASTER STS-unit with 1 or 2 actuators (user-independent) in the system with 1 key-operated safety-holding-shut device or switch	1 SAFEMASTER STS-system with 1 or 2 actuators (application-dependent) in connection with e.g. 1 modular, programmable safety system SAFEMASTER PRO
For category 4/PL e according to EN ISO 13849-1	1 SAFEMASTER STS-unit with 2 actuators with e.g. 1 Emergency off module LG 5925	1 SAFEMASTER STS-unit with 2 actuators with e.g. 1 sensor-less standstill monitor LH5946	1 mechanical SAFEMASTER STS-unit with 2 actuators in the system with 1 key-operated safety-holding-shut device or switch	1 SAFEMASTER STS-system with 2 actuators with e.g. 1 multifunctional safety module UG 6970

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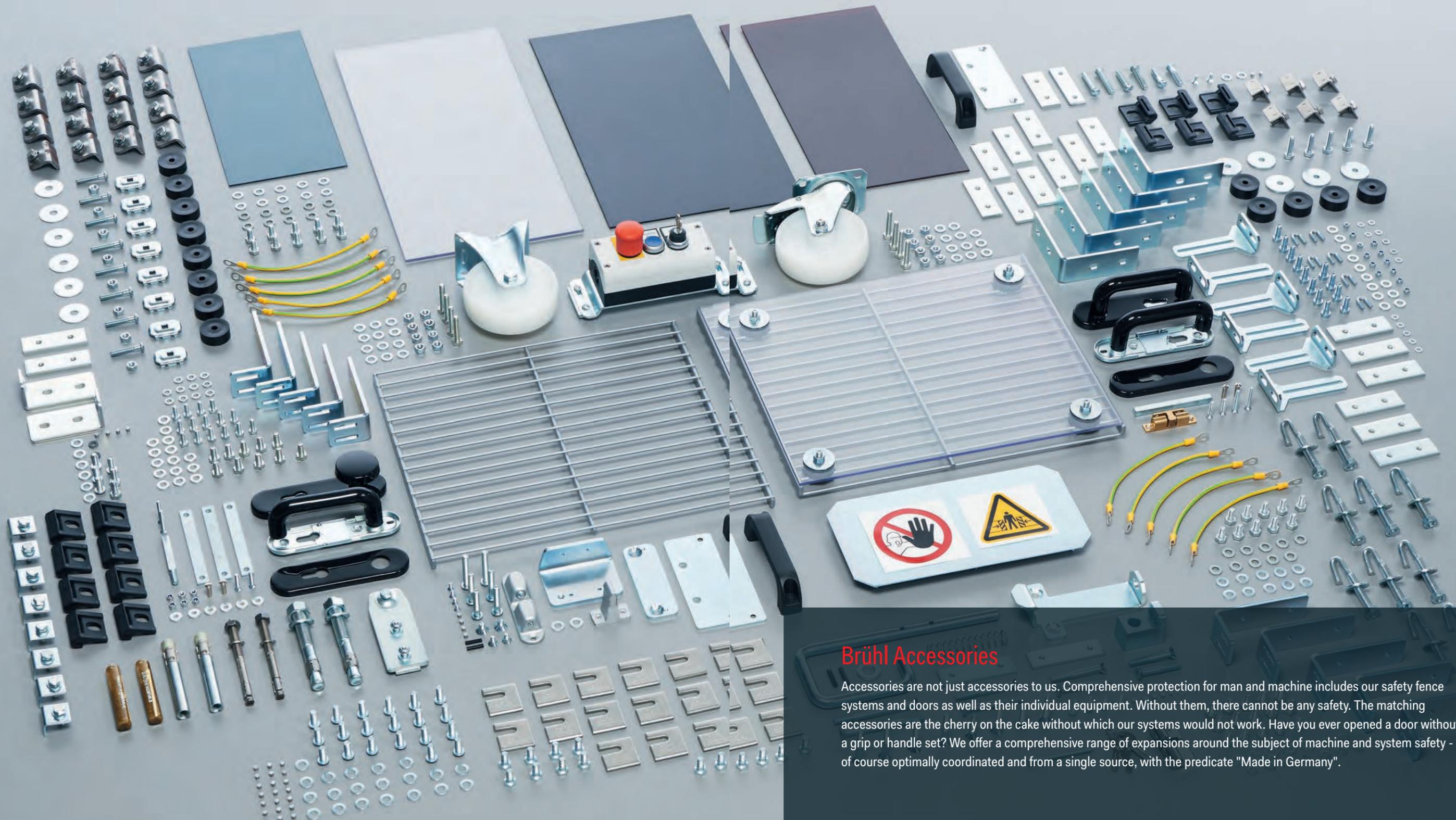
Key transfer systems/safety switches by Fortress Interlocks



The link to the manufacturer's page can be found at www.bruehl-safety.com/fortress

Key transfer systems/safety switches by Fortress Interlocks As of 2017			
Switch type	Mechanical key transfer system	Electromechanical safety switch with/without holding-shut device	Electromechanical safety switch with/without holding-shut device
Example			
Valid for the following products	Safety switches of the mGard-series	Safety switches of the amGardpro-series	Safety switches of the tGard-series
Which standards were considered in product development?			
The products meet the requirements of the following standards	EN ISO 13849-1:2008/AC:2009 ISO 13849-2:2012 EN 62061:2005/A1:2013 EN ISO 14119:2013 GS-ET-19:2011	EN ISO 13849-1:2008/AC:2009 ISO 13849-2:2012 EN 62061:2005/A1:2013 EN ISO 14119:2013 GS-ET-19:2011	EN ISO 13849-1:2008/AC:2009 ISO 13849-2:2012 EN 62061:2005 EN ISO 14119:2013 GS-ET-19:2011
What is required, for example, to achieve a specific category/PL?			
For category 1/PL c according to EN ISO 13849-1	1 holding-shut device 1 key 1 switch element 1 safety evaluation unit	1 safety switch 1 actuator 1 safety evaluation unit	1 safety switch 1 actuator 1 safety evaluation unit
For category 3/PL d according to EN ISO 13849-1	1 holding-shut device 1 key 1 switch element 1 safety evaluation unit	1 safety switch 1 actuator 1 safety evaluation unit	1 safety switch 1 actuator 1 safety evaluation unit exclusion of errors
For category 4/PL e according to EN ISO 13849-1	2 holding-shut devices 2 key 1 switch element 1 safety evaluation unit	1 safety switch 1 actuator 1 safety evaluation unit	2 safety switch 2 actuator 1 safety evaluation unit
What is needed, for example, when there is a danger of locking in?			
Accidental restart prevention	Personal safety key to take along into the danger area	Personal safety key to take along into the danger area	Personal safety key to take along into the danger area
Leaving the danger area must be possible at all times		Escape unlocking for safety switch with holding-shut device	Escape unlocking for safety switch with holding-shut device

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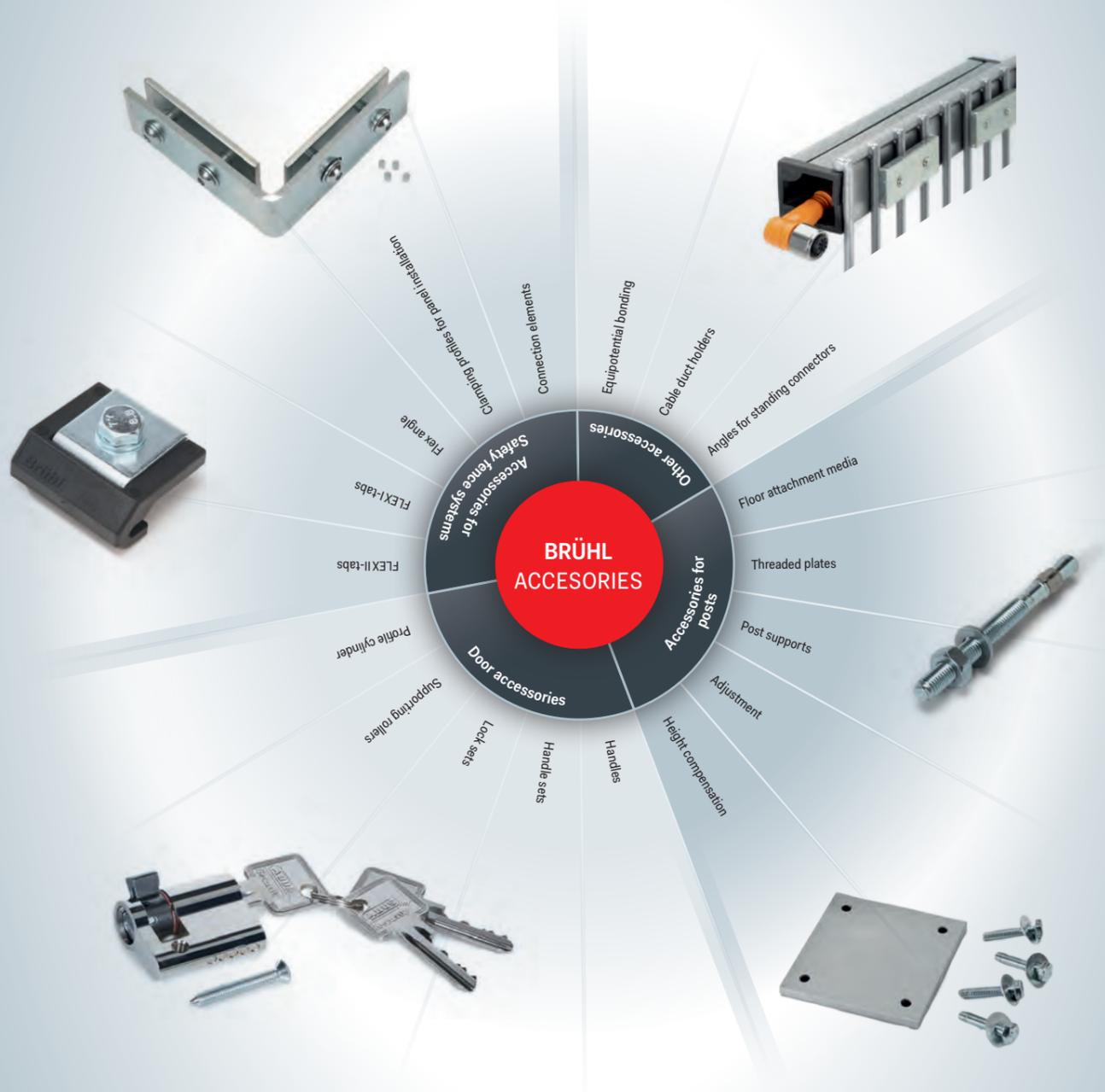
Brühl Accessories

Accessories are not just accessories to us. Comprehensive protection for man and machine includes our safety fence systems and doors as well as their individual equipment. Without them, there cannot be any safety. The matching accessories are the cherry on the cake without which our systems would not work. Have you ever opened a door without a grip or handle set? We offer a comprehensive range of expansions around the subject of machine and system safety - of course optimally coordinated and from a single source, with the predicate "Made in Germany".

