

VEHICLE

ACCESS CONTROL

SYSTEMS

ÖZAK
T



ROAD BLOCKER
BOLLARD
ARM BARRIER

THE RIGHT CHOICE



ozak-t.com



Strong R & D

"Our in house R&D center develops products considering all possible factors after thorough investigations, stringent tests and extensive analyzes."



Extensive Facilities

"Our 33.000 m² production facility having 21.000 m² covered area is one of the key

fundaments of our success in manufacturing our products more modular, practical and fast."



Variety in Sectors

"Our products are used in many sectors, facilities and buildings both indoors and outdoors."



Sustainable and Strong

"Everyday, in excess of 20 Million people are passing through more than 52.000 active OZAK products around the world which are active for decades."

THE RIGHT CHOICE

Timeline



1976

Foundation

Ozrak was founded by Ozalp Family



1989

First Turnstile

Started to produce turnstiles and gates.



2006

Increase in Production

Reached **1.000 units** per year.



2008

Investment in Facility

Production facilities reached **2.700 m²** from **500 m²**.



2010

Investment in Facility

Production facilities reached **3.600 m²** from **2.700 m²**.



2012

International Market Growth

Export sales reached **more than 50%** of turnover.

NR-D Systeme GmbH was founded in Germany.



2013

Increase in Production

Reached **5.000 units** per year.

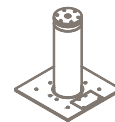


2014

New Product

Launched **Road Blocker** products.

Production facilities reached **8.500 m²**.



2015

New Product

Launched **Bollard** products.



2018

Investment in Facility

Production facilities reached **33.700 m²** of which **21.000 m²** is covered area.



Airports



Military Bases



Hotels



Residential Areas



Government Buildings



Diplomatic Premises



Car Park Entries



Harbour Entries



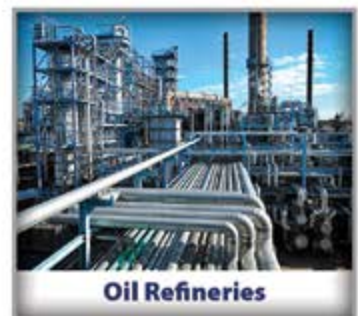
Industrial Sites



National Borders



Construction Sites



Oil Refineries



Prisons



Power Plants



Financial Institutions



ROAD BLOCKER





NATPET

National Company for Petrochemical Industries



ناتبت

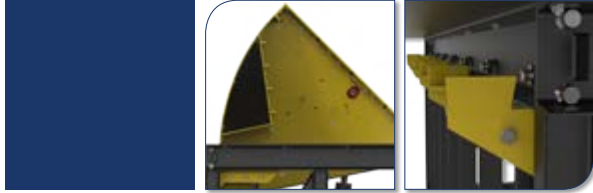
الشركة الوطنية للصناعات البتروكيماوية



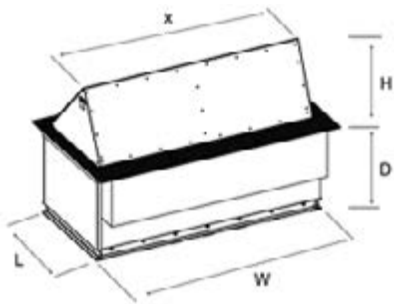
HRB

ROAD BLOCKER

(Heavy Duty Model)



Power	Standard 380V AC 3-Phase 50/60 Hz, 3,3 - 5,5 Kva motor (varies depending on blocker size). Opt. 220V, 110V 1-Phase 50/60 Hz; or 24V DC (for some models/sizes only).
Control Pack	24V DC powered and PLC control unit is placed in power unit cabinet. Solenoids 24V DC (Ops.12V DC / 220V AC).
Speed	Standard Operation ~2,5 - 6 sec. (ascend/descend) depending on unit dimensions. Emergency raise up (upwards) by optional hydraulic accumulator ~1,5 sec. and may vary depending on unit dimensions.
IP Rating	IP 55 - Hydraulic Power Unit, IP 67 - Electronics (optional), protection with housing/box, IP 68 - Hydraulic Piston
Crash / Impact Rating	M50 P1 (K-12) crash tested and certified (HRB 30 R 90) according to ASTM 2656-07, Designed and produced to withstand H30.



Product Code	Blocker Unit Width (X)	Nr. of Pistons	Raising Height 65 - 50 cm	Raising Height 90 - 70 cm
			Dimensions (LxWxD)	Dimensions (LxWxD)
HRB 10R_ _	1000	1	1275 x 1170 x 975	1481 x 1170 x 1270
HRB 15R_ _	1500	1	1275 x 1670 x 975	1481 x 1670 x 1270
HRB 20R_ _	2000	1	1275 x 2170 x 975	1481 x 2170 x 1270
HRB 25R_ _	2500	1	1275 x 2670 x 975	1481 x 2670 x 1270
HRB 30R_ _	3000	1	1275 x 3170 x 975	1481 x 3170 x 1270
HRB 35R_ _	3500	1	1275 x 3670 x 975	1481 x 3670 x 1270
HRB 35R_ _	3500	2	1275 x 3670 x 975	1481 x 3670 x 1270
HRB 40R_ _	4000	1	1275 x 4170 x 975	1481 x 4170 x 1270
HRB 40R_ _	4000	2	1275 x 4170 x 975	1481 x 4170 x 1270
HRB 45R_ _	4500	2	1275 x 4670 x 975	1481 x 4670 x 1270
HRB 50R_ _	5000	2	1275 x 5170 x 975	1481 x 5170 x 1270
HRB 55R_ _	5500	2	1275 x 5670 x 975	1481 x 5670 x 1270
HRB 60R_ _	6000	2	1275 x 6170 x 975	1481 x 6170 x 1270
HRB 65R_ _	6500	2	1275 x 6670 x 975	1481 x 6670 x 1270

Battery Back-up for Power-off Situation	Battery unit with capacity of min. 100 movements (50 deploy + 50 retract) when fully charged is optionally available.
Axle Load Resistance	50T
Hydraulic Cylinder Unit	Heavy duty, dust sealed electrostatic powder coated hydraulic cylinder. Models between 1- 4 meter widths contain a single piston. (Double piston versions are optionally available for models with 3,5 & 4 meter widths). Models between 4,5 - 6,5 meter widths contain double pistons. Cylinder unit features a safety valve against leakage and hose failure.
Hydraulic Power Unit	Strengthened industrial pump, 40-120 lt oil tank capacity with magnetic metal collector and particle filter. Built-in oil level and oil temperature sensor with low oil level warning. 70-80 Bar pressure; maximum running pressure is 120 Bar. 10 mt R2 (double wire braided mesh) reinforced hydraulic hose.



