

CONTENTS

- **03** MACHINE GUARDING
- **04** OUR SERVICES
- **06** BETTER SAFE GUARDING
- **08** OPTIMIZE YOUR MACHINE GUARD
- **10** SYSTEMS AND SIZES
- **12** SMART FIX
- 14 STRONG FIX
- 16 RAPID FIX
- 18 DOORS AND LOCKS
- 20 SAFE LOCK
- **22** ACCESSORIES
- 24 COLORS
- 26 DRAWINGS IN 2D/3D
- **27** TROAX WORLDWIDE

Troax is a global developer and manufacturer of steel mesh panels for machine guarding, warehouse partitioning and property protection. This brochure presents our solutions for the market segment Machine guarding. Our business concept is to develop innovative steel mesh panel solutions to protect people, property and processes. Our lightweight but strong mesh panels can be combined into unique solutions and are built to withstand the toughest tests and environments. Read more about our systems at **www.troax.com**

MACHINE GUARDING

FOR MORE THAN 60 YEARS WE HAVE BEEN DEVELOPING INNOVATIVE STEEL MESH PANEL SOLUTIONS FOR MACHINE GUARDING, WAREHOUSE PARTITIONING, AND PROPERTY PROTECTION. TODAY WE ARE THE MARKET LEADER, AND OUR PRODUCTS CAN BE FOUND ALL OVER THE WORLD—PROTECTING PEOPLE, PROPERTY AND PROCESSES.



TROAX IS IN THE BUSINESS OF SAFETY.
OUR STEEL MESH PANEL SYSTEMS
OFFER THE SAFEST AND MOST FLEXIBLE
SOLUTIONS ON THE MARKET.



Whatever your safety needs may be, we will create a solution that is perfect for you. Our systems are marketed in three segments: Machine Guarding, Warehouse Partitioning and Property Protection.

SAFETY DOESN'T HAPPEN BY ACCIDENT

The Troax Test Center is the heart of our business. Here, our products go through rigorous tests to maintain a high standard. We conduct impact tests on our panels, brackets and retainers on a daily basis. It is a job that requires both time and effort. But it is all worth it, because your safety is our priority.

SURVEYS ON SITE

One of our Technical salesmen will personally manage your inquiry and—if needed—carry out a detailed site survey on location. We use the Configura drawing tool to create each solution, which allows you to view our proposal in 2D and 3D before ordering any material. Our skilled assembly team can take care of the installation of your system while your contact at Troax will follow up your project.

PLANNING AND DESIGN

Our systems are adapted and designed to suit your specific needs, with everything intricately planned down to the smallest detail. With several security levels and a variety of different lock and door designs, our systems can be built to suit all kinds of application areas.

ASSEMBLY IS PART OF OUR OFFER

Troax offers help with assembly and installation of all our systems. Should you choose to assemble the products yourself, each Troax delivery includes clear user instructions and assembly guidelines, which make it easy to assemble our system on site. Need additional assistance, check out our ever growing collection of animated, "Follow-Me" videos on the Troax YouTube channel.

IF YOU ARE STILL NOT CONVINCED...

- Each installation is unique and created to meet the customer's specific demands.
- Our mesh panels are extremely durable and can withstand the most demanding applications.
- Troax provides products of the highest quality and functionality, using automated and environmentally friendly production processes.
- Our systems are versatile and can easily be combined with each other, which makes them a good investment.
- We are the first mesh panel solution company in the world to have our test method certified by TÜV.



YOUR PARTNER IN BETTER SAFE GUARDING.

Your modern industrial processes are safe, when no one except authorized personnel has access to the company's machines. Troax mesh panels for machine guarding provide maximum personal and machine safety in accordance with the Machinery Directive.

Troax is a well-known name in machine guarding and machine security for the production industry in many parts of the world. The key is intelligent details which can be combined with new and old modules in well-tested systems.