Accessories

For functional safety

This figure will provide an initial insight into our diverse accessories precisely coordinated for any application. A protective facility by Brühl always provides a well-matched safety package.



Overview: Brühl Accessories

Robust surface

Our accessory is electro-galvanized according to DIN 50979 or sand-blasted together with the protective facility and then powder-coated.

Precisely fitting threads for attachment

All safety fence systems are optimally prepared for the desired accessories and guarantee for quick assembly without losing any time on the construction site.

Simple installation

The accessories are delivered individually in assembly packs with a detailed assembly manual; the parts do not need to be sorted and assembly is possible quickly.

Combination overview Accessories

Post			Floor attachment material					
Post height	Post profile	Ground plate						
1400-2400 mm	QR50	60 x 130 mm	M10	120/130 mm	2			
		130 x 130 mm			4			
2600-3035 mm	QR60	70 x 150 mm	M10	120/130 mm	2			
		150 x 150 mm			4			
		100 x 200 mm			2			
3235-4835 mm	QR80	200 x 200 mm	M12	145/160 mm	2			
					4			

	Options	Door accessories				Floor attachment material		
	Adjustment	Lock set	Size Profile cylinder	Item number Profile cylinder	Caster/Block roller	Thread size	Thread length	Number
Wing doors								
FTW	●	SG-F	30/10	PZ-V4/PZ-V5	BR	M10	120/130 mm	8
FT	●	SG-F	30/10	PZ-V4/PZ-V5	BR	M10	120/130 mm	8
FTWO	●	SG-F	30/10	PZ-V4/PZ-V5	BR	M10	120/130 mm	8
PFTW	●	SG-F	30/10	PZ-V4/PZ-V5	BR	M10	120/130 mm	8
FTEO	●	SG-FEO	30/10	PZ-V4/PZ-V5	BR	M10	120/130 mm	8
DFT	●	SG-F	30/10	PZ-V4/PZ-V5	BR	M10	120/130 mm	8
DFTO	●	SG-F	30/10	PZ-V4/PZ-V5	BR	M10	120/130 mm	8
Swing doors, door wings								
PT	x	x	x	x	x	M10	120/130 mm	8
HPT	x	x	x	x	x	M10	120/130 mm	8
TF	x	SG-F	30/10	PZ-V4/PZ-V5	x	x	x	x
Sliding doors								
ST	●	SG-S	30/10	PZ-V4/PZ-V5	●	M10	120/130 mm	8/12 ①
STI	●	SG-S	30/65	PZ-V6/PZ-V7	●	M10	120/130 mm	8/12 ①
STO	●	SG-S	30/10	PZ-V4/PZ-V5	●	M10	120/130 mm	8/12 ①
DST	●	SG-S2	30/10	PZ-V4/PZ-V5	●	M10	120/130 mm	8/16 ①
STB	●	SG-S2	30/10 & 30/65	PZ-V4/PZ-V5 & PZ-V6/PZ-V7	●	M12	145/160 mm	10
DSTO	●	SG-S2	30/10	PZ-V4/PZ-V5	●	M10	120/130 mm	8/16 ①
Folding wing doors, folding sliding doors								
FAFT	x	x	x	x	LR	M12	145/160 mm	8
DFAFT	x	x	x	x	LR	M12	145/160 mm	8
FAST	x	x	x	x	●	M10	120/130 mm	8
DFAST	x	x	x	x	●	M10	120/130 mm	8
Telescoping sliding doors								
STT	x	SG-S2	30/10	PZ-V4/PZ-V5	●	M12	145/160 mm	12
STBT	x	SG-S2	30/10 & 30/65	PZ-V4/PZ-V5 & PZ-V6/PZ-V7	●	M12	145/160 mm	8
DSTT	x	SG-S2	30/10	PZ-V4/PZ-V5	●	M12	145/160 mm	16
Self-supported sliding doors								
FSTS	x	x	31/31	PZ-V1/PZ-V2	BR	M10	120/130 mm	10
FSTG	x	x	x	x	BR	M10	120/130 mm	10
FSTST	x	x	31/31	PZ-V1/PZ-V2	BR	M10	120/130 mm	10
FSTGT	x	x	x	x	BR	M10	120/130 mm	10
FSTS-2	x	x	31/31	PZ-V1/PZ-V2	BR	M10	120/130 mm	10
FSTG-2	x	x	x	x	BR	M10	120/130 mm	10
Lifting fields, folding fields								
HF	x	x	x	x	x	M12	145/160 mm	8
HFE	x	x	x	x	x	M16	130/190 mm	4
KF-U	x	x	x	x	x	M10	120/130 mm	8
KF-O	x	x	x	x	x	M10	120/130 mm	8

① A larger number of floor attachment materials is required as of a defined width. ② See sliding doors as of p. 82.
 ● Combination is possible. x Combination is not possible. ○ Combination is optional.

Accessories for safety fence systems

Safety fence system FLEX II

FLEX II-tab with captive hexagon screw

Plastic brackets with angle profile and fasteners.

FL2-V1



PATENT PROTECTION

STANDARD

FLEX II-tab with captive Torx screw

Plastic brackets with angle profile and fasteners.

FL2-V2



PATENT PROTECTION

FLEX II-tab with captive hexagon screw and spacer plate

Plastic brackets with angle profile and fasteners.

FL2DP-V1



PATENT PROTECTION

Flex angle with attachment

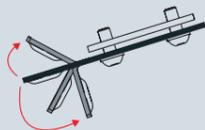
Angle bracket with fasteners

FL1W-V1



FLEX I-tab with captive hexagon screw

Bracket with fasteners



Angle position can be adjusted by bending inwards: up to 90 degrees; outwards: up to 45 degrees

FL1-V2



PROTECTED BY UTILITY SAMPLE

FLEX I-tab with captive hexagon screw and canting for corner connection

Bracket with fasteners



Angle position can be adjusted by bending outwards: up to 45 degrees

FL1-V3



Connection element

of FLEX II-grid elements with polycarbonate disc as protection against reaching through

- see p. 37
- Ensure that there is no polycarbonate coverage between the grid element and post.
- Attachments are not captive.

SF2-PCV



Spacer disc

with hexagon screw and washer for assembly of grid elements at bottlenecks at the posts or for frontal assembly of grid elements at machinery/ systems without further lateral attachment.

FL2DP-V2



Accessories for safety fence systems

Product description	VPE (pcs.)	Item no.
FLEX II-tab with captive hexagon screw	6	FL2-V1-6
	8	FL2-V1-8
	10	FL2-V1-10
	50	FL2-V1-50
FLEX II-Bracket with captive Torx screw and fasteners	10	FL2-V2-10
FLEX II-tab with captive hexagon screw and spacer plate	5	FL2DP-V1-5
Flex angle with attachment	5	FL1W-V1-5
FLEX I-tab with captive hexagon screw	8	FL1-V2-8
FLEX I-tab with captive hexagon screw and canting for corner connection	5	FL1-V3-5
Connection element for FLEX II-grid element with polycarbonate	6	SF2-PCV-6
	8	SF2-PCV-8
	10	SF2-PCV-10
Spacer disc with hexagon screw and washer	5	FL2DP-V2-5
Compriband 20 mm for sealing WAND II-elements	6,5 m	CPB
Edge enclosure for on-site cut-outs at sheet metal elements - clamp area 1-2 mm	(m)	KTS-V1
Edge enclosure for on-site cut-outs at fence elements - clamp area 1-4 mm	(m)	KTS-V2



Flex angle FL1W-V1



FLEX II-tab FL2DP-V1



Spacer disc FL2DP-V2

Safety fence system WAND II

Compriband

for sealing between WAND II-elements and floor

- Other versions available on request

CPB



Safety fence system ZAUN II

Wheel mounts

for on site section as edge protection

KTS

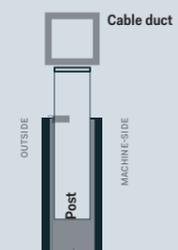


Cable duct holder

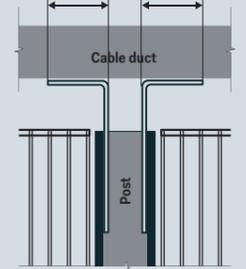
Version 1

Holders for screwing of small ducts on posts, fastening angles and fasteners

Section through post - across the fence course



Section through post - in parallel to the fence course



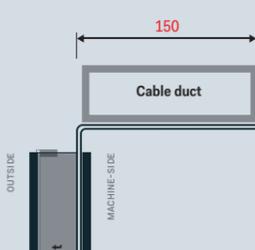
KKH-V1



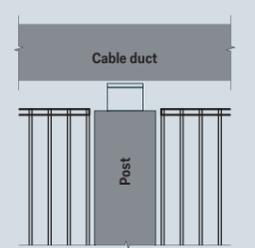
Version 2

Holders for screwing of bigger ducts on posts, fastening angles and fasteners

Section through post - across the fence course



View - parallel to the fence course



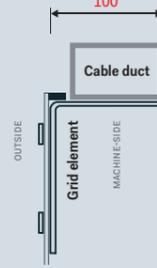
KKH-V2



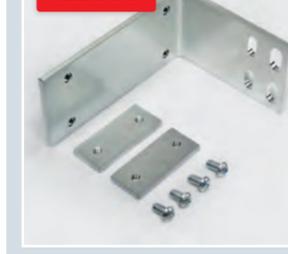
Version 4

Holder for screwing on smaller cable ducts on FLEX II mesh elements, fastening angle and fasteners.

Section through grid element - across the fence course



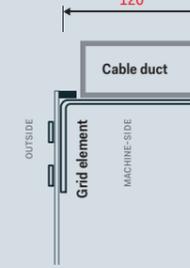
KKH-V4



Version 5

Holder for screwing on larger cable ducts on FLEX II mesh elements, fastening angle and fasteners.