M50 P1 (K12)
ASTM F2656-07

HRB ROAD BLOCKER (Heavy Duty Model)

System	<p>Down, Up, Emergency and external sensor inputs/outputs (e.g. Loop Detector, Beam Detector, Signalization, Remote Control, etc.).</p> <p>System alerts with an audio signal during lowering and raising operation.</p> <p>A loud siren output in case of alarm or emergency.</p> <p>Can be lowered or raised automatically in case of emergency (User's preference).</p> <p>Can be lowered and raised manually in case of power failure or during the maintenance service with manual pump and manual valve feature. Automatic raise up mode deploys (optionally with synchronized loop detector) the road blocker after the vehicle has passed over).</p> <p>Sensor controlled stopping both at the top and bottom positions of the blocker unit</p>																																																				
Power Unit	<p>Motor, hydraulic pump and solenoid valves are contained in an easily accessible hot-dip-galvanized and electrostatic powder painted cabinet with a built-in lock lid. (Opt. Stainless Steel Cabinet)</p> <p>Cabinet Dimensions: 1000 mm x 570 mm x 1200 mm (W x L x H).</p>																																																				
Blocker Cabinet (underground unit)	<p>All parts are colored with industrial paint with two components.</p> <p>U-shaped profile structure for maximum strength.</p> <p>The blocker and cabinet are designed so that no vehicle crashing effect can displace it after embedded or installed in to the ground.</p>																																																				
Blocker Unit (impact blocking unit)	<p>All parts are colored with industrial paint with two components.</p> <p>Hot dip galvanised vehicle pass through surface (top plates).</p> <p>The construction is aesthetically and functionally completed with reflecting strips and warning signs.</p> <p>The hinge system is specially designed to have a flattened surface level with the top plate so that vehicles can pass over smoothly and quietly. With the help of hidden hinge system feature during the upward/ downward running operation the gap at the blocker top plate back-edge and cabinet housing stays at 2mm maximum providing a critically important safety feature during operation of the road blocker.</p> <p>The blocker unit is made of a reinforced construction strengthened by 6mm thick special design, V-formed, vertical solid steel panels distanced between 350-550mm along the blocker width and assembled together with the main chassis for evenly distributed impact absorption. All vertical impact absorption panels have special shape and contain hook type holders (patent pending 2015/12506) for high impact resistance and are installed with equal distance to each other and supported by 4 pieces of 30x10mm solid steel beams to further strengthen the construction.</p> <table><tr><th colspan="13">Impact Absorbing Panel Quantity</th></tr><tr><th>Blocker Size</th><th>1 m</th><th>1,5 m</th><th>2 m</th><th>2,5 m</th><th>3 m</th><th>3,5 m</th><th>4 m</th><th>4,5 m</th><th>5 m</th><th>5,5 m</th><th>6 m</th><th>6,5 m</th></tr><tr><td>Single Piston</td><td>4</td><td>4</td><td>6</td><td>6</td><td>8</td><td>8</td><td>10</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Double Piston</td><td></td><td></td><td></td><td></td><td></td><td>10</td><td>12</td><td>12</td><td>12</td><td>15</td><td>18</td><td>18</td></tr></table> <p>To stop severe impact loads there is an additional 6mm (optionally 10mm) thick sheet metal attached to the vertical impact absorption panels.</p> <p>At the frontal crash-facing section, there is replaceable 3mm thick steel sheet with rounded form to handle light impacts.</p> <p>Resistance of crash surface consisting of 6mm+3mm sheet metal is equal to resistance of a 74mm thick sheet metal due to it's construction structured with vertical solid panels and 30x10mm solid bars behind.</p> <p>Top panel where the vehicle pass over is made of 10/11mm thick non-slip surface steel hot-dip galvanised before paint.</p> <p>The system moves up and down with 50mm diameter stainless steel hinges (example: 3 meter blocker contains 7 pieces of 50mm diameter stainless steel hinges).</p> <p>Blocker unit raises 45° angle from the ground level and equipped with built in indicators on side and front panels.</p> <p>A top lid is provided for easy access for service and maintenance on the top plate.</p>	Impact Absorbing Panel Quantity													Blocker Size	1 m	1,5 m	2 m	2,5 m	3 m	3,5 m	4 m	4,5 m	5 m	5,5 m	6 m	6,5 m	Single Piston	4	4	6	6	8	8	10						Double Piston						10	12	12	12	15	18	18
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Single Piston	4	4	6	6	8	8	10																																														
Double Piston						10	12	12	12	15	18	18																																									
Control System	<p>Manuel Control Button Unit:</p> <p>Provided with an IP67 CRM yellow box including 3 switches for downwards, upwards, stop (optional emergency operation), can stop the blocker motion with the command/signal coming from detector, equipped with built-in LED visual indications and 10 mt cable.</p> <p>Compatibility with Access Control Systems:</p> <p>Compatible with any access control system (by third parties).</p> <p>Optional Unit:</p> <p>With the optional model "RB CONT.UNIT.V.001" users can monitor the diagnostic functions, can be accessed through LAN, RS485 protocols. System is provided inside a metal cabinet that also includes the other functional switches like downward, upward,stop, emergency operations.</p> <p>With the built in 124x68 LCD screen, all status of the operation and system diagnostic can be monitored through messaging functions like oil status, loop or beam detectors status, water level inside the cabinet, blocker position according to user preference, any .bmp files can be displayed.</p> <p>The system is driven by the PLC.</p>																																																				
Optional Features and Accessories	<p>Traffic lights (red-green), Traffic light Pole, Loop Detector (double/single contact), Beam Detector, 220V or 24V DC motor, Remote Control (receiver and transmitter are 3 channels), UPS, Photocell Sensor (receiver+ transmitter with 50cm height pole), RB CONT. UNIT.V.001 Control Unit, Intercom, External Buttons, Emergency Submersible Pump, Hydraulic Accumulator for emergency fast raise up (1 piston or 2 pistons systems), Surface Frame (sizes: from 250mm to 1000mm), Oil Cooler, Oil Heater, Heater for electronic components, hot-dip galvanization for cabinet, blocker and impact surface units, double effect hydraulic unit, double speed hydraulic unit, ground mounting plate, powered audio signal (siren), PLC diagnostic monitor, IP67 box (for PLC, SMPS, connectors etc inside power unit).</p>																																																				
Installation	<p>Easy Installation with C30 grade concrete and steel rebar reinforcement.</p>																																																				



