SATECH Modular Protection Systems

Custom guarding and associated products

SATECH
SAFETY TECHNOLOGY

SCHMERSAL
Safe solutions for your industry

> TWO COMPANIES...

SATECH

SATECH is an Italian company with an 8,000 sqaure meter design, development, and manufacturing facility in Calco, in the province of Lecco. Established in the year 2000, SATECH quickly became a European market leader in modular protection systems for industrial machinery.

Their focus is on guarding systems constructed of low carbon steel. Upright posts and panel frame members are a solid extrusion for extra durability. Fence mesh is constructed by 2 mm diameter steel wire, arc welded at each junction. The construction methods utilized make the assembled system highly impact resistant.

Since SATECH exclusively operates in the industrial sector, its technical department is geared up to meet customers' individual requirements and provide customized protection equipment and systems for different industry sectors. Ongoing technical research and development, coupled with years of experience, enable SATECH to provide the right solution whatever the application.

SCHMERSAL

For 70 years Schmersal has developed a reputation for the design and manufacture of quality safety products and innovation remains paramount as we continuously develop new products to meet the demands of the ever evolving industrial sector. The company is headquartered in Germany, with 6 manufacturing sites and branch offices in over 20 countries worldwide.

Today the Schmersal product portfolio contains over 25,000 products, including keyed interlocks, solenoid locks, electronic safety switches and sensors, coded magnet sensors, safety hinge switches, safety light curtains, safety rated limit switches, safety edges and mats, and a wide assortment of safety controllers. We also offer industrial grade automation switches and control devices.

Our vast working knowledge of local and international standards has allowed Schmersal in North America to lead the way in helping customers understand the requirements for specific applications. Our trained machine safety engineers are available to guide customers through the maze of safety standards that are seen today.

... working together for complete safety solutions

Schmersal North America is pleased to offer SATECH modular guarding systems in the US and Canada. Our wide array of machine safeguarding switches, sensors and control accessories complement SATECH's modular guarding systems. Whether it is a simple application or a complex safety system, Schmersal can help you design the perfect SATECH guard and provide all the necessary safety devices to meet relevant machine guarding standards. Together, we offer complete safety solutions for all machine safeguarding needs.

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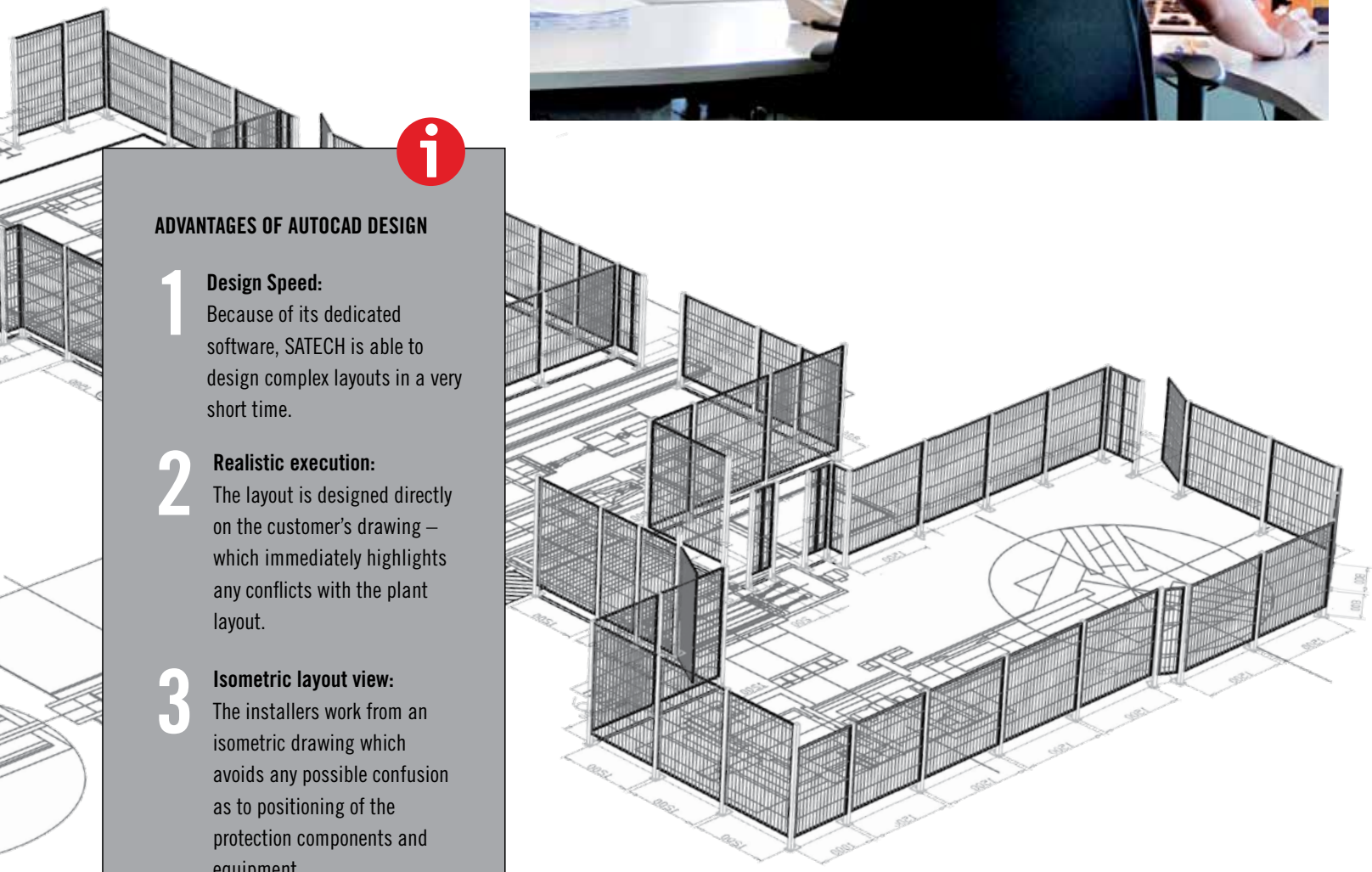
> AUTOCAD DESIGN

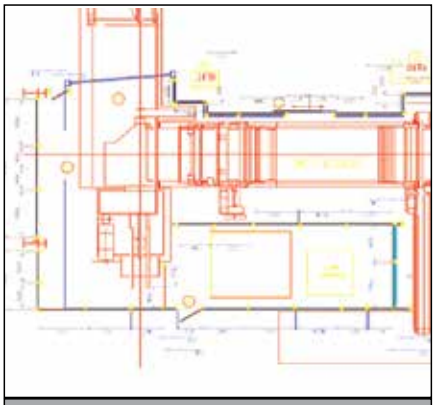
> SATECH has invested substantially in **software for the automatic 3D design of modular guards**. This allows for the optimal selection of modules and the provision of a 3D drawing that is easily understood by assembly personnel.



ADVANTAGES OF AUTOCAD DESIGN

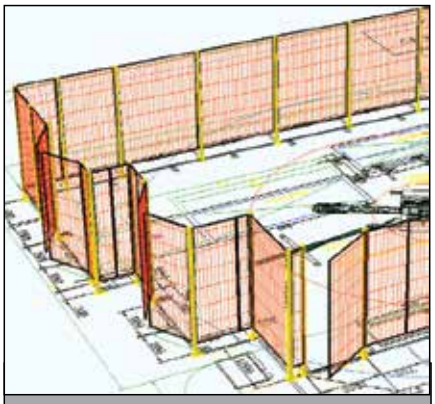
1. **Design Speed:** Because of its dedicated software, SATECH is able to design complex layouts in a very short time.
2. **Realistic execution:** The layout is designed directly on the customer's drawing – which immediately highlights any conflicts with the plant layout.
3. **Isometric layout view:** The installers work from an isometric drawing which avoids any possible confusion as to positioning of the protection components and equipment.

FROM THE CUSTOMER'S NEEDS TO **CUSTOMIZED DESIGN**



CUSTOMER'S LAYOUT:
The design starts by inputting the DWG or DXF file sent by the customer.

AUTOCAD DESIGN:
Use of AutoCAD allows collaboration with the customer without the need of file conversion.



3D VIEW:
The objective 3D view avoids misinterpretation of the positioning of the protection equipment.

> TOTAL MANAGEMENT OF **WORKFLOW**

> Constant development of assembly systems, all based on SATECH's structured **modular panel design**, mean that the company can design the optimal layout of protective guards for even the most complex and exacting conditions, resulting in the most cost-effective solution

- Design
- Production
- Stock
- Shipping
- Delivery
- Assistance

STOCK

> SATECH maintains a **wide selection of finished components in stock** to allow short lead times for standard products where customers require it. The system also allows for speedy delivery of products in special colours or designs.

PACKING AND SHIPPING

> SATECH has taken great care in the design of protective packaging for products in transit, to ensure they arrive in perfect condition. This has been achieved by an innovative vertical packaging system which minimises packaging materials and maximises space in the delivery vehicle – **keeping shipping costs low and protecting the environment.**

> COLOURS

RAL COLORS

Panels and uprights are finished using proven, hard-wearing epoxy polyester powder paints, available in standard colors RAL 9005, 1021 and 7035.
SATECH GUARDING CAN ALSO BE PRODUCED IN SPECIAL COLORS TO MEET INDIVIDUAL CUSTOMER REQUIREMENTS.

