elkosta PERIMETER PROTECTION

Produced by elkosta.com

# elkosta High Security Range

## Keep threats away!





SiS

Smart Intrusion Solutions


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CTS
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crash
elkosta

# CONTENT

## elkosta - useful facts



## Vehicle Security Barriers

## elkosta High Security - quality and tradition since 1951

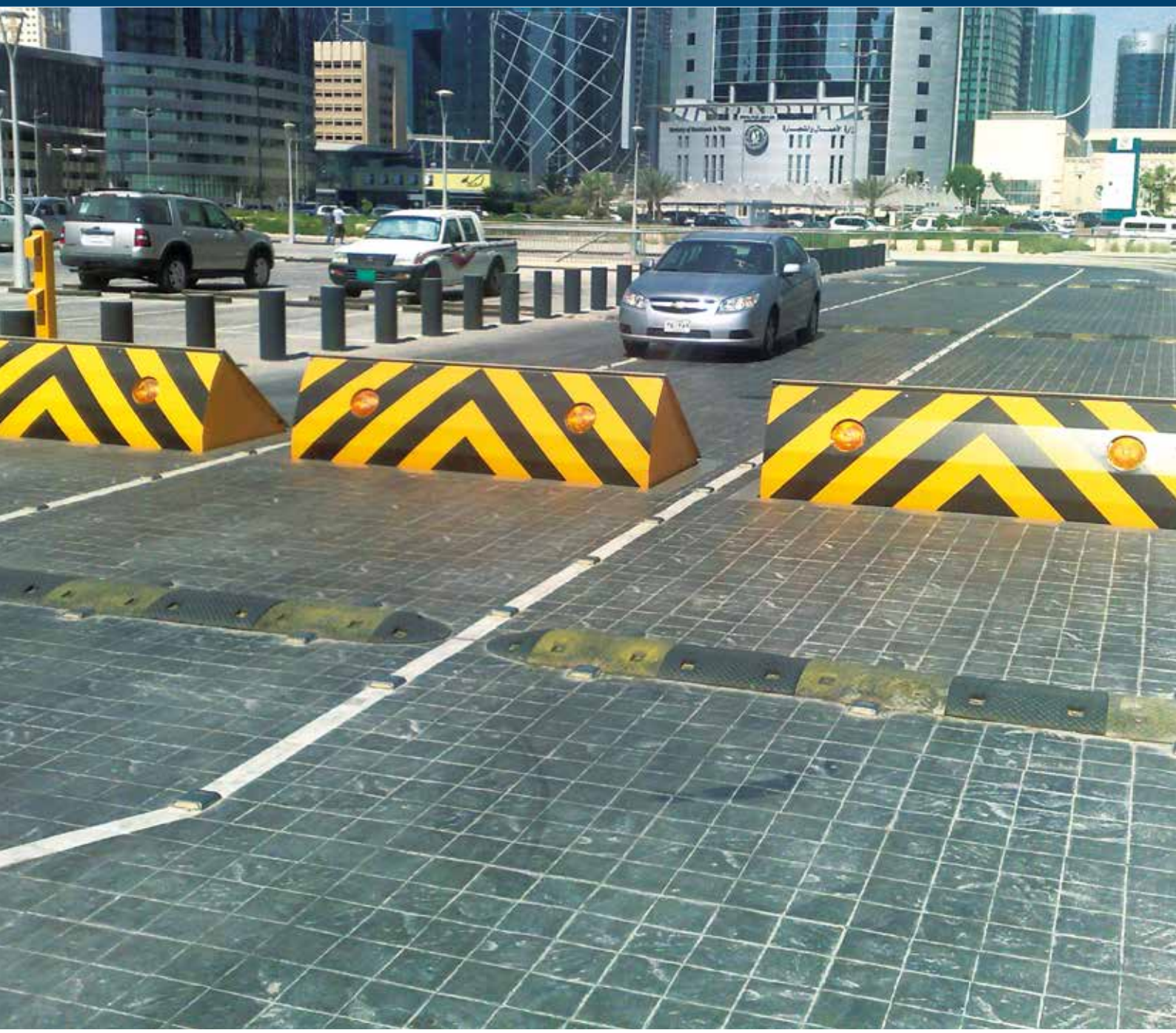
elkosta stands for quality products in high security areas all over the world. Founded in 1951, elkosta has proven itself over decades within the security market! During this period the brand has become one of the most successful brands worldwide. Not only the world's famous triangular post with its distinctive triangular profile but also the elkosta High Security products impress with pioneering technical design and reliability.

## Reliable High Security products made in Germany

Our High Security products are made in Germany and certainly the best choice for a comprehensive safety concept in critical environments! The state-of-art portfolio ranges from power- or hand-operated vehicle barriers, crash gates and bollards. Along with many other innovations, elkosta offers the shallowest foundations in the world and therefore can implement security solutions in environments that others cannot enter.

## Research and development

elkosta has always put great emphasis on continuous research and development to constantly improve our products and services. We conduct regular training of staff, partners and distributors to ensure our professional competence and expertise in all areas. Our quality products are on the cutting edge of technology. Not at least for these reasons, our innovative product portfolio is considered to be the trend for the (high) security market.