M50 P1 (K12)
ASTM F2656-07

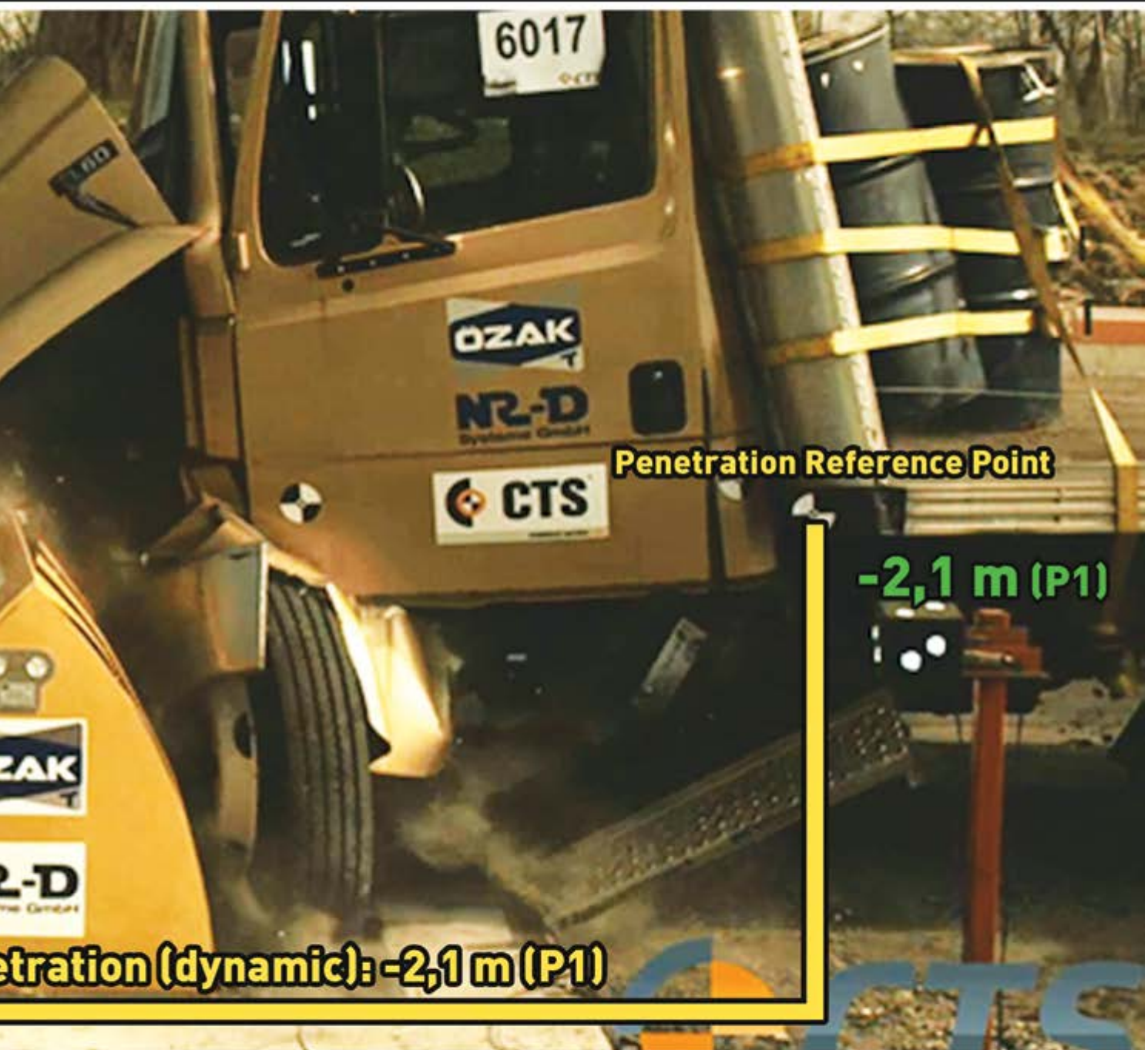
for crash
test video



Max P1 Limit

Maximum Penetration

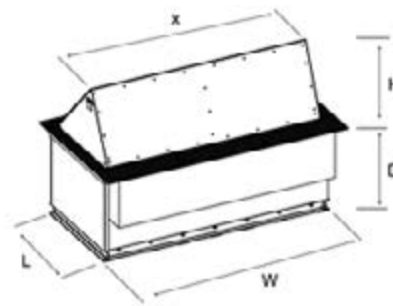




RRB ROAD BLOCKER (Reinforced Model)



Power	Standard 380V AC 3-Phase 50/60 Hz, 3,3 - 5,5 KVA motor (varies depending on blocker size). Opt. 220v, 110V 1-Phase 50/60 Hz; or 24V DC (for some models/sizes only).
Control Pack	24V DC powered and PLC control unit is placed in power unit cabinet. Solenoids 24V DC (Ops.12V DC / 220V AC)
Speed	Standard Operation ~4 - 6 sec. (ascend/descend) (opt. 2,5 - 4 sec.) depending on unit dimensions. Emergency raise up (upwards) by optional hydraulic accumulator ~1,5 sec. and may vary depending on unit dimensions.
IP Rating	IP 55 - Hydraulic Power Unit, IP 67 - Electronics (optional), protection with housing/box, IP 68 - Hydraulic Piston
Crash / Impact Rating	Designed and produced to withstand M50 P1 (K-12).