RAL 9005 | RAL 1021 | RAL 7035 | SPECIAL COLORS

SERVICE
AND AFTER SALES CARE

EQUIPMENT ASSEMBLY & INSTALLATION

> In order to ensure customers receive a comprehensive service from initial design to the final assembly of their guarding system, SATECH supports customer staff through an education program which includes both theory and practice in the assembly of the main parts such as doors, safety switches and locks. Assembly staff are also given an easy-to-understand 3D plant layout.

ASSEMBLY & INSTALLATION SERVICE

> For those customers not wishing to assemble and install the guarding systems themselves, SATECH provides this service through a network of approved assembly teams. The assembly operatives are trained in SATECH's own technical center which is equipped with the full range of products for full-scale assembly.

ALL-ROUND SAFETY

> In response to customer requests, SATECH has established **partnerships with a number of consulting and service companies** able to certify industrial plant and machinery to relevant safety standards.

This additional customer support enables SATECH to square the circle and provide an all-encompassing assembly, installation and commissioning package that covers machinery, plant and workplace safety – a truly 360-degree service delivering all relevant certification at a corporate level.

Watch an introduction video on YouTube

SATECH

> CAPTIVE FASTENING SYSTEMS

(EU machine safety directive 2006/42/CE)

> Following the update of the European machine safety directive 2006/42/CE, SATECH has developed **patented captive fastening systems** for its complete range of products.

ALL SYSTEMS ARE SUPPLIED WITH EITHER A "NON-CAPTIVE" OR "CAPTIVE" FASTENING

- **> Economic and simple solution**
- **> Absolutely safe and secure fixing**
- **> Compliance with the CE standards on captive state of the fixing elements.**
- **> Quick and easy assembly**

APPLICATION
ON OUR SAFETY SYSTEMS

CAPTIVE FASTENING FOR BASIC AND STRONG PROTECTION SYSTEMS

> The captive fastening applied to Basic and Strong systems consists of a clip secured by a special screw and captive nut. The clip can slide along the upright but cannot be separated from it.

CAPTIVE FASTENING FOR GREEN FAST PROTECTION SYSTEM

> A special screw and captive nut clamp the baseplate holding the panels by the use of a specially-designed coupling that maintains the position of the upper mating spring and thus ensures the integrity of the fixing system.

CAPTIVE FASTENING FOR MDF AND BASIC PROTECTION SYSTEM

> SATECH has patented its simple and economic fastening solution that ensures that the connecting screw and nut remain together when disassembling the panel from its upright.

> BASIC

PERIMETER PROTECTION SERIES – BASIC

> Protection and accident prevention system consisting of **40x40 uprights and 20x20 panels with 20x20 frames**, connected by screws or **SATECH patented fast assembly clamps**. It is the standard method used in all guards for plant and machinery.

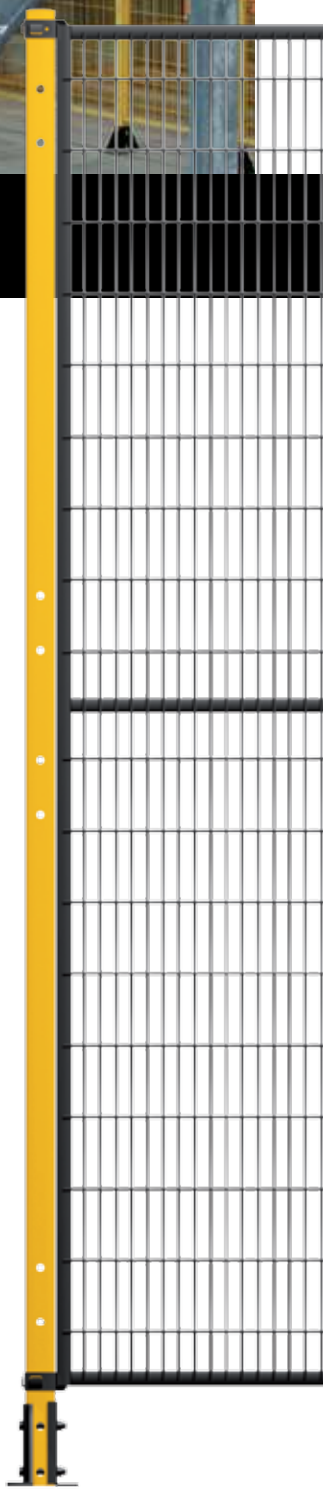
Watch an introduction video on YouTube

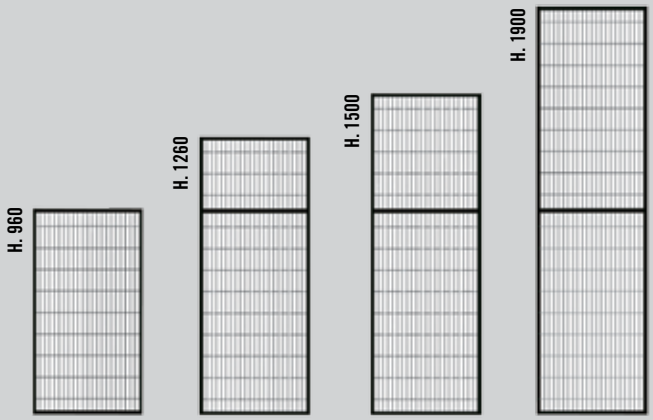
25% TIME SAVED
compared to traditional system

> PATENT

CLIP BASIC

> SATECH has developed a connecting system between panel and upright that achieves remarkable time savings during assembly and height adjustment. It also allows easy reinstallation of the guard after it has been removed for non-routine maintenance.
EN ISO 14120 6.4.4.1 b.





PANELS

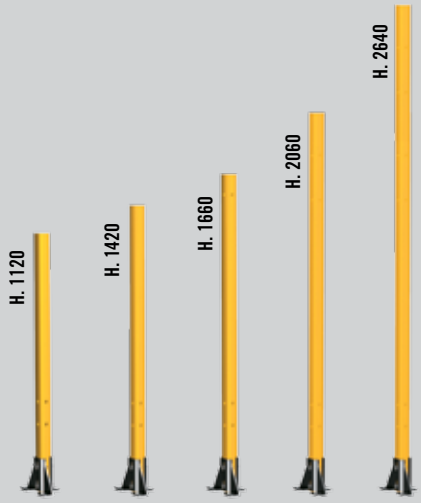
Panels Frame: 20 x 20

Mesh: 22 x 100 x 3 mm

Painting: Epoxy polyester powder (indoor use)

COLORS:

RAL 9005 | RAL 1021 | RAL 7035 | SPECIAL COLORS



POSTS

Uprights: 40 x 40 x 2

Baseplate: Forged with 3/4 anchor points

Painting: Epoxy polyester powder (indoor use)

COLORS:

RAL 9005 | RAL 1021 | RAL 7035 | SPECIAL COLORS

PANELS H.960

Base	Height	Code
200	960	R020096
300	960	R030096
700	960	R070096
800	960	R080096
1000	960	R100096
1200	960	R120096
1500	960	R150096

PANELS H.1260

Base	Height	Code
200	1260	R020126
300	1260	R030126
700	1260	R070126
800	1260	R080126
1000	1260	R100126
1200	1260	R120126
1500	1260	R150126

PANELS H.1500

Base	Height	Code
200	1500	R020150
300	1500	R030150
700	1500	R070150
800	1500	R080150
1000	1500	R100150
1200	1500	R120150
1500	1500	R150150

PANELS H.1900

Base	Height	Code
200	1900	R020190
300	1900	R030190
700	1900	R070190
800	1900	R080190
1000	1900	R100190
1200	1900	R120190
1500	1900	R150190

POSTS WITH SCREWS

Height	Code
1120 adjustable	PLR1120
1420 adjustable	PLR1420
1660 adjustable	PLR1660
2060 adjustable	PLR2060
2640 adjustable	PLR2640

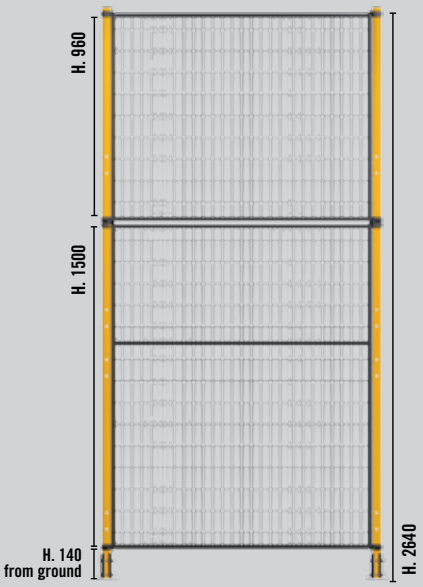
POSTS WITH FAST ASSEMBLY CLAMPS

Height	Code
1120 adjustable	P0L1120
1420 adjustable	P0L1420
1660 adjustable	P0L1660
2060 adjustable	P0L2060
2640 adjustable	P0L2640

MODULARITY

Base	Standard Modules
400	200 + 200
500	200 + 300
600	300 + 300
900	700 + 200
1100	800 + 300
1300	1000 + 300
1400	1200 + 200
2000	1000 + 1000
2400	1200 + 1200
3000	1500 + 1500

BASIC H.2640



PLEASE NOTE: PARTIAL PRODUCT CODES ARE SHOWN ABOVE – FOR FURTHER INFORMATION PLEASE CONTACT OUR SALES DEPARTMENT.

SATECH

> STRONG / HEAVY

PERIMETER PROTECTION SERIES – STRONG

> Protection and accident prevention system consisting of **60x60 uprights and 20x20 or 30x30 panels with frames connected by SATECH patented fast assembly clamps**.
This series is used in heavier applications such as industrial robotics or the steel industry.

