



Axelent X-Protect

INSTRUCTION HANDBOOK FOR AXELENT X-PROTECT
INDUSTRIAL BARRIER SYSTEM



These instructions are applicable to the Axelent X-Protect range of industrial barriers.

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1. Description

1.1 Design and Function

Axelent X-Protect is an industrial barrier system. It is assembled from standard parts (primarily posts and extruded rails) in various sizes.

1.2 Technical Specifications

This section contains information about the basic technical specifications. The dimensions of individual components are contained in the Axelent X-Protect "Technical Information" brochure.

Mechanical data	Posts	
	Size	200 x 200 x 7 mm
	Height range	305 to 2255 mm
	Slot profile	
	Size	52 x 85 x 4 mm
	Height range	50 to 2254 mm
	Pedestrian rails	
	Size	68 x 72 x 10 mm
	Impact rails	
	Size	116 x 220 x 10 mm
	Foot	
	Classic size	218 x 218 x 57 mm
	Essential size	195 x 112 x 90 mm
	Topple size	218 x 218 x 90 mm
	Top washer	
	Classic /Topple size	199 x 199 x 30 mm
	Essential size	140 x 134 x 10 mm
	Rods & nuts	
	Size	M20/20 mm
	Height range	337 to 1147 mm
	Column guard	
	Size (assembled in smallest configuration)	900 x 514 x 5 mm
Materials	Modular components	
	Posts	PP
	Slot profile, pedestrian rails and impact rails	HDPE
	Foot and top washer	TM A536 grade 70-50-05
	Rods	Class 8.8
	Connection pieces	PK
	Connection covers	TPE
	Other plastic parts	HDPE
	Slot reinforcements	PP
	Lacquering foot and top washer	Epoxy powder coat 150 .. 250 µm
	Surface treatment other steel parts	Phosphatized
	Column guard	HDPE
	Corrosion protection category (Cathodic dip lacquering for corrosion protectionis optionally available)	C2 (interior use only) C3 (interior use only)

Colour fastness

All plastic components are manufactured with UV stabilisers to delay colour degradation. Barriers exposed to UV light will lighten over time dependent on environmental conditions.

Ambient conditions

Temperature range

-10 to +40°C

Relative air humidity, max.

80 %

Corrosion protection category

C2

Indoor use, normal air humidity and low air contamination only

Corrosion protection category with cathodic dip lacquering

C3

Indoor use, rooms with high air humidity and low air contamination; outdoor use city and industrial environments with moderate sulphur dioxide burden

If you need any more detailed information on the subject, feel free to contact Axelent AB, Hillerstorp, Sweden

Safety-related data

Impact resistance

Varies depending on configuration, post centres and height of impact. Any impact resistance given in brochures or other technical documents is for the specific environmental conditions, test methodology and dimensions detailed in the products test summaries.

Barrier performance alters dependent on environmental conditions, installation methods, maintenance and wear and tear. Impact resistance figures should be used as guidance for barrier selection only and cannot guarantee barrier performance. More information is available on www.axelent.com

Impact-Related Warnings

Impact resistance applies only to force, mass and speed stated in the technical specification. Impacts outside rated conditions may cause structural damage. After any impact, remove the gate from service until inspected by a competent person.