Product Code	Blocker Unit Width (X)	Nr. of Pistons	Raising Height 65 - 50 cm	Raising Height 90 - 70 cm
			Dimensions (LxWxD)	Dimensions (LxWxD)
RRB 10F_	1000	1	1275 x 1170 x 975	1481 x 1170 x 1270
RRB 15F_	1500	1	1275 x 1670 x 975	1481 x 1670 x 1270
RRB 20F_	2000	1	1275 x 2170 x 975	1481 x 2170 x 1270
RRB 25F_	2500	1	1275 x 2670 x 975	1481 x 2670 x 1270
RRB 30F_	3000	1	1275 x 3170 x 975	1481 x 3170 x 1270
RRB 35F_	3500	1	1275 x 3670 x 975	1481 x 3670 x 1270
RRB 35F_	3500	2	1275 x 3670 x 975	1481 x 3670 x 1270
RRB 40F_	4000	1	1275 x 4170 x 975	1481 x 4170 x 1270
RRB 40F_	4000	2	1275 x 4170 x 975	1481 x 4170 x 1270
RRB 45F_	4500	2	1275 x 4670 x 975	1481 x 4670 x 1270
RRB 50F_	5000	2	1275 x 5170 x 975	1481 x 5170 x 1270
RRB 55F_	5500	2	1275 x 5670 x 975	1481 x 5670 x 1270
RRB 60F_	6000	2	1275 x 6170 x 975	1481 x 6170 x 1270
RRB 65F_	6500	2	1275 x 6670 x 975	1481 x 6670 x 1270

Battery Back-up for Power-off Situation	Battery unit with capacity of min.100 movements (50 deploy + 50 retract) when fully charged is optionally available.
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Axle Load Resistance	50T
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Hydraulic Cylinder Unit	Heavy duty, dust sealed electrostatic powder coated hydraulic cylinder. Models between 1- 4 meter widths contain a single piston. (Double piston versions are optionally available for models with 3,5 & 4 meter widths). Models with 4,5 - 6,5 meter widths contain double pistons. Cylinder unit features a safety valve against leakage and hose failure.
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Hydraulic Power Unit	Strengthened industrial pump, 40-120 lt oil tank capacity with magnetic metal collector and particle filter. Built-in oil level and temperature indicator, 70-80 Bar pressure; maximum running pressure is 120 Bar 10 mt R2 (double wire braided mesh) reinforced hydraulic hose.
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**Design and specifications are subject to change without notice.*

RRB ROAD BLOCKER (Reinforced Model)

System	<p>Down, Up, Emergency and external sensor inputs/outputs (e.g. Loop Detector, Beam Detector, Signalization, Remote Control, etc.).</p> <p>System alerts with an audio signal during lowering and raising operation.</p> <p>A loud siren output in case of alarm or emergency.</p> <p>Can be lowered or raised automatically in case of emergency (User's preference).</p> <p>Can be lowered and raised manually in case of power failure or during the maintenance service with manual pump and manual valve feature. Automatic raise up mode deploys (optionally with synchronized loop detector) the road blocker after the vehicle has passed over.</p> <p>Sensor controlled stopping both at the top and bottom positions of the blocker unit</p>																																																				
Power Unit	<p>Motor, hydraulic pump and solenoid valves are contained in an easily accessible hot-dip-galvanized and electrostatic powder painted cabinet with a built-in lock lid. (Opt. Stainless Steel Cabinet)</p> <p>Cabinet Dimensions: 1000 mm x 570 mm x 1200 mm (W x L x H).</p>																																																				
Blocker Cabinet (underground unit)	<p>All parts are colored with industrial paint with two components.</p> <p>U-shaped profile structure for maximum strength.</p> <p>The blocker and cabinet are designed so that no vehicle crashing effect can displace it after embedded or installed in to the ground.</p>																																																				
Blocker Cabinet (underground unit)	<p>All parts are colored with industrial paint with two components.</p> <p>Hot dip galvanised vehicle pass through surface (top plates).</p> <p>The construction is aesthetically and functionally completed with reflecting strips and warning signs.</p> <p>The hinge system is specially designed to have a flattened surface level with the top plate so that vehicles can pass over smoothly and quietly. With the help of hidden hinge system feature during the upward/ downward running operation the gap at the blocker top plate back-edge and cabinet housing stays at 2mm maximum providing a critically important safety feature during operation of the road blocker.</p> <p>The blocker unit is made of a reinforced construction strengthened by 6mm thick special design, vertical solid steel panels distanced between 350-550mm along the blocker width and assembled together with the main chassis for evenly distributed impact absorption. All vertical impact absorption panels have special shape and contain hook type holders (patent pending 2015/12506) for high impact resistance and are installed with equal distance to each other and supported by 4 pieces of 30x10mm solid steel beams to further strengthen the construction.</p> <table><tr><th colspan="13">Impact Absorbing Panel Quantity</th></tr><tr><th>Blocker Size</th><th>1 mt</th><th>1,5 mt</th><th>2 mt</th><th>2,5 mt</th><th>3 mt</th><th>3,5 mt</th><th>4 mt</th><th>4,5 mt</th><th>5 mt</th><th>5,5 mt</th><th>6 mt</th><th>6,5 mt</th></tr><tr><td>Single Piston</td><td>4</td><td>4</td><td>6</td><td>6</td><td>8</td><td>8</td><td>10</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Double Piston</td><td></td><td></td><td></td><td></td><td></td><td>10</td><td>12</td><td>12</td><td>12</td><td>15</td><td>18</td><td>18</td></tr></table> <p>To stop severe impact loads there is an additional 6mm thick sheet metal attached to the vertical impact absorption panels.</p> <p>Top panel where the vehicle pass over is made of 8/9mm thick non-slip surface steel hot-dip galvanised before paint.</p> <p>The system moves up and down with 50mm diameter stainless steel hinges (example: 3 meter blocker contains 7 pieces of 50mm diameter stainless steel hinges).</p> <p>Blocker unit raises 45° angle from the ground level and can be equipped with equipped with optional flashing light indicators on side and front panels.</p> <p>A top lid is provided for easy access for service and maintenance on the top plate.</p>	Impact Absorbing Panel Quantity													Blocker Size	1 mt	1,5 mt	2 mt	2,5 mt	3 mt	3,5 mt	4 mt	4,5 mt	5 mt	5,5 mt	6 mt	6,5 mt	Single Piston	4	4	6	6	8	8	10						Double Piston						10	12	12	12	15	18	18
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Single Piston	4	4	6	6	8	8	10																																														
Double Piston						10	12	12	12	15	18	18																																									
Control System	<p>Manuel Control Button Unit:</p> <p>Provided with an IP67 CRM yellow box including 3 switches for downwards, upwards, stop (optional emergency operation), can stop the blocker motion with the command/signal coming from detector, equipped with built-in LED visual indications.</p> <p>Compatibility with Access Control Systems:</p> <p>Compatible with any access control system (by third parties).</p> <p>Optional Unit:</p> <p>With the optional model "RB CONT.UNIT.V.001" users can monitor the diagnostic functions, can be accessed through LAN, RS485 protocols. System is provided inside a metal cabinet that also includes the other functional switches like downward, upward, stop, emergency operations.</p> <p>With the built in 124x68 LCD screen, all status of the operation and system diagnostic can be monitored through messaging functions like oil status, loop or beam detectors status, water level inside the cabinet, blocker position according to user preference, any .bmp files can be displayed. The system is driven by the PLC.</p>																																																				
Optional Features and Accessories	<p>Traffic lights (red-green), Traffic light Pole, Loop Detector (double/single contact), Beam Detector, 220V or 24V DC motor, Remote Control (receiver and transmitter are 3 channels), UPS, Photocell Sensor (receiver+ transmitter with 50cm height pole), RB CONT. UNIT.V.001 Control Unit, Intercom, External Buttons, Emergency Submersible Pump, Hydraulic Accumulator for emergency fast raise up (1 piston or 2 pistons systems), Surface Frame (sizes: from 250mm to 1000mm), Oil Cooler, Oil Heater, Heater for electronic components, hot-dip galvanization for cabinet, blocker and impact surface units, double effect hydraulic unit, double speed hydraulic unit, ground mounting plate, powered audio signal (siren), PLC diagnostic monitor, flashing light indicators, round shaped front panel, oil level sensor, optional speed, IP67 box (for PLC, SMPS, connectors etc inside power unit).</p>																																																				
Installation	<p>Easy Installation with C30 grade concrete and steel rebar reinforcement.</p>																																																				