ALSO AVAILABLE:
HEAVY-DUTY VERSION*
With 30x30 panel frames

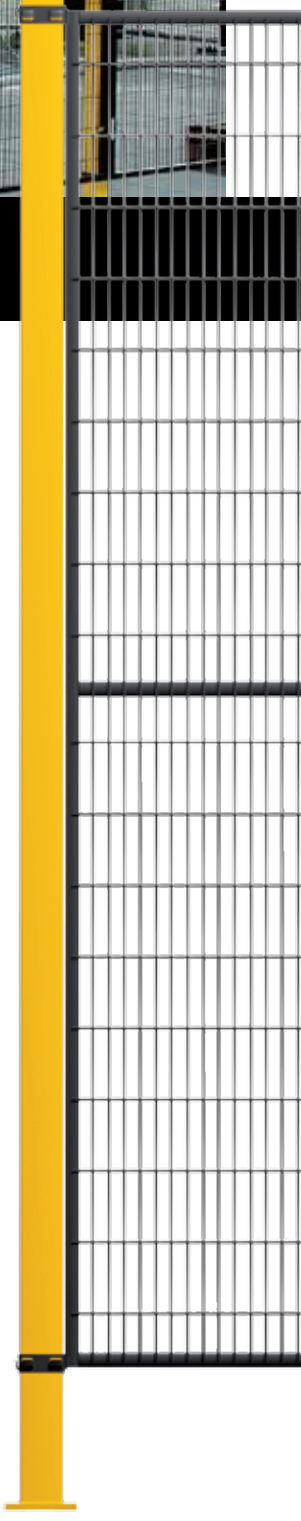
Watch an introduction video on YouTube

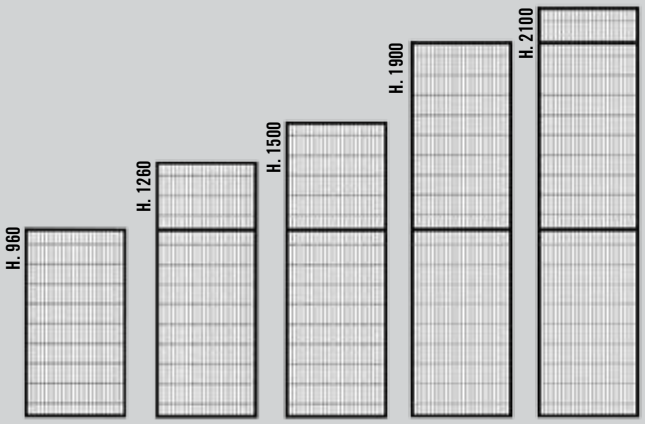
25% TIME SAVED
compared to traditional system

> PATENT

CLIP STRONG / HEAVY

> SATECH has developed a connecting system between panel and upright that achieves remarkable time savings during assembly and height adjustment. It also allows easy reinstallation of the guard after it has been removed for non-routine maintenance.
EN ISO 14120 6.4.4.1 b.





PANELS

Panels Frame: 20 x 20 / 30 x 30

Mesh: 22 x 100 x 3 mm

Painting: Epoxy polyester powder (indoor use)

COLORS:

RAL 9005 · RAL 1021 · RAL 7035 · SPECIAL COLORS

PANELS H.960

Base	Height	Code
200	960	R020096
300	960	R030096
700	960	R070096
800	960	R080096
1000	960	R100096
1200	960	R120096
1500	960	R150096

PANELS H.1260

Base	Height	Code
200	1260	R020126
300	1260	R030126
700	1260	R070126
800	1260	R080126
1000	1260	R100126
1200	1260	R120126
1500	1260	R150126

PANELS H.1500

Base	Height	Code
200	1500	R020150
300	1500	R030150
700	1500	R070150
800	1500	R080150
1000	1500	R100150
1200	1500	R120150
1500	1500	R150150

PANELS H.1900

Base	Height	Code
200	1900	R020190
300	1900	R030190
700	1900	R070190
800	1900	R080190
1000	1900	R100190
1200	1900	R120190
1500	1900	R150190

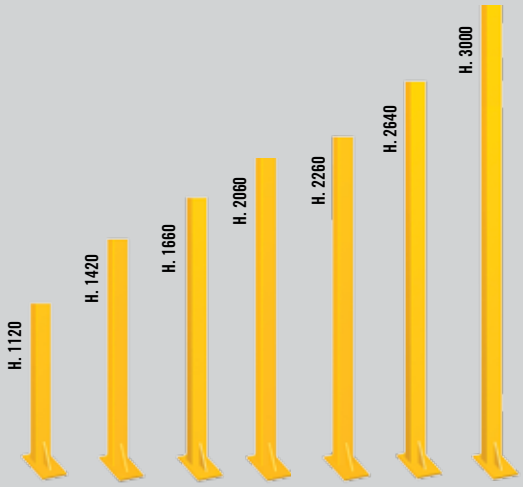
PANELS H.2100

Base	Height	Code
200	2100	R020210
300	2100	R030210
700	2100	R070210
800	2100	R080210
1000	2100	R100210
1200	2100	R120210
1500	2100	R150210

*** In HEAVY series codes substitute the letter R with S**
e.g.: Series Strong **R**100190 / Series Heavy **S**100190

MODULARITY

Base	Standard Modules
400	200 + 200
500	200 + 300
600	300 + 300
900	700 + 200
1100	800 + 300
1300	1000 + 300
1400	1200 + 200
2000	1000 + 1000
2400	1200 + 1200
3000	1500 + 1500



POSTS

Uprights: 60 x 60 x 2

Baseplate: Forged with 4 anchor points

Painting: Epoxy polyester powder (indoor use)

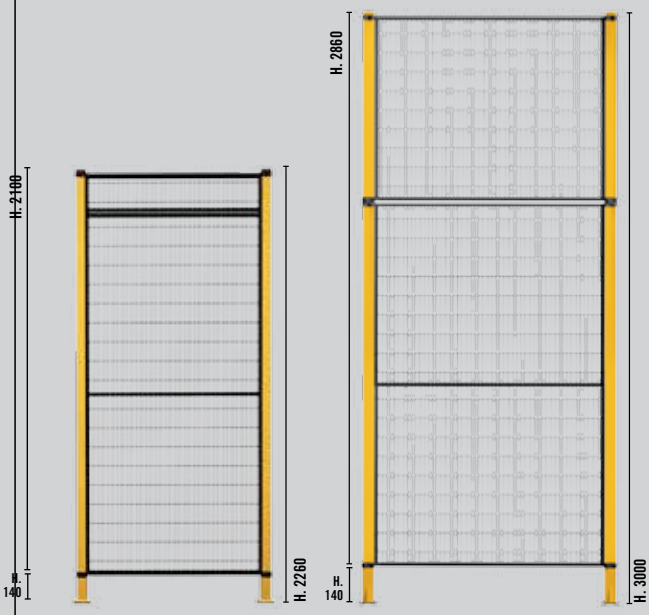
COLORS:

RAL 9005 · RAL 1021 · RAL 7035 · SPECIAL COLORS

POSTS

Height	Code
1120 adjustable	H0L1120
1420 adjustable	H0L1420
1660 adjustable	H0L1660
2060 adjustable	H0L2060
2260 adjustable	H0L2260
2640 adjustable	H0L2640
3000 adjustable	H0L3000

STRONG H.2260 H.3000



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SATECH

> GREEN FAST

PERIMETER PROTECTION SERIES – GREEN FAST

> SATECH **patented protection system without uprights** facilitates extra-fast assembly and features self-supporting panels with **30x30 frames** and baseplates with locking fork and upper flexible coupling.
The Green Fast system is **fully compatible with other SATECH systems.**

ALSO AVAILABLE:
DP VERSION
With 20x20 panel frames

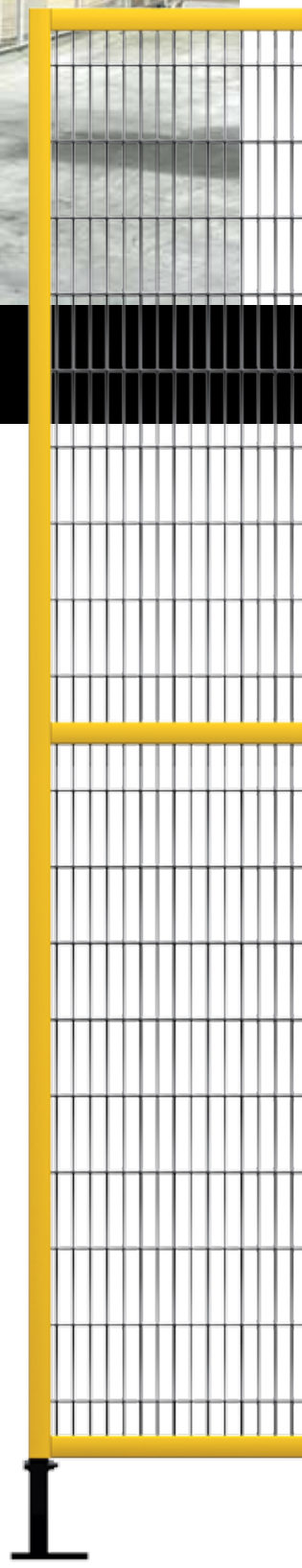
Watch an introduction video on YouTube

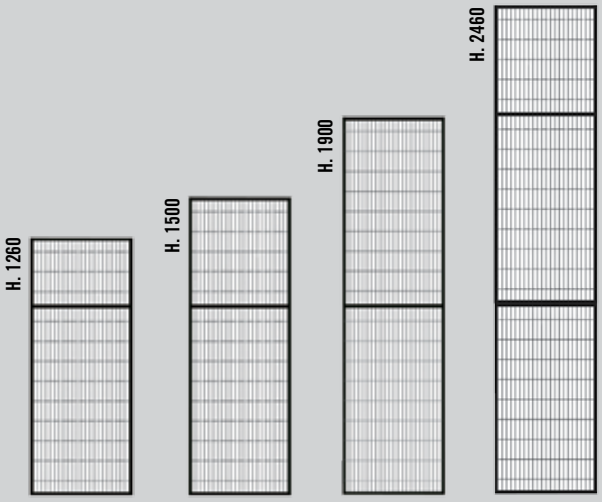
70% TIME SAVED
compared to traditional system

> PATENT

GREEN FAST

> The Green Fast protection system has been designed by SATECH to simultaneously achieve easy and fast assembly, strength, and wide range of height adjustment – all at low cost.
In the Green Fast protection system panels are fastened to the floor and each other by means of two patented connection components, upper and lower.