Section through grid element - across the fence course



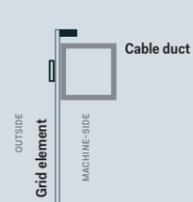
KKH-V5



Version 3

Holders for screwing of ducts on FLEX II mesh elements, clamping plates and fasteners.

Section through grid element - across the fence course



KKH-V3



Safety fence system FLEX II with cable duct - attached with KKH-V3



Safety fence system FLEX II with cable duct

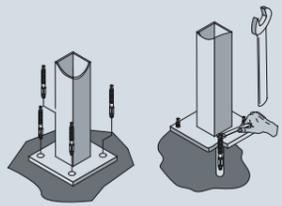
Cable duct holder

Product description	VPE (pcs.)	Item no.
Cable duct holder version 1	10	KKH-V1-10
Cable duct holder version 2	10	KKH-V2-10
Cable duct holder version 3	10	KKH-V3-10
Cable duct holder version 4	10	KKH-V4-10
Cable duct holder version 5	10	KKH-V5-10

Accessories for post

Floor attachment media

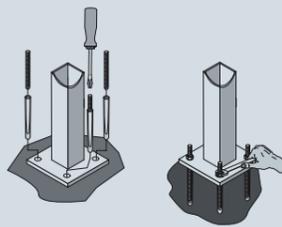
Fixed anchor



BMF



Compound anchor

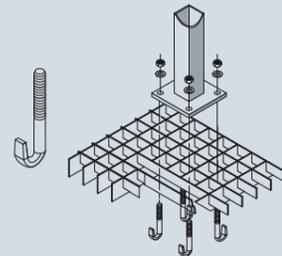


BMV



Hook screw

Hook screw for attachment to grids and special attachment points

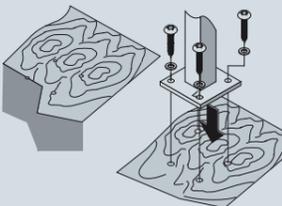


BMH



Wafer-head screw

Wood construction screw with wafer-head for attachment to wood floors

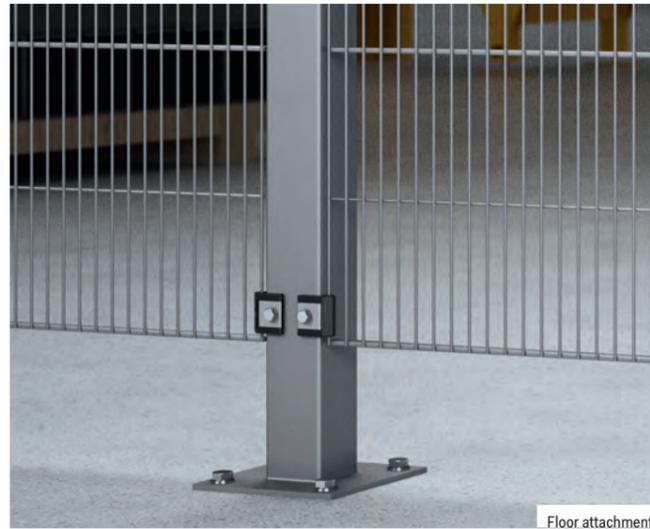


BMT



Floor attachment media

Product description	Thread	Length (mm)	VPE (pcs.)	Item no.
Fixed anchor	M10	120	10	BMF-10x120-10
	M12	145	10	BMF-12x145-10
	M16	130	10	BMF-16x130-10
Shear connectors of zinc-plated steel	M10	130	10	BMV-10x130-10
	M12	160	10	BMV-12x160-10
	M16	190	10	BMV-16x190-10
Clip bolt	M10	90	10	BMH-10x90-10
Disk head screw	M8	50	10	BMT-8x50



Floor attachment



Hook screw



Post support for special application of individual fields

Other post accessories

Threaded plates

Hot-dip galvanizing at high-temperature according to DIN EN ISO 1461 with screws electro-galvanized.

Application 1: Threaded plate for post attachment by clamping to grids

Application 2: Threaded plate for post attachment by welding to steel bases

GP-V1



Equipotential bonding cross-section 6 mm²

Equipotential bonding to avoid electrostatic charging of the protective facilities

PA-V1



Equipotential bonding cross-section 16 mm²

Equipotential bonding to avoid electrostatic charging of the protective facilities

PA-V2



Post base plate

As push-off plate for adjustment posts or to compensate for slight irregularities

ULP-V1



Post packing plate

for magnesite screed floors

ULP-V2



- 1 Only with floor fastening compound anchor in stainless steel.
- 2 Please order equipotential bonding twice per grid element and indicate whether preparation at the post and grid elements is to take place and whether it is performed on site.

Post support

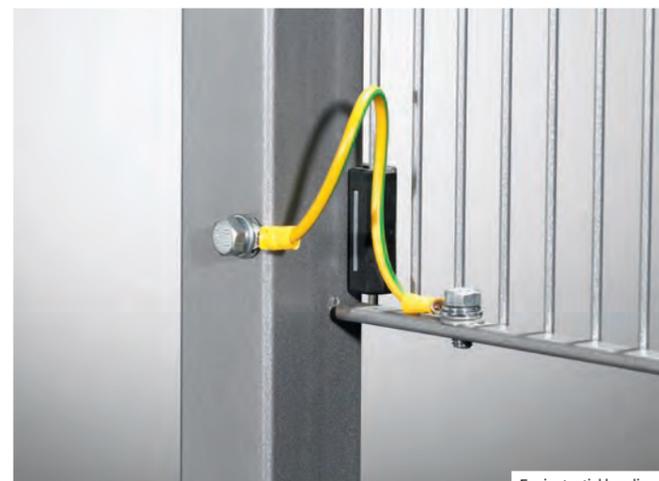
for increasing the standard safety of posts, for e.g. in case of single springs or single doors. Hot-dip galvanizing at high temperature according to DIN EN ISO 1461 with screws electro-galvanized. (not required at standard doors)

- 1 Order the corresponding floor attachment material for each post support separately! See p. 168.
- 2 Can be used for post profile QR50 and QR60.
- 3 Screws for attachment thread-cutting

Other post accessories

Product description	Ground plate size	VPE (pcs.)	Item no.
Threaded plates	60 × 130 mm	1	GP-V1-0613
	130 × 130 mm	1	GP-V1-1313
	70 × 150 mm	1	GP-V1-0715
	150 × 150 mm	1	GP-V1-1515
	100 × 200 mm	1	GP-V1-1020
	200 × 200 mm	1	GP-V1-2020
Washer ULP-V1	130 × 130 mm	1	ULP-V1-1313
	150 × 150 mm	1	ULP-V1-1515
	200 × 200 mm	1	ULP-V1-2020
Washer ULP-V2	130 × 130 mm	1	ULP-V2-1313
	150 × 150 mm	1	ULP-V2-1515
	200 × 200 mm	1	ULP-V2-2020
Product description	VPE (pcs.)	Item no.	
Post support	2	PS-V1-2	
Equipotential bonding cross-section 6 mm ²	10	PA-V1-10	
Equipotential bonding cross-section 16 mm ²	10	PA-V2-10	

PS-V1



Equipotential bonding

Accessories for doors

Lock sets

Lock set for wing doors
for attaching on the door wing
① Prepared for Euro profile cylinder, dia 17mm-profile cylinder not included in delivery scope.



Lock set for inwards-opening wing doors
for attaching on the door wing
① Prepared for Euro profile cylinder, dia 17mm-profile cylinder not included in delivery scope.



Lock set for single-wing sliding doors
for attaching on the door wing
① Prepared for Euro profile cylinder, dia 17mm-profile cylinder not included in delivery scope.



Lock set for multiple-wing sliding doors
for attaching on the door wing
① Prepared for Euro profile cylinder, dia 17mm-profile cylinder not included in delivery scope.



Door sets

Door set with handle on the inside and knob on the outside
Door set for wing doors with fixed knob on the outside and handle on the inside, opening from the outside only possible with key
① Can only be combined with closed fillings sheet metal/polycarbonate.
② Profile cylinder not included in the delivery.



Door set with handle inside and outside
Door set for wing and sliding doors with handle inside and outside
① Profile cylinder not included in the delivery.



Door set with handle inside, knob outside and protection against reaching through
Door set for wing doors with fixed knob on the outside, a handle on the inside and a protection against reaching through, opening from the outside only possible with key
② Profile cylinders not enclosed.



Profile cylinder

Profile cylinders simultaneous-locking
Euro-profile cylinders simultaneous-locking, Ø 17 mm, length: 31/31 mm with emergency feature
② Profile cylinders simultaneous-locking, cannot be guaranteed at subsequent order.



Profile cylinders not simultaneous-locking
Euro-profile cylinders not simultaneous-locking, Ø 17 mm, length: 31/31 mm with emergency feature



Profile cylinders simultaneous-locking
Euro profile cylinders simultaneous-locking, Ø 17 mm, length: 30/10 mm
② Profile cylinders simultaneous-locking, cannot be guaranteed at subsequent order.



Profile cylinders not simultaneous-locking
Euro-profile cylinders not simultaneous-locking, Ø 17 mm, length: 31/31 mm



Profile cylinders simultaneous-locking
Simultaneous locking Euro profile cylinder, with emergency feature, dia 17 mm, length: 30/65 mm
② Profile cylinders simultaneous-locking, cannot be guaranteed at subsequent order.



Profile cylinders not simultaneous-locking
multaneous locking Euro profile cylinder, with emergency feature, dia 17 mm, length: 30/65 mm



Grips/latch

Handle for wing door
Plastic handle with mounting plate for attachment to wing doors



Handle for sliding door
Plastic handle with mounting plate for attachment to sliding doors



Latch for wing doors without safety switch holder
Safe latching without query



Protection against falling shut for wing doors
Provision against unintentional shutting of doors.