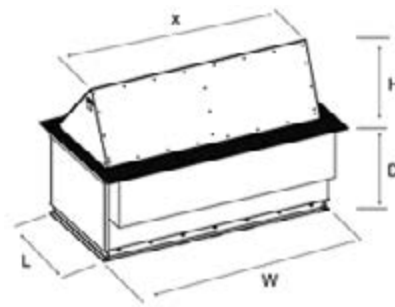
RB

ROAD BLOCKER

(Residential Model)



Power	Standard 380V AC 3-Phase 50/60 Hz, 3,3 - 5,5 KVA motor (varies depending on blocker size). Opt. 220V, 110V 1-Phase 50/60 Hz; or 24V DC (for some models/sizes only).
Control Pack	24V DC powered and PLC control unit is placed in power unit cabinet. Solenoids 24V DC (Ops.12V DC / 220V AC)
Speed	Standard Operation ~4 - 6 sec. (ascend/descend) (opt. 2,5 - 4 sec.) depending on unit dimensions. Emergency raise up (upwards) by optional hydraulic accumulator ~1,5 sec. and may vary depending on unit dimensions.
IP Rating	IP 55 - Hydraulic Power Unit, IP 67 - Electronics (optional), protection with housing/box, IP 68 - Hydraulic Piston
Crash / Impact Rating	Designed and produced to withstand M40 P1 (K-8).



			Raising Height 65 - 50 cm	Raising Height 90 - 70 cm
Product Code	Blocker Unit Width (X)	Nr. of Pistons	Dimensions (LxWxD)	Dimensions (LxWxD)
RB 10F__	1000	1	1275 x 1170 x 975	1481 x 1170 x 1270
RB 15F__	1500	1	1275 x 1670 x 975	1481 x 1670 x 1270
RB 20F__	2000	1	1275 x 2170 x 975	1481 x 2170 x 1270
RB 25F__	2500	1	1275 x 2670 x 975	1481 x 2670 x 1270
RB 30F__	3000	1	1275 x 3170 x 975	1481 x 3170 x 1270
RB 35F__	3500	1	1275 x 3670 x 975	1481 x 3670 x 1270
RB 35F__	3500	2	1275 x 3670 x 975	1481 x 3670 x 1270
RB 40F__	4000	1	1275 x 4170 x 975	1481 x 4170 x 1270
RB 40F__	4000	2	1275 x 4170 x 975	1481 x 4170 x 1270
RB 45F__	4500	2	1275 x 4670 x 975	1481 x 4670 x 1270
RB 50F__	5000	2	1275 x 5170 x 975	1481 x 5170 x 1270
RB 55F__	5500	2	1275 x 5670 x 975	1481 x 5670 x 1270
RB 60F__	6000	2	1275 x 6170 x 975	1481 x 6170 x 1270
RB 65F__	6500	2	1275 x 6670 x 975	1481 x 6670 x 1270

Battery Back-up for Power-off Situation	Battery unit with capacity of min. 100 movements (50 deploy + 50 retract) when fully charged is optionally available.
Axle Load Resistance	40T
Hydraulic Cylinder Unit	Heavy duty, dust sealed electrostatic powder coated hydraulic cylinder. Models between 1- 4 meter widths contain a single piston. (Double piston versions are optionally available for models with 4 meter widths). Models between 4,5 - 6,5 meter widths contain double pistons. Cylinder unit features a safety valve against leakage and hose failure.
Hydraulic Power Unit	Strengthened industrial pump, 40-120 lt oil tank capacity with magnetic metal collector and particle filter, Built-in oil level and temperature indicator, 70-80 Bar pressure; maximum running pressure is 120 Bar 10 mt R2 (double wire braided mesh) reinforced hydraulic hose.

RB ROAD BLOCKER (Residential Model)

