



PPG

## High Security Range

Certified products made in Germany!



**GUNNEBO®**

## Reliable High Security products made in Germany

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







## Local partner with global competence

As a manufacturer of products and systems for perimeter security we offer our customers solutions for a variety of areas. With over 66 years of experience,

companies in five countries and worldwide distributors it's our aim to offer everything from one source - from individual products through to complete

security concepts. And we meet the highest demands - this is our promise to our customers!



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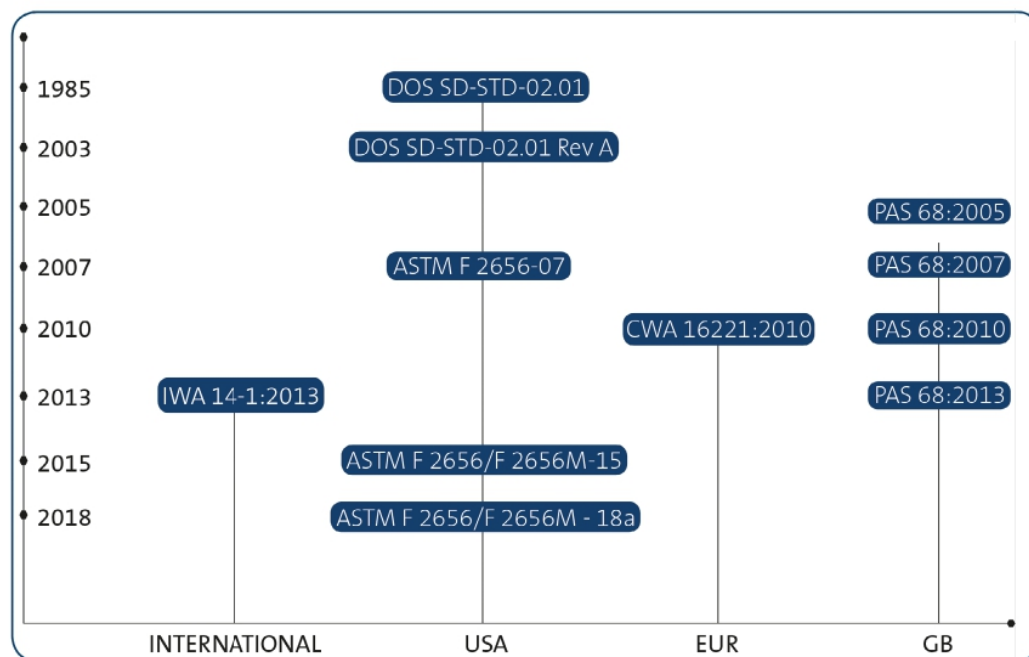
## Real crash tests for real security

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!

## International crash-test programme







## Crash-rated anti-terrorist equipment













PPG High Security products with British standard PAS 68 (7.5 t at 80 km/h) or American standard ASTM F 2656/ DOS (6.8 t at 80 km/h) or IWA 14-1 (7.2 t at 80 km/h). Some bollard types reliably prevent unauthorised or violent vehicle access. All products are certified to the highest level in accordance

are also tested at a lower level (K4/M30). Please find a complete overview of all of our product certifications on the next page.