Handle with bullet crossbow for wing door
Plastic handle with mounting plate and bullet crossbow for attachment to wing doors



Handle with bullet crossbow for sliding door
Plastic handle with mounting plate and bullet crossbow for attachment to sliding doors



Supporting rollers

Fixed caster



Caster



Other accessories

Protection against reaching through
for safety switch with flight unlatching



Holding plate with ball catch
for attachment to sliding doors



Holding plate attachment angle
for attachment system HP



Accessories for doors

Product description	VPE (pcs.)	Item no.
Lock set for wing doors	1	SG-F
Lock set for inwards-opening wing doors	1	SG-FEO
Lock set for single-wing sliding doors	1	SG-S
Lock set for multiple-wing sliding doors	1	SG-S2
Door set with handle inside and knob outside	1	TG-V1
Door set with handle inside and outside	1	TG-V2
Door set with handle inside, knob outside and protection against reaching through	1	TG-V5
Profile cylinders 31/31 simultaneous-locking	1	PZ-V1
Profile cylinders 31/31 not simultaneous-locking	1	PZ-V2
Profile cylinders 30/10 simultaneous-locking	1	PZ-V4
Profile cylinders 30/10 not simultaneous-locking	1	PZ-V5
Profile cylinders 30/65 simultaneous-locking	1	PZ-V6
Profile cylinders 30/65 not simultaneous-locking	1	PZ-V7
Handle for wing door	1	TZ-GR-F-V1
Handle for sliding door	1	TZ-GR-S-V3
Handle for sliding doors with inner door wings	1	TZ-GR-S-V1
Latch for wing doors without safety switch holder	1	TZ-RI-F-V1
Protection against falling shut for wing doors	1	TZ-ZS-F-V1
Handle with bullet crossbow for wing door	1	TZ-GRK-F-V1
Handle with bullet crossbow for sliding door	1	TZ-GRK-S-V1
Fixed caster	1	STR-F-V1-BR
Caster	1	STR-F-V1-LR
Protection against reaching through for safety switch with flight unlatching	1	DGS-V1
Retaining plate attachment angle for attachment system HP	1	HP-BW
Holding plate with ball catch for sliding doors	1	TZ-HPK-S-V1

- ① Handle optionally available in red.
- ② In sliding doors, the handle is turned by 90 degrees upwards.
- ③ Wing doors with an SG-F or an SG-FEO can only be opened from the outside through a key movement via a profile cylinder.
- ④ Sliding doors with an SG-S or an SG-S2 can be opened from the inside and outside with a key movement via a profile cylinder.
- ⑤ Door and accessory combination, see page 165

Securing conveyor technology inlets and outlets

Standing prevention

Standing prevention grid mat
to secure conveyor technology inlets and outlets



Angle for standing prevention grid mats
Incl. attachments and clamping plate

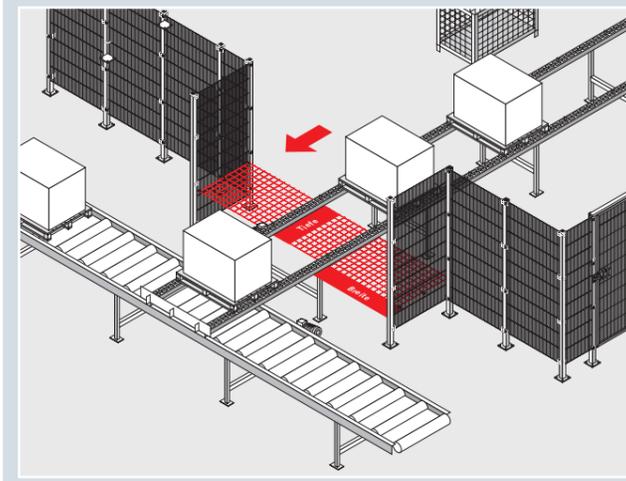


Standing prevention grid mat

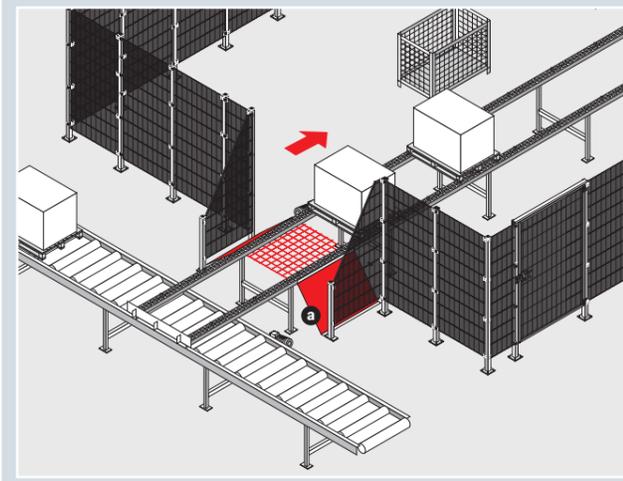
Product description	Depth (mm)	Width (mm)	VPE (pcs.)	Item no.
Standing prevention grid mat	1200	900	1	SVG-M-1200x900
Standing prevention grid mat	1200	1200	1	SVG-M-1200x1200
Angle for standing prevention grid mats	-	-	6	BMSV-6

☞ For diagonal fence fields, see p. 36. ⓘ Standing prevention sheets ⓘ available in request.

Application conveyor technology outlets



Application conveyor technology inlets with diagonal fence course



Standing prevention grid mats on a conveyor technology outlet in the application

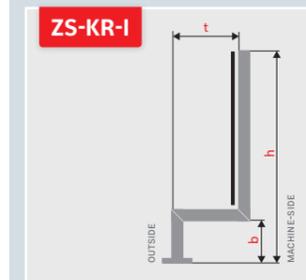
Special solutions available on request

Post versions

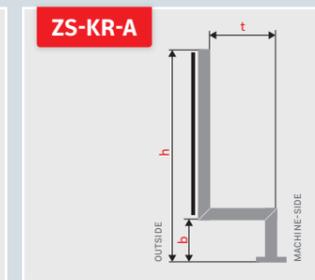
Post with offset

- ⓘ Please enclose sketch with dimensions at request!
- ⓘ Lateral offset possible as well.

inwards

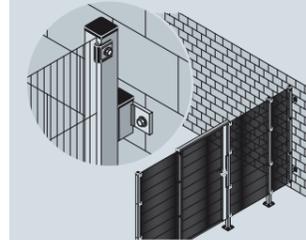


outwards

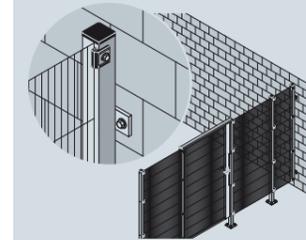


Wall attachment insulations – exemplary illustrations

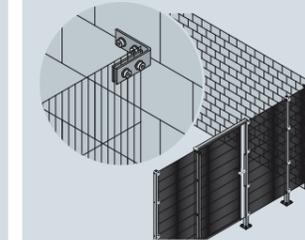
Special post for machine and wall connection
with distance



Special post for machine and wall connection
without distance



Angle for wall connection



Light barrier post

stable post with ground plate for attachment of light barriers

Welded-on C-profile for height compensation. Height 2600 mm is executed with post profile QR80, all other heights with post profile of QR60.

- ⓘ Further executions, e.g. with adjustment, available on request.



Mounting plates

Attachment plate for attachment housing on grid element
including assembly material and optionally with drilling screw for attachment to parts.

- AG-V1: 80 × 155 mm (e.g. for 2–3 buttons)
- AG-V2: 80 × 225 mm (e.g. for 4 buttons)



Attachment plate for attachment housing on post
including mounting material.

- AG-V3: 80 × 160 mm (e.g. for 2–3 buttons)
- AG-V4: 80 × 225 mm (e.g. for 4 buttons)



Mounting plate AG-V1 in the application



Mounting plate AG-V4 in the application

Marking danger areas

Shield attachment set version 1

Sign attachment set for 2 stickers
DIN ISO 3864

⚙ Please order stickers for prohibition or warning notes separately. See p.175.

Product description	Item no.
Attachment set for 2 prohibition and 7 or warning signs with Ø 100 mm for assembly on the protective facility; RAL 7035	SD2-100
Attachment set for 2 prohibition and 7 or warning signs with Ø 200 mm for assembly on the protective facility; RAL 7035	SD2-200

Shield attachment set version 2

Sign attachment set for 3 stickers
DIN ISO 3864

⚙ Please order stickers for prohibition or warning notes separately. See p.175.

Product description	Item no.
Attachment set for 3 prohibition and 7 or warning signs with Ø 100 mm for assembly on the protective facility; RAL 7035	SD3-100
Attachment set for 3 prohibition and 7 or warning signs with Ø 200 mm for assembly on the protective facility; RAL 7035	SD3-200

Signage

Sticker designation	Product	Warning note	Sticker diameter/height
Use hearing protection	BSG	M003	-100 -200
Use eye protection	BSG	M004	-100 -200
Use foot protection	BSG	M008	-100 -200
Use safety helmet	BSG	M014	-100 -200
Use catching harness	BSG	M018	-100 -200
Power down before maintenance or repair	BSG	M021	-100 -200
No access for pedestrians	BSG	P004	-100 -200
No access for unauthorised persons	BSG	P006	-100 -200
Do not touch	BSG	P010	-100 -200
Do not reach in	BSG	P015	-100 -200
No climbing for unauthorised persons	BSG	P022	-100 -200
Warning of a danger point	BSG	W001	-100 -200
Warning of non-ionising radiation	BSG	W005	-100 -200
Warning of magnetic field	BSG	W006	-100 -200
Warning of obstacles on the floor	BSG	W007	-100 -200
Warning of danger of falling	BSG	W008	-100 -200
Warning of low temperature/frost	BSG	W010	-100 -200
Warning of dangerous electrical voltage	BSG	W012	-100 -200
Warning of industrial trucks	BSG	W014	-100 -200
Warning of suspended load	BSG	W015	-100 -200
Warning of hot surface	BSG	W017	-100 -200
Warning of automatic start-up	BSG	W018	-100 -200
Warning of danger of crushing	BSG	W019	-100 -200
Warning of hand injury	BSG	W024	-100 -200
Warning of opposite rollers	BSG	W025	-100 -200
Warning of optical radiation	BSG	W027	-100 -200

Example for item number key
Product warning note sticker diameter **BSG-W012-200**

⚙ Stickers are enclosed with the sign attachment sets.

