TROAX®

MACHINE GUARDING SOLUTIONS FOR

AUTOMATION & ROBOTICS

It's one thing to be a world leader

It's quite another to develop products that really are world leaders

TROAX lightweight yet secure mesh panels have an important job to do: to make an area safe. Our systems are well-planned and carefully developed to cope with great stresses. Feedback from our customers and our skilled employees makes it possible to offer the strongest and most intelligent systems in our sector.

Three strong market segments

Troax delivers a broad range of high-quality safety solutions all over the world.

TROAX systems are marketed in three market segments: automation and robotics, material handling and logistics, and storage and property protection. By dividing operations up in this way, we can focus completely on the requirements and technical aspects within each market segment.

Automation and robotics
Today's modern industry with advanced processes places significant demands on safety. In particular, there is a great need for controlled access for authorised personnel. Troax mesh panels are based on a carefully developed modular system that also includes special adaptations.

Material handling and logistics
TROAX can meet all requirements for storage and security. We are suppliers to all types of industry – from traditional manufacturers that require large-scale flows and volumes through their factories to facilities with high-bay storage and retail storage. We can meet all your requirements and we offer complete solutions.

Storage and property protection
Whether it's a question of new development or renovation of an existing installation, we are convinced that you will find our products easy to work with. Your unique needs and our creativity have contributed to our constant product development, giving rise to our motto: "Secure storage must be simple".

Table of contents

Sustainable product development

TROAX's own research and development department has been entrusted with continuous optimisation of our products and system solutions.

You should always feel confident with us and our products. This is therefore one of the most important parts of our business and our continued ability to translate ideas into strong products of high quality. All for your safety.

TROAX has an environment-friendly, flexible and streamlined production process. We are certified according to quality management system ISO 9001 and environmental management system ISO 14001, and we work continuously on improvements to our quality and environmental performance.

BUREAU VERITAS
1828
BUREAU VERITAS
ISO 9001
ISO 14001

TROAX®

Global presence

TROAX is represented in 27 countries, with its own sales companies in 17, and is continually developing its operations on all continents. A global presence that aims to strengthen our position worldwide.

Sales Office ●
Distribution center ●

Local presence

We meet your needs through local sales offices backed up by daily deliveries from the world's largest warehouse for mesh panels, Troax in Hillerstorp, Sweden.

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Production facility, Hillerstorp, Sweden

Our strength is in the details

Dealing with our own requirements and those of the market demands smart solutions that improve safety.

Together with our unique solutions for posts, panels and panel fixings, we are able to offer a flexible modular panel system. The panels come in various versions, from mesh panels ST20 and ST30, which require a safety distance of at least 120 mm, to the PC panel, which allows good visibility of the area while providing impact protection, and our Steel Plate panel, which meets requirements for protection from welding sparks, dust and liquids, where both panels can also be placed close to machinery.