## Our Vehicle Security Barriers

- Movable and fixed bollards
- Tracked Gates
- Wedge Barriers
- Barrier Lift Systems
- Road Blockers
- Tyre Killers

## Typical application areas

- Embassies
- Military
- Ministries
- Banks
- City centres
- Industrial plants
- Data processing centres
- Other critical infrastructures

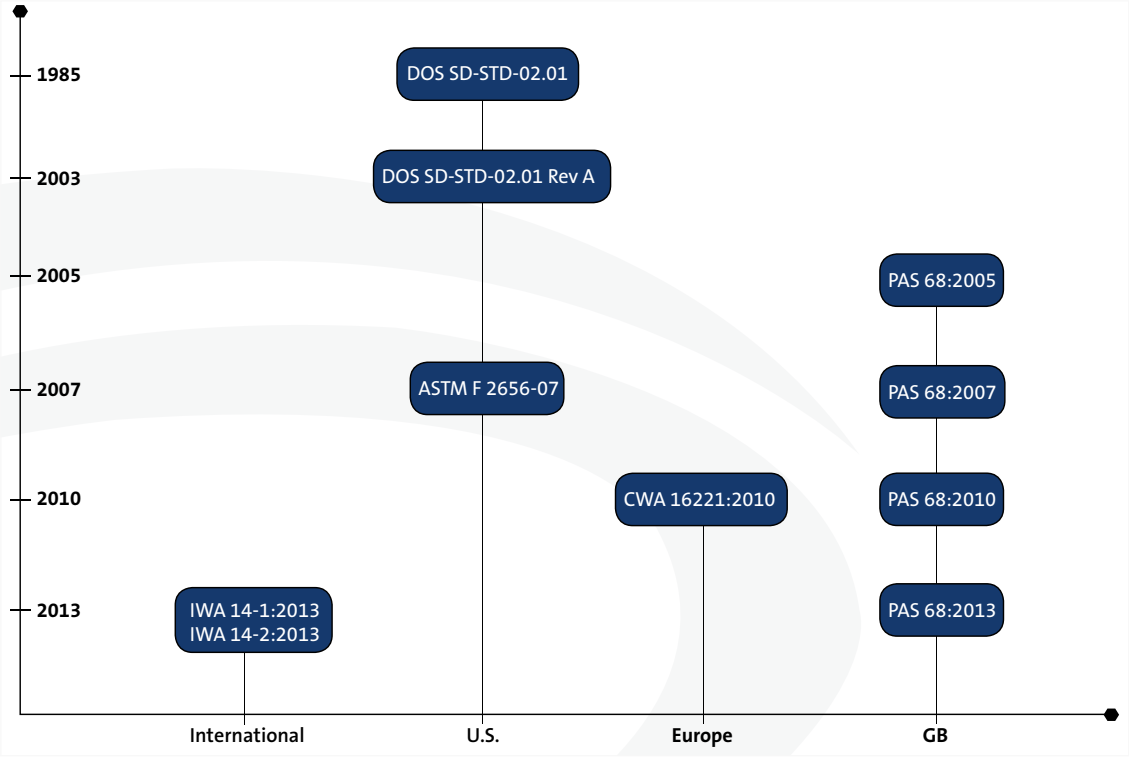
## Real crash tests for real security

Today the high security market is facing increasing competition from manufacturers of non-crash tested products. Evidence of compliance with required crash rating is often given by presenting a self-certification on the basis of static calculations instead of a valid crash test certification. But only a real crash test can ultimately prove the resistance to the applied impact load and thus ensure compliance as per the required level of security!

## Crash-rated anti-terrorist equipment

As trust in our products is as important as their quality, all elkosta high security vehicle barriers are certified to the highest level in accordance with PAS 68 (7.5 t at 80km/h) or ASTM F2656-07/ DOS (6.8 t at 50mph) or IWA 14-1 (7.2 t at 80km/h). Some bollard types are also tested at a lower level (K4, M30). Please find an overview of the international crash test standards below.