PANELS

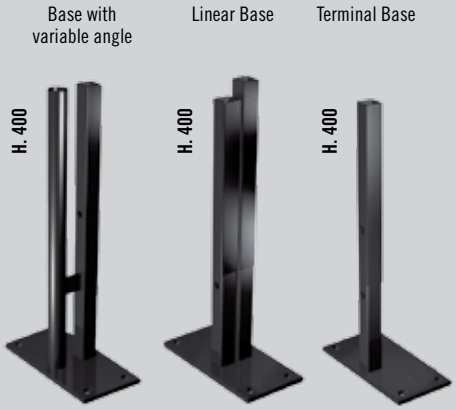
Panels Frame: 30 x 30

Mesh: 22 x 100 x 3 mm

Painting: Epoxy polyester powde (indoor use)

COLORS:

RAL 9005 · RAL 1021 · RAL 7035 · SPECIAL COLORS



BASEPLATES

Baseplate: Welded with 4 anchor bolts

Painting: Epoxy polyester powder (indoor use)

Doors'uprights: 40 x 40 x 2 / 60 x 60 x 2

COLORS:

RAL 9005

PANELS H.1260

Base	Height	Code
200	1260	S020126G
300	1260	S030126G
700	1260	S070126G
800	1260	S080126G
1000	1260	S100126G
1200	1260	S120126G
1500	1260	S150126G

PANELS H.1500

Base	Height	Code
200	1500	S020150G
300	1500	S030150G
700	1500	S070150G
800	1500	S080150G
1000	1500	S100150G
1200	1500	S120150G
1500	1500	S150150G

PANELS H.1900

Base	Height	Code
200	1900	S020190G
300	1900	S030190G
700	1900	S070190G
800	1900	S080190G
1000	1900	S100190G
1200	1900	S120190G
1500	1900	S150190G

PANELS H.2460

Base	Height	Code
200	2460	X020246R3G
300	2460	X030246R3G
700	2460	X070246R3G
800	2460	X080246R3G
1000	2460	X100246R3G
1200	2460	X120246R3G
1500	2460	X150246R3G

MODULARITY

Base	Standard Modules
400	200 + 200
500	200 + 300
600	300 + 300
900	700 + 200
1100	800 + 300
1300	1000 + 300
1400	1200 + 200
2000	1000 + 1000
2400	1200 + 1200
3000	1500 + 1500

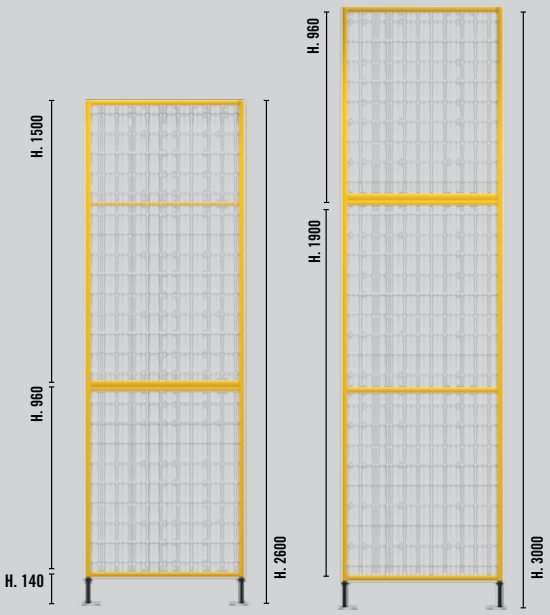
BASEPLATES

Type	Code
Terminal Base	PGFTR30
Linear Base	PGFLR30
Base with variable angle	PGFAR30

PROTECTION

Height
1120
1420
1660
2060
2600
3000

GREEN FAST H.2600 H.3000



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SATECH

> MDF

PERIMETER PROTECTION SERIES – MDF

> An easy-to-install, **innovative and economical solution,** MDF combines the **40x40 posts with a frameless, specially-shaped mesh panel** and is designed for **quick and easy** assembly.

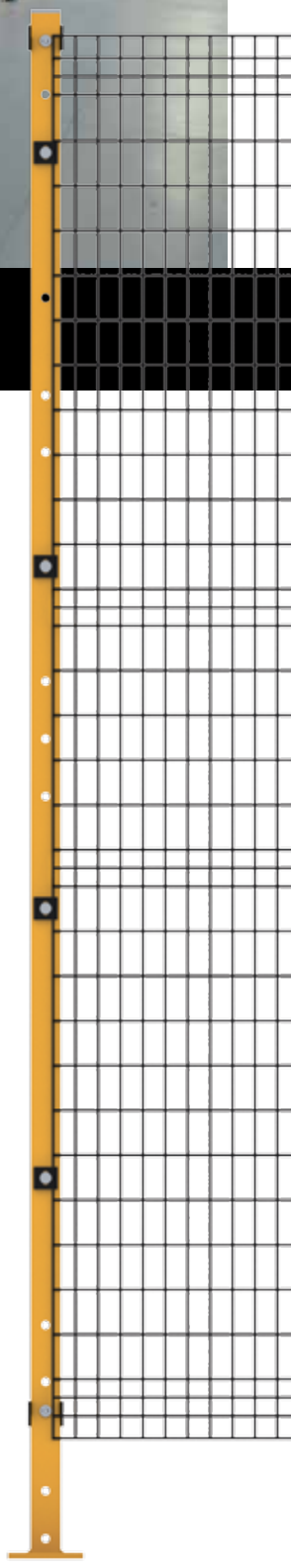
Watch an introduction video on YouTube

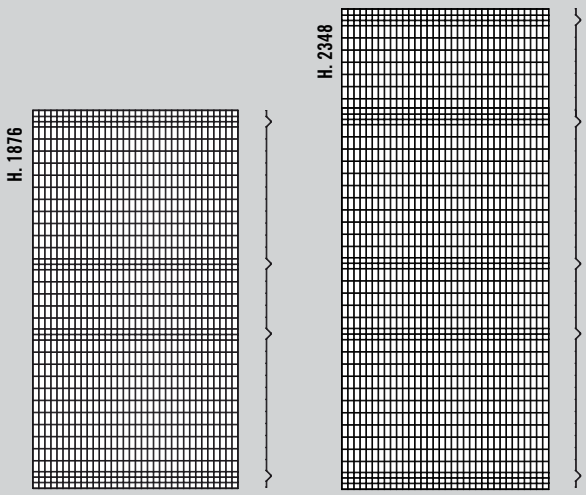
40% TIME SAVED
compared to traditional system

> SYSTEM

MDF

> So as to meet all assembly needs, the new generation MDF protection uses two captive connections to join the panels to the posts. A quick connection which includes a patented harmonic spring system positioned on the bolt, and a mounting bracket fitted with hooks which allows a quick and easy assembly by a single operator.





PANELS

Panels: Shaped Mesh

Mesh: 30 x 60 x 3 mm

Painting: Epoxy polyester powder (indoor use)

COLORS:

RAL 9005 · RAL 1021 · RAL 7035 · SPECIAL COLORS

PANELS H.1876

Base	Height	Code
210	1876	T021187
300	1876	T030187
720	1876	T072187
810	1876	T081187
1020	1876	T102187
1200	1876	T120187
1500	1876	T150187
1980	1876	T198187

PANELS H.2348

Base	Height	Code
210	2348	T021234
300	2348	T030234
720	2348	T072234
810	2348	T081234
1020	2348	T102234
1200	2348	T120234
1500	2348	T150234

MODULARITY

Base	Standard Modules
420	210 + 210
600	300 + 300
930	720 + 210
1320	1020 + 300
1440	720 + 720
2040	1020 + 1020

POSTS

Uprights: 40 x 40 x 2

Baseplate: Welded or Assembled

Painting: Epoxy polyester powder (indoor use)

COLORS:

RAL 9005 · RAL 1021 · RAL 7035 · SPECIAL COLORS

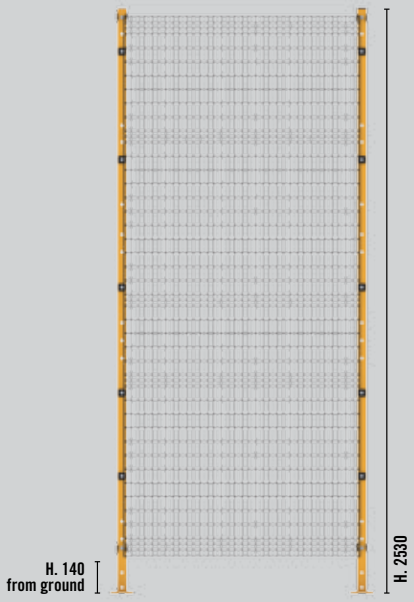
POSTS WELDED BASEPLATE

Height	Code
2060	PL(A)MDU206S
2530	PL(A)MDU253S

POSTS ASSEMBLED BASEPLATE

Height	Code
2060 adjustable	PL(A)MDU206A
2530 adjustable	PL(A)MDU253A

MDF H.2530



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SATECH

> PANELS

VISIBILITY AND PROTECTION AGAINST CLIMBING

> Recognizing the importance to operators of an uninterrupted view when monitoring production processes (EN ISO 14120-5.2.4, 5.9), SATECH mesh has been designed to achieve compliance with current regulations while providing excellent visibility of the plant and equipment. External vertical wires effectively prevent climbing (EN ISO 14120-5.18), while the mesh dimensions allow the guarding to be installed only 120 mm from the operational area (EN ISO 13857).