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## OVERVIEW CERTIFIED ANTI-TERRORIST EQUIPMENT

PRODUCT	CERTIFICATION	
<b>Bollard K4 SP 275-900</b> (discontinued)	DOS: K4/L3 PAS 68 V/7500[N2]/48/90:0.0/0.0 PAS 68 V/7500[N2]/64/90:3.0/5.8	
<b>Bollard M30</b>	PAS 68 V/7500[N2]/48/90:0.0/0.0 IWA 14-1 V/7200[N2A]48/90:0.4	
<b>Fixed Bollard M30</b>	Vehicle impact simulation M30/P1 (triple unit)	
<b>Bollard K12 SP 275-1100</b> (discontinued)	DOD: K12/L2 PAS 68 V/7500[N3]/80/90:3.3/17.7	
<b>Bollard M50</b> Enables pedestrians to pass through unobstructed while effectively stopping heavy vehicles at high speed.	ASTM F 2656-07 M50/P2 PAS 68 V/7500[N3]/80/90:5.2/7.8 IWA 14-1 V/7200[N3C]/80/90:5.5	
<b>Fixed Bollard M50</b>	PAS 68 V/7500[N3]/80/90:0.4/15.4 IWA 14-1 V/7200[N3C]/80/90:0.8 ASTM F2656-07 M50/P1 (triple unit)	
<b>Wedge Barrier K12</b> 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 PAS 68 V/7500[N3]/80/90:0.0/18.0 tested with 4 m blocking width	
<b>Wedge Barrier K12 with safety skirt</b> 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 PAS 68 D/7500/80/90/1852	
<b>Wedge II with or without safety skirt</b> 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.	PAS 68 V/7500[N3]/80/90:0.0/20.7 IWA 14-1 V/7200[N3C]/80/90:0.0 tested with 4 m blocking width ASTM F2656-15 M50/P1 tested with 2 m blocking width	
<b>Road Blocker DSP® K12</b> Blocks the road within 2-4 seconds and is designed to remain functional after impact.	DOS: K12/L3 PAS 68 V/7500[N3]/80/90:0.0/18 tested with 4 m blocking width	
<b>Tracked Sliding Gate TG M50</b> A solid gate that closes off the site and effectively stops heavy vehicles travelling at high speed.	ASTM F 2656-07 M50/P1 PAS 68 V/7500[N3]/80/90:0.0/4.3 tested with 7 m clear opening	
<b>Quick Folding Gate EntraQuick® PU30</b> Fast operating single leaf quick folding gate with self-locking arrestor system designed to prevent forceful entry of unauthorised vehicles.	Vehicle impact simulation PU30/P1	
<b>Barrier Lift System BLS K4/Barrier Lift System BLS K12</b> 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 upto 6 m: DOS: K12/L3 upto 10 m: DOD: K12/L2 PAS 68 V/7500[N3]/80/90:0.0/31.0 tested with 6 m clear opening	
<b>Tyre Killer</b> 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!	
<b>Tyre Killer SHARK</b> Tyre killer with pointed spikes that effectively block a road within less than 1 second and completely destroy the tyres of a vehicle trying to gain access by force.	No certificates!	





## Our vehicle security barriers

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

## Typical application areas

- Airports
- Communities & public places
- Embassies & governmental buildings
- Financial sector
- Harbours
- Industrial sites
- Military
- Powerplants
- Prisons & forensics
- Stadiums
- Other critical infrastructures



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## PPG crash bollards - High Security with blocking effect

Depending of the security requirements, PPG offers different movable or fixed bollards for sites, where pedestrians may enter unhindered but vehicle traffic is to be stopped. All bollards feature robust construction with heavy gauge material and

high tensile steel. Due to their modern design the bollards can be used in inner city surroundings for city security and traffic management. They come along with fast operating times and shallow foundations. Ready-to-install bollard units with separate control box allow

quick and easy installation in all climate zones. PPG bollards offer reliable operation and are of course low maintenance. They are traversable in lowered position according to bridge class SLW 60.





# BOLLARDS



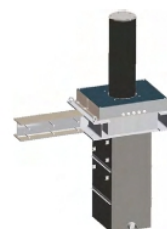
MOVABLE BOLLARD M50	CERTIFICATION	ASTM F 2656-07 M50/P2 PAS 68 V/7500[N3]/80/90:5.2/7.8 IWA 14-1 V/7200[N3C]/80/90:5.5
	BLOCKING HEIGHT	1100 mm
	DIAMETER	Ø 355 mm
	OPERATING TIME	Raising: approx. 5-6 sec., lowering: approx. 3-4 sec.
	EFO (OPTIONAL)	approx. 2-3 sec.
	DRIVE UNIT	Integrated in blocking element
	INSTALLATION DEPTH	500 mm - 1950 mm incl. 100 mm road covering
	OPTIONS	Stainless steel sleeve, top lighting, EFO + RO1

FIXED BOLLARD M50	CERTIFICATION	PAS 68 V/7500[N3]/80/90:0.4/15.4 IWA 14-1 V/7200[N3C]/80/90:0.8 ASTM F 2656-07 M50/P1 (triple unit)
	BLOCKING HEIGHT	1100 mm
	DIAMETER	Ø 355 mm
	INSTALLATION DEPTH	500 mm incl. 100 mm road covering
	OPTIONS	Stainless steel sleeve, top lighting