## CRASH TEST STANDARDS



| Product | Certifications |
|---|---|
| **Bollard K4 SP 275-900** (discontinued) | DOS: K4/L3<br>PAS 68 V/7500[N2]/64/90:3.0/5.8 |
| **Bollard M30** | PAS 68 V/7500[N2]/48/90:0.0/0.0<br>IWA 14-1 V/7200[N2A]48/90:0.4 |
| **Fixed Bollard M30** | Vehicle impact simulation M30-P1 (triple unit) |
| **Bollard K12 SP 275-1100** (discontinued) | DOD: K12/L2<br>PAS 68 V/7500[N3]/80/90:3.3/17.7 |
| **Bollard M50**<br>Enables pedestrians to pass through unobstructed while effectively stopping heavy vehicles at high speed. | ASTM F 2656-07 M50-P2<br>PAS 68 V/7500[N3]/80/90:5.2/7.8<br>IWA 14-1 V/7200[N3C]/80/90:5.5 |
| **Fixed Bollard M50** | ASTM F2656-07 M50-P1 (triple unit) |
| **Wedge Barrier K12**<br>Effectively closes off the road within 3 seconds, decreasing to 1 second via optional accumulator. Also suitable for installation in city centres due to shallow foundation of only 400 mm. | DOS: K12/L3<br>PAS 68 V/7500[N3]/80/90:0.0/18.0<br>tested with 4 m blocking width |
| **Wedge Barrier K12 with safety skirt**<br>Effectively blocks the road within 3 seconds, decreasing to 1 second via optional accumulator. Also suitable for installation in city centres due to shallow foundation of only 400 mm. | DOS: K12 listed<br>PAS 68 D/7500/80/90/1852 |
| **Wedge II with or without safety skirt**<br>Effectively blocks the road within 3 seconds, decreasing to 1 second via optional accumulator. Also suitable for installation in city centres due to shallow foundation depth of only 300 mm. | PAS68 V/7500[N3]/80/90:0.0/20.7<br>IWA 14-1 V/7200[N3C]/80/90:0.0<br>tested with 4 m blocking width |
| **Road Blocker DSP K12**<br>Blocks the road within 2-4 seconds and is designed to remain functional after impact. | DOS: K12/L3<br>PAS 68 V/7500[N3]/80/90:0.0/18<br>tested with 4 m blocking width |
| **Tracked Sliding Gate TG M50**<br>A solid gate that closes off the site and effectively stops heavy vehicles travelling at high speed. | ASTM F 2656-07 M50-P1<br>PAS 68 V/7500[N3]/80/90:0.0/4.3<br>tested with 7 m clear opening |
| **Barrier Lift System BLS K4**<br>**Barrier Lift System BLS K12**<br>A boom barrier that quickly rises out of the ground and blocks the entire width of the road within 5 seconds. Completely destroys the chassis of a vehicle trying to gain access by force. | DOS: K4/L3<br>upto 6 m: DOS: K12/L3<br>upto 10 m: DOD: K12/L2<br>PAS 68 V/7500[N3]/80/90:0.0/31.0<br>tested with 6 m clear opening |
| **Tyre Killer**<br>Tyre killer with pointed spikes that effectively block a road within 2 seconds and completely destroy the tyres, axles and suspension of a vehicle trying to gain access by force. | No certificates! |










## Highest corrosion protection with elkosta TRI-PROTECT© - coating

Among others we provide you with the elkosta TRI-PROTECT® process, an additional quality feature of our products - of course according to the applicable DIN standards. Also in terms of environmental compatibility our solvent-free applications achieve plus points!

## elkosta bollards - high security with blocking effect

elkosta offers from its bollard product family a wide range of solutions for entries, where pedestrians may enter unhindered but vehicle traffic is to be stopped. Due to their attractive designs the bollards can be used in inner city surroundings for city security and traffic management. Applications can range from temporary closing of city centres, but still allowing vehicles with permission to pass, to real estate properties with high security needs. elkosta products are widely used for military sites, governmental buildings, embassies, banks and city centres.