2200 mm

150 mm

TROAX®
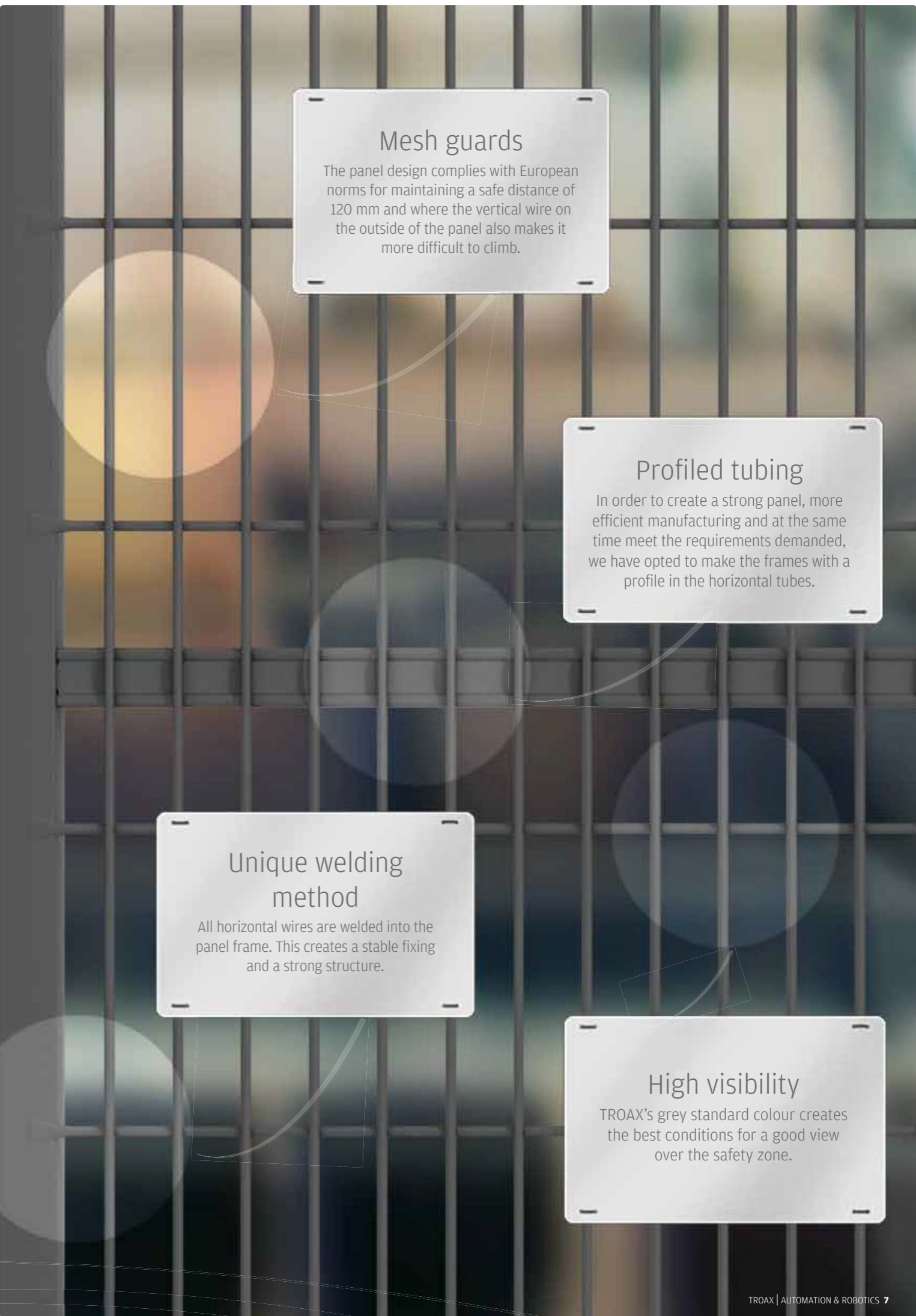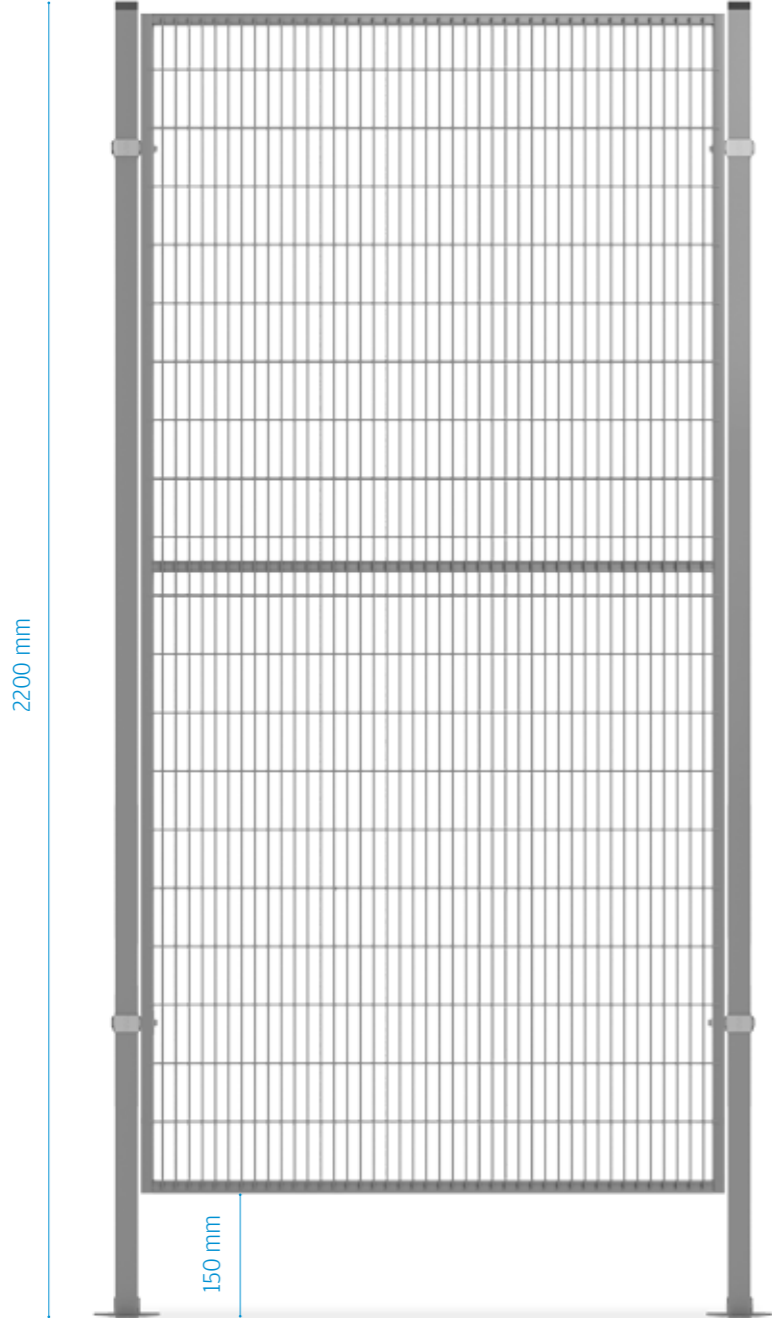
Mesh guards

The panel design complies with European norms for maintaining a safe distance of 120 mm and where the vertical wire on the outside of the panel also makes it more difficult to climb.