PROVEN STRENGTH

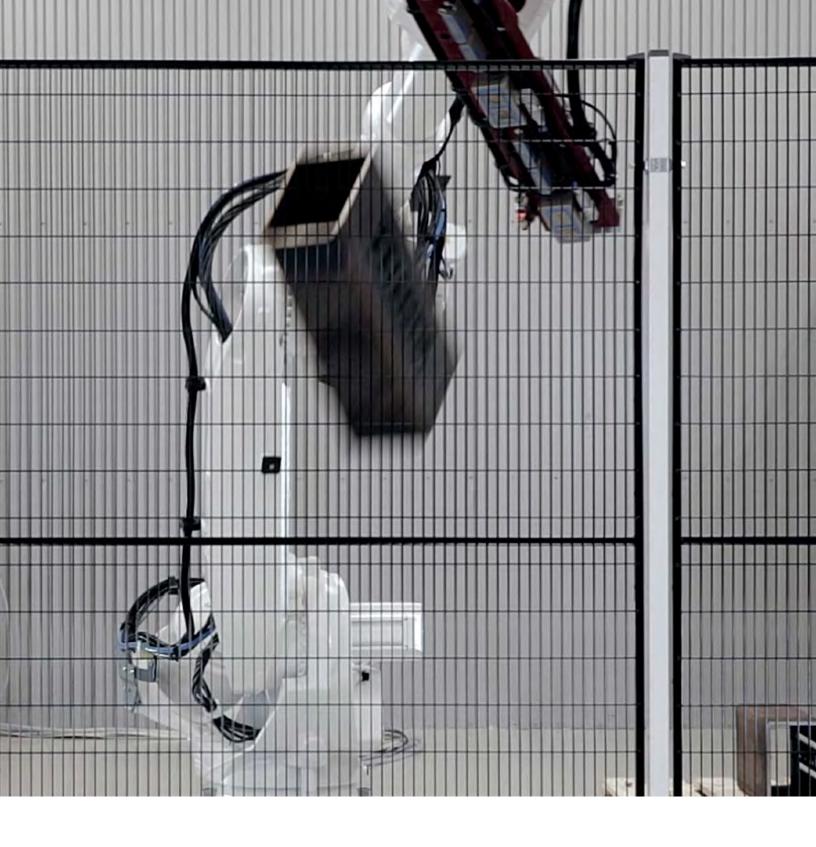
Step by step, we are developing the foundation of our systems—our mesh panels. Theoretical calculations are tested in our own test center. The panels are tested using energies of up to 2,500 joules and beyond. If an accident were to happen, you should know that the panels are strong enough to keep both people and machinery safe. All of our design details and our welds are completed with maximum impact resistance in mind.

IN COMPLIANCE WITH THE MACHINERY DIRECTIVE

Troax machine guarding and machine safety products meet all the requirements set in the European Machinery Directive, 2006/42/EC—requirements which your installation should attain today as well as into the future if you have the need to supplement or extend existing machine guarding systems with new mesh panels, doors and locks.



ISO 12100 ISO 14120 ISO 14119 ISO 10218-2 ISO 13857 ISO 14121-1



WHEN TESTING OUR PRODUCTS, WE USE A METHOD THAT ITSELF IS CERTIFIED BY TÜV.

OPTIMIZE YOUR MACHINE GUARD.

We all know most solutions are unique, environments impact requirements, processes dictate performance levels and that everyone ultimately has preferences. Troax has the "extras" you need to customize the perfect solution for almost every application. There are several dimensions to the safety of your machine guarding. Our world-class products, such as the strong mesh panels, the quick release Rapid Fix system and the Safe Lock solution fit many variants of saftey switches, have been developed to make your machine guarding safe and smooth.

The polycarbonate panels offer excellent visibility and using the steel sheet panels you can create a fully covered cell. With the wire mesh panels you will get good ventilation and the strongest solution for your guard. Choose Smart Fix or Rapid Fix system for easy access supplied with our 60×40 mm posts. For heavy industry environments or where there is a risk for an impact to the guard, the stronger 80×80 post with Strong Fix is recommend. Troax will create a solution that fits your needs.



1 STRONG FIX

Our strongest machine guard that can withstand an impact of 2,500 joules.



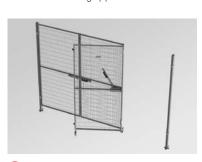
2 SLIDING DOOR O

A large door solution—u 6 meter using the Troax



6 FULL STEEL SOLUTIONS

Our URSP steel sheet panels assembled with the Safe Fix system gives a covered cell suitable for welding applications.



7 FOLDING DOOR

The Folding door is folded together when opened, saving space on the side and allowing free opening space.



8 RAPID FIX

For quick and easy access to a machine. The panels are released using a hex key from the inside of the fence.