Outdoor use

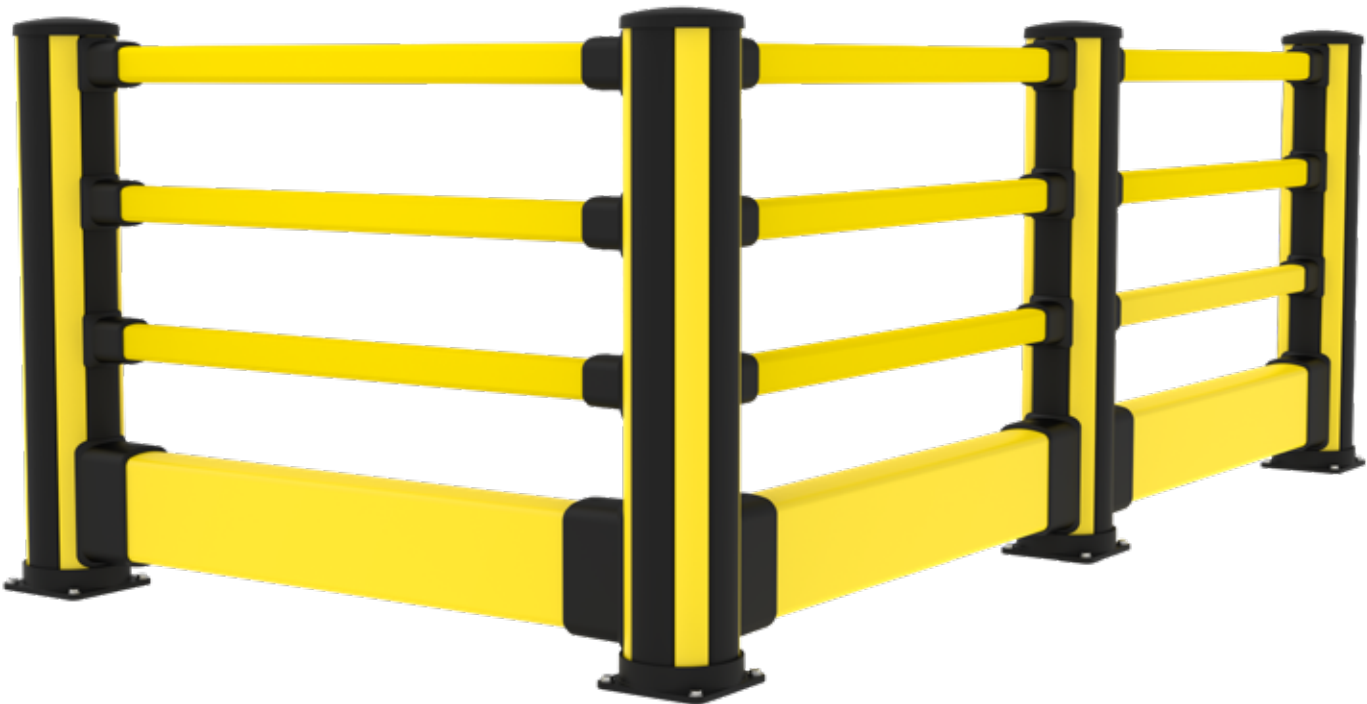
X-Protect can be used in outdoor environments but barrier performance and lifespan will be affected by site specific environmental conditions.



1.3 Applicable directives and standards

There is no European or international design standard that X-Protect must adhere to, however the following documents can be considered pertinent to barrier selection.

Standard No.	Title, sections
Europe, UK & International	
EU Directive 89/654/EC	Concerning the minimum safety and health requirements for the workplace (updated by EU Regulation EU/19/1243)
BS 6180:2011	Barriers in and about buildings. Code of practice
PAS 13:2017	Code of practice for safety barriers used in traffic management within workplace environments.
ASR A1.8	Verkehrswege (site traffic routes)
ISO 14120:2015	Annex C *
* For testing criteria of X-Protect bollards functioning as an X-Guard machine guard post	
United States of America	
OSHA 1910.22	General requirements (for walking and working surfaces)



2. Safety

2.1 Intended use

Axelent X-Protect industrial barrier intended use is to reduce the likelihood of a vehicle leaving designated traffic routes and damaging structures, building perimeters and other facility infrastructure. Pedestrian barriers are intended as a means of segregating pedestrians from traffic. Though X-Protect in pedestrian intended configurations offers some crash protection, pedestrian safety is not guaranteed due to the ability for pedestrians to negate such measures.

Any application/use other than those stated above is considered unintended and therefore not admissible.

2.1.1 Limits of intended use

Axelent X-Protect's industrial barrier horizontal elements must not be used as a machine guard.