Profiled tubing

In order to create a strong panel, more efficient manufacturing and at the same time meet the requirements demanded, we have opted to make the frames with a profile in the horizontal tubes.

Unique welding method

All horizontal wires are welded into the panel frame. This creates a stable fixing and a strong structure.

High visibility

TROAX's grey standard colour creates the best conditions for a good view over the safety zone.
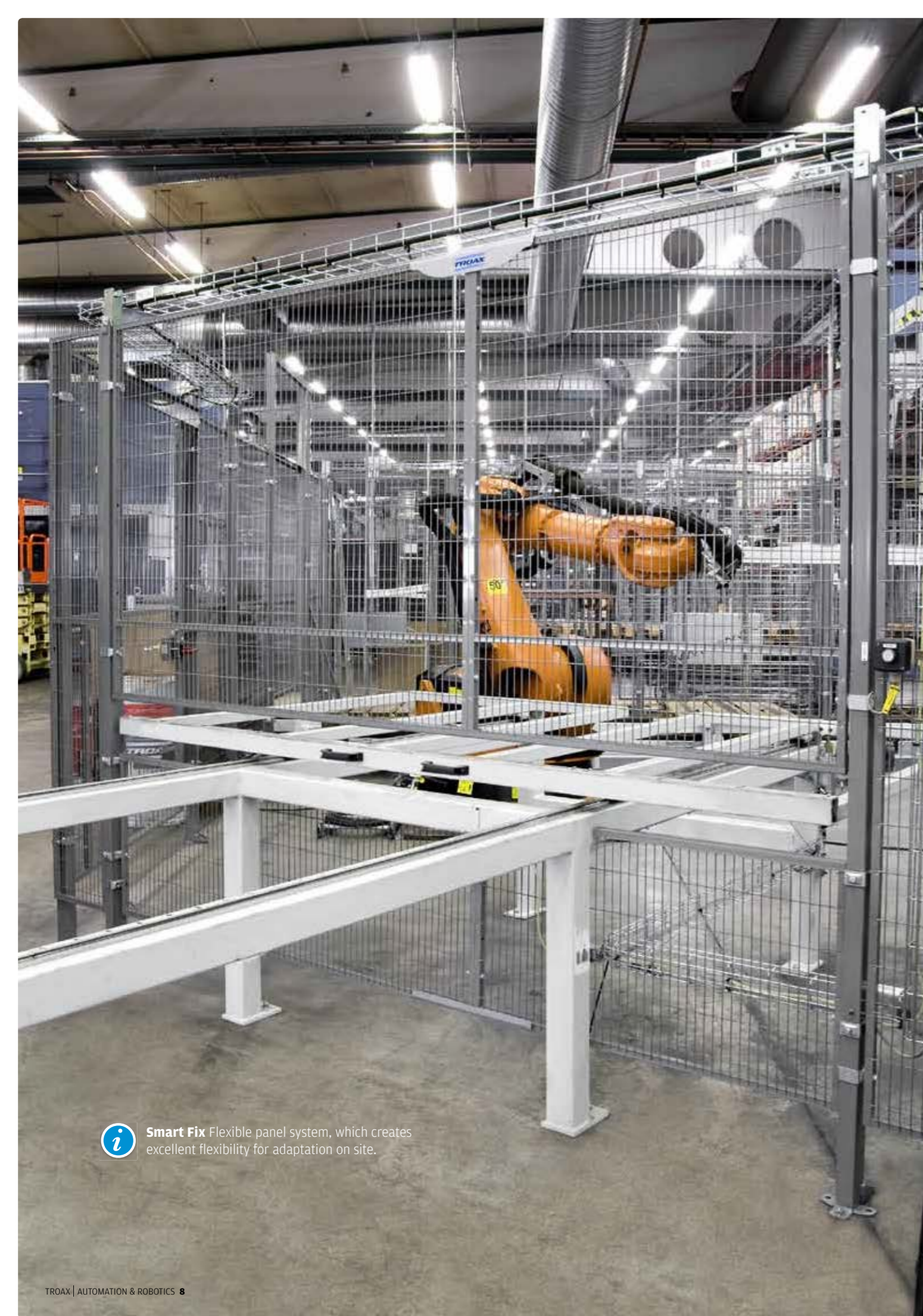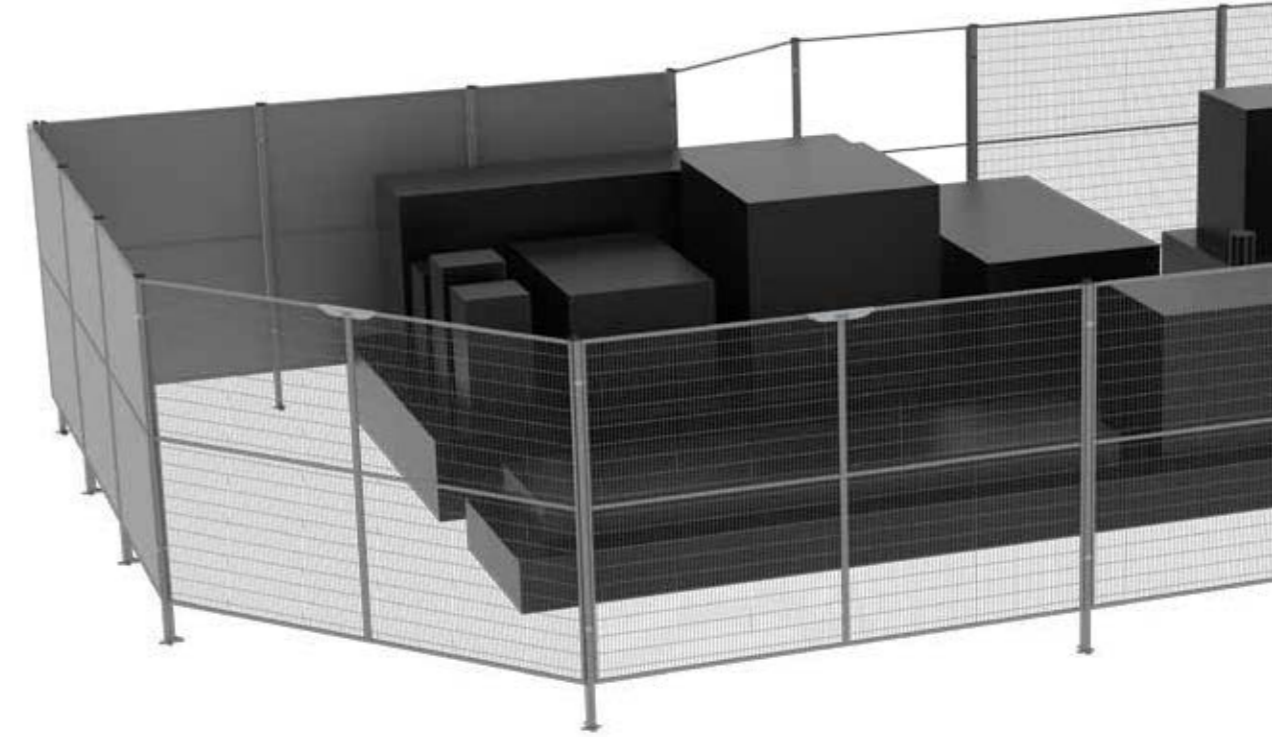
Smart Fix Flexible panel system, which creates excellent flexibility for adaptation on site.