Watch an introduction video on YouTube

Standard heights: 960, 1260,1500, 1900 mm

Panels frame: 20x20, 30x30 mm

Painting: Epoxy polyester powder (indoor use)

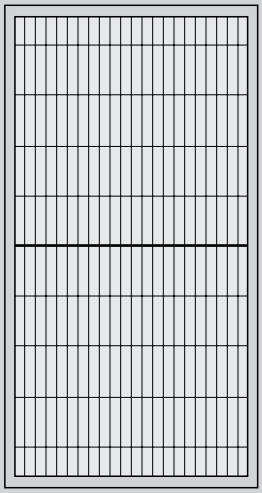
COLORS:

RAL 9005 RAL 1021 RAL 7035 SPECIAL COLORS

SPECIAL PANELS and COMBINATION OF MATERIALS

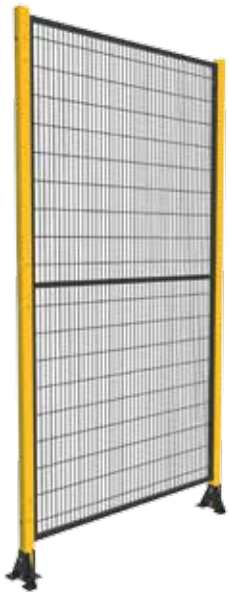
SATECH can produce special panels based on the customer's own design to suit any machinery application and plant configuration.

MESH

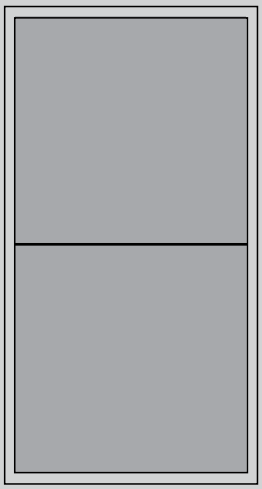


22x100 mesh panel
Can be produced with either 20x20 or 30x30 frame.

Compatible with Basic, Strong and Green Fast systems.



SHEET PANEL

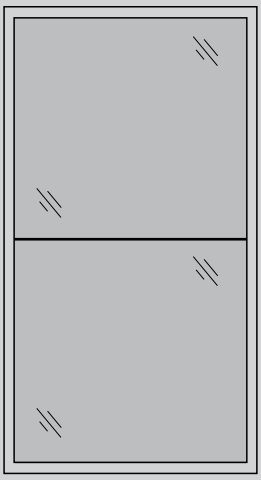


Sheet panel
Sheet panel, 1.2 mm thick, can be produced with either 20x20 or 30x30 frame.

Self-supporting shaped sheet panel
Shaped sheet panel, 1.2 mm. thick

Compatible with Basic, Strong and Green Fast systems.

TRANSPARENT SHEET

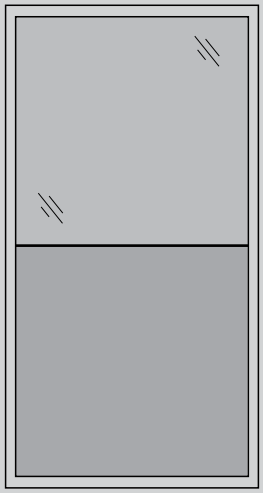


Panel produced in extremely tough, 4mm thick transparent material. Produced with 30x30 frame.

Compatible with Basic, Strong and Green Fast systems.

SATECH

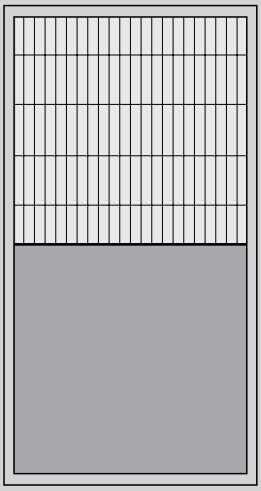
SHEET METAL + TRANSPARENT SHEET



The tough solution – lower portion of panel in 1.2mm thick steel, upper in extremely tough 4mm-thick polycarbonate material. Produced with 30x30 frames.

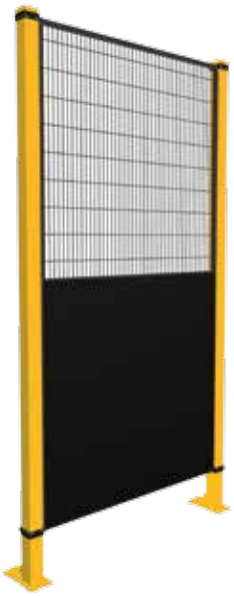
Compatible with Basic, Strong and Green Fast systems.

SHEET METAL + MESH

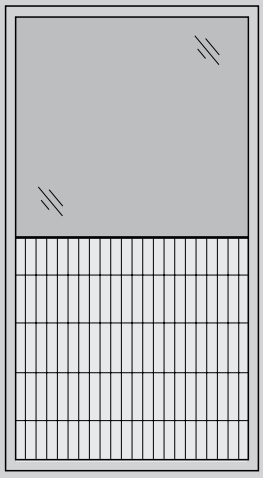


Comprises a 22x100 mesh panel and 1.2 mm thick sheet. Produced with 20x20 frames.

Compatible with Basic, Strong and Green Fast systems.

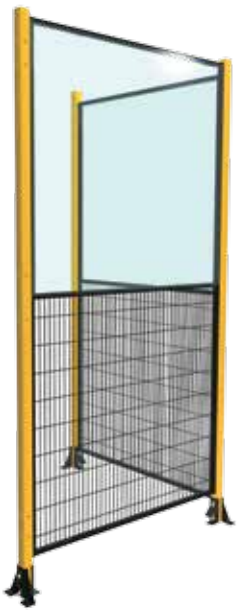


MESH + TRANSPARENT SHEET

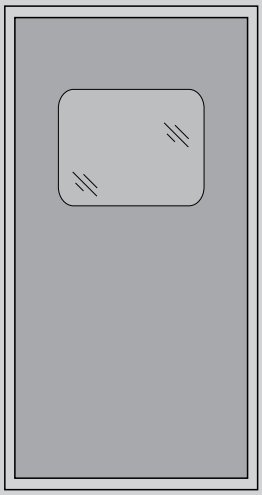


22x100 mesh panel and extremely tough, 4mm-thick polycarbonate material. Produced with 30x30 frame.

Compatible with Basic, Strong and Green Fast systems.



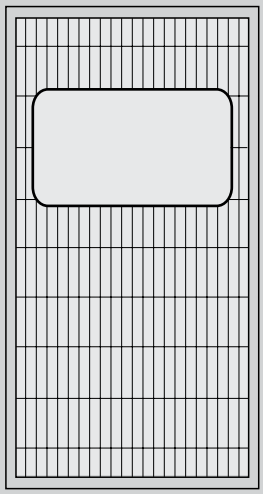
SHEET METAL + VIEWING PORT



1.2mm-thick sheet panel with viewing port gasket. Can be produced with either 20x20 or 30x30 frame.

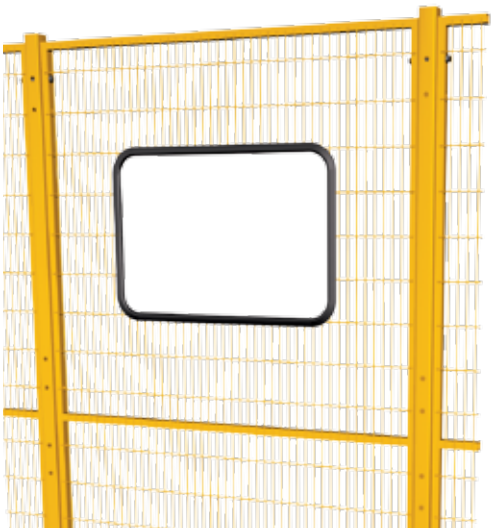
Compatible with Basic, Strong and Green Fast systems.

GASKET

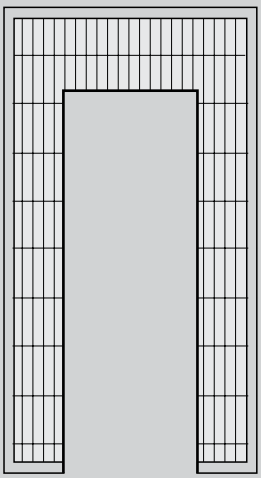


An opening in the panel can be achieved by cutting the mesh wires during assembly. A special **rubber gasket to fit the orifice** is available on request, to provide protection for personnel.