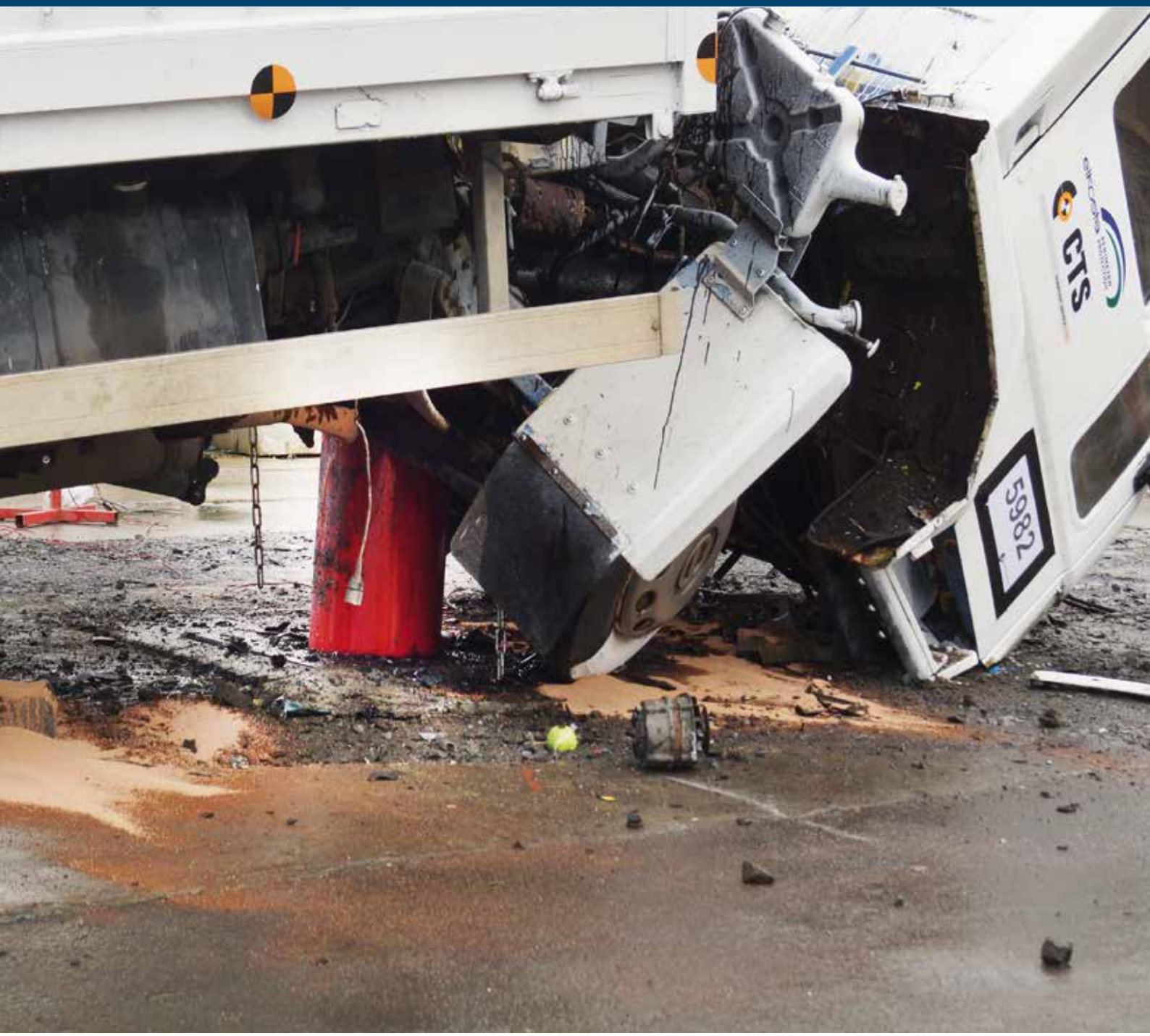
## Different types and many features

The crash bollard M30 is designed for high security applications and has a height of 1000 mm. The bollard M50 is able to take an even higher impact load and has a height of 1100 mm. All elkosta bollards can be supplied with different control features or can be integrated into existing security systems. For user safety optical and acoustic warning devices as well as induction loops and photo beam systems are available.

| | M30 rating | M50 rating |
|---|---|---|
| elkosta movable bollards | PAS 68 V/7500[N2]/48/90:0.0/0.0<br>IWA 14-1 V/7200[N2A]48/90:0.4 | ASTM F 2656-07 M50-P2<br>PAS 68 V/7500[N3]/80/90:5.2/7.8<br>IWA 14-1 V/7200[N3C]/80/90:5.5 |
| elkosta fixed shallow mounted bollards | Vehicle impact simulation M30 - P1<br>(Triple unit) | ASTM F 2656-07 M50 - P1<br>(Triple unit) |

## Maximum power transmission and working reliability

Crash bollards share a rigid steel tube as blocking element and are available in different sizes. The lowered bollards adhere to bridge class SLW 60, so even the heaviest wheeled vehicles can drive over them safely. All movable bollards are equipped with an integrated hydraulic drive. The advantages of this drive technology are maximum power transmission and working reliability under most adverse weather conditions.




## elkosta bollards at a glance

- Vehicle crash-tested to internationally accepted standards
- Robust construction with heavy gauge material and high tensile steel
- Fast operating times
- Easy installation due to ready-to-install bollard unit and separate control box
- Shallow foundation
- Optional Emergency Fast Operation (EFO)
- Installation in all climate zones possible
- Reliable operation and low maintenance
- Operation of up to five bollards with one common control unit
- Traversable in lowered position according to bridge class SLW 60
- Blocking element with optional top lighting
- Override facility for manual lowering
- Optional accumulator for emergency operation during power failure

## elkosta Tracked Gate M50 - designed to stop all threats

The unique design of the elkosta Tracked Gate M50 affords impact protection and is therefore ideal for all critical infrastructure applications ranging from correctional facilities, critical defence sites, courts, airports, refineries, embassies and many other designated high risk areas. The gate boasts a tracked design with unrivalled reliability and high speed opening and closing times that are impossible to achieve with other drive principles.

## Easy adaption to site-specific requirements

The TG M50 can be adapted in height and fitted with anti-climbing devices to comply with site-specific requirements. It can be utilisied as vehicle barrier. The TG M50 has been the subject of rigorous design appraisal and testing regimes by Government agencies in the United States. It has been successfully crash tested according to ASTM F 2656-07 and PAS 68. Further information regarding certifications on page 7.

## Total solution for secure vehicle access points

The TG M50 system is fully compatible with all access control systems and its advanced design and technology combined with its application flexibility, provides a total solution for all perimeter security access points vulnerable to hostile vehicle attacks.

## elkosta TG M50 at a glance

- Robust construction with heavy gauge material and high tensile steel
- Vehicle crash-tested to internationally accepted standards
- Shallow foundation
- Reliable operation and low maintenance
- Variable gate heights, infills and anti-climbing devices
- Installation in all climate zones possible
- Override facility for manual operation