Smart Fix

Simple and flexible machine guards

Smart details

Smart Fix is a tried and tested machine guard system. The system consists of mesh panels, hinged and sliding doors, posts, angle brackets, and a smart panel fixing method.

Fulfilling Machinery Directive

Smart Fix components are held captive in the guard even when system is disassembled, fulfilling the current requirements, rules and standards for fixed guarding.

Unique properties

Smart Fix has many unique properties. The panel fixing can be adjusted to compensate for uneven floors. The angle of the corner bracket can easily be adjusted on installation. The posts are universal, which means that the same posts can be used for several of the TROAX systems.

So if you already have an existing Smart Fix installation and want to change to Rapid Fix for quick access when something happens or for maintenance all you have to do is simply change the brackets. Of course, you can do the opposite if you want to have Smart Fix with fixed panels on certain parts of the installation.

Door Kit
With our door kit you can easily make an existing panel into a door anywhere in the installation.

Panel fixing
Strong and flexible steel clamp.

Hinge
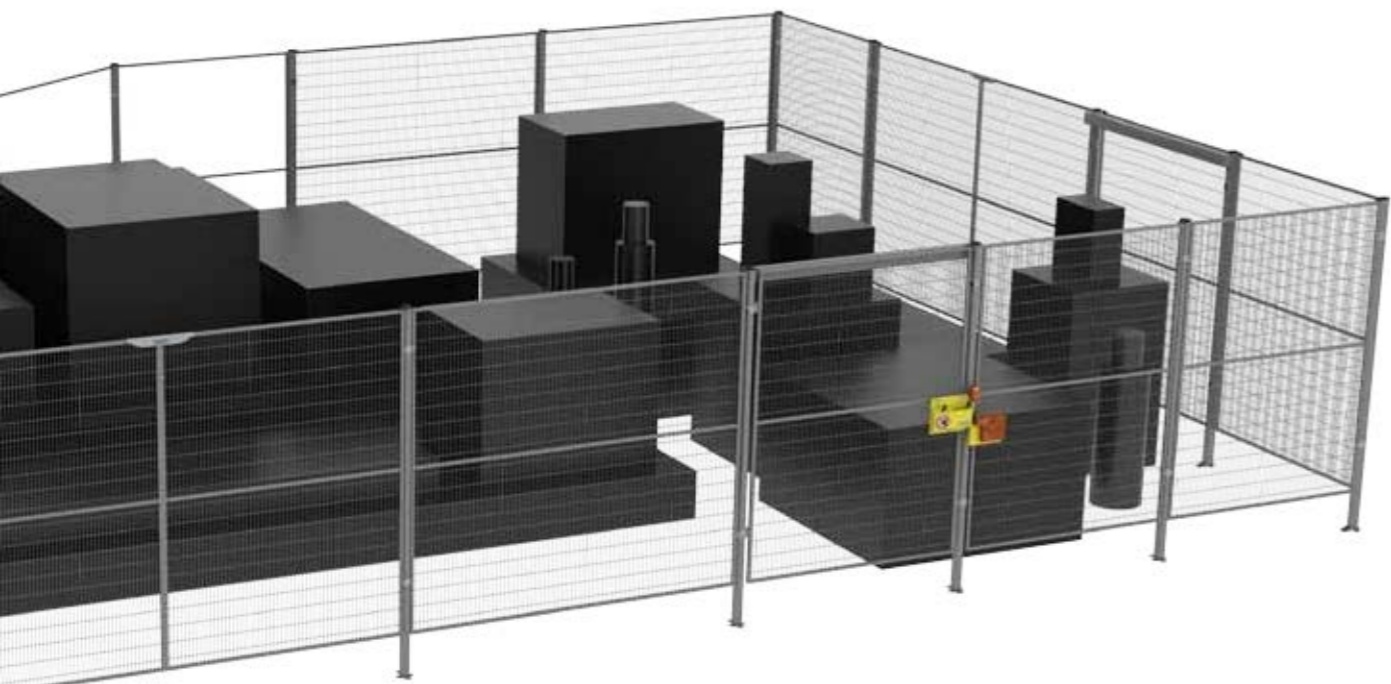Hard wearing steel hinge tested to ensure a long service life.