System	<p>Down, Up, Emergency and external sensor inputs/outputs (e.g. Loop Detector, Beam Detector, Signalization, Remote Control, etc.).</p> <p>System alerts with an audio signal during lowering and raising operation.</p> <p>A loud siren output in case of alarm or emergency.</p> <p>Can be lowered or raised automatically in case of emergency (User's preference).</p> <p>Can be lowered and raised manually in case of power failure or during the maintenance service with manual pump and manual valve feature. Automatic raise up mode deploys (optionally with synchronized loop detector) the road blocker after the vehicle has passed over.</p> <p>Sensor controlled stopping both at the top and bottom positions of the blocker unit</p>
Power Unit	<p>Motor, hydraulic pump and solenoid valves are contained in an easily accessible hot-dip-galvanized and electrostatic powder painted cabinet with a built-in lock lid. (Opt. Stainless Steel Cabinet)</p> <p>Cabinet Dimensions: 1000 x 570 x 1200 mm (W x L x H).</p>
Blocker Cabinet (underground unit)	<p>All parts are colored with industrial paint with two components.</p> <p>U-shaped profile structure for maximum strength.</p> <p>The blocker and cabinet are designed so that no vehicle crashing effect can displace it after embedded or installed in to the ground.</p>
Blocker Unit (impact blocking unit)	<p>All parts are colored with industrial paint with two components.</p> <p>Hot dip galvanised vehicle pass through surface (top plates).</p> <p>The construction is aesthetically and functionally completed with reflecting strips and warning signs.</p> <p>The hinge system is specially designed to have a flattened surface level with the top plate so that vehicles can pass over smoothly and quietly.</p> <p>Top panel where the vehicle pass over is made of 8/9mm thick non-slip surface steel hot-dip galvanised before paint.</p> <p>The system moves up and down with 50mm diameter stainless steel hinges (example: 3 meter blocker contains 7 pieces of 50mm diameter stainless steel hinges).</p> <p>Blocker unit raises 45° angle from the ground level and can be equipped with optional flashing light indicators on side and front panels.</p> <p>A top lid is provided for easy access for service and maintenance on the top plate.</p>
Control System	<p>Manuel Control Button Unit:</p> <p>Provided with an IP67 CRM yellow box including 3 switches for downwards, upwards, stop (optional emergency operation), can stop the blocker motion with the command/signal coming from detector, equipped with built-in LED visual indications.</p> <p>Compatibility with Access Control Systems:</p> <p>Compatible with any access control system (by third parties).</p> <p>Optional Unit:</p> <p>With the optional model "RB CONT.UNIT.V.001" users can monitor the diagnostic functions, can be accessed through LAN, RS485 protocols. System is provided inside a metal cabinet that also includes the other functional switches like downward, upward, stop, emergency operations.</p> <p>With the built in 124x68 LCD screen, all status of the operation and system diagnostic can be monitored through messaging functions like oil status, loop or beam detectors status, water level inside the cabinet, blocker position according to user preference, any .bmp files can be displayed. The system is driven by the PLC.</p>
Optional Features and Accessories	<p>Traffic lights (red-green), Traffic light Pole, Loop Detector (double/single contact), Beam Detector, 220V or 24V DC motor, Remote Control (receiver and transmitter are 3 channels), UPS, Photocell Sensor (receiver+ transmitter with 50cm height pole), RB CONT. UNIT.V.001 Control Unit, Intercom, External Buttons, Emergency Submersible Pump, Hydraulic Accumulator for emergency fast raise up (1 piston or 2 pistons systems), Surface Frame (sizes: from 250mm to 1000mm), Oil Cooler, Oil Heater, Heater for electronic components, hot-dip galvanization for cabinet, blocker and impact surface units, double effect hydraulic unit, double speed hydraulic unit, ground mounting plate, powered audio signal (siren), PLC diagnostic monitor, flashing light indicators, round shaped front panel, oil level sensor, optional speed, IP67 box (for PLC, SMPS, connectors etc inside power unit).</p>
Installation	<p>Easy Installation with C30 grade concrete and steel rebar reinforcement.</p>

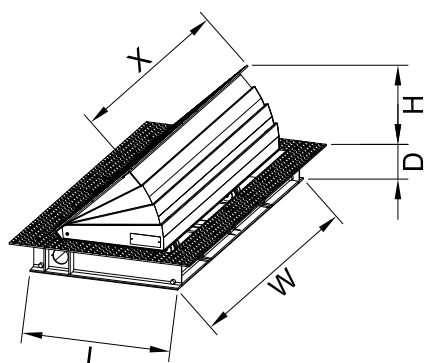
RB

ROAD BLOCKER

[Shallow Mount]



Power	Standard 380V AC 3-Phase 50/60 Hz, 3,3 - 5,5 kVA motor (varies depending on blocker size). Opt. 220V, 110V 1-Phase 50/60 Hz; or 24V DC (for some models/sizes only).
Control Pack	24V DC powered and PLC control unit is placed in power unit cabinet. Solenoids 24V DC (Ops.12V DC / 220V AC)
Speed	Standard Operation ~2,5 - 6 sec. (ascend/descend) depending on unit dimensions. Emergency raise up (upwards) by optional hydraulic accumulator ~1,5 sec. and may vary depending on unit dimensions.
IP Rating	IP 55 - Hydraulic Power Unit, IP 67 - Electronics (optional), protection with housing/box, IP 68 - Hydraulic Piston
Crash / Impact Rating	Designed and produced to withstand impacts at M40 (K8) level as per ASTM 2656-07.