Sticker for sign attachment sets according to DIN EN ISO 7010

M003 Use hearing protection	M004 Use eye protection	M008 Use foot protection	M014 Use safety helmet	M018 Use catching harness
M021 Power down before maintenance or repair	P004 No access for pedestrians	P006 No access for unauthorised persons	P010 Do not touch	P015 Do not reach in
P022 No climbing for unauthorised persons	W001 Warning of a danger point	W005 Warning of non-ionising radiation	W006 Warning of magnetic field	W007 Warning of obstacles on the floor
W008 Warning of danger of falling	W010 Warning of low temperature/frost	W012 Warning of dangerous electrical voltage	W014 Warning of industrial trucks	W015 Warning of suspended load
W017 Warning of hot surface	W018 Warning of automatic start-up	W019 Warning of danger of crushing	W024 Warning of hand injury	W025 Warning of opposite rollers
W027 Warning of optical radiation				



Annex

Safety needs clear facts. Our annex summarises all the important subjects and terms around our safety fence systems for machine and system safety in an easily understandable manner. You can find many technical planning aids, colour recommendations, definitions of terms and a detailed item index there.

The right colour for your safety fence

Guideline for colour selection pursuant to EN ISO 14120:2013

Observe the following items:



1. Natural respect of black and yellow

This is often due to users believing that a standard requires that safety fences be painted in black and yellow. After all, many warning notes are also black and yellow, and the mandatory marking of hazard points uses these colours as well. This is also sensible in the hazard area, since –as the example of the wasp shows –perceiving this colour combination as a warning and being accordingly attentive appears to be inborn (☞ cf. EN ISO 14120:2013; 5.22 colour).

2. Standard requirements

There is no general standard that defines the colours for a separating protective facility. Only the danger points need to be marked in black and yellow. It must be noted that the safety device as such is not a danger point. Therefore, it also does not need to be painted in warning colours.

A safety device must be designed so that it will not have any detrimental physiological and psychological effects (☞ see EN ISO 14120:2013; 5.23 Appearance). In practice, production processes are made restless by a yellow-black contrast. Also: Specifically in order to identify "real" danger points as such, it may be sensible to choose a different colour for any other areas of the protective device that are not subject to any risk.

3. Process view

In many applications, it is recommended to use a restrained, darker colour for the grid as such - in particular where the process is to be seen, since these colours permit a better view through the grid. We generally use colours with a low glossiness that are more pleasant for the eye and that reduce reflections between the wires to a minimum (☞ cf. EN ISO 14120:2013; 5.9 Observation of the machine operation and 5.10 Transparency).



Natural respect of black and yellow



Less than optimal process view



Good process view, optimally adjusted to the machine design

4. The user has the choice.

The customer has the free choice and should use it, in order to e.g., implement his design ideas or to meet his Corporate Design. Accents can be set by equipping the fields of the safety grids and the posts in different colours.

5. We show our colours: Choose from more than 200 differentRAL-shades/NCS-colours

We operate a state-of-the-art and highly flexible powder-coating facility, so that we are able to coat the protective device quickly and at very good conditions in your desired colour. Our safety fence systems are sand-blasted and then powder-coated – the guarantee for maximum durability and impact resilience!

→ Result:

There is no default formula for specifying the colour of protective facilities.

We recommend:

Choose the post colour in the same shade as the machine and combine it with a grid filling in black or grey. Choose structured paint for the surfaces of sheet elements.

Hot-dip galvanised surfaces

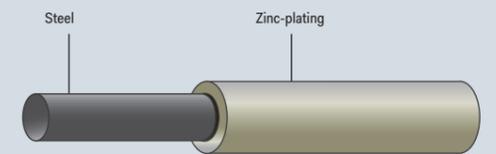
Hot-dip galvanisation protects steel from corrosion cost-efficiently and extends its service life by a multiple. Therefore, hot-dip galvanised surfaces are used outdoors and in transfer areas.



Hot-dip galvanised surface

Hot-dip galvanised price category 1

Steel wire with hot-dip galvanisation according to DIN 50975



Safety device FLEX II in zinc-plated design in the application of a packaging station

Colour diversity and surfaces

In order to achieve best colour adjustments or, where necessary, colour differentiation at the machines and systems of our customers, we offer a great selection of standard colours.

Overview of paint structure

Default:
Steel wire and powder-coating
 Colour specifications: powder-coated PE/EP: DIN EN ISO 12944-C2M

Indoor application: DIN EN ISO 12944 – blasting SA 2 1/2 and powder PE/EP correspond to corrosion protection class C2M.

Increased corrosion protection:
Steel wire, primer and powder-coating
 Colour specifications: powder-coated PE/EP: DIN EN ISO 12944-C4M

Special application: DIN EN ISO 12944 – blasting SA 2 1/2 and corrosion protection powder EPOXY and final coating with polyester powder PE correspond to corrosion protection class C4M.

RAL-shades Price category 2



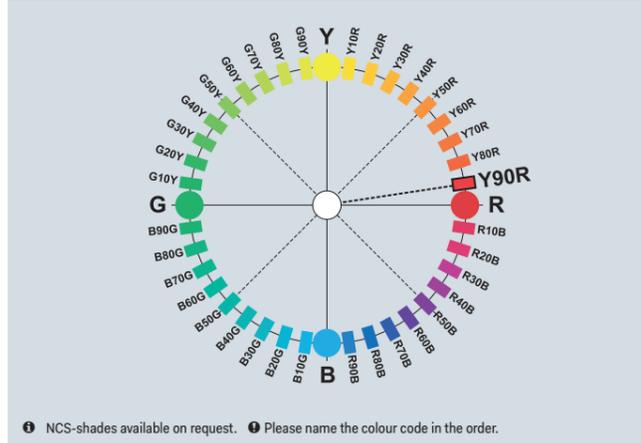
1 The elements are sand-blasted and then powder-coated – the guarantee for maximum durability and impact resilience. 2 Structure and other effect coatings are available on request. 3 Our surfaces are based on PE/EP-mixed powder with a degree of gloss of 60 GE (gloss units) according to DIN 67530 for indoor applications. 4 Special paint structures and special primers available on request.



Standard colours Price category 1

Shade	RAL	Designation
	RAL 1021	Rapeseed yellow
	RAL 2004	Pure orange
	RAL 5010	Gentian blue
	RAL 5017	Traffic blue
	RAL 7038	Agate grey
	RAL 7035	Light grey
	RAL 9005	Deep black

NCS-shades Price category 3



RAL-colours in the overview Price category 2

RAL 1000	RAL 2000	RAL 3027	RAL 5014	RAL 6017	RAL 7012	RAL 8004
RAL 1001	RAL 2001	RAL 3031	RAL 5015	RAL 6018	RAL 7013	RAL 8007
RAL 1002	RAL 2002	RAL 3032	RAL 5018	RAL 6019	RAL 7015	RAL 8008
RAL 1003	RAL 2003	RAL 3033	RAL 5019	RAL 6020	RAL 7016	RAL 8011
RAL 1004	RAL 2008	RAL 4001	RAL 5020	RAL 6021	RAL 7021	RAL 8012
RAL 1005	RAL 2009	RAL 4002	RAL 5021	RAL 6022	RAL 7022	RAL 8014
RAL 1006	RAL 2010	RAL 4003	RAL 5022	RAL 6024	RAL 7023	RAL 8015
RAL 1007	RAL 2011	RAL 4004	RAL 5023	RAL 6025	RAL 7024	RAL 8016
RAL 1011	RAL 2012	RAL 4005	RAL 5024	RAL 6026	RAL 7026	RAL 8017
RAL 1012	RAL 2013	RAL 4006	RAL 5025	RAL 6027	RAL 7030	RAL 8019
RAL 1013	RAL 3000	RAL 4007	RAL 5026	RAL 6028	RAL 7031	RAL 8022
RAL 1014	RAL 3001	RAL 4008	RAL 6000	RAL 6029	RAL 7032	RAL 8023
RAL 1015	RAL 3002	RAL 4009	RAL 6001	RAL 6032	RAL 7033	RAL 8024
RAL 1016	RAL 3003	RAL 4010	RAL 6002	RAL 6033	RAL 7034	RAL 8025
RAL 1017	RAL 3004	RAL 4011	RAL 6003	RAL 6034	RAL 7036	RAL 8028
RAL 1018	RAL 3005	RAL 4012	RAL 6004	RAL 6035	RAL 7037	RAL 8029
RAL 1019	RAL 3007	RAL 5000	RAL 6005	RAL 6036	RAL 7039	RAL 9001
RAL 1020	RAL 3009	RAL 5001	RAL 6006	RAL 7000	RAL 7040	RAL 9002
RAL 1023	RAL 3011	RAL 5002	RAL 6007	RAL 7001	RAL 7042	RAL 9003
RAL 1024	RAL 3012	RAL 5003	RAL 6008	RAL 7002	RAL 7043	RAL 9004
RAL 1027	RAL 3013	RAL 5004	RAL 6009	RAL 7003	RAL 7044	RAL 9006
RAL 1028	RAL 3014	RAL 5005	RAL 6010	RAL 7004	RAL 7045	RAL 9007
RAL 1032	RAL 3015	RAL 5007	RAL 6011	RAL 7005	RAL 7046	RAL 9010
RAL 1033	RAL 3016	RAL 5008	RAL 6012	RAL 7006	RAL 7047	RAL 9011
RAL 1034	RAL 3017	RAL 5009	RAL 6013	RAL 7008	RAL 7048	RAL 9016
RAL 1035	RAL 3018	RAL 5011	RAL 6014	RAL 7009	RAL 8000	RAL 9017
RAL 1036	RAL 3020	RAL 5012	RAL 6015	RAL 7010	RAL 8001	RAL 9018
RAL 1037	RAL 3022	RAL 5013	RAL 6016	RAL 7011	RAL 8002	RAL 9022
					RAL 8003	RAL 9023