## elkosta Wedge barriers - security for highly sensitive entry points

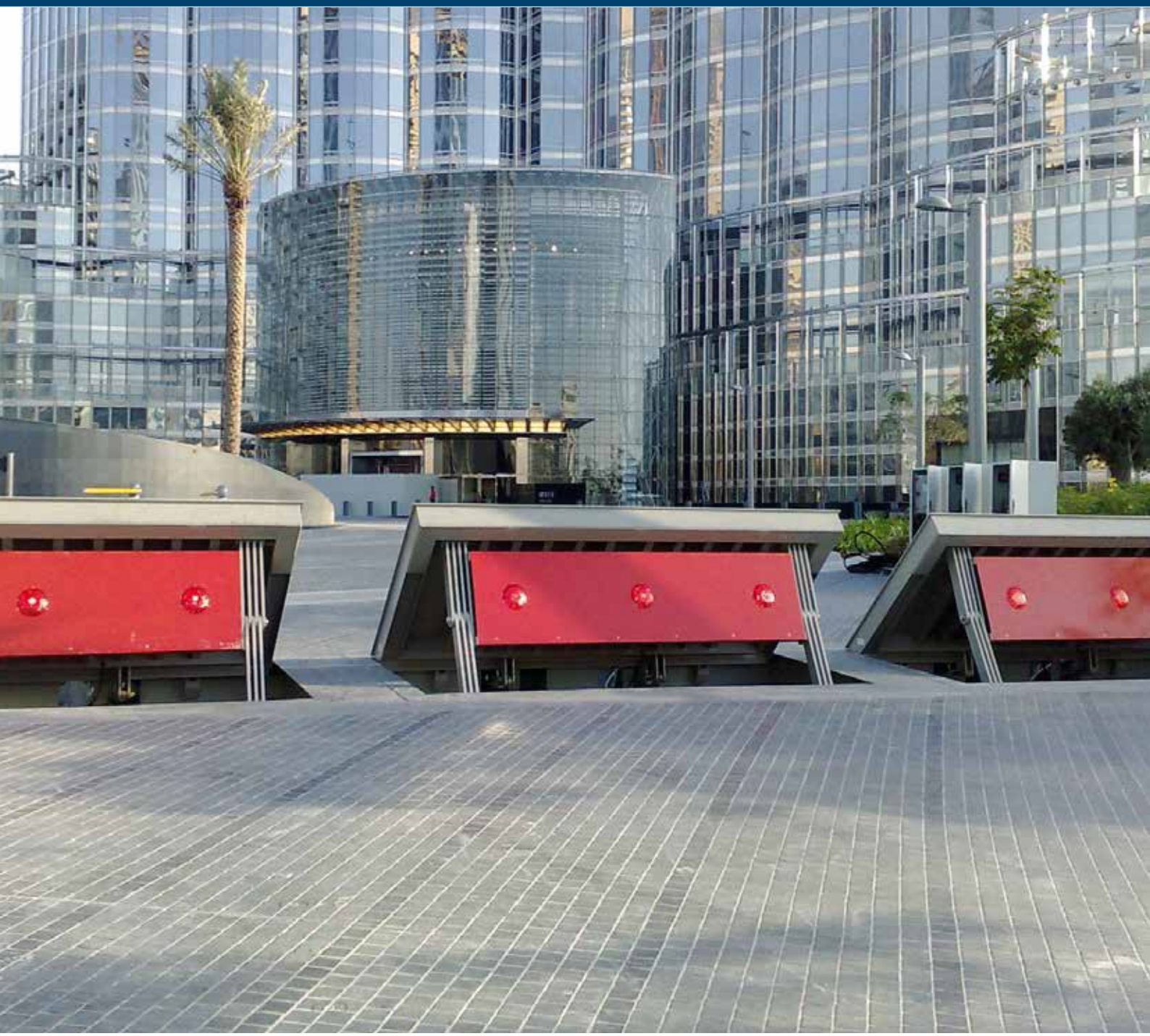
elkosta Wedge Barriers offer maximum security against unauthorised wheeled vehicles of all sizes and weights for highly sensitive entry points. The Wedge Barrier K12 and the new Wedge II are designed to guarantee the full level of security and can be installed as a single unit or in combination with other elkosta products in order to realise a sluice arrangement forming a vehicle check point. For information regarding certifications please check the overview on page 7.

## elkosta Wedge II - lowest foundation thickness in the world

With its decreased installation depth and foundation footprint combined with the lowest foundation thickness in the world - only 300 mm - the elkosta Wedge II reduces installation costs significantly and allows installation in areas where foundation depths are limited due to underground utilities. Starting and lifting power for raising of blocking element due to energy stored in pressure springs have been optimised as well. This all means lower costs for higher security. The Wedge II is available with or without skirt - one version for all requirements!


## Wedge Barrier K12 - eye-catching road barrier

The Wedge Barrier K12 is the previous model of the Wedge II. Due to an optional warning plate with flashing lights and its eye catching warning colour(s) the blocking segment is clearly visible to approaching vehicles. In the lowered position the Wedge Barrier K12 is absolutely unobtrusive and flush with the road surface. The Wedge Barrier K12 comes along with a shallow foundation of only 400 mm. A closed version with safety skirt at a reduced height of 1000 mm is also available.



## elkosta Wedge Barriers at a glance

- Vehicle crash-tested to internationally accepted standards
- Robust construction with heavy gauge material and high tensile steel
- Fast operating times
- Easy installation due to ready-to-install Wedge Barrier unit and separate drive cabinet
- Shallow foundation
- Optional Emergency Fast Operation (EFO)
- Reliable operation and low maintenance
- Traversable in lowered position according to bridge class SLW 60
- Manual hand pump facility
- Optional accumulator for emergency operation during power failure

## elkosta Barrier Lift System - reliable break-through prevention

The crash rated elkosta Barrier Lift System BLS offers maximum security for highly sensitive entry or exit points against unauthorised vehicles attempting to break through, by destroying the chassis completely. Even heavy vehicles with high speeds are stopped reliably. It can be utilised individually or in combination with other elkosta products in order to achieve a sluice arrangement forming a secure vehicle check point.


## Massive barrier for different application areas

Typical areas of application are banks, detention centres, power stations, industrial or military premises, airports and other high security zones. The elkosta BLS fulfils the highest safety level! Thanks to its high-quality material and the proven elkosta TRI-PROTECT® long-term corrosion protection, installation in all climate zones is possible. Furthermore it only requires minimal excavation across the roadway.