Angle bracket
Enables adjustment of angle up to 180 degrees on installation.

System Rapid Fix

A machine guard for rapid access

Upper fixing
Secured with ease using the built-in click function

Lower fixing
Simply secures the panel's lower fixing position.

Quick access

Rapid Fix is a machine safety system with a clever design and offers quick and easy access to the machine area.

Unique properties

Rapid Fix is equipped with a 2-point fixing with click function, which means that after the work has been completed, you can install the panel again without the need for any tools, thus avoiding costly stoppages.

Compliant with Machinery Directive

Rapid Fix meets all the requirement in the Machinery Directive - 2006/42/EC and we are working continuously to adapt both existing and new products before they reach the market.

If you choose to install a Rapid Fix system initially, it is possible to change to Smart Fix for protection that is permanently screwed into place, simply by changing the brackets in the installation. Of course, you can change to Smart Fix brackets in a Rapid Fix installation if you want fixed panels instead.

Technical information

Standard dimensions for all hinged doors		
Door leaf Width	700, 800, 1000 and 1200 mm	
Door leaf Height	1250 and 2050 mm	

Standard dimensions for Emergency Exit doors		
Door leaf Width	800, 1000 mm	
Door leaf Height	1250 and 2050 mm	

For more options, contact your local dealer.

Safety Switches

Doors can be easily equipped with switches by using our various fixing kits, and panels can then quickly be converted into doors afterwards.

*For more information about our switches and Safe Locks see pages 18-19.*

Hinged door - Magnetic lock

TROAX hinged door with magnetic lock can be supplied pre-assembled or in component form. This lock should be chosen if there is a low level safety risk. The lock can also be supplemented with a safety switch.

Hinged door - Cylinder lock

TROAX hinged door with cylinder lock can be supplied pre-assembled or in component form. This lock should be chosen if there is a medium level safety risk. The lock can also be supplemented with a safety switch.
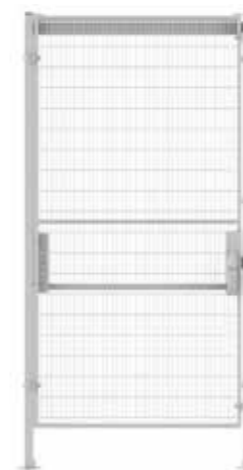
Hinged door - Emergency Exit

TROAX Hinged door for emergency exit can be supplied pre-assembled or in component form and with the option of either Panic Bar or Push Pad. Hinged doors can also be supplemented with a safety switch if required. This lock should be chosen if there is a need for emergency exit only without external access.

Hinged door - Safe Lock

TROAX hinged door with Safe Lock can be supplied pre-assembled or in component form. *The option of using Safe Lock would be determined by the risk assessment. For more information see page 18-19.*
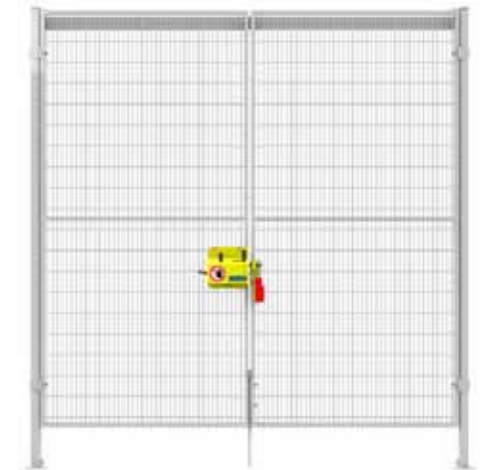
Double Hinged door