MOVABLE BOLLARD M30	CERTIFICATION	PAS 68 V/7500[N2]/48/90:0.0/0.0 IWA 14-1 V/7200[N2A]/48/90:0.4
	BLOCKING HEIGHT	1000 mm
	DIAMETER	Ø 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 - 1900 mm incl. 100 mm road covering
	OPTIONS	Stainless steel sleeve, top lighting, EFO + RO1

FIXED BOLLARD M30	CERTIFICATION	Vehicle Impact Simulation M30/P1 (triple unit)
	BLOCKING HEIGHT	1000 - 1100 mm
	DIAMETER	Ø 355 mm
	INSTALLATION DEPTH	500 mm incl. 100 mm road covering
	OPTIONS	Stainless steel sleeve, top lighting

MOVABLE BOLLARD M50



FIXED SHALLOW MOUNTED BOLLARD M50



MOVABLE BOLLARD M30



FIXED SHALLOW MOUNTED BOLLARD M30





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

The internationally crash-tested Tracked Gate M50 affords impact protection and is therefore ideal for all critical infrastructure applications or other designated high risk areas. It boasts a tracked design with unrivalled reliability and high speed opening and closing times that are impossible

to achieve with other drive principles. It is fully compatible with all access control systems and its advanced technology combined with its application flexibility, provides a total solution for all perimeter security access points vulnerable to hostile vehicle attacks. Its robust construction

with heavy gauge material and high tensile steel offers reliable operation and is low maintenance. Quick and easy installation in all climate zones is possible. There is an override facility for manual operation available.





# TRACKED GATES



TG M50 ASTM VERSION	CERTIFICATION	ASTM F2656-07 M50/P1 tested with 7 m CWO
	GATE HEIGHT	2000, 2500, 3000 mm incl. 100 mm ground clearance
	CLEAR OPENING WIDTH	3000 mm - 7000 mm in 1000 mm increments
	OPERATING SPEED	up to 0.4 m/s
	EFO (OPTIONAL)	up to 0.8 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



TG M50 PAS 68 VERSION	CERTIFICATION	PAS 68 V/7500[N3]/80/90:0.0/4.3 tested with 7 m CWO
	GATE HEIGHT	2000, 2500, 3000 mm incl. 100 mm ground clearance
	CLEAR OPENING WIDTH	3000 mm - 7000 mm in 1000 mm increments
	OPERATING SPEED	up to 0.4 m/s
	EFO (OPTIONAL)	up to 0.8 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





### EntraQuick® PU30 - ultimate security for vehicle access points

The quick folding gate EntraQuick® PU30 is an innovative single leaf bi-folding gate which unlike traditional access control products such as sliding gates and barriers offers ultimate security for vehicle access points due to its ability

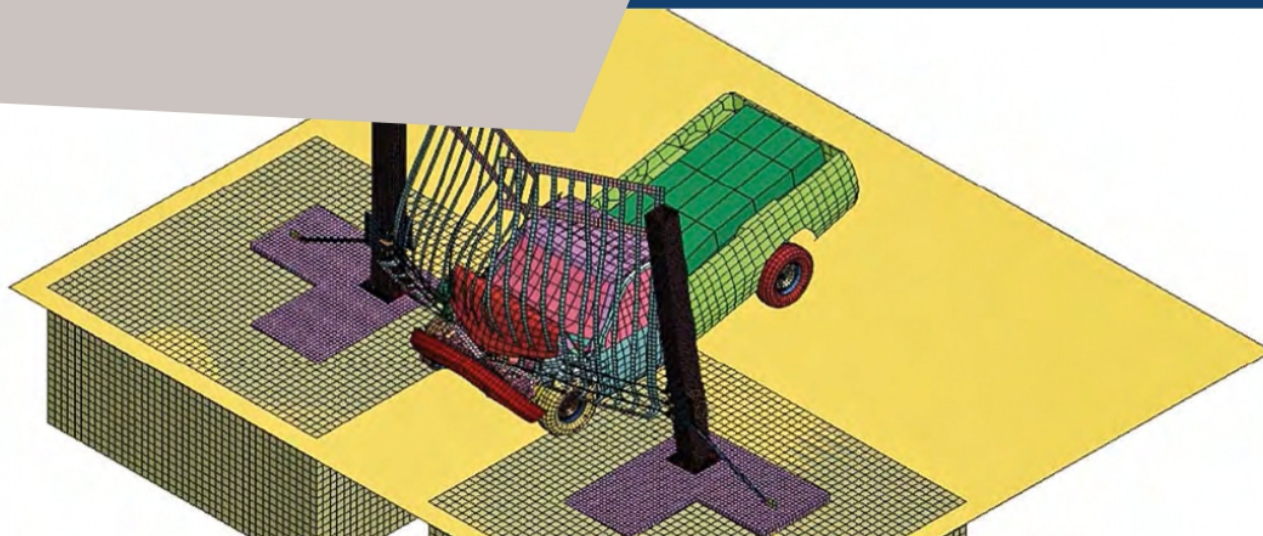
to provide full height perimeter protection paired with very short operating times as well as impact resistance through its unique self-locking arrestor system. The arrestor system is designed to prevent forceful entry of a pickup truck travelling