## Secured entries even for the heaviest vehicles

The crash beam of the BLS raises very quickly to the upper position and blocks the road with variable heights up to max. 1100 mm (crash beam centre) and starts protecting after 1 second. Due to the warning colour the elkosta BLS is clearly visible. In the lowered position the elkosta BLS is completely unobtrusive and flush with the road surface. It corresponds to bridge class SLW 60, so that also the heaviest vehicles can use the secured entry.

## elkosta Barrier Lift System at a glance

- Vehicle crash-tested to internationally accepted standards
- Robust construction with heavy gauge material and high tensile steel
- Reliable operation and low maintenance
- Short operating time, protection starts immediately
- Traversable in lowered position according to bridge class SLW 60
- Installation in all climate zones possible
- Crash beam in optional warning colour
- Manual hand pump facility
- Optional accumulator for emergency operation during power failure

## elkosta Road Blocker DSP© K12 - massive blocking effect

elkosta Road Blockers DSP® K12 offer maximum security against unauthorised vehicles of all sizes and weights for highly sensitive entry points. elkosta Road Blockers DSP® K12 are designed to guarantee the full level of security. They were successfully crash tested according to DOS SD-STD-02.01 Rev. A 03/2003 and PAS 68 with a 7.5 ton truck travelling at 80 km/h. The very first impact test was conducted by the TÜV (German Technical Inspectorate) more than 25 years ago.

## Optimal security solution for vehicle check points

The elkosta Road Blockers DSP® K12 can be installed as single unit or in combination with other elkosta products to form a sluice for vehicle check points. In operation the heavy blocking segment raises in approximately 5 seconds and blocks the road with a height of 1000 mm. The blocking segment is clearly visible due to the flashing lights and optional warning stripes thus ensuring the stopping of approaching vehicles in good times.

## High security with traffic functionality

In the lowered position the road blocker is absolutely unobtrusive, flush with the road surface and capable of supporting wheeled vehicles with a load bearing capacity up to bridge class SLW 60. The raising time can be reduced to approximately 2 seconds using an optional accumulator for Emergency Fast Operation (EFO).


## elkosta Road Blocker DSP© K12 at a glance

- Vehicle crash-tested to internationally accepted standards
- Robust construction with heavy gauge material and high tensile steel
- Fast operating times
- Easy installation due to ready-to-install road blocker unit and separate drive cabinet
- Optional Emergency Fast Operation (EFO)
- Installation in all climate zones possible
- Reliable operation and low maintenance
- Traversable in lowered position according to bridge class SLW 60
- Blocking segment with flashing lights
- Manual hand pump facility
- Optional accumulator for emergency operation during power failure

## elkosta Tyre Killer - visually strong deterrent

The elkosta Tyre Killer offers a high degree of protection against unauthorised entry or exit of hostile motor vehicles. If a vehicle attempts to break through, its tyres and axles will be destroyed and further progress will certainly be prevented. Typical areas of application are: embassies, industrial plants, power stations, parking lots, car parks, airports, military sites and private properties.

## Solid spikes with guaranteed stopping effect

elkosta Tyre Killers can be used individually or in combination with other elkosta products to form a sluice for vehicles. The spikes are clearly visible thanks to garish warning colours thus ensuring the stopping of approaching vehicles in good time. The solid sharp spikes will raise in approximately 2 seconds and block the road with a height of 450 mm.

## Suitable for limited depth due to underground utilities

In its lowered position the elkosta Tyre Killer is completely unobtrusive, flush with the road surface and capable of supporting wheeled vehicles with a load bearing capacity up to bridge class SLW 60. The "plug and play" elkosta Tyre Killer is characterised by a shallow installation depth which makes it particularly suitable for locations with limited available depth due to underground utilities.

## elkosta Tyre Killer at a glance

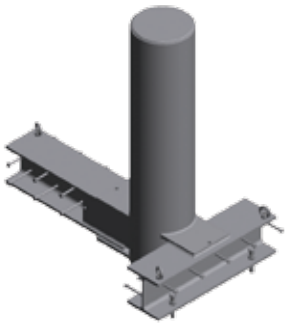
- Visually deterrent spikes in warning colour
- Fast operating times
- Robust construction with heavy gauge material and high tensile steel
- Traversable in lowered position according to bridge class SLW 60
- Manual hand pump facility
- Easy installation due to ready-to-install Tyre Killer unit and separate drive cabinet
- Installation in all climate zones possible
- Optional accumulator for emergency operation during power failure

## BOLLARDS

### Movable Bollard M50, 7500 kg @ 80 km/h (1852 kJ)

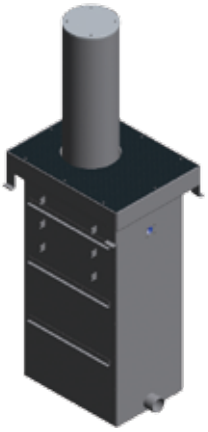
| | |
|---|---|
| Certification: | ASTM F 2656-07 M50-P2<br>PAS 68 V/7500[N3]/80/90:5.2/7.8<br>IWA 14-1 V/7200[N3C]/80/90:5.5 |
| Blocking height: | 1100 mm |
| Diameter: | 355 mm |
| Operating time: | Raising: approx. 5-6 sec., lowering: approx. 3-4 sec. |
| EFO (optional): | approx. 2-3 sec. |
| Drive unit: | Integrated in blocking element |
| Installation depth: | 500 mm - 1850 mm incl. 100 mm road covering |
| Options: | Stainless steel sleeve, top lighting, EFO + RO1 |