SLIDING DOOR

Double or single sliding strong aluminium rail.



N W HEELS

p to approximately ST30 mesh panels.



3 HIGH GUARDS

Using the extension bracket, it's easy to build high walls with standard panels and posts.



4 GALVANIZED GUARD

For outdoor and humid environments we recommend galvanized panels and posts.



5 SAFE LOCK

Fits all door types and can be equipped with your choice of safety switch.





doors built with a



10 POLYCARBONATE PANELS

Gives good overview and protects against fluids and small particles.



11 AUTOMATIC SLIDING DOOR

A CE-marked, automatic sliding door with Troax posts, PC panels and with a motor from Besam/ASSA ABLOY Entrance Systems.



12 MEZZANINE GUARD

Fall protection on Mezzanine floor areas.

COMBINE OUR SYSTEMS FOR UNIQUE SOLUTIONS.

Troax machine guarding systems can be combined and adapted to fit your specific needs. The standard heights of our panels and posts are developed to comply with the required values for safety distances stated in ISO 13857.

SYSTEM DIMENSIONS

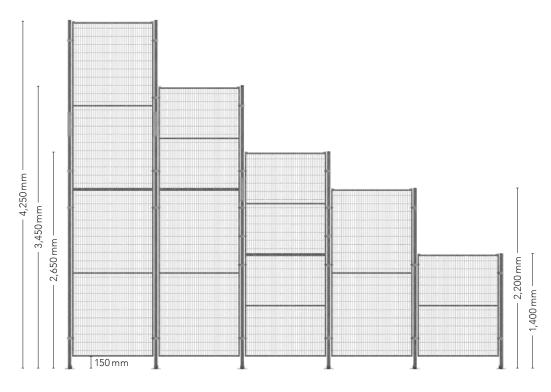
The wall system standard heights are from 1,400 mm to 4,250 mm. The panels are available in eight widths, from 200 mm up to 1,500 mm, and the 150 mm floor gap allows for easy cleaning. Both panels and posts can be customized to create almost any desired dimension. Fitting details, panels and posts for all our systems are kept in stock and can be delivered immediately.

MESH GUARDS

The Troax panel design for ST20 and ST30 mesh panels complies with ISO standards for maintaining a safety distance of 120 mm from the hazard. Vertical wires on the outside of the panel make it difficult to climb.

HIGH VISIBILITY

Our standard gray color (RAL 7037) and black (RAL 9005) provide the best visibility throughout the hazard zone; However, our mesh panels can be supplied in any color.



SMART FIXINGS COMPLETE THE SYSTEM. OUR RANGE OF FIXINGS, COMBINED WITH THE RIGHT PANELS AND POSTS FOR YOUR APPLICATIONS, PROVIDE MAXIMUM PERSONNEL AND MACHINE SAFETY.



SMART FIX

Our well-proven safeguard system with many unique properties. The fixings are easily moved up and down to adjust for uneven floors. With the 60×40 post and the ST20 mesh panel it withstands an impact of 1,600 joules.



COMBI FIX

A combination of Smart Fix upper bracket and Rapid Fix lower bracket, makes this system easy to install and quick to re-assemble.



RAPID FIX

Quick and easy access to the hazard zone. Open the fixing from the inside using a hex key and when the panel is put back the locking mechanism snaps the panel back in position.



SAFE FIX

For a fully covered machine guard, this bracket adjoins the panels in front of each post, removing the gap between panels and posts.



STRONG FIX

With the 80×80 posts and a strong bracket, this system is the best alternative for harsh environments with high impact risks. Installed with ST30 panels it withstands an impact of 2,500 joules.



BASE FIX

Best suited for low-height partitioning, the Base Fix foot can be used to replace a post.



STEEL MESH PANELS

 $3\,mm$ wire and mesh size $20\times100\,mm$. Choose ST20 for a $19\times19\,mm$ frame or the ST30 for a $30\times20\,mm$ frame. Standard widths are 200, 300, 500, 700, 800, 1,000, 1,200 and 1,500 mm in 2,050 mm height.



POLYCARBONATE PANELS

A 3 mm PC, transparent or colored for welding protection, fixed with screws to a 30×20 mm frame. Tested with an impact of 1,600 joules! Standard widths are 200, 300, 500, 700, 800, 1,000, 1,200 and 1,500 mm in 2,050 mm height.