TROAX double hinged door can be supplied pre-assembled or in component form. *The option of using Safe Lock would be determined by the risk assessment. For more information see page 18-19.*
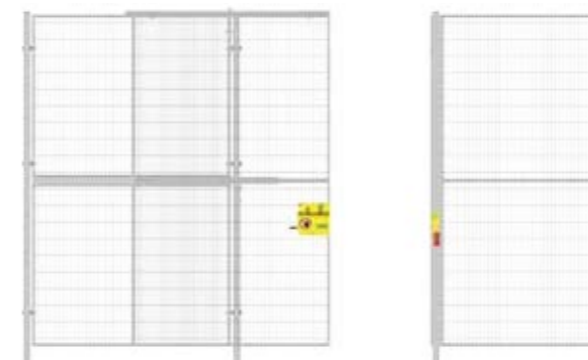
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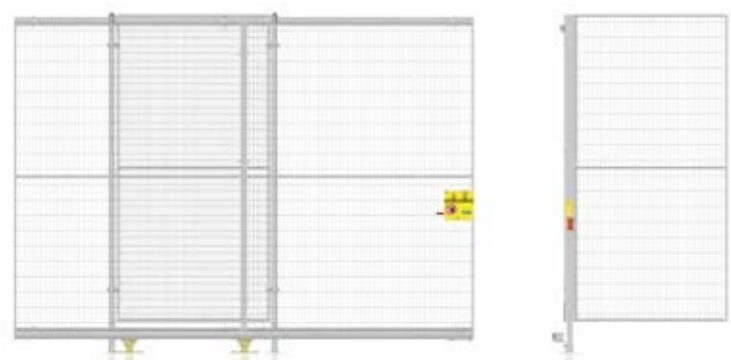
Linear Sliding Door

Our linear sliding doors run on roller bearings at the top and bottom of the door panel. With opening width options up to 4000 mm. Can be used together with our Safe Locks.

Door height (mm)	Opening width (mm)	Construction width (mm)
1400, 2200	1800	4900
	3000	7600
	4000	10100

Panels: ST20, ST30

Telescopic sliding door

Our telescopic sliding doors have a telescopic rail located in the centre of the door panel, in three opening widths: 750, 950 or 1150 mm. Can be used together with our Safe Locks.

Door height (mm)	Opening width (mm)	Construction width (mm)
1400	750	1750
2200	950	2150
	1150	2550

Panels: ST20, ST30

Technical information

Standard dimensions for all sliding doors

Door leaf Width 700, 800, 1000, 1200 and 1500 mm

Door leaf Height 1250 and 2050 mm

For more options, contact your local dealer.

Safety Switches

Doors can easily be equipped with switches by using our various fixing kits.

Can also be supplied as a double sliding door. All doors are constructed from panels. For more information about our switches and Safe Locks see pages 18-19.

Sliding Door Magnetic

TROAX sliding door with magnetic lock can be supplied partly pre-assembled or in component form. This lock should be chosen if there is a low level safety risk. The lock can also be supplemented with a safety switch.

Sliding Door Cylinder Lock

TROAX sliding door with cylinder lock can be supplied partly pre-assembled or in component form. This lock should be chosen if there is a medium level safety risk. The lock can also be supplemented with a safety switch.
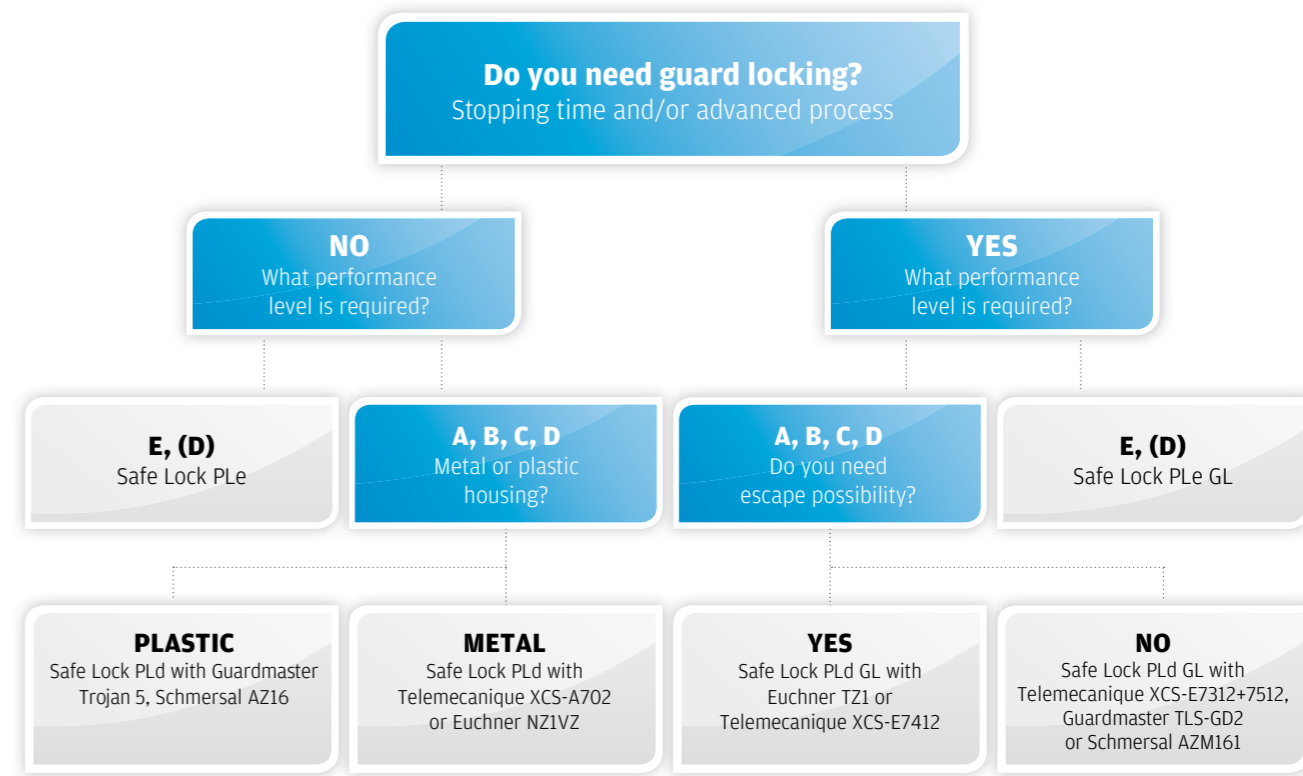
Sliding Door Safe Lock