X-Protect bollards can be connected directly to Axelent's X-Guard machine guarding in lieu of an X-Guard post and are tested in accordance with ISO 14120:2015 Annex C for this purpose. Vehicle impact on X-Protect's horizontal elements that are connected to X-Guard fencing may affect the integrity of the guard fencing. Where the two systems are used in conjunction, possible negative effects on the guard must be considered during risk assessment. After an impact on the X-Protect elements, the integrity of the adjacent guard fencing must be inspected. Elements of the guard may have to be replaced.

Axelent X-Protect industrial barrier must not be used as a guard or hand rail on stairs regardless of the height.

Axelent X-Protect industrial barrier must not be used as protection from falling from a height, such as from a walkway or platform or into a pit or floor cut-out.

Do not alter the barriers or its parts, as this may impair the performance-related properties.

Adhere to the information for installation, operation and maintenance provided in these operating instructions as well as the individual assembly instructions provided with each package.

Exclusively use original spare parts or parts meeting the original parts' specifications, ensuring the safety properties are met.

Fixings for barriers (e.g. bolts, nuts) must only be replaced with fixings of the same or an equivalent type.





2.2 Qualification of personnel

Task	Prerequisites, qualifications
Installation, maintenance, troubleshooting and repair	Industrial mechanic or machine fitter

2.3 Hazards

Axelent X-Protect industrial barrier in itself does not involve any hazards. However, if industrial barriers are not properly installed and maintained

- it may tip over, hitting persons
- it may not withstand impact

2.4 Safety notes for assembly, installation, cleaning, maintenance, repair and dismantling.



WARNING
Hazard from collision with and running over by vehicles.

Serious or even fatal injury may be the consequences. Be sure to work on industrial barriers only if adjacent traffic is safely stopped.



WARNING
Hazard from dropping of heavy parts during assembly, maintenance or repair or dismantling.

Serious bruises or broken limbs may be the consequences. Wear safety shoes.



WARNING
Hazard from metal swarf or shavings.

Cuts and serious eye injury may be the consequences. Wear eye protection and gloves.

3. Transport and installation

3.1 Transport with industrial trucks



Axelent X-Protect industrial barrier must be transported by sufficiently qualified personnel only (see 2.2 Qualification of personnel).



WARNING

Hazard from dropping of heavy parts during transport, assembly, maintenance or repair. Serious bruises or broken limbs may be the consequences.

Wear safety shoes and protect your hands by wearing gloves.

Axelent packs X-Protect industrial barrier on wooden frames that can be lifted and transported with industrial trucks. The wooden frame is adapted to the size and amount of material supplied. The material is secured on the wooden frame by means of stretch foil.

The slide in points for the forks are clearly marked. The total weight of the package is given on the packing slip. Be sure to use an industrial truck of sufficient loading capacity.

Small parts are packed in boxes, which can be handled manually.

3.2 Transport with a crane

The wooden frames used for transport are not suitable for crane transport. Do not attempt to attach ropes, chains or belts to the frame for lifting. The frame would be destroyed and the material drop to the floor. This may cause hazard and damage. If an industrial truck is not available for transport, you may use a crane fork attached to a crane, such as the one here shown.



Crane fork, sample illustration

The crane fork must be adjustable as well as wide and big enough to handle the wooden frame safely. The slide in points for the forks are clearly marked. The total weight of the package is given on the packing slip. Be sure all parts used for lifting are of sufficient loading capacity.



3.3 Assembly and installation



Axelent X-Protect industrial barrier must be assembled and installed by sufficiently qualified personnel only (see 2.2 Qualification of personnel).

X-Protect posts must be bolted/anchored into the concrete floor according to the assembly instructions. Only bolts/anchors that are provided/approved/tested by Axelent or bolts/anchors that have equivalent or higher performance shall be used. The bolt/anchors shall be installed according to the manufacturer's installation instructions. The concrete quality should meet class C25/30 to EN 206-1 at the minimum*. The thickness should be at least 200 mm.