Compatible with all SATECH systems

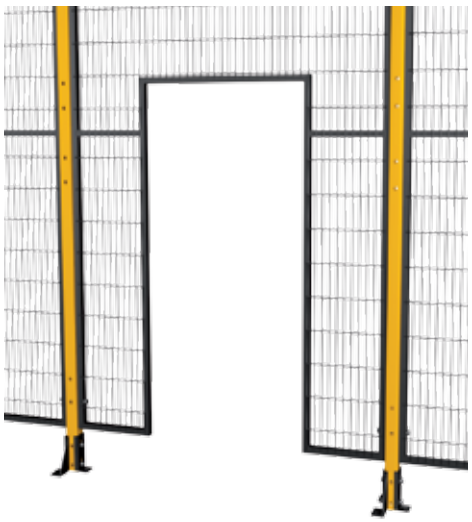


SHAPED



SATECH's special products department produces **shaped panels** to customers' specific requirements. These can be produced with short lead times.

Compatible with all SATECH systems



SATECH

> DOORS

A COMPLETE AND VERSATILE RANGE

> The range of SATECH doors has been developed to meet customer demands, however complex, including sliding doors with openings up to 6 meters, without upper or lower guides, to allow the passage of lift trucks. A comprehensive range of (optional) accessories allows for varying safety levels and locking systems, as well as doors adapted to meet specific requirements. **More than 350 combinations** are already available.

SPECIAL DOORS
SATECH produces doors for any specific customer requirement, including special dimensions and electromechanical or pneumatic operation.

Watch an introduction video on YouTube

PRECISION SOLUTIONS

> Some machinery needs frequent adjustment while it is running and this places a special demand on the machine guards. SATECH can provide special solutions which allow free access to the machine without removal of the whole protection structure. Safety is paramount and these solutions involve the design of a self-balancing structure and fitting the removable sections with precision engineered micro-switches.

SINGLE-LEAF

Single-leaf doors
700-1500 mm opening.

AVAILABLE FOR:

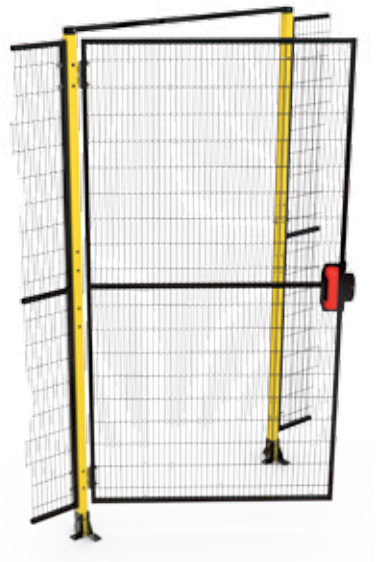
Series Basic
Code: ABS040

Series Strong
Code: ABS060

Series Green Fast
Code: ABS0GF

Series MDF
Code: ABS0MD

Wide range of options available on request (see page 27)



DOUBLE-LEAF

Double-leaf doors
1400-3000 mm opening.

AVAILABLE FOR:

Series Basic
Code: ABD040

Series Strong
Code: ABD060

Series Green Fast
Code: ABD0GF

Series MDF
Code: ABD0MD

Wide range of options available on request (see page 27)

FOLDING DOORS

Folding Doors.
1400-3000 mm opening.

AVAILABLE FOR:

Series Basic
Code: ABL040

Series Strong
Code: ABL040

Series Green Fast
Code: ABL040

Series MDF
Code: ABL040

Wide range of options available on request (see page 27)

PLEASE NOTE: PARTIAL PRODUCT CODES ARE SHOWN ABOVE – FOR FURTHER INFORMATION PLEASE CONTACT OUR SALES DEPARTMENT.

SATECH

SLIDING DOORS WITH LOWER GUIDE

Sliding doors with lower guide
700-3000 mm opening.

AVAILABLE FOR:

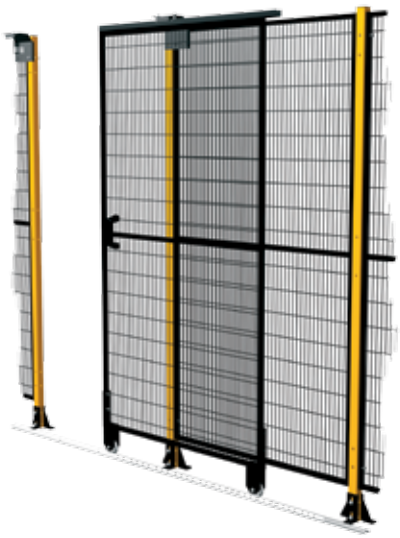
Series Basic
Code: AST040

Series Strong
Code: AST060

Series Green Fast
Code: AST0GF

Series MDF
Code: AST0MD

Wide range of options available on request (see page 27)



SLIDING DOORS WITH UPPER GUIDE

Single sliding doors
700-3000 mm opening.

AVAILABLE FOR:

Series Basic
Code: ASS040

Series Strong
Code: ASS060

Series Green Fast
Code: ASS0GF

Series MDF
Code: ASS0MD

Wide range of options available on request (see page 27)

OPPOSING SLIDING DOORS WITH UPPER GUIDE

Opposing sliding doors with upper guide
1400-3000 mm opening.

AVAILABLE FOR:

Series Basic
Code: ASSC040

Series Strong
Code: ASSC060

Series Green Fast
Code: ASSC0GF

Series MDF
Code: ASSC0MD

Wide range of options available on request (see page 27)

SINGLE SLIDING DOORS WITH TELESCOPIC GUIDE

Single sliding doors with Satech's telescopic guide
700-1500 mm opening.

AVAILABLE FOR:

Series Basic
Code: ASTE040

Series Strong
Code: ASTE060

Series Green Fast
Code: ASTE0GF

Wide range of options available on request (see page 27)

OPPOSING SLIDING DOORS WITH TELESCOPIC GUIDE

Opposing sliding doors with telescopic guide
1400-3000 mm opening.

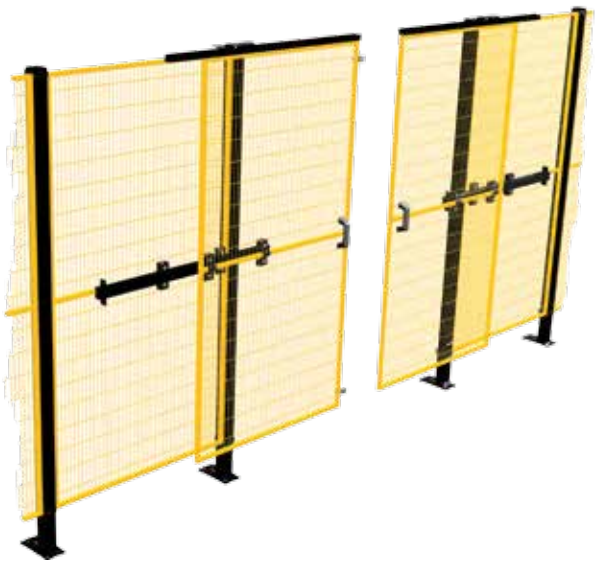
AVAILABLE FOR:

Series Basic
Code: ASTEC040

Series Strong
Code: ASTEC060

Series Green Fast
Code: ASTEC0GF

Wide range of options available on request (see page 27)



SLIDING DOORS WITHOUT GUIDE

Sliding doors without guide
1500-6000 mm opening.
(for openings exceeding 3000 is recommended the addition of a lower guide)

AVAILABLE FOR:

Series Strong
Code: ASG060

Wide range of options available on request (see page 27)

Motorization available on request

PLEASE NOTE: PARTIAL PRODUCT CODES ARE SHOWN ABOVE – FOR FURTHER INFORMATION PLEASE CONTACT OUR SALES DEPARTMENT.

SATECH

DOUBLE OPPOSING SLIDING DOORS

Double opposing sliding doors with upper guide
700-3000 mm opening.

AVAILABLE FOR:

Series Basic
Code: ASS040 AL

Series Strong
Code: ASS060 AL

Series Green Fast
Code: ASS0GF AL

Series MDF
Code: ASS0MD AL

Wide range of options available on request (see page 27)

SPECIAL AUTOMATIC

Standard solutions are provided with electromechanical motors and mechanical or electronic adjustment of movement parameters. Pneumatic operation, including vertical, can be supplied on request.

Compatible with all SATECH assembly systems

SPECIAL TELESCOPIC

SATECH designs and produces special doors with multiple functions which can be supplied in the following combinations:
> With panels sliding on linear guides.
> With folding panels.
> With leaf elements in sliding doors with linear guides.
> With combined movement of sliding and leaf doors.

Compatible with Basic, Strong and Green Fast systems.

SPECIAL VERTICAL

Robot cells in industrial automation often dictate tight perimeters for the protection guards, with vertical movement of the door panels. SATECH's original door design featured vertical operation to optimize the use of factory space – assuring customers of maximum safety and functionality.

Compatible with all SATECH assembly systems

SPECIAL LARGE OPENINGS

SATECH's technical department has considerable experience in developing special solutions to allow large openings and has produced combined sliding/hinged doors with openings of **more than 10 meters**. Easy and reliable operation in service is guaranteed by the use of extremely durable components.

Compatible with all SATECH assembly systems

OPTIONAL EQUIPMENT:

- Ergonomic handle
- Pairs of hinges or pivot pins
- Upper crosspiece
- Upper crosspiece with ledge
- Magnetic locking system
- Ground supporting wheel
- Ground stop
- Panic lock
- Key lock
- 3rd level lock
- 4th level lock
- Bolt with padlock
- Universal brackets for safety microswitches
- Hinged safety microswitch
- Clutch safety microswitch
- Galvanized steel upper guide
- Steel trolleys with threaded connection
- Lower slideways
- Upper slideways
- Galvanized lower guide
- Steel wheels with V-groove
- SATECH telescopic guide
- Rubber tires on wheels
- Electric motorization

PLEASE NOTE: PARTIAL PRODUCT CODES ARE SHOWN ABOVE – FOR FURTHER INFORMATION PLEASE CONTACT OUR SALES DEPARTMENT.