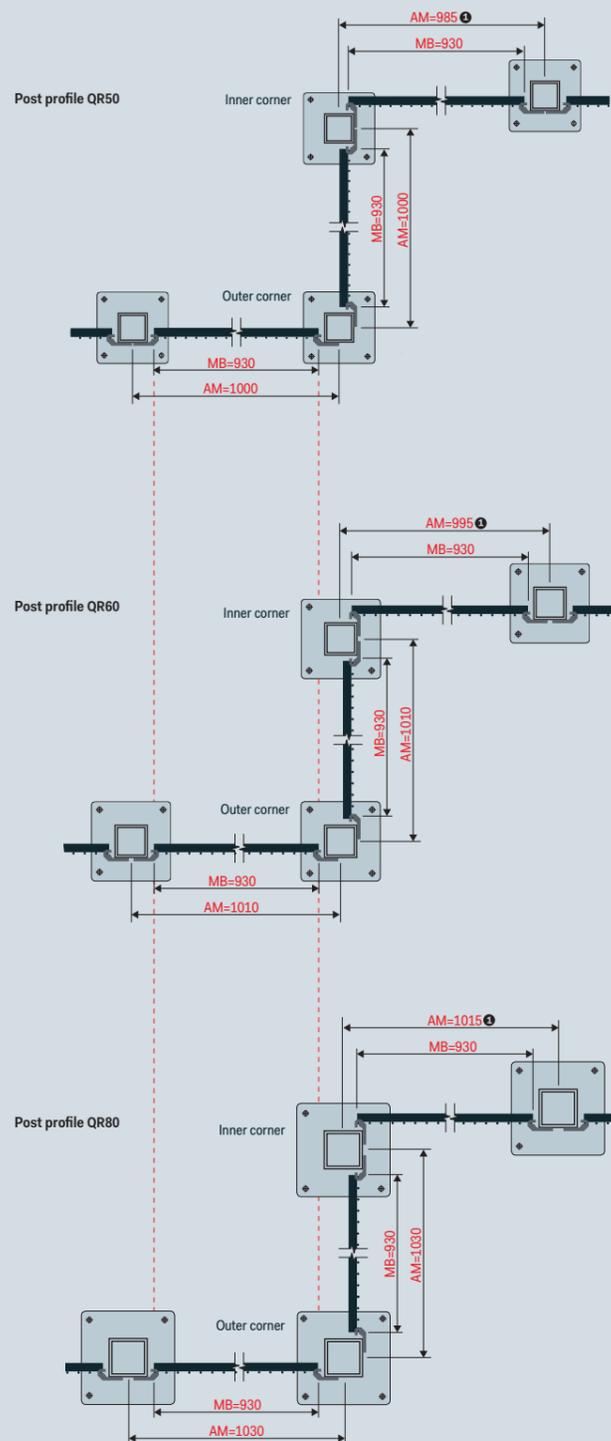
Please observe that the shades displayed here are a reference without being binding. Depending on manufacturer, the same RAL-colours may appear differently.

Technical planning basis for safety fence systems

Fence planning for safety fence system FLEX II

Due to the change of the post profile of QR50 to QR60 at heights > 2400 mm or from QR60 to QR80 at heights > 3035 mm, the axle size increases by 10 or 30 mm. The mat width remains constant at all times. In this example: 930 mm.

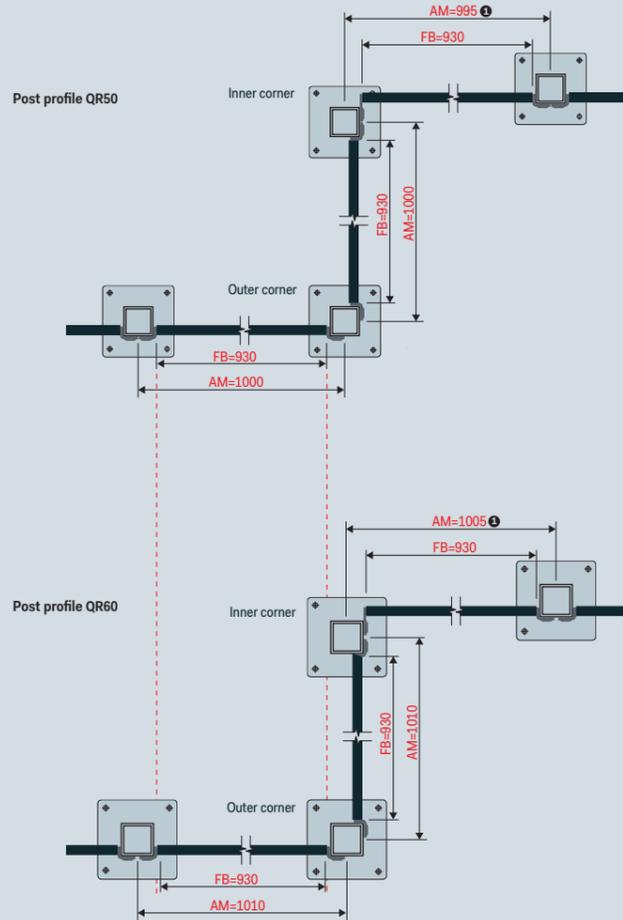
① The axle size reduces by 15 mm for inner corners. AM = Axle size MB = Mat width



Fence planning for safety fence system ZAUN II

Due to the change of the post profile of QR50 to QR60 at heights > 2400 mm, the axle size increases by 10 mm. The field width remains constant at all times. In this example: 930 mm.

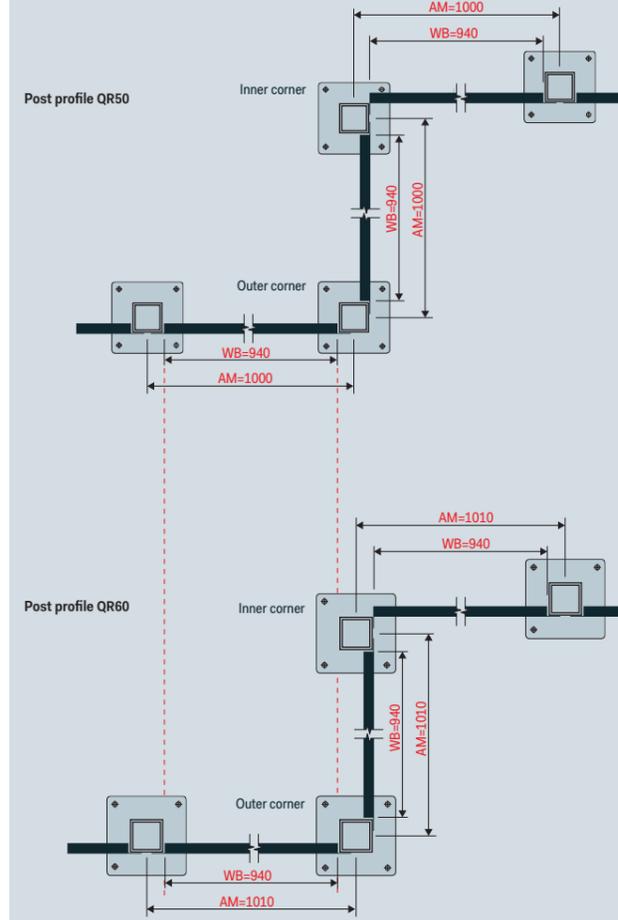
① The axle size reduces by 5 mm for inner corners. AM = Axle size FB = Field width



Fence planning for safety fence system WAND II

Due to the change of the post profile of QR50 to QR60 at heights > 2400 mm, the axle size increases by 10 mm. The wall width remains constant at all times. In this example: 940 mm.

AM = Axle size WB = Wall width



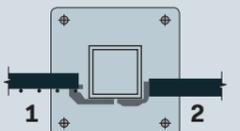
Transfer post for all safety fence systems

Transfer post for connection of different safety fence systems and/or fence heights. The safety fence systems FLEX II, ZAUN II and WAND II can be combined easily with each other.

Transfer post as passage post

Example for item number key
UDP-System1-height1-System2-height2-ground plate
UDP-QR50-F-2000-Z-1600-1313

System FLEX II = F
System ZAUN II = Z
System WAND II = W

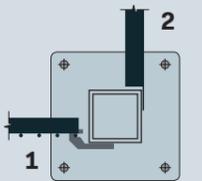


① Please indicate all systems and heights in your order.

Transfer post as corner post

Example for item number key
UEP-System1-height1-System2-height2-ground plate
UEP-QR60-F-2600-W-1400-1515

System FLEX II = F
System ZAUN II = Z
System WAND II = W

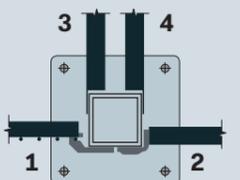


① Please indicate all systems and heights in your order.

Transfer post as T-seam post

Example for item number key
UTP-System1-height1-System2-height2-System3-height3-System4-height4-ground plate
UTP-QR50-F-1600-Z-1800-W-2000-W-2000-1313

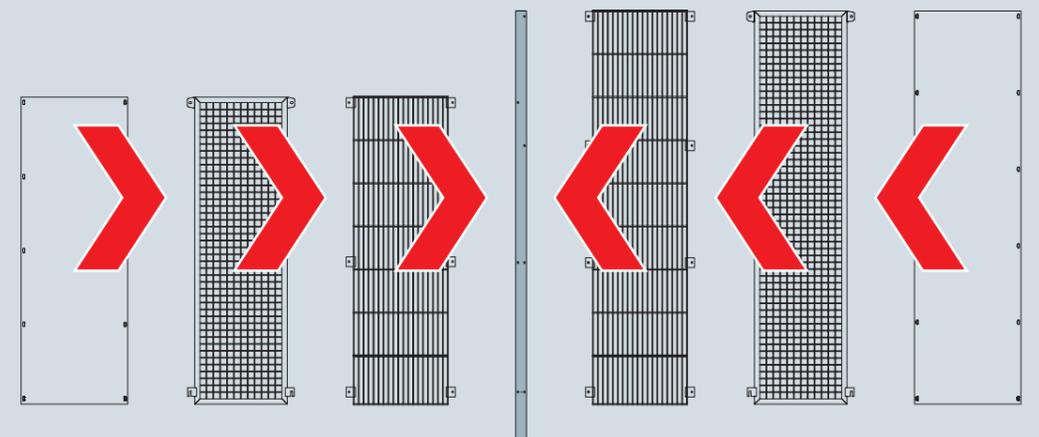
System FLEX II = F
System ZAUN II = Z
System WAND II = W



① Please indicate all systems and heights in your order.