at 50 km/h which is proven by vehicle impact simulation. The gate is designed for continuous operation and is therefore predestined for use at highly frequented locations such as logistic centres or ports.





# QUICK FOLDING GATES



ENTRAQUICK® PU30	CERTIFICATION	Vehicle Impact Simulation PU30/P1
	GATE HEIGHT	2050 mm, 2550 mm and 3050 mm incl. 100 mm ground clearance
	CLEAR OPENING WIDTH	2000 mm – 4000 mm in 500 mm increments
	OPERATING SPEED	up to 0.5 m/s
	DRIVE UNIT	Mounted to drive post
	INSTALLATION DEPTH	1100 mm incl. 200 mm road covering
	OPTIONS	Anti-climbing device, type of gate infill



## Obstruction free passage due to trackless design

The EntraQuick® PU30 boasts a trackless design which impresses not only with exceptional sturdiness, but also with its reliability and low maintenance requirements.

It is well suited for passage of heavy and large trucks as there is no track or locking facilities in the driveway and no top guide rail limiting the passage height. The gate is securely

locked in the closed position via drive mechanism supported by interlocking of gate leaf and receiving post through in-feed roller and reception fork.



## Wedge barriers - security for highly sensitive entry points

PPG wedge barriers offer maximum security against unauthorised wheeled vehicles of all sizes and weights for highly sensitive entry points. They are vehicle crash-tested to internationally accepted standards and feature a robust construction with heavy gauge material and high tensile steel. The Wedge Barrier K12 and the Wedge II are designed to

guarantee the full level of security and can be installed as a single unit or in combination with other products (e.g. barriers, gates, tyre killer or bollards) in order to realise a sluice arrangement forming a vehicle check point. With decreased installation depth and foundation footprint, PPG wedges reduce installation costs significantly and allow installation in areas where foundation depths

are limited due to underground utilities. Installation is easily implemented due to ready-to-install wedge barrier units and separate drive cabinets. Like all PPG products, the wedge barriers offer reliable operation and are low maintenance. Furthermore, they are traversable in lowered position according to bridge class SLW 60.





# WEDGE BARRIERS



WEDGE K12 WITH SKIRT	CERTIFICATION	PAS 68 D/7500/80/90/1852
	BLOCKING HEIGHT	1000 mm
	BLOCKING WIDTH	2000 - 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



WEDGE K12 WITH OPTIONAL WARNING PLATE	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	1200 mm
	BLOCKING WIDTH	2000 - 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



WEDGE II	CERTIFICATION	PAS 68 V/7500[N3]/80/90:0.0/20.7 IWA 14-1 V/7200[N3C]/80/90:0.0 tested with 4 m blocking width ASTM F2656-15 M50/P1 tested with 2 m blocking width
	BLOCKING HEIGHT	1000 mm
	BLOCKING WIDTH	2000 - 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





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

The crash rated PPG 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 PPG products in order to achieve a sluice arrangement forming a secure vehicle check point. BLS fulfils the highest security level! Thanks to its high-quality material and the proven TRI-PROTECT® long-term corrosion protection, installation in all climate zones is possible. Furthermore, it only requires

minimal excavation across the roadway. In the lowered position the 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 entry.