SHEET METAL PANELS

The full steel, 0,7 mm metal sheet welded to the 19×19 mm frame panels create fully covered cells. Standard sizes are 200, 300, 700, 800, 1,000 and 1,200 mm in 2,200 mm height.

SMART FIX STRONG AND PROVEN.

SMART FIX IS OUR BEST-SELLING SAFEGUARD SYSTEM.
THIS VERSATILE MACHINE GUARD IS EXTREMELY DURABLE
AND FITS MOST APPLICATIONS.







Our strong and flexible Smart Fix system is easy to assemble and can be combined with any of the machine guarding panels in mesh, steel or polycarbonate. The bracket is easily mounted to the 60×40 mm posts, tightened to the post with an M8 bolt on the inside of the fence and can easily be moved up and down to adjust for uneven floors. The bolts will be held captive to the panels even when the system is disassembled, fulfilling the requirements and standards for machine guarding.

The Smart Fix system can easily be combined with other systems, such as Rapid Fix and Strong Fix to create unique, suitable solutions. Choose among a wide range of doors, locks and accessories to customize your installation. The Smart Fix system is heat-resistant and it's tested to withstand an impact of 1,600 joules in the most common sold combination with the ST20 mesh panels.





ST20 MESH PANEL

The ST20 mesh panel has a classic look with the mesh size of 20×100 mm fixed to a 19×19 mm frame. Available in two standard heights, 1,250 and 2,050 mm in up to 8 widths.



POST 60×40

Strong post with four holes for flexible fixing to the floor. Standard heights 1,400, 2,200, 2,650 and 3,000 mm plus extension tubes.



SMART FIX BRACKET

Fixed in position with a bolt from the backside of the bracket. Move the bolt to the side position to create a corner.



COMBINE WITH THE FUNCTIONAL BONDING KIT TO SOLVE LEAKAGE PROBLEMS.

STRONG FIX ROBUST AND DURABLE.

STRONG FIX IS OUR STRONGEST MACHINE GUARDING SYSTEM. IT HAS BEEN DEVELOPED AND TESTED TO ENDURE THE HARSHEST ENVIRONMENTS.



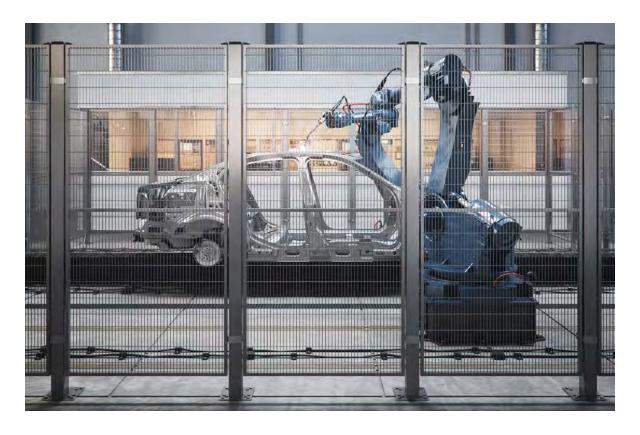




For heavy industrial environments and where there is a high risk for an impact, the Strong Fix system is the perfect solution. Anchored by our heavy 80×80 mm posts combined with a strong bracket and the ST30 mesh panels, the system is tested to withstand an impact of 2,500 joules.

The brackets are easily mounted to the posts and tightened with an M8 bolt on the inside of the fence. Move the brackets up and down on the post to adjust for uneven floors or just use the adjustment bolts.

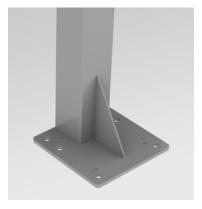
The Strong Fix system can be mounted with double ST30 panels, creating a super strong machine guard—withstanding an impact of 4,350 joules!—depending on the quality of the floor it is fixed to.





ST30 MESH PANEL

The ST30 mesh panel has a classic look with the mesh size of 20×100 mm fixed to a 30×20 mm frame. Available in two standard heights, 1,250 and 2,050 mm in up to 8 widths.



POST 80×80

Our strongest post. Four holes for fixing to the floor and extra holes for alignment adjustment bolts. Standard heights 1,400, 2,200 and 3,000 mm plus extension tubes.