SATECH

> LOCKS AND ACCESSORIES

SCHMERSAL SAFETY DEVICES AND OTHER SATECH ACCESSORIES

> There is a wide range of compatable safety locks, safety sensors, and other accessories to complete the safety guarding solution. These pages show devices with stock mounting brakets and accessories.

Locking level types

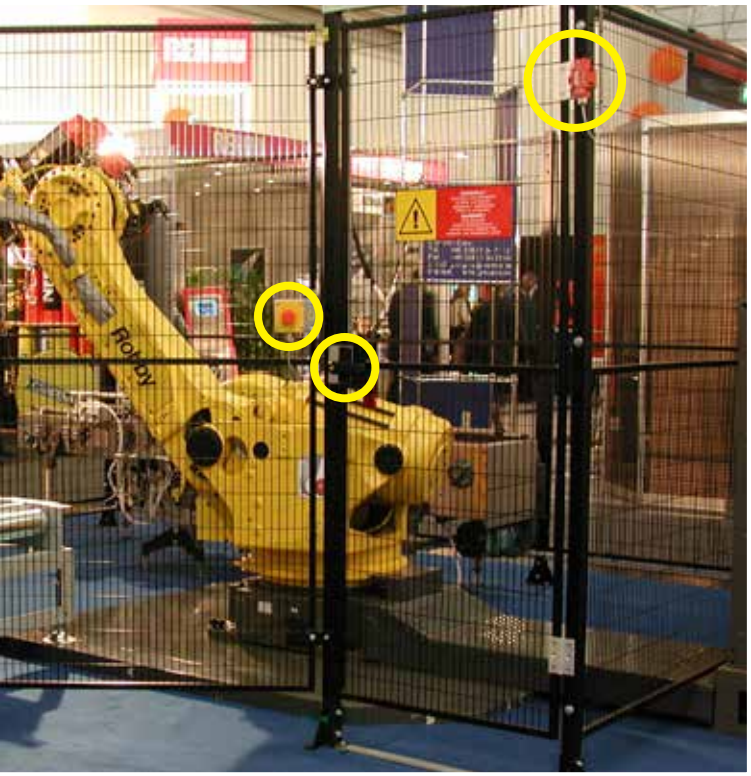
> Level 0 lock = No lock

> 1st level lock = mechanical lock

> 2nd level lock = mechanical lock with micro

> 3rd level lock = mechanical lock with panic release, lock out, and micro

> 4th level lock = mechanical lock with panic release, lock out, and micro, with safety function connect to main panel



> Safety guard interlocks are added to access doors and removable panels so that once they are opened or removed, the hazardous conditions come to a stop and unintended cycles are prevented. Some applications may require guards to remain locked until residual hazardous conditions no longer exist or to prevent interruption of a process. Opened entry areas or walk-in areas may also need to be monitored to stop and prevent hazardous conditions and machine startups.

Additionally, machine controls can be added to door areas to initiate a controlled machine stop and unlock the door. Emergency Stop devices must be readily available to stop the machine in the event of an emergency.

AZ16 SAFETY SWITCH WITH SEPARATE ACTUATOR

> Holding force of up to 100N
> 4 actuator key entries for mounting options
> Various actuator options, including door handle (STS30, see below)
> Individual coding of actuator available
> Thermoplastic housing
> 3 contacts

B_{10d} (NC contact): 2,000,000 to EN ISO 13849-1

Compatible with all SATECH assembly systems

AZM161 SOLENOID INTERLOCK

> Solenoid locking of 2,000N
> 4 actuator key entries for mounting options
> Various actuator options, including door handle (STS30, see below)
> 24VAC/DC, 110VAC or 230VAC
> Thermoplastic housing
> 6 contacts

B_{10d} (NC contact): 2,000,000 to EN ISO 13849-1

Compatible with all SATECH assembly systems

AZM415 SOLENOID INTERLOCK

> Solenoid locking of 3,500N
> Adjustable holding force to 400N
> Various actuator options, including door handle (STS30, see below)
> 24VAC/DC, 110VAC or 230VAC
> Metal housing
> 4 contacts

B_{10d} (NC contact): 2,000,000 to EN ISO 13849-1

Compatible with all SATECH assembly systems

STS30 DOOR HANDLE SYSTEM

> Standard ergonomic external door handle
> Actuator retracts into door handle assembly
> Available with Inner handle for emergency unlocking
> Available for mounting switch inside or outside hazardous area
> Compatible with:
AZ16 safety switch with separate actuator
AZM161 solenoid interlock
AZM415 solenoid interlock

Compatible with all SATECH assembly systems

PLEASE NOTE: PARTIAL PRODUCT CODES ARE SHOWN ABOVE – FOR FURTHER INFORMATION PLEASE CONTACT OUR SALES DEPARTMENT.

SATECH

AZM200 ELECTRONIC SOLENOID INTERLOCK

> Ideal for the protection of laser welding cabins, robot cells, etc.
> Sensor technology permits an offset between actuator and interlock of ± 5 mm vertically and horizontal ± 3 mm horizontally
> Suitable for series wiring
- up to PL e / Category 4 to ISO 13849-1
- up to SIL 3 to IEC 61508"

Door handle actuator available with Inner handle for emergency unlocking

Compatible with all SATECH assembly systems

AZM300 ELECTRONIC SOLENOID INTERLOCK

> Coding level "High" according to EN ISO 14119 by using RFID-Technology
> Symmetrical mounting for right- and left-hinged doors
> Can be used as end stop
> Three actuating directions
> Adjustable latching force (25 N / 50 N)
> Suitable for series wiring
- up to PL e / Category 4 to ISO 13849-1
- up to SIL 3 to IEC 61508

Compatible with all SATECH assembly systems

SAFETY SENSORS, HINGED SWITCH, AND OTHER SAFETY DEVICES

> Schmersal also offers a variety of additional switches and sensors which monitor the position of movable doors or panels:
RFID Based Electronic Safety Sensors:
RSS16 with magnetic latching
RSS36 with magntic latching, IP69K Rated
RSS260 compact housing
Hinged switches: TESK hinge with adjustable switching angle
Other safety locks:
MZM100 electromagnetic lock
AZM400 motorized bolt safety lock
SHGV trapped key system
> Machine controls suitable for mounting at moving doors or panels:
E-Stops in housing or for panel mounting
BDF100 single device in housing
BDF200 control panel with 4 devices
> Safety Light curtains and grids
SLC440 with blanking, double acknowledgment
SLC445 with muting, cyclic function, multiscan
> Safety controllers to monitor the safety circuits

For more information on these safety devices, consult a Schmersal catalog

Schmersal GK-1 Main Safety products catalog

Schmersal Command and Signaling Devices catalog

KEY LOCK

Key-operated lock in SATECH standard panels prevents access to unauthorized personnel.
> Compact execution.
> Limited access from outside.
> Lock with universal dedicated cylinder.
These closing devices are only to be used to allow access to an area where it is possible to exit through an unlocked door.

Code: LOCKSB4655

Compatible with all SATECH assembly systems

ANTIPANIC

System perfectly integrated with Satech standard panels
> Compact execution.
> Limited access from outside.
> Fast and safe opening from inside.
> Lock with universal dedicated cylinder.

Code: LOCKSABSUNI

Compatible with all SATECH assembly systems

DOORS WITH MICROSWITCHES

Where there is a requirement to take samples on line, e.g. for statistical control purposes, SATECH offers **built-in openings** in standard panels, allowing a simple and totally safe operation. Design is based on SATECH's tried and tested standard systems, thereby assuring safety and easy operation. 400x400 and 600x600 are available.

Code: ASPORT40 / 60 MIC

Compatible with all SATECH assembly systems

ADJUSTABLE BASEPLATES

These accessories are the solution to sloping or uneven floors. They allow **easy adjustment of the uprights** to cater for varying requirements – e.g. when the system is installed on a floor which has an inbuilt incline to facilitate the collection of liquids.

Code: VCOMPIERLR40 / 60

Compatible with Basic, Strong, and MDF systems.

PLEASE NOTE: PARTIAL PRODUCT CODES ARE SHOWN ABOVE – FOR FURTHER INFORMATION PLEASE CONTACT OUR SALES DEPARTMENT.

SATECH

KICK PLATE

The specially shaped kick plate provides for **extremely fast and stable assembly of each module and panel type of SATECH's protection modular systems**. The robust structure prevents the outlet (or inlet) of potentially dangerous materials through the usually free space between panel and floor.

Code: V BAT 144 140 / 200

Compatible with all SATECH assembly systems

CABLE DUCT SUPPORT

The particular **cable duct support** allows the **immediate direct anchoring of the cable duct to the upright (Basic or Strong)** without special brackets. The system offers:
- fast insert into the upright.
- anchoring to the cable duct with screws for standard brackets – supplied with the ducts.

Code: VSUPPORTO40 / 60

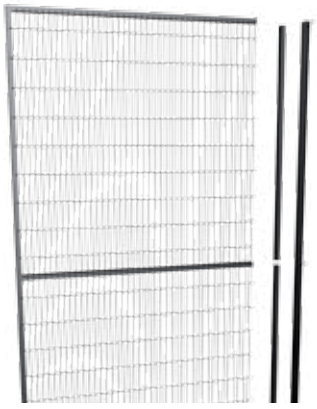
Compatible with all SATECH assembly systems

CUTTING KIT

These systems provide for **quick and easy adaptation of SATECH standard panels in unforeseen assembly situations**; also to allow for any re-configuration of the layout that may be required in the future.