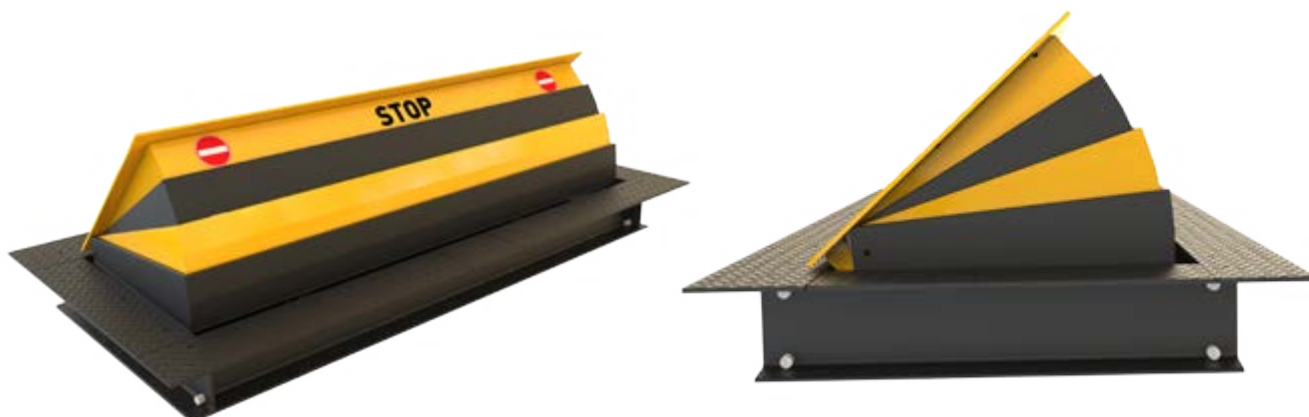


Product Code	Blocker Unit Width (X)	Nr. of Pistons	Raising Height 65 - 50 cm	Raising Height 90 - 70 cm
			Dimensions (LxWxD)	Dimensions (LxWxD)
RB 10P_ _ SRF	1000	1	1342 x 1440 x 210	2665 x 1440 x 210
RB 15P_ _ SRF	1500	1	1342 x 1910 x 210	2665 x 1910 x 210
RB 20P_ _ SRF	2000	1	1342 x 2440 x 210	2665 x 2440 x 210
RB 25P_ _ SRF	2500	1	1342 x 2910 x 210	2665 x 2910 x 210
RB 30P_ _ SRF	3000	1	1342 x 3440 x 210	2665 x 3440 x 210
RB 35P_ _ SRF	3500	1	1342 x 3910 x 210	2665 x 3910 x 210
RB 35P_ _ SRF	3500	2	1342 x 3910 x 210	2665 x 3910 x 210
RB 40P_ _ SRF	4000	1	1342 x 4440 x 210	2665 x 4440 x 210
RB 40P_ _ SRF	4000	2	1342 x 4440 x 210	2665 x 4440 x 210
RB 45P_ _ SRF	4500	2	1342 x 4910 x 210	2665 x 4910 x 210
RB 50P_ _ SRF	5000	2	1342 x 5440 x 210	2665 x 5440 x 210
RB 55P_ _ SRF	5500	2	1342 x 5910 x 210	2665 x 5910 x 210
RB 60P_ _ SRF	6000	2	1342 x 6440 x 210	2665 x 6440 x 210
RB 65P_ _ SRF	6500	2	1342 x 6910 x 210	2665 x 6910 x 210

Battery Back-up for Power-off Situation	Battery unit with capacity of min. 100 movements (50 deploy + 50 retract) when fully charged is optionally available.
Axle Load Resistance	50T
Hydraulic Cylinder Unit	Heavy duty, dust sealed electrostatic powder coated 50 mm hydraulic cylinder. Models between 1- 4 meter widths contain a single piston. (Double piston versions are optionally available for models 3,5 & 4 meter widths). Models between 4,5 - 6,5 meter widths contain double pistons. Cylinder unit features a safety valve against leakage and hose failure.
Hydraulic Power Unit	Strengthened industrial pump, 60 lt oil tank capacity with magnetic metal collector and particle filter. Built-in oil level and oil temperature indicator. 70-80 Bar pressure; maximum running pressure is 120 Bar. 10 mt R2 (double wire braided mesh) reinforced hydraulic hose.

RB ROAD BLOCKER (Shallow Mount)

System	<p>Down, Up, Emergency and external sensor inputs/outputs (e.g. Loop Detector, Beam Detector, Signalization, Remote Control, etc.).</p> <p>System alerts with an audio signal during lowering and raising operation.</p> <p>A loud siren output in case of alarm or emergency.</p> <p>Can be lowered or raised automatically in case of emergency (User's preference).</p> <p>Can be lowered and raised manually in case of power failure or during the maintenance service with manual pump and manual valve feature. Automatic raise up mode deploys (optionally with synchronized loop detector) the road blocker after the vehicle has passed over).</p> <p>Sensor controlled stopping both at the top and bottom positions of the blocker unit.</p>
Power Unit	<p>Motor, hydraulic pump and solenoid valves are contained in an easily accessible hot-dip-galvanized and electrostatic powder painted cabinet with a built-in lock lid. (Opt. Stainless Steel Cabinet)</p>
Blocker Cabinet (underground unit)	<p>All parts are colored with industrial paint with two components.</p> <p>U-shaped profile structure for maximum strength.</p> <p>The blocker and cabinet are designed so that no vehicle crashing effect can displace it after embedded or installed in to the ground.</p>
Blocker Unit (impact blocking unit)	<p>All parts are colored with industrial paint with two components.</p> <p>Hot dip galvanised vehicle pass through surface (top plates).</p> <p>The hinge system is specially designed to have a flattened surface level with the top plate so that vehicles can pass over smoothly and quietly. With the help of hidden hinge system feature during the upward/ downward running operation the gap at the blocker top plate back-edge and cabinet housing stays at 2mm maximum providing a critically important safety feature during operation of the road blocker.</p> <p>Top panel where the vehicle pass over is made of 8/9mm thick non-slip surface steel hot-dip galvanised before paint.</p> <p>The system moves up and down with 50mm diameter stainless steel hinges (example: 3 meter blocker contains 7 pieces of 50mm diameter stainless steel hinges).</p> <p>Blocker unit raises 45° angle from the ground level.</p> <p>A top lid is provided for easy access for service and maintenance on the top plate.</p> <p>Accordion type panel closure on front is optionally available.</p>
Control System	<p>Manuel Control Button Unit:</p> <p>Provided with an IP67 CRM yellow box including 3 switches for downwards, upwards, stop (optional emergency operation), can stop the blocker motion with the command/signal coming from detector, equipped with built-in LED visual indications and 10 mt cable.</p> <p>Compatibility with Access Control Systems:</p> <p>Compatible with any access control system (by third parties).</p> <p>Optional Unit:</p> <p>With the optional model "RB CONT.UNIT.V.001" users can monitor the diagnostic functions, can be accessed through LAN, RS485 protocols. System is provided inside a metal cabinet that also includes the other functional switches like downward, upward, stop, emergency operations.</p> <p>With the built in 124x68 LCD screen, all status of the operation and system diagnostic can be monitored through messaging functions like oil status, loop or beam detectors status, water level inside the cabinet, blocker position according to user preference, any .bmp files can be displayed.</p> <p>The system is driven by the PLC.</p>
Optional Features and Accessories	<p>Traffic lights (red-green), Traffic light Pole, Loop Detector (double/single contact), Beam Detector, 220V or 24V DC motor, Remote Control (receiver and transmitter are 3 channels), UPS, Photocell Sensor (receiver+ transmitter with 50cm height pole), RB CONT. UNIT.V.001 Control Unit, Intercom, External Buttons, Hydraulic Accumulator for emergency fast raise up (1 piston or 2 pistons systems), Surface Frame (sizes: from 250mm to 1000mm), Oil Cooler, Oil Heater, Heater for electronic components, hot-dip galvanization for cabinet, blocker and impact surface units, double effect hydraulic unit, double speed hydraulic unit, powered audio signal (siren), PLC diagnostic monitor, IP67 box (for PLC, SMPS, connectors etc inside power unit), LED indicator on front, oil level sensor, accordion type front closure.</p>
Installation	<p>Easy Installation with C30 grade concrete and steel rebar reinforcement.</p> <p>Ground leveling and preparation works shall be done before concrete pouring.</p> <p>Allowable bearing value of the ground shall be minimum 1/2 kg/cm².</p>