STRONG FIX BRACKET

Pre-galvanized steel bracket that can be easily moved up and down on the posts.



EXTREMELY STRONG MACHINE GUARDING.

RAPID FIX QUICK AND EASY ACCESS.

RAPID FIX IS A CLEVERLY DESIGNED MACHINE SAFETY SYSTEM THAT OFFERS QUICK AND EASY ACCESS TO THE HAZARD ZONE.







Rapid Fix has been developed in response to the customer need for a quick and flexible access solution, such as when performing maintenance. The lower bracket has a slot that the panel hooks into, and the upper bracket has a unique locking mechanism that snaps the panel into the correct position.

The system is easily disassembled from inside the cell, using a hex key to release the panel. The Rapid Fix system meets the requirements of the Machinery Directive, and all components are held captive in the guard even when the system is disassembled. Rapid Fix can be combined with other Troax systems, such as Smart Fix and Strong Fix.





POST 60×40
The standard post available in heights 1,400, 2,200, 2,650 and 3,000 mm plus extension tubes.



RAPID FIX LOWER BRACKETEasily slide the panel into the lower fixing position.



RAPID FIX UPPER BRACKETSecure the panel with ease using the built-in click function.





CAN BE COMBINED WITH SMART FIX SYSTEM.

SAFE AND SOUND WITH DOORS AND LOCKS.

TROAX OFFERS SEVERAL TYPES OF DOORS TO FIT YOUR MACHINE GUARDING DEMANDS. OUR DOOR SOLUTIONS INCLUDE HINGED, SLIDING, TELESCOPIC AND LINEAR DOORS. ALL CAN BE INTEGRATED INTO ANY OF OUR MODULAR SYSTEMS.

Our selection of doors is available in standard widths from 700 mm up to 6,000 mm, and in heights up to 4,100 mm. The door construction consists of panels, posts and fixings, and is built with our metal mesh, sheet metal and polycarbonate panels. The hinged doors can be delivered fully assembled with your preferred lock solution for fast installation on site. Larger doors can be prepared for installation on site. Locks are adapted to your security level. There are several options, such as magnetic locks, euro cylinder locks and our own Safe Lock which can be fitted with many variants of safety switches.

All doors can be supplemented with brackets for easy mounting of electric safety switches. Comprehensive assembly instructions are included with each door solution and lock combination—watch the assembly movies on Troax's YouTube channel. All door solution parts are kept in stock for fast delivery.



SAFE ESCAPE LOCK WITH EURO CYLINDER AND INTEGRATED SAFETY SWITCH.



EURO CYLINDER LOCK WITH HANDLE.



HANDLE WITH MAGNETIC LOCK.



SAFE LOCK FITS VARIOUS SAFETY SWITCHES.



SINGLE HINGED DOOR

500-1,500 mm

Locking options

Magnetic lock, Euro cylinder lock, Safe Lock, MGB or AZM200.



SINGLE SLIDING DOOR

(SINGLE RAIL) 700-1,500 mm

Locking options

Magnetic lock, Euro cylinder lock, Safe Lock, MGB or AZM200.



CARRIER DOOR (2)

1,000-3,000 mm

Locking options

Magnetic lock, Euro cylinder lock, Safe Lock, MGB or AZM200.



TELESCOPIC SLIDING DOOR

(SINGLE / DOUBLE) 800-1,500 mm / 1,600-3,000 mm

Locking options

Euro cylinder lock, Safe Lock, MGB or AZM200.



DOUBLE HINGED DOOR

1,000-3,000 mm

Locking options

Magnetic lock, Euro cylinder lock, Safe Lock, MGB or AZM200.



DOUBLE SLIDING DOOR

(DOUBLE RAIL) 700-1,500 mm

Locking options

Magnetic lock, Euro cylinder lock, Safe Lock, MGB or AZM200.



CARRIER DOOR (3)

1,500-4,500 mm

Locking options

Euro cylinder lock, Safe Lock, MGB or AZM200.



TELESCOPIC HINGED DOOR

1,800-2,700 mm

Locking options

Euro cylinder lock, Safe Lock, MGB or AZM200.



FOLDING DOOR

2,100-4,500 mm

Locking options

Safe Lock, MGB or AZM200.



DOUBLE SLIDING DOOR

(SINGLE RAIL) 1,400-3,000 mm

Locking options

Magnetic lock, Euro cylinder lock, Safe Lock, MGB or AZM200.