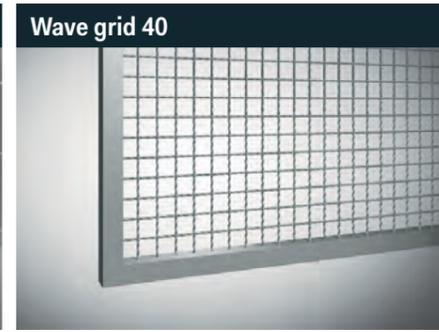
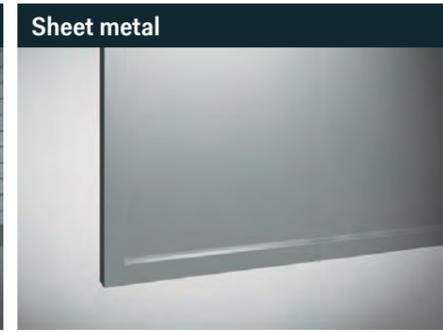
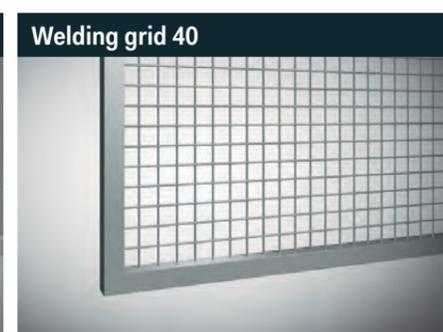
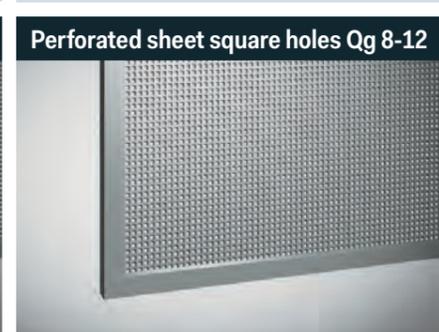
Transfer post

for system combination and/or when switching the fence heights



Frame fillings with safety clearances according to EN ISO 13857:2008 when reaching through regular openings

Our diverse safety fence systems and doors are supplemented by many different frame fillings:

<p>FLEX II</p> 	<p>Wave grid 40</p> 	<p>Sheet metal</p> 
<p>FLEX II: Safety distance at a slitted opening of 20 × 200 mm ≥ 120 mm</p>	<p>ZAUN II: Safety distance at a square opening of 40 × 40 mm ≥ 200 mm</p>	<p>ZAUN II: Safety distance for a slit-shaped opening ≤ 12 mm, between fence element and post ≥ 100 mm WAND II: Safety distance for a slit-shaped opening ≥ 2 mm</p>
<p>Polycarbonate</p> 	<p>Wave grid 25</p> 	<p>Welding grid 40</p> 
<p>ZAUN II: Safety distance for a slit-shaped opening ≤ 12 mm between fence element and post ≥ 100 mm WAND II: Safety distance for a slit-shaped opening ≥ 2 mm</p>	<p>ZAUN II: Safety distance at a square opening of 25 × 25 mm ≥ 120 mm</p>	<p>ZAUN II: Safety distance at a square opening of 40 × 40 mm ≥ 200 mm</p>
<p>Perforated sheet round holes Rv 5-8</p> 	<p>Perforated sheet square holes Qg 8-12</p> 	
<p>ZAUN II: Safety distance for a slit-shaped opening ≤ 12 mm between fence element and post ≥ 100 mm</p>	<p>ZAUN II: Safety distance for a slit-shaped opening ≤ 12 mm between fence element and post ≥ 100 mm</p>	
<p>Sight protection glass reddish-brown T50</p> 	<p>Sight protection glass green T75</p> 	<p>Sight protection glass green T90</p> 
<p>ZAUN II: Safety distance for a slit-shaped opening ≤ 12 mm between fence element and post ≥ 100 mm WAND II: Safety distance for a slit-shaped opening ≥ 2 mm</p>	<p>ZAUN II: Safety distance for a slit-shaped opening ≤ 12 mm between fence element and post ≥ 100 mm WAND II: Safety distance for a slit-shaped opening ≥ 2 mm</p>	<p>ZAUN II: Safety distance for a slit-shaped opening ≤ 12 mm between fence element and post ≥ 100 mm WAND II: Safety distance for a slit-shaped opening ≥ 2 mm</p>

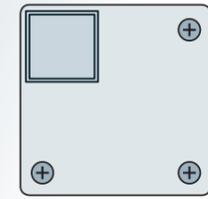
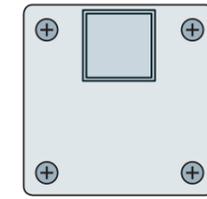
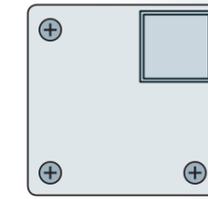
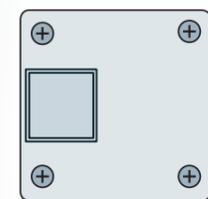
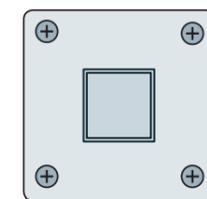
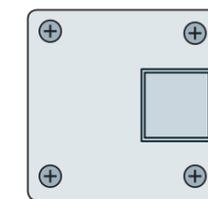
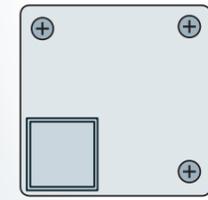
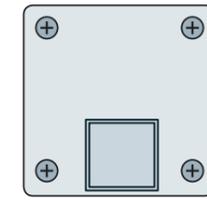
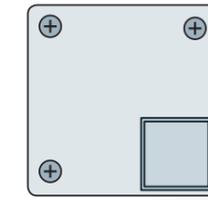
Technical information for ground plate positioning

All door posts of Brühl Safety GmbH are welded on centred in the middle by default. An offset of the ground plate is possible both for the standard posts and for the door posts for a surcharge.

Please indicate the item number and positioning description for deviations from the standard!



MACHINE-SIDE/DANGER AREA

 <p>POSITION 1: left rear</p>	 <p>POSITION 2: middle rear</p>	 <p>POSITION 3: right rear</p>
 <p>POSITION 4: left centred</p>	 <p>POSITION 5: middle centred</p>	 <p>POSITION 6: right centred</p>
 <p>POSITION 7: left front</p>	 <p>POSITION 8: middle front</p>	 <p>POSITION 9: right front</p>

↑ ↑ ↑ ↑ ↑

EXPOSED SIDE/OUTSIDE



Definitions of terms

Axle size (AM)

Size of a part from the middle of the first post to the middle of the second post.

Stop direction

The stop direction is determined from the stop side. The stop side of a door is the side on which the door hinges are attached. This distinguishes between DIN left (stop left) or DIN right (stop right).

Opening outwards

By default, the wing doors are designed so that the door wing opens outwards (i.e. towards the operator's side).

Ground clearance

Height from the ground to the lower edge of the grid element.
Ground clearance + grid height = fence height

Opening inwards

When the doors open inwards, the wing opens towards the machine side. This may be necessary, i.e. when there is not enough space on the outside. Always check if this is permitted in the respective safety concept. This option is not possible for escape doors. They always must open in the escape direction outwards.

Danger area

Area in or around a machine in which a person is exposed to the risk of injury or damage to health.

The danger may be:

- either permanent during intended use of the machine (movement of dangerous moving parts, light arcs during a welding phase, etc.)
- or occur unexpectedly (accidental, unexpected start-up, etc.).

Danger marking

All signs necessary for safe use must be installed on the machine, e.g.:

- Maximum speed of rotating parts,
- Largest carrying capacity
- Necessity to wear protective equipment
- Set values for separating protective device,
- Frequency of inspections, etc.

The labels on the machine should remain permanently legible during the expected service life. Signs or written warning notes that only say "Danger" must not be used.

Marks, signs and written warning notes must be easily understandable and clearly refer to the respective partial function of the machine. Easily understandable signs (icons) should be preferred to written warning notes. Only signs and icons that are understandable in the culture where the machine is to be used should be used.

Written warning notes must be given in the language of the country where the machine is first used, and also in the language that is understandable to the operators on request. According to the machine safety standards, such signs are part of the indicative safety technology (user information regarding residual risk).

Grid elements

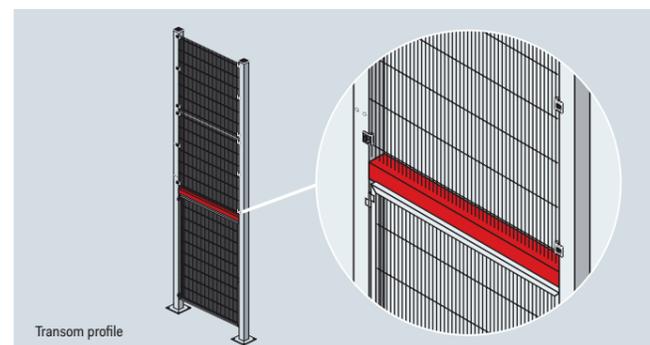
A grid element is part of a barrier of an area, usually by complex enclosure of the respective danger area. Grid elements in combination with posts lead to a safety fence system.

Grid height

The grid height is the height of a grid element.
Grid height + ground clearance = fence height

Transom profile

The transom profile is a horizontal connection element of the frame, above the door wing. The stiffness of the door portal increases by the connection of the crossbar with posts.



Conventional safety switch

Electromechanical safety switches that are equipped either with an integrated actuator element (Build 1) or with a separate actuator (Build 2).

Open width (LB)

The open width corresponds to the actually existing passage width of doors.

Open height (LH)

The open height corresponds to the actually existing passage height in doors up to the lower edge of the door sill.

Manipulation

Manipulation means the deliberate deactivation or bypassing of safety facilities and their components. Safety switches and other safety devices must be made in such a way that the safety functions cannot be changed or bypassed manually or with simple tools. Simple tools include:

- Nails,
- Wire pieces,
- Adhesive strips, etc.

No easy bypassing (BGI 575) means:

- Disassembly of parts,
- Turning away of the safety switch from its protective position,
- Using a second actuator,
- Bridging contacts, etc.

Constructionally, it should be observed that simple and intended operation of machines and systems is possible in spite of protective devices. If this is not considered, the probability that safety measures are bypassed, increases.

Machine safety

Machine safety colloquially describes protective measures on machines and systems with the target of avoiding dangerous situations and their risks. The subject of machine safety is viewed from two perspectives. The machine's manufacturer must market safe machines based on the machinery directive, and consider safety measures even during construction. The operator of the machine or system must ensure safe work on and with the machine to protect his employees.

Performance Level (PL)

Discrete level that specifies the ability of safety-related parts of a control to perform a safety function under foreseeable conditions (definition according to standard EN 13849). Putting it more simply, the Performance Level is a measure for reliability of a safety function. We distinguish between the Performance Level required (PLr; with "r" for "required") and the "actual" PL that is in fact reached. There are five performance levels that reflect different residual risks.