TROAX sliding door with Safe Lock can be supplied partly pre-assembled or in component form. *The option of using Safe Lock would be determined by the risk assessment. For more information see page 18-19.*

Sliding Door double

TROAX sliding door in double or single rail can be supplied partly pre-assembled or in component form. *The option of using Safe Lock would be determined by the risk assessment. For more information see page 18-19.*

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Decision flowchart

Do you need guard locking? Stopping time and/or advanced process	

NO What performance level is required?	**YES** What performance level is required?

E, (D) Safe Lock PLe	**A, B, C, D** Metal or plastic housing?	**A, B, C, D** Do you need escape possibility?	**E, (D)** Safe Lock PLe GL

PLASTIC Safe Lock PLd with Guardmaster Trojan 5, Schmersal AZ16	**METAL** Safe Lock PLd with Telemecanique XCS-A702 or Euchner NZ1VZ	**YES** Safe Lock PLd GL with Euchner TZ1 or Telemecanique XCS-E7412	**NO** Safe Lock PLd GL with Telemecanique XCS-E7312+7512, Guardmaster TLS-GD2 or Schmersal AZM161

Interlocking devices that meet the requirements for door safety

Our Safe Locks are designed to protect your personnel and to keep your production process running.

The result of the risk assessment determines the required performance level of your safety control system. The performance level is a measure of the reliability and architecture of a safety function using a scale from "a" to "e" with "e" being the highest level.

To calculate the performance level of a safety function a number of things must be considered, including frequency of use, cabling and production environment. With Troax Safe Lock components adapted for a variety of switches you can easily find a suitable solution for your machine guarding requirements.

Safe Locks with guard locking protect hazardous areas where the hazard is not immediately removed after a stop request. On many machines, removing power to the motor will not immediately stop the dangerous motion. Typical applications are high inertia rotating machines and machines where high pressure needs to be released from pneumatic and hydraulic valves.

Our Safe Locks are equipped with a red handle for emergency exit. It also prevents the door from being locked when an operator is on the inside. The emergency exit is depending on the type of switch chosen for the Safe Lock.

Further information about performance level is available in EN ISO 13849-1 and EN 954-1. Information about interlocking devices in combination with guards can be found in EN 1088 and ISO 14119.

All Safe Locks fit our hinged and sliding doors. For safe maintenance a padlock can be used to secure the Safe Lock in open position.

Safe Lock PLd

For low to medium risk applications where the machine stops immediately when the door is opened.

Standard switch:

Guardmaster Trojan 5, Telemecanique XCS-A702, Schmersal AZ16-12 ZVRK, Euchner NZ1VZ-2131D

Safe Lock PLd GL

For low to medium risk applications. The safety switch locks the key and prevents the door from being opened until the machine is in a safe state.

Standard switch:

Guardmaster TLS1-GD2*, TLS2-GD2*, Telemecanique XCS-E7412 +7312* +7512* Euchner TZ1, Schmersal AZM 161*

*No emergency exit

Safe Lock PLe

For medium to high risk applications where the machine stops immediately when the door is opened. Equipped with either a coded non-contact switch or double electromechanical switches.

Standard switch:

Telemecanique XCS-A702 +XCL-J1656, Guardmaster Sensaguard, ABB/Jokab Eden, PilzPSEN cs 3.1, Euchner CES-AP-CL/CR2

Safe Lock PLe GL

For medium to high risk applications. Either double electromechanical switches or a multifunctional gate box prevents the door from being opened until the machine is in a safe state.

Standard switch:

Telemecanique XCS-E7412 +XCL-J1656 Euchner NZ1 RS Euchner MGB, multifunctional gate box

Information mesh panels and post

Sturdy mesh panels suitable for all environments

ST20 Panel

A lighter alternative to ST30 for environments requiring a high level of safety for dangerous machines or moving parts.

Frame: 19x19 mm, Wire: 3 mm
Mesh size: 20x100 mm
Heights: 1250 and 2050 mm
Width: 200, 300, 700, 800, 1000, 1200 and 1500 mm

PC Panel

Consists of a tubular frame with a laminated polycarbonate sheet. Allows good visibility of the area while providing protection.