LINEAR SLIDING DOOR

1,800-4,000 mm

Locking options

Euro cylinder lock, Safe Lock, MGB or AZM200.



SLIDING DOOR ON WHEELS

1,100-6,000 mm

Locking options

Euro cylinder lock, Safe Lock, MGB or AZM200.

WE THINK OF SAFETY IN TERMS OF KEEPING PEOPLE, PROPERTY, AND PROCESSES SAFE, AND OUR SAFE LOCKS ARE DESIGNED ACCORDINGLY. THEY WILL PROTECT YOUR PERSONNEL AND KEEP YOUR PRODUCTION RUNNING SMOOTHLY. AS BASIC AS IT MAY SEEM, IT WILL BE A KEY COMPONENT TO KEEPING YOUR PERSONNEL SAFE AT ALL TIMES.









GET A CLOSER LOOK AT OUR SAFE LOCK.

Your choice of Safe Lock is dependent on the performance level required for the specific machine guarding process, as well as your preferred switch supplier. Troax offers a broad variety of solutions to suit most switches, and you can choose to have the Safe Lock supplied with or without the switch included.

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

SWITCH OPTIONS

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

PERFORMANCE LEVEL e

For medium, high to very high risk applications where the machine stops immediately when the door is opened.

SWITCH OPTIONS

Guardmaster Sensaguard 440N-Z21SS2HN, ABB/Jokab Eden, PilzPSEN cs 3.1, Euchner CES-AP-CL/CR2, Schmersal RSS260.

PERFORMANCE LEVEL d GL

For low, medium to high risk applications. The safety switch locks the actuator until the machine is in a safe state for the door to be opened.

SWITCH OPTIONS

Guardmaster TLS1-GD2*, TLS2-GD2*, TLS3-GD2*, SICK i200*, Telemecanique XCS-E7412 +7312* +7512*, Euchner TZ1, Schmersal AZM 161*, Siemens 3SE5312.

*An escape release button must be added.

PERFORMANCE LEVEL e GL

For medium, high to very high risk applications. The safety switch locks the actuator until the machine is in a safe state for the door to be opened.

SWITCH OPTIONS

Guardmaster TLS-Z GD2, Euchner CTP.



SMART ACCESSORIES COMPLETE THE OVERALL PICTURE.



Use the kick plate to fill out the gap between the panels and the floor.



The Snapper adjoins two panels and can be used to replace a post.



CABLE TRAY FIXING

Adapted for the Troax 60×40 post to hold the cable trays.



The PC holder fix a polycarbonate infill sheet to the mesh panel, to withhold liquids and small parts.

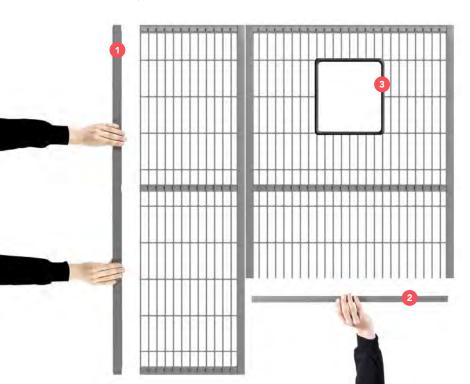


EXTENSION BRACKET

The extension bracket is used to build higher walls and extend the standard posts of 2,200 mm and 3,000 mm.



The kit functional bonding creates an electrical bonding between panels and posts, solving problems with leakage current.



TRIM KITS

END PROFILE

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



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



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



AUTOMATIC SLIDING DOOR

We offer automatic sliding door solution in combination with the 80×80 posts and PC panels. The Besam motor is supplied from ASSA ABLOY Entrance Systems.



ROLLER DOOR

We offer high quality Albany machine guard roller doors from ASSA ABLOY Entrance Systems.

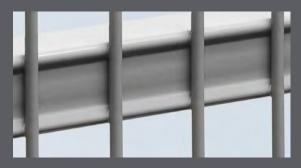


STAINLESS STEEL

We offer hygienic stainless steel machine guard systems from BlueGuard, available in both AISI 304 and AISI 316.

OUR STRENGTH IS IN THE DETAILS.