Polycarbonate

Polycarbonate is used where other plastics are too soft, too fragile, scratch too easily, are not stable enough or not transparent enough. Polycarbonate is transparent like glass, can be dyed, welded and glued. It also maintains its size and has high impact resilience.

Position switches

Position switches record the position of moving protective facilities. When a position switch is used as a safety-relevant part, this is called a position switch with a safety function or a safety-related position switch. In this case, the switching element must have at least one forced opener.

Latch

The latch tab mechanically guides the actuator when it moves into the safety switch. The latch part installed in the floor frame consists of a protruding latch tag in a guide, a handle and the actuator. The latch holder and the safety switch are installed on the post side. The latch holder catches the forces that arise in the closed condition of the door, which would otherwise act on the switch and the actuator and may damage these parts.

Safety Integrity Level (SIL)

The Safety Integrity Level is the level that describes the probability that a safety-related system meets the required safety functions under all specified conditions within a specified period according to requirements. For this, compare the required Safety Integrity Level (SILr; the "r" meaning "required") and the "actual" SIL that is in fact achieved.

Safety facility

A safety facility is to protect persons, production goods and the environment from a danger. We distinguish between separating protective facilities and non-separating protective facilities.

Protective measure

A protective measure is a way to mitigate the risk. Protective measures are distinguished by constructional ones and those taken when operating the system.

Welding grid/spot-welded meshes

Spot-welded meshes are produced using smooth, drawn wires of steel or stainless steel. These are connected to each other at crossing points at right angles by electrical resistance point welding. The welded nodes make the grid extraordinarily stable.

Fence height

The fence height corresponds to the entire height of the safety fence from the ground to the upper edge of the fence element. Fence height = ground clearance + grid height



Safety fence system ZAUN II-grid fillings with Wave grid 40

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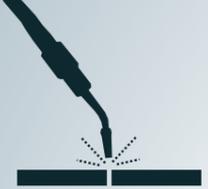
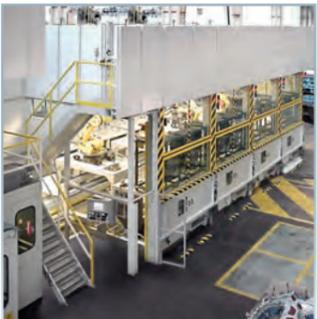
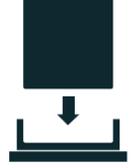
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Safety fence system high resistant

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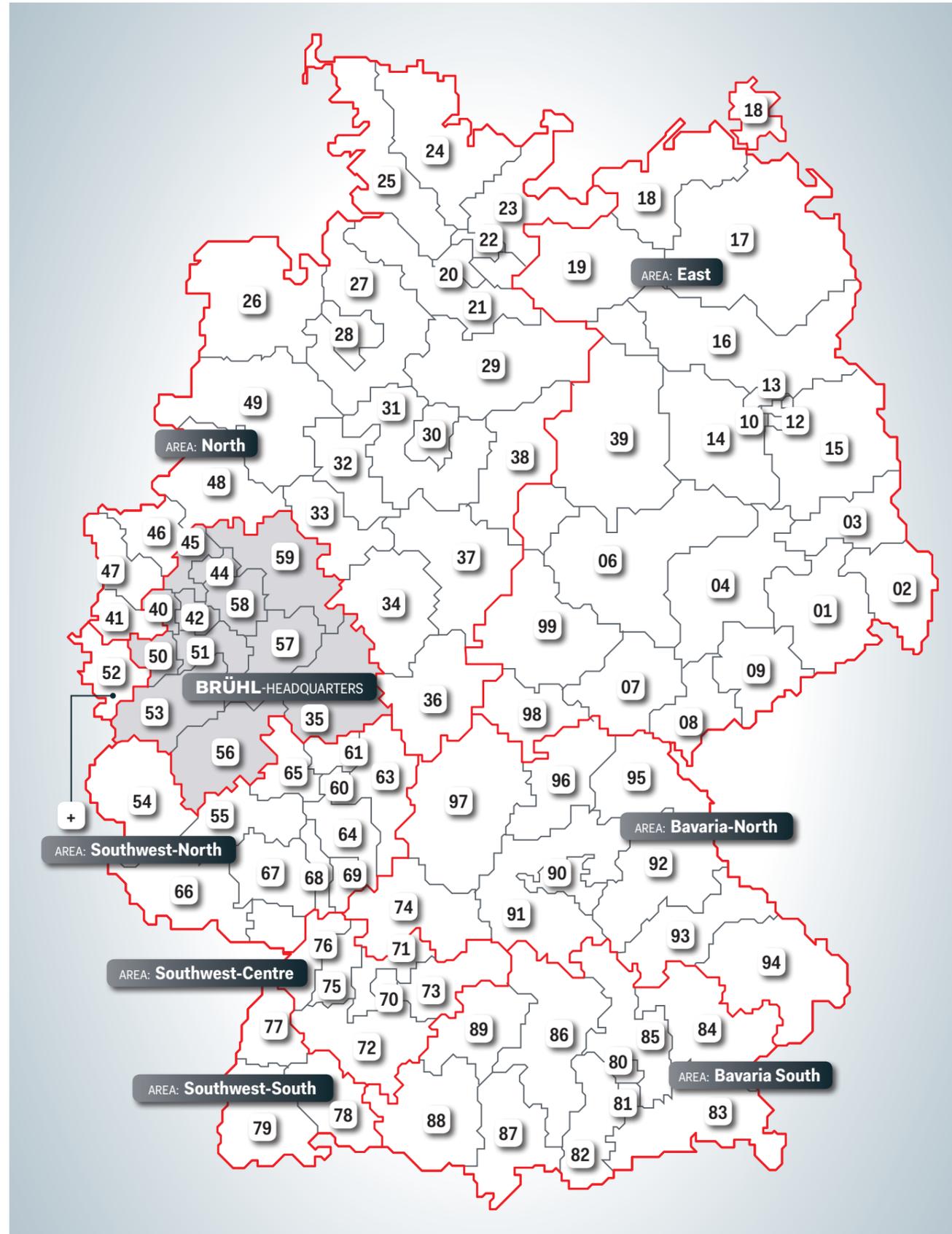


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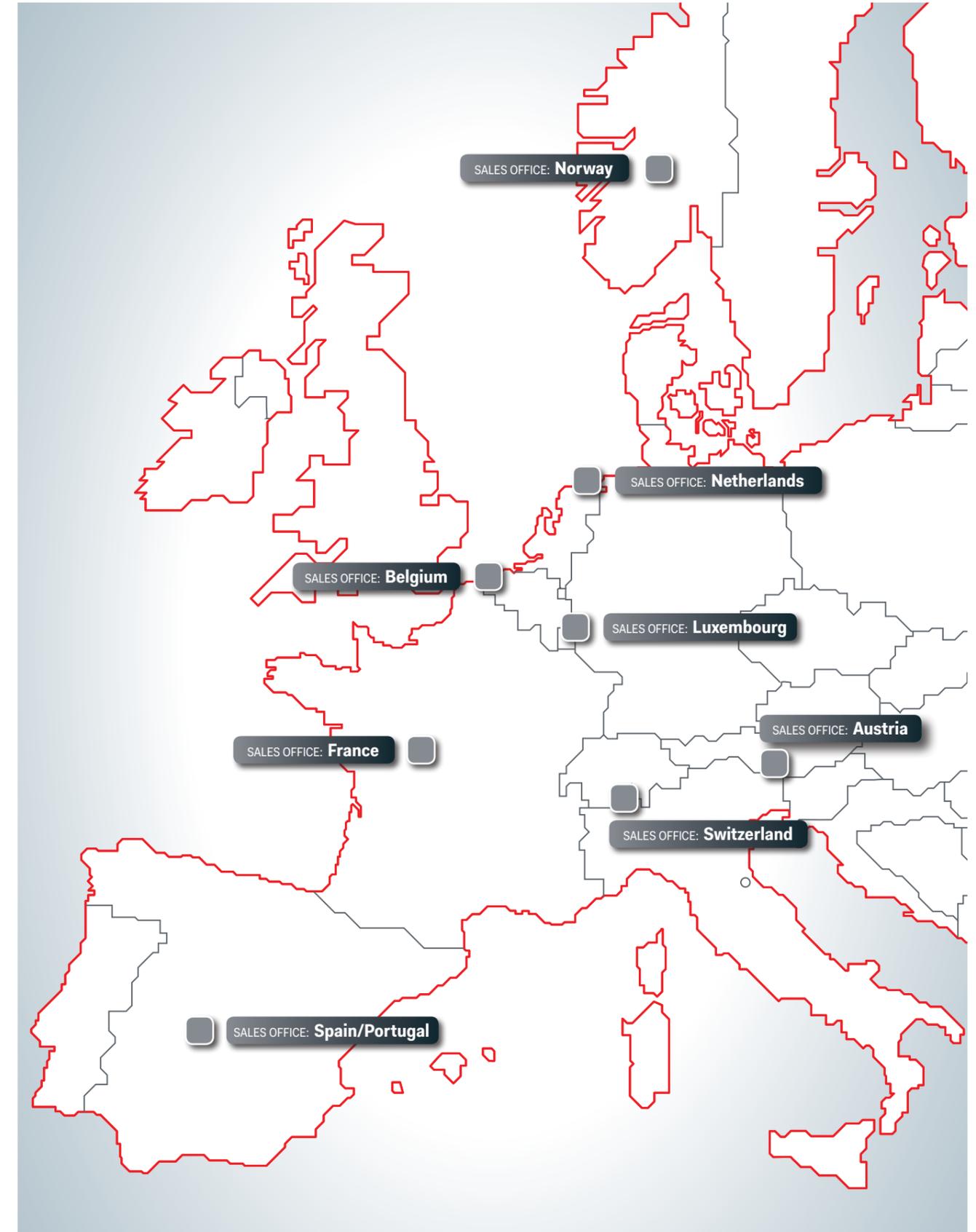
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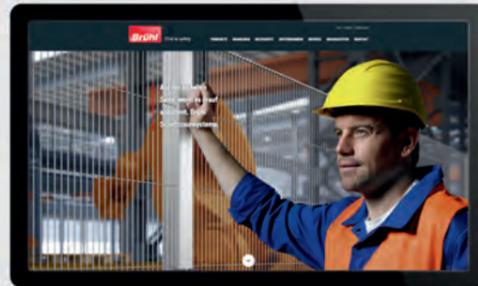




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