Frame: 30x20 mm, Thickness PC: 3 mm
Height: 2050 mm
Width: 200, 300, 700, 800, 1000 and 1200 mm

ST Steel Plate panel

Meets requirements for protection from welding sparks, dust and liquids. Ideal for shielding.

Frame: 30x20 mm, Thickness: 0.7 mm
Height: 2050 mm
Width: 200, 300, 700, 800, 1000 mm

ST30 Panel

Designed for environments requiring a high level of safety for dangerous machines or moving parts.

Frame: 30x20 mm, Wire: 3 mm
Mesh size: 20x100 mm
Heights: 1250 and 2050 mm
Width: 200, 300, 700, 800, 1000, 1200 and 1500 mm

URSP Steel Plate panel

Meets requirements for protection from welding sparks, dust and liquids. Ideal for shielding.

Frame: 19x19 mm, Thickness: 0.7 mm
Height: 2200 mm
Width: 200, 300, 700, 800, 1000 and 1200 mm

Post

The posts have a stable design and fits all our machine guard panels and systems.

Frame: 60x40 x1,5 mm
Heights: 1400, 2200, 3000

Component Information Hinged Doors

Whatever your requirement, we have the right type of door

Door stop

The door stop has a rubber damper to eliminate vibrations and noise when closing.

Hinge

The hinge is made from sturdy steel and replaces the normal panel fixing clamp where doors are required.

Door stay

An upper door stay of steel is used to reinforce the structure of the door. This is fitted between the posts of the system.

Floor fixing

Our double hinged doors are delivered with a secure floor fixing as standard.

Component Information Sliding Doors

Add width or height, focusing on flexibility and strength

Guide rail

The guide rail stabilises and controls the position of the door. It slides through a plastic component for smooth and quiet operation.

Door leaf guide

This guide captures the door leaf to ensure it assumes the right position when closed.

Door leaf carriage

This carriage, which runs in an aluminium track, clamps tight around the panel, making it unnecessary to drill holes in the tube.

Suspension bracket

This robust suspension bracket is there to keep the rail in place.

Single track

Made of glossy finish extruded aluminium for single track doors.

Double track

Made of glossy finish extruded aluminium for double doors.

Component Information Linear and Telescopic Sliding Door

Doors without rail above for free passage

Roller bearings

Roller bearings have two functions. The first is to increase stability, and the second is to enable the door to slide easily and safely.

Integrated rail wheels

The integrated rail wheels guide the sliding door to its correct position when opening and closing.

Telescopic function (not linear)

A telescopic sliding door is used for openings up to 1150 mm, compared with the linear sliding door, which can cope with openings up to 4000 mm.

Door leaf guide

This guide captures the door leaf to ensure it assumes the right position when closed.

❶ END profile

The END profile is a flexible solution for adjusting the width of the mesh panel on site while still retaining the same strength as a welded panel frame.

❷ Cut profile

The cut profile is a flexible solution for adjusting the height of the mesh panel on site while still retaining the same strength as a welded panel frame.

❸ Snapper

The Troax Snapper is an alternative solution to posts, acting as a strengthening connector for two adjoining mesh panels in an installation. The Snapper is fitted without screws or the use of tools.

❹ Edge cover

Edge cover is a flexible solution for covering sharp edges after cutting mesh for access.

End, Cut, Snapper and Edge cover are accessories that are fully compatible with all TROAX mesh panels and systems.

my**TROAX**

myTROAX is an online resource with great tools for your everyday work with Troax and our products.

MYTROAX IS NOW YOUR TROAX.

REGISTER TODAY!

❯ troax.com/mytroax

Standards and Rules

Machinery Directive – 2006/42/EC

The 2006/42/EC Directive governs the requirements that machinery must meet before it can be released onto the market, or put into operation inside the European Union, Iceland, Norway and Liechtenstein. The Member States of the EU are obliged to incorporate the Directive into their legislature.

TROAX products and systems comply with all requirements of the directive, and the company works continuously to adapt both existing and new products before they reach the market.
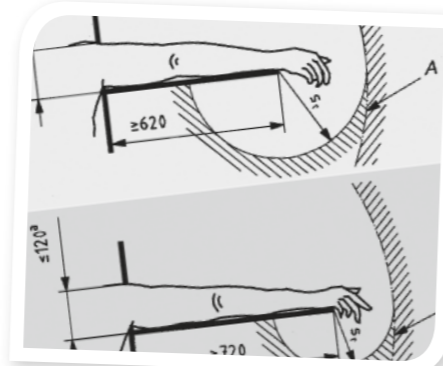
Our products comply with the Machinery Directive 2006/42/EC

High-quality tests

TROAX has its own research and development department, which continually works to optimise our products and system solutions. All test results are carefully documented and are made available to customers.

With energy units from 309 to 1600 Joules

TROAX has opted not to just depend on theoretical calculations. When new products and systems are developed, tests are carried out using energy units from 309 up to 1600 Joules in order to both guarantee function and maintain our globally renowned quality reputation.

Grey increases visibility

TROAX can supply mesh panels and systems in any colour. But the grey colour of our mesh panels and systems is not there by chance. This colour has a very important function: visibility. The eye can see through a dark panel more easily, so we have also chosen black as an optional standard colour.

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