TROAX'S AUTOMATED PRODUCTION PROCESS ENSURES A HIGH QUALITY FOR EVERY PANEL PRODUCED. THE STABLE MESH PANELS HAVE A WELL-KNIT STRUCTURE MAKING THE PANEL VERY STRONG AND IMPACT RESISTANT.



UNIQUE PROFILED TUBING

The horizontal tubes on our mesh panels have a unique profiled tubing designed to make the welding stronger and the mesh flatter.



STRONG WELDING METHOD

All horizontal wires are welded into the panel frame, joining the wires and frame to form a strong mesh panel.

SHOW SYSTEMS, ALTHOUGH SYSTEMS

RAL 9005

RAL 1018

RAL 7037

STANDARD

COLORS

WHAT IS YOUR FAVOURITE COLOR? PERHAPS BABY BLUE, LEMON OR JUNGLE GREEN? OUR MESH PANELS AND SYSTEMS ARE AVAILABLE IN ANY COLOR YOU'D LIKE, ALTHOUGH GRAY/BLACK ARE THE PREFERRED COLORS.



An increasing number of Troax customers are choosing non-standard colors for their mesh panels and systems. Having a specific color on safety walls in production and warehouse areas can be an important part of the company profile. Troax paints all products in-house and in just about any RAL color—from strong signal colors to harmonized color palettes.

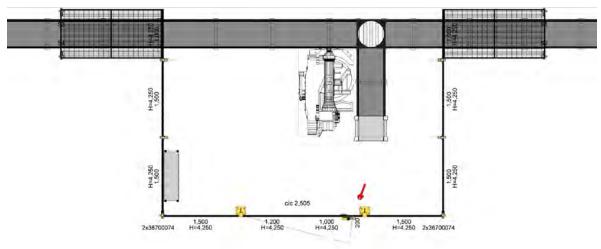
Keep in mind that rules and safety requirements for industrial settings with machines and automated processes are stringent. The color of the mesh panels surrounding a robot or machine must allow good for non-distracted vision. This is why most customers still choose our standard gray or black as they are the easiest to see through. Panels and posts in the standard colors are kept on stock for quickest delivery.

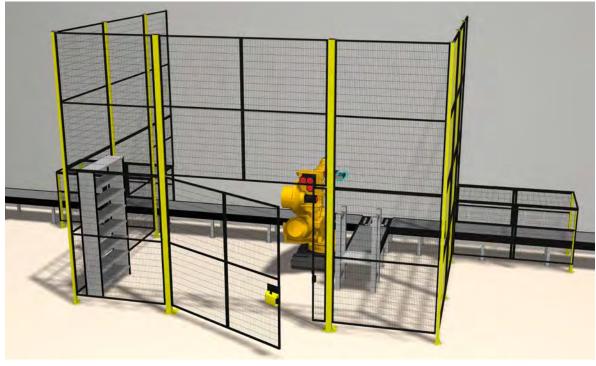


VIEW YOUR TROAX SOLUTION BEFORE ORDERING.

It can be difficult to imagine what your machine guarding system will look like before it has been delivered and assembled. At Troax, we use a comprehensive drawing and rendering program, called Configura, which allows you to view our proposal as 2D and 3D-generated drawings before placing your order. For our CAD support, we work with both Solid Components and Trace Parts, who are digital 3D content companies that provide CAD part libraries.

Read more about Troax CAD at **www.troax.com** and download our products as for sample STEP or DWG files. You can also download your own version of our drawing program as Configura Light.





TROAX IS REPRESENTED IN ALMOST 40 COUNTRIES AND HAS 24 SALES COMPANIES OF ITS OWN. WE AIM TO STRENGTHEN OUR POSITION WORLDWIDE AND EXPAND OUR BUSINESS ON EACH CONTINENT.



At Troax, 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.

STRONG MARKET SEGMENTS

Our systems are marketed in three segments: Machine guarding, Warehouse partitioning and Property protection.

1. MACHINE GUARDING

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

2. WAREHOUSE PARTITIONING

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.

3. PROPERTY PROTECTION

Whether 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."

LOCAL & GLOBAL PRESENCE.

MAKING YOUR WORLD SAFE





Troax Inc.

1410 Donelson Pike | Suite B-20 | Nashville, Tennessee | 37217 | USA Phone: +1 615.730.7581 | Fax: +1 615.730.7583 www.troax.com/us