If X-Protect is mounted to individual concrete slabs, the recommended dimensions are 900 mm (l) x 900 mm (w) x 200 mm (d). In certain circumstances smaller slabs may be used, but consideration must be given to the existing substrate and installation specific load case. A continuous concrete base is always preferential and recommended over individual slabs.

If X-Protect is mounted to a walkway or platform, the designer of the walkway or platform must ensure sufficient strength of the base material. We do not recommend welding posts to a substructure as this

makes replacement and repair difficult. Axelent X-Protect industrial barrier must not be used as protection from falling from a height.

The horizontal rails can be cut to size on site. However, this must be done by Axelent approved installers only. Any other alterations will impair the function of the product and compromise safety.

The torque applied to fixings during installation is critical to barrier performance. If X-Protect is installed in an environment subject to abnormal vibration and/or dramatic changes in atmospheric conditions, measures should be taken to ensure fixings do not work loose.

3.4 Installation distance

X-Protect should be installed at a distance from the object being protected that includes the maximum possible deflection of the chosen configuration considering the vehicle type, weight, and speed. For more information on deflection, please reference the 'Product range & technical specifications' brochure.

If X-Protect is used alongside a pedestrian walkway (see 2.1 Intended use), the required walkway width in addition to the configuration's likely deflection must be ensured. (see local regulations for required width of walkways and escape routes, where applicable).

* Non-cracked concrete is required for full bolt/anchor performance.

4. Use

4.1 Pedestrian Gate

Self-closing gates should be installed so that they are inwards opening. 'Inwards' referring to the pedestrian side of a barrier. Self-closing gates shall be opened and closed using the door frame as a handle.

Do not slam self-closing gates as this may cause personal injury and damage to:

- parts of the guide and locating mechanisms of the gate
- the gate itself

4.2 Dock Gate

4.2.1 Intended use

The gate is intended only for vehicle access control. It must not be used as a pedestrian guardrail or fall-protection device.

The Dock Gate is intended to:

- Control and restrict vehicular access to specific areas.
- Provide a physical barrier capable of absorbing defined impact forces.

- Prevent unintended vehicle approach toward equipment, infrastructure, or designated zones.
- Act as a clear visual and physical indicator of controlled access.

This list does not imply that the controlled areas are inherently hazardous. If fall protection is required, it must be addressed separately through appropriate guarding.

4.2.2 General operating rules

The gate must be operated by one person only. Ensure no personnel are within the gate's movement zone. Do not operate the gate from both sides simultaneously.

4.2.3 Opening the Gate

- Confirm the gate's movement zone is clear of vehicles, pallets and personnel.
- Stand in the designated operator position.
- Grip the operating handle with both hands.
- Raise the gate smoothly in a controlled motion.
- Ensure the gate reaches its fully open position, and is stable, and that the locking pin is engaged.



4.2.4 Closing the Gate

- Stand in the designated operator position.
- Disengage the locking pin.
- Grip the handle with both hands.
- Lower the gate smoothly under full control.
- Ensure the gate is fully closed.

4.3 Sidestepping or climbing across industrial barriers

It is **forbidden to sidestep or climb across industrial barriers**. This may cause hazard to yourself and others, because a traffic route becomes accessible. Falling off a barrier may cause serious or even fatal injury.

4.4 Removal of industrial barriers

Industrial barriers are designed to keep vehicles out of a pedestrian area and pedestrians out of traffic routes and therefore **must not be removed or side-stepped**.

Where removal of a barrier or individual parts of it appears to be necessary, observe the following general safety information.

4.4.1 Roles concerning industrial barriers

Axelent is the manufacturer of the elements that form a barrier. However, we are not designing the warehouse or plant itself nor its safety concept. In virtually all cases Axelent is not responsible for determining the correct height, position and safe distance of the industrial barrier to a traffic route.