### Fixed shallow mounted Bollard M50, 15000 lbs @ 50mph (1699 kJ)



| | |
|---|---|
| Certification: | ASTM F 2656-07 M50/P1 (triple unit) |
| Blocking height: | 1100 mm |
| Diameter: | 355 mm |
| Installation depth: | 500 mm incl. 100 mm road covering |
| Options: | Stainless steel sleeve, top lighting |

### Movable Bollard M30, 7500 kg @ 48 km/h (667 kJ)



| | |
|---|---|
| Certification: | PAS 68:2013 V/7500[N2]/48/90:0.0/0.0<br>IWA 14-1:2013 V/7200[N2A]/48/90:0.4 |
| Blocking height: | 1000 mm |
| Diameter: | 355 mm |
| Operating time: | Raising: approx. 5-6 sec., lowering: approx. 3-4 sec. |
| EFO (optional): | approx. 2-3 sec. |
| Drive unit: | Mounted to installation frame |
| Installation depth: | 500 mm - 1800 mm incl. 100 mm road covering |
| Options: | Stainless steel sleeve, top lighting, EFO + RO1 |

### Fixed shallow mounted Bollard M30, 15000 lbs @ 30mph (611 kJ)

| | |
|---|---|
| Certification: | Vehicle Impact Simulation M30/P1 (triple unit) |
| Blocking height: | 1000 - 1100 mm |
| Diameter: | 355 mm |
| Installation depth: | 500 mm incl. 100 mm road covering |
| Options: | Stainless steel sleeve, top lighting |

## TRACKED GATES

### Tracked Gate M50 ASTM version

| | |
|---|---|
| Certification: | ASTM F2656-07 M50/P1 tested with 7 m CWO |
| Gate height: | 2000 mm - 3000 mm |
| Clear opening width: | 3000 mm - 7000 mm in 1000 mm increments |
| EFO (optional): | up to 0.8 m/s |
| Operating speed: | up to 0.4. m/s |
| Drive unit: | Mounted on compensating frame |
| Installation depth: | 500 mm incl. 100 mm road covering |
| Options: | Anti-climbing device, type of gate infill |

### Tracked Gate M50 PAS version

| | |
|---|---|
| Certification: | PAS 68 V/7500[N3]/80/90:0.0/4.3 tested with 7 m CWO |
| Gate height: | 2000 mm - 3000 mm |
| Clear opening width: | 3000 mm - 7000 mm in 1000 mm increments |
| EFO (optional): | up to 0.8 m/s |
| Operating speed: | up to 0.4. m/s |
| Drive unit: | Mounted on compensating frame |
| Installation depth: | 500 mm incl. 100 mm road covering |
| Options: | Anti-climbing device, type of gate infill |

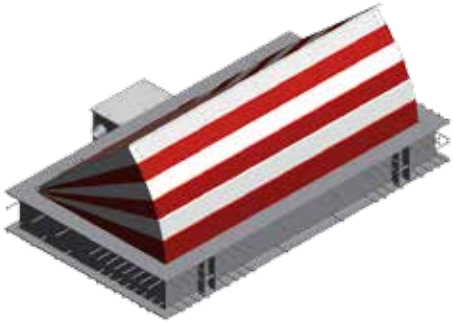
## WEDGE BARRIERS

### Wedge II with optional skirt

| | |
|---|---|
| Certification: | PAS 68 V/7500[N3]/80/90:0.0/20.7<br>IWA 14-1 V/7200[N3C]/80/90:0.0<br>tested with 4 m blocking width |
| Blocking height: | 1000 mm |
| Blocking width: | 2000 mm - 4000 mm in 500 mm increments |
| Operating time: | Raising: approx. 3.5 sec., lowering: approx. 3.5 sec. |
| EFO (optional): | approx. 1 sec. |
| Drive unit: | Installed in separate drive cabinet |
| Installation depth: | 300 mm incl. 100 mm road covering |
| Options: | Safety skirt, LED strip lighting, EFO + RO3 |

### Wedge K12 with skirt

| | |
|---|---|
| Certification: | PAS 68 D/7500/80/90/1852 |
| Blocking height: | 1000 mm |
| Blocking width: | 2000 mm - 4000 mm in 500 mm increments |
| Operating time: | Raising: approx. 3.5 sec., lowering: approx. 3.5 sec. |
| EFO (optional): | approx. 1 sec. |
| Drive unit: | Installed in separate drive cabinet |
| Installation depth: | 400 mm |
| Options: | LED strip lighting, EFO + RO3 |