# BARRIER LIFT SYSTEMS



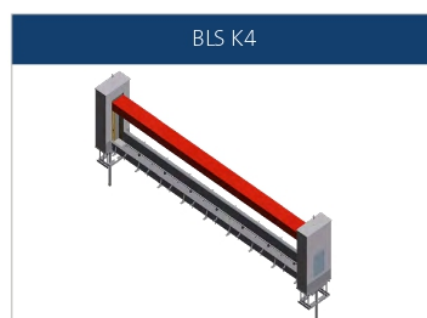
BARRIER LIFT SYSTEM K12 - 10 M	CERTIFICATION	DOD SD-STD-02.01 Rev. A 03/2003 K12/L2 tested with 10 m CWO
	BLOCKING HEIGHT	1100 mm
	BLOCKING WIDTH	6000 mm - 10000 mm in 1000 mm increments
	OPERATING SPEED	Raising: approx. 0.17 m/s, lowering: approx. 0.20 m/s
	DRIVE UNIT	Installed in separate drive cabinet
	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 DOS SD-STD-02.01 Rev. A 03/2003 K12/L3 tested with 6 m CWO
	BLOCKING HEIGHT	1100 mm
	BLOCKING WIDTH	3000 - 6000 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	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 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 Blocker DSP® K12 - massive blocking effect

PPG Road Blockers DSP® K12 offer maximum security against unauthorised vehicles of all sizes and weights for highly sensitive entry points. PPG 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) 30 years ago. The Road Blockers DSP® K12 can be installed as single unit or in combination with other PPG 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 immediate stopping of approaching vehicles.





# 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 tested with 4 m blocking width
	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 + RO3



## 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).

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### Tyre Killers - solid spikes with guaranteed stopping effect

The PPG Tyre Killer and the modular Tyre Killer SHARK offer a high degree of protection against unauthorised entry or exit of hostile motor vehicles. If a vehicle attempts to break through, its tyres and/or axles will be destroyed depending on the model. Further progress will certainly be prevented. PPG Tyre Killers can be used individually or in combination with other

PPG products to form a sluice for vehicles. The solid sharp spikes are clearly visible thanks to garish warning colours thus ensuring the stopping of approaching vehicles in good time. The spikes will raise and block the road with a height of 215 mm to 450 mm, depending on the model. In lowered position the Tyre Killers are 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" Tyre Killers are characterised by a shallow installation depth which makes it particularly suitable for locations with limited available depth due to underground utilities.





# TYRE KILLERS



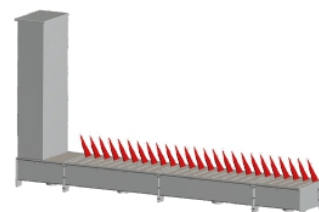
TYRE KILLER	BLOCKING HEIGHT	450 mm
	BLOCKING WIDTH	2000 mm - 6000 mm
	OPERATING TIME	Raising: approx. 2 sec., lowering: approx. 2 sec.
	DRIVE UNIT	Installed in separate drive cabinet
	INSTALLATION DEPTH	900 mm
	OPTIONS	RO3

TYRE KILLER



TYRE KILLER SHARK	BLOCKING HEIGHT	215 mm
	BLOCKING WIDTH	2000 mm to 6000 mm in 500 mm increments
	OPERATING TIME	Raising: < 1 sec., lowering: < 1 sec.
	DRIVE UNIT	Installed on the left or right viewed from the outside
	INSTALLATION DEPTH	490 mm incl. 190 mm for drainage pipes

TYRE KILLER SHARK



### Own training and exhibition centres

In our modern exhibition and training centres close to our branches in Salzkotten, Germany and Roskilde, Denmark we offer our national and international customers, partners, distributors and employees the opportunity to be trained hands on with

installed and operational product. Within a total area of 500 - 550 m<sup>2</sup>, an exhibition area for the product portfolio, which includes among others sliding gates, quick folding gates, fences and of course our internationally certified PPG High Security

products. In separate training rooms we provide theoretical knowledge under modern conditions. At regular intervals, events such as in-house exhibitions, specialist seminars or lectures are organised there.













## Comprehensive service working closely with our customers

We offer a range of services in the areas of mechanics, electronics and hydraulics as well as skills in the wide field of modern planning technology. Installation and maintenance are carried out by our experienced and intensively trained local partners. In special situations, we are also able to provide additional world wide support through our pool of 'flying technicians'.

## Our customer service at a glance

-  *Guarantee through after-sales-service contracts*
-  *Security for you and your property - everything from one source!*
-  *Short lead-times*
-  *Extensive after-sales-service*
-  *Inspection and maintenance according to ASR 1.7*
-  *Professional training and product launches*



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