Therefore, Axelent cannot provide a universally applicable guideline for the removal of rails from barriers or complete barriers, as this is the responsibility of the company operating at the installation location.





5. Cleaning, Maintenance, Repair

5.1 Safety during cleaning, maintenance and repair



WARNING
Hazard from collision with and running over by vehicles.

Serious or even fatal injury may be the consequences. Be sure to work on industrial barriers only if adjacent traffic is safely stopped.



WARNING
Fall hazard.

Serious or fatal injury may be the consequence of a fall from height. The Dock Gate is intended only for vehicle access control. It must not be used as a pedestrian guardrail or fall protection device.



WARNING
Hazard from dropping of heavy parts during assembly, maintenance or repair or dismantling.

Serious bruises or broken limbs may be the consequences. Wear safety shoes.



WARNING
Hazard from metal swarf or shavings.

Cuts and serious eye injury may be the consequences. Wear eye protection and gloves.

5.2 Maintenance schedule

Interval	Activity	Details	To be done by?
Quarterly	Added activity	Confirm the gate can be operated by one person without excessive force. Inspect hinges, pins, and pivot points for wear or damage. Check gas springs - No oil residue or visible leakage.	Machine fitter, industrial mechanic
Quarterly	Lubrication	Lubricate all gate hinges with a grease designed for the purpose.	Machine fitter, industrial mechanic
Quarterly	Check for correct installation torque	Check that the correct torque is applied to all fixings.*	Machine fitter, industrial mechanic
Yearly	Visual inspection	Check the powder-coating for damage and signs of corrosion. Damaged lacquering/coating should be repaired with suitable lacquering. Remove any rust and apply primer before relacquering. Check that all bolts fastening the posts to the floor and the nut securing the top washer to the post extrusions are securely tightened. This is especially important if the barrier is subjected to vibration or dramatic changes in atmospheric conditions. Check all plastic parts visually for signs of degradation: decolouring, embrittlement, cracks etc. Damaged plastic parts should be replaced promptly as they may compromise the system performance.	Machine fitter, industrial mechanic
Yearly	Cleaning	With water and household detergent, do not use aggressive liquids, solvents or solvent containing detergents.	User, cleaning staff
Upon every impact	Check for damage and deformation	Check all metal parts for any signs of impact or deformation. Replace internal post rods with signs of stretching or displacement from the normal position. Also replace any damaged rails, connection parts and extruded post parts.	Machine fitter, industrial mechanic
Every 5 years	Check integrity of entire system	Depending on environment conditions, critical components within a X-Protect may need to be replaced to retain maximum performance.	

* If the installation is in an environment subject to abnormal vibration and/or dramatic changes in atmospheric conditions the frequency of inspections should be increased accordingly.

5.3 Replacing a barrier

Before allowing traffic to return to the area adjacent to the industrial barrier, be sure to check the following:

- completeness of the industrial barrier in accordance with the assembly drawings
- proper function of all self-closing gates.

6. Troubleshooting

Issue	Possible cause	Action
Dock Gate is heavy or difficult to lift	Gas spring wear or hinge contamination	Clean, lubricate, or replace gas springs/hinges
Dock Gate drops quickly	Gas spring failure	Replace gas springs immediately
Excessive movement at base of system	Loose anchors or damaged floor	Re-torque anchors or re-install
Visible deformation of system	Impact event	Remove from service and inspect

7. Dismantling and disposal

7.1 Dismantling

Before dismantling industrial barriers completely, cease all traffic activity in the adjacent area and block access to it. Also observe the following warning messages.



WARNING
Hazard from dropping of heavy parts during assembly, maintenance or repair or dismantling. Serious bruises or broken limbs may be the consequences. Wear safety shoes.



WARNING
Hazard from metal swarf or shavings. Cuts and serious eye injury may be the consequences. Wear eye protection and gloves.

7.2 Disposal

Separate the plastic parts from the steel parts and dispose of both separately. Turn the materials over to professional recycling, observing the regulations applicable in your local community.

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