Code: VTAGLIO20 / 30 NP

Compatible with Basic, Strong, and Green Fast systems.



REINFORCED LINEAR JOINT

This practical and speedily-installed accessory gives improved horizontal rigidity when joining two panels without the provision of the upright.

Code: GLRRINF20 / 30 NG

Compatible with Basic, Strong, and Green Fast systems.

PLEASE NOTE: PARTIAL PRODUCT CODES ARE SHOWN ABOVE – FOR FURTHER INFORMATION PLEASE CONTACT OUR SALES DEPARTMENT.

> RELEVANT STANDARDS

STANDARDS FOR SAFETY IN WORKING ENVIRONMENTS

> Here we present information on the international safety standards concerning the design of safety guards.

ISO 14120 General requirements for the design and manufacture of fixed and movable guards.

5.2.4 - Viewing
Where viewing of the process is required, guards shall be designed and constructed to offer adequate viewing.

5.9 - Machine viewing
Where viewing of machine operation is required through the guard, materials shall be selected with suitable properties (...) or wire mesh is used, this should be of adequate open area and suitable color to permit viewing. Viewing will be enhanced if the perforate material is darker than the area observed

ISO 14122-3 Permanent means of access to machinery. Ladder, step ladder, safety rails.

ISO 12100-1 Basic concepts, general design principles.

ISO 13857 Safety distances to prevent the contact of dangerous areas with upper and lower limbs.

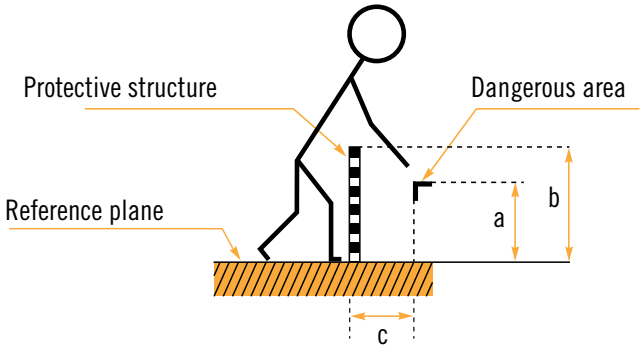
ISO 13854 Minimum gaps to avoid crushing parts of the human body.

ISO 10218-2 Industrial handling robots. Safety.

ISO 14119 Interlocking devices designed for guards. Design and selection concepts.

2006/42/CE Machinery Directive.

> ISO 13857, 4.2.2: Reaching over protective structures



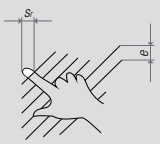
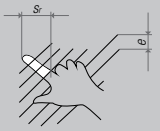
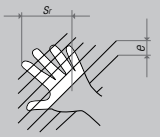
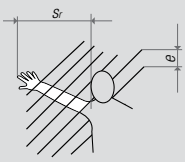
a: height of hazard zone
b: height of protective structure
c: horizontal distance to hazard zone

Height of dangerous zone **a**	Height of the protection structure **b**									
	1000	1200	1400	1600	1800	2000	2200	2400	2500	2700
	Horizontal distance of the dangerous area **c**									
2700	-	-	-	-	-	-	-	-	-	-
2600	900	800	700	600	600	500	400	300	100	-
2400	1100	1000	900	800	700	600	400	300	100	-
2200	1300	1200	1000	900	800	600	400	300	-	-
2000	1400	1300	1100	900	800	600	400	-	-	-
1800	1500	1400	1100	900	800	600	-	-	-	-
1600	1500	1400	1100	900	800	500	-	-	-	-
1400	1500	1400	1100	900	800	-	-	-	-	-
1200	1500	1400	1100	900	700	-	-	-	-	-
1000	1500	1400	1000	800	-	-	-	-	-	-
800	1500	1300	900	600	-	-	-	-	-	-
600	1400	1300	800	-	-	-	-	-	-	-
400	1400	1200	400	-	-	-	-	-	-	-
200	1200	900	-	-	-	-	-	-	-	-
0	1100	500	-	-	-	-	-	-	-	-

> ISO 13857, 4.2.4.1: Reaching through regular openings

> Table 4 gives the safety distance (Sr) for regular openings for persons of 14 years of age and above. The dimension of the opening, e, corresponds to the side of a square opening, the diameter of a round opening and the narrowest dimension of a slot opening. For openings > 120mm, safety distances in accordance with 4.2.2 shall be used.

Dimensions in millimetres

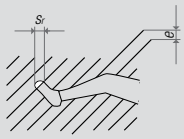
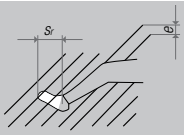
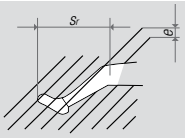
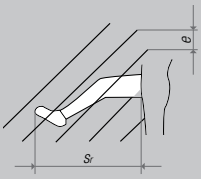
Part of body	Illustration	Opening	Safety distance, S_r		
			Slot	Square	Round
Fingertip		e ≤ 4	≥ 2	≥ 2	≥ 2
		4 < e ≤ 6	≥ 10	≥ 5	≥ 5
Finger up to knuckle joint		6 < e ≤ 8	≥ 20	≥ 15	
		8 < e ≤ 10	≥ 80	≥ 25	≥ 5
Hand		10 < e ≤ 12	≥ 100	≥ 80	≥ 20
		**12 < e ≤ 20**	**≥ 120**	≥ 120	≥ 80
		20 < e ≤ 30	≥ 850[a]	≥ 120	≥ 120
Arm up to junction with shoulder		30 < e ≤ 40	≥ 850	≥ 200	
		40 < e ≤ 120	≥ 850	≥ 850	≥ 120 ≥ 850

The bold lines within the table delineate that part of the body restricted by the opening size.
a) If the length of the slot opening is ≤ 65mm, the thumb will act as a stop and the safety distance can be reduced to 200mm.

> ISO 13857, 4.3:
Safety distances to prevent access by lower limbs

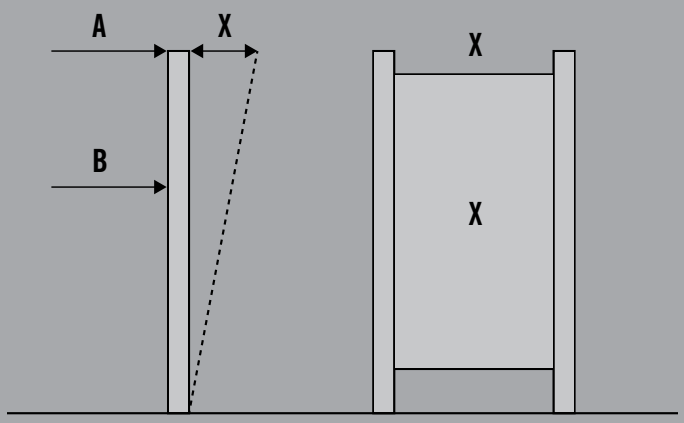
> In general, safety distances should be determined using Tables 1 to 6 for the upper limbs. Where it is not foreseeable that the upper limbs can have access to the opening then it is permissible to use the values given in Table 7 to determine safety distances for the lower limbs. The dimension e, of openings, corresponds to the side of a square opening, the diameter of a round opening or the narrowest dimension of a slot opening. The values given in Table 7 are independent of whether clothing or footwear is being worn and are applicable for persons of 14 years of age and above. For reaching through openings of irregular shape, see 4.2.4.3.

Dimensions in millimetres

Part of lower limb	Illustration	Opening	Safety distance, s_r	
			Slot	Square or round
Toe tip		e ≤ 5	0	0
		5 < e ≤ 15	≥ 10	0
Toe		15 < e ≤ 35	≥ 80[a]	≥ 25
Foot		35 < e ≤ 60	≥ 180	≥ 80
		60 < e ≤ 80	≥ 650[b]	≥ 180
Leg (toe tip to knee)		80 < e ≤ 95	≥ 1 100[c]	≥ 650[b]
Leg (toe tip to crotch)		95 < e ≤ 180	≥ 1 100[c]	≥ 1 100[c]
		180 < e ≤ 240	**Not ammissible**	≥ 1 100[c]

a) If the length to the slot opening is ≤75mm, the distance can be reduced to ≥50mm.
b) The value corresponds to leg (toe tip to knee).
c) The value corresponds to leg (toe tip to crotch).
Note: Slot openings with *e*>180mm and square or round openings with *e*>240mm will allow access for the whole body (see also Clause 1, final paragraph).

RESISTANCE TEST TO HORIZONTAL IMPACTS:



Fixing to the ground with anchors for reinforced concrete M8

A	Horizontal force at the panel upper end
B	Horizontal force in the middle of the panel
X	Deformation less than 40 mm

> Resistance of 40 x 40 posts - panel H1900 - frame 20:
A: ≤ 300 N B: ≤ 500 N

> Resistance of 60 x 60 posts - panel H1900 - frame 20:
A: ≤ 500 N B: ≤ 800 N

> Resistance of 80 x 80 posts - panel H1900 - frame 20:
A: ≤ 1000 N B: ≤ 1500 N

Technical resistance specifications of SATECH components

> ***Posts and mesh or sheet panels***
Material: low-carbon steel
Ultimate tensile stress: ≥ 380 N/mm²
Yield point: ≥ 210 N/mm²

> ***Transparent panels***
Material: polycarbonate
Caracteristics: transparency and impact strength

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