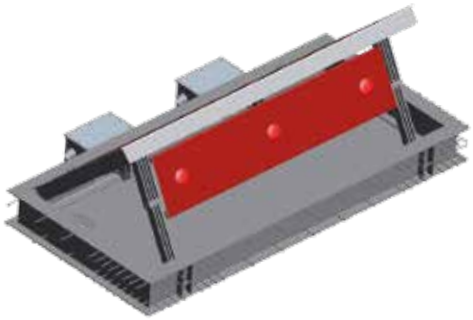


# SPECIFICATIONS

## WEDGE BARRIERS

### Wedge K12 with optional warning plate

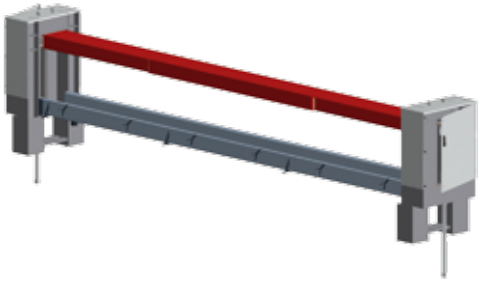
| | |
|---|---|
| Certification: | PAS 68 V/7500[N3]/80/90:0.0/18.0<br>DOS SD-STD-02.01 Rev. A 03/2003 K12/L3<br>tested with 4 m blocking width |
| Blocking height: | 1200 mm |
| Blocking width: | 2000 mm - 4000 mm in 500 mm increments |
| Operating time: | Raising: approx. 3.5 sec., lowering: approx. 3.5 sec. |
| EFO (optional): | approx. 1 sec. |
| Drive unit: | Installed in separate drive cabinet |
| Installation depth: | 400 mm |
| Options: | Warning plate with LED warning lights, EFO + RO3 |



## BARRIER LIFT SYSTEMS

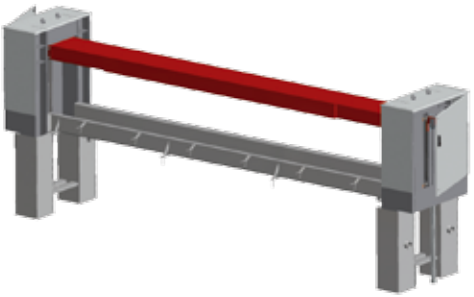
### Barrier Lift System K12 10 m

| | |
|---|---|
| Certification: | DOD SD-STD-02.01 Rev. A 03/2003 K12/L2<br>tested with 10 m CWO |
| Blocking height: | 1100 mm |
| Blocking width: | 6000 mm - 10000 mm in 1000 mm increments |
| Operating speed: | Raising: approx. 0.17 m/s., lowering: approx. 0.20 m/s. |
| Drive unit: | Installed in separate drive cabinet |
| Installation depth: | 510 - 1210 mm incl. 310 mm road covering |
| Options: | RO1 |



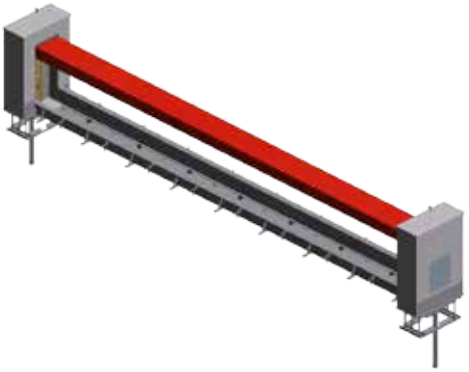
### Barrier Lift System K12 6 m

| | |
|---|---|
| Certification: | PAS 68 V/7500[N3]/80/90:0.0/31.0<br>DOS SD-STD-02.01 Rev. A 03/2003 K12/L3<br>tested with 6 m CWO |
| Blocking height: | 1100 mm |
| Blocking width: | 3000 - 6000 mm in 1000 mm increments |
| Operating speed: | Raising: approx. 0.17 m/s., lowering: approx. 0.20 m/s. |
| Drive unit: | Installed in separate drive cabinet |
| Installation depth: | 1100-1910 mm incl. 310 mm road covering |
| Options: | RO1 |



### Barrier Lift System K4

| | |
|---|---|
| Certification: | DOS SD-STD-02.01 Rev. A 03/2003 K4/L3<br>tested with 9 m CWO |
| Blocking height: | 1100 mm |
| Blocking width: | 3000 mm - 9000 mm in 500 mm increments |
| Operating speed: | Raising: approx. 0.17 m/s., lowering: approx. 0.20 m/s. |
| Drive unit: | Installed in separate drive cabinet |
| Installation depth: | 1110 - 1910 mm incl. 310 mm road covering |
| Options: | RO1 |



## ROAD BLOCKERS

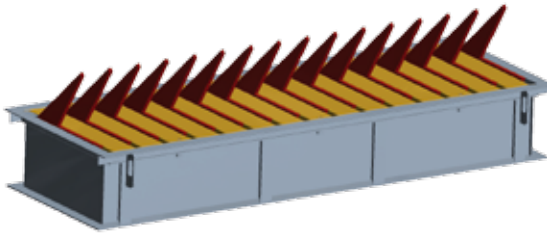
### Road Blocker DSP K12©

| | |
|---|---|
| Certification: | PAS 68 V/7500[N3]/80/90:0.0/18.0 |
| | DOS SD-STD-02.01 Rev. A 03/2003 K12/L3 |
| Blocking height: | 1000 mm |
| Blocking width: | 2000 mm - 4000 mm in 500 mm increments |
| Operating time: | Raising: approx. 5 sec., lowering: approx. 4 sec. |
| EFO (optional): | approx. 2 sec. |
| Drive unit: | Installed in separate drive cabinet |
| Installation depth: | 1550 mm |
| Options: | EFO + RO1 |

## TYRE KILLERS

### Tyre Killer

| | |
|---|---|
| Blocking height: | 450 mm |
| Blocking width: | 2000 mm - 6000 mm |
| Operating time: | Raising: approx. 2 sec., lowering: approx. 2 sec. |
| Installation depth: | 900 mm |
| Options: | RO3 |



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