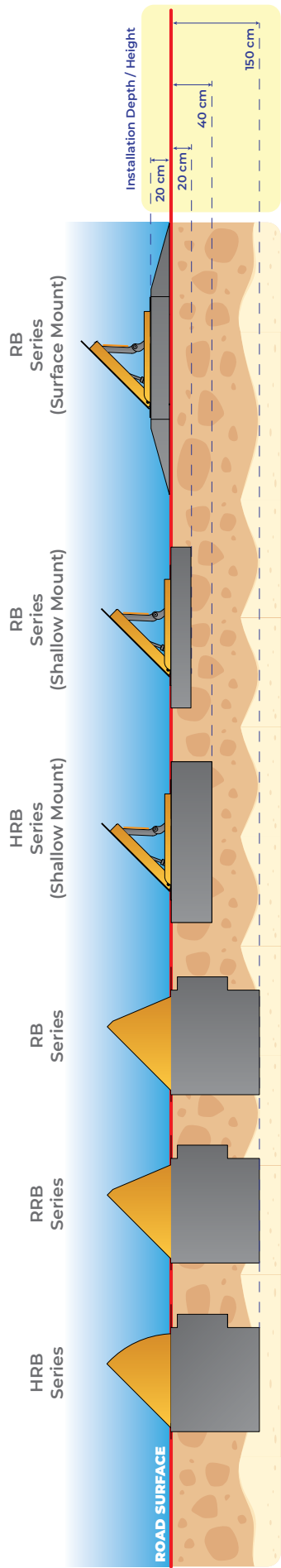


DUR



STOP

Impact Resistances According to Product Types*



ASTM 2656						Tested & Certified		Compliant	N/A
H30	Truck	29,500 kg - 30 mph	●	—	—	—	—	●	—
M50 (K-12)	Truck	6,800 kg - 50 mph	●	—	●	—	—	●	—
M40 (K-8)	Truck	6,800 kg - 40 mph	●	●	●	—	—	●	—
M30 (K-4)	Truck	6,800 kg - 30 mph	●	●	●	—	—	●	—
PU60	Pick-up	2,300 kg - 60 mph	●	●	●	—	—	●	—
PU50	Pick-up	2,300 kg - 50 mph	●	●	●	—	—	●	—
PU40	Pick-up	2,300 kg - 40 mph	●	●	●	—	—	●	—
PU30	Pick-up	2,300 kg - 30 mph	●	●	●	—	—	●	—
SC60	Car	1,100 kg - 60 mph	●	●	●	—	—	●	—
SC50	Car	1,100 kg - 50 mph	●	●	●	—	—	●	—
SC40	Car	1,100 kg - 40 mph	●	●	●	—	—	●	—
SC30	Car	1,100 kg - 30 mph	●	●	●	—	—	●	—




According to standard specifications of the products and for 900 mm road blocker heights. Consult with OZAK for products with different dimensions.







Road Blockers

General Technical Specifications (embedded series)			
	HRB (Heavy Duty Road Blocker)	RRB (Reinforced Road Blocker)	RB (Residential Type Road Blocker)
			
Standard Features and Built-in Properties			
Axle Load	50 T.	50 T.	40 T.
Panel Thicknesses	Solid 6 mm (at every 35-55 cm)	Solid 6 mm (at every 35-55 cm)	Solid 4 mm panels
Flashing Light	Standard	Optional	Optional
Round Front Panel	Standard	Optional	Optional
Top Plate	10/11 mm	8/9 mm	8/9 mm
Oil Level Sensor	Standard	Optional	Optional
Impact Resistance (Crash Test)	M50 P1 (K-12) tested & certified (HRB 30 R 90). Designed and produced to withstand H30.	Designed and produced to withstand M50 P1 (K-12).	Designed and produced to withstand M40 P1 (K-8).
Front Panel Thickness	30+6 (opt. 10)+3mm	30+6mm	4 (mm)
Speed	2,5 / 6 sn	4 / 6 sn (Opt. 2,5 / 4 sn)	4 / 6 sn (Opt. 2,5 / 4 sn)
380V 3-Phase AC.			
IP 67 manual control button unit 3 functions.			
Emergency button.			
Down/descend button (manual) in case of power off or maintenance.			
PLC control unit.			
24 V DC control.			
24 V DC solenoids.			
Automatic/manual programmable access authorisation.			
Outputs (siren, light, beam, flashes).			
Movement buzzer.			
Special design hinge structure spread on the total width of the blocker without gap.			
Unladen piston connection at top and bottom positions of the blocker enabling free-standing of the piston			
Galvanised sheet metal main body side covers.			
Hot dip galvanized vehicle pass through surface (top plates)			
60 lt oil tank.			
IP 55 - Hydraulic Power Unit, IP 58 - Blocker Cabinet (underground unit), IP 68 - Hydraulic Piston			

	Solid impact absorbtion panels.
	Maximum reinforced static construction cabin.
	Service access lid (screwed).
	Reinforced industrial paint with two components in yellow and black colors.
	High visibility with yellow and black diagonal stripes on impact surface.
	Reflective marking.
	Hose for Hydraulic Oil (10mt)
	25 cc hand pump (manual).
	Oil level and temperature indicator.
	Protective valve for oil hose.
	Oil tank with particule filter.
	Oil tank with magnetic metal collector.
	Hot dip galvanised power & control unit cabin
	-5°C / +55°C (Opt. -30°C / +70°C)
	Ground mounting apparatus.
	Easy installation.

Optional Features

	PLC diagnostic monitor (LAN).
	Hot dip galvanisation both for cabinet and blocker unit
	Hot dip galvanisation for impact surface
	Double effect hydraulic movement.
	Double speed.
	Optional speeds for RRB and RB.
	Accumulator for emergency fast raise up (app.1,5sn speed).
	Traffic lights (red-green).
	Traffic lights (red-green), dia:100mm or 200mm
	Loop dedector.
	Beam dedector.
	Photocell.
	Remote control (wireless).
	Rain water drainage pump (emergency submersible pump).
	Rounded front panel (recommended for residential use for safety).
	Ground mounting plate.
	Oil level sensor.
	1 phase 220 V AC or 24 V DC Motor.
	UPS.
	Oil cooler.
	Oil heater.
	Component heater.
	IP 67 control box (for PLC, SMPS, connectors, circuit breakers, loop detector (if any), relays) .
	Surface frames in optional sizes (25cm to 100cm).
	Audio Signal (Siren, powered).



BOLLARD



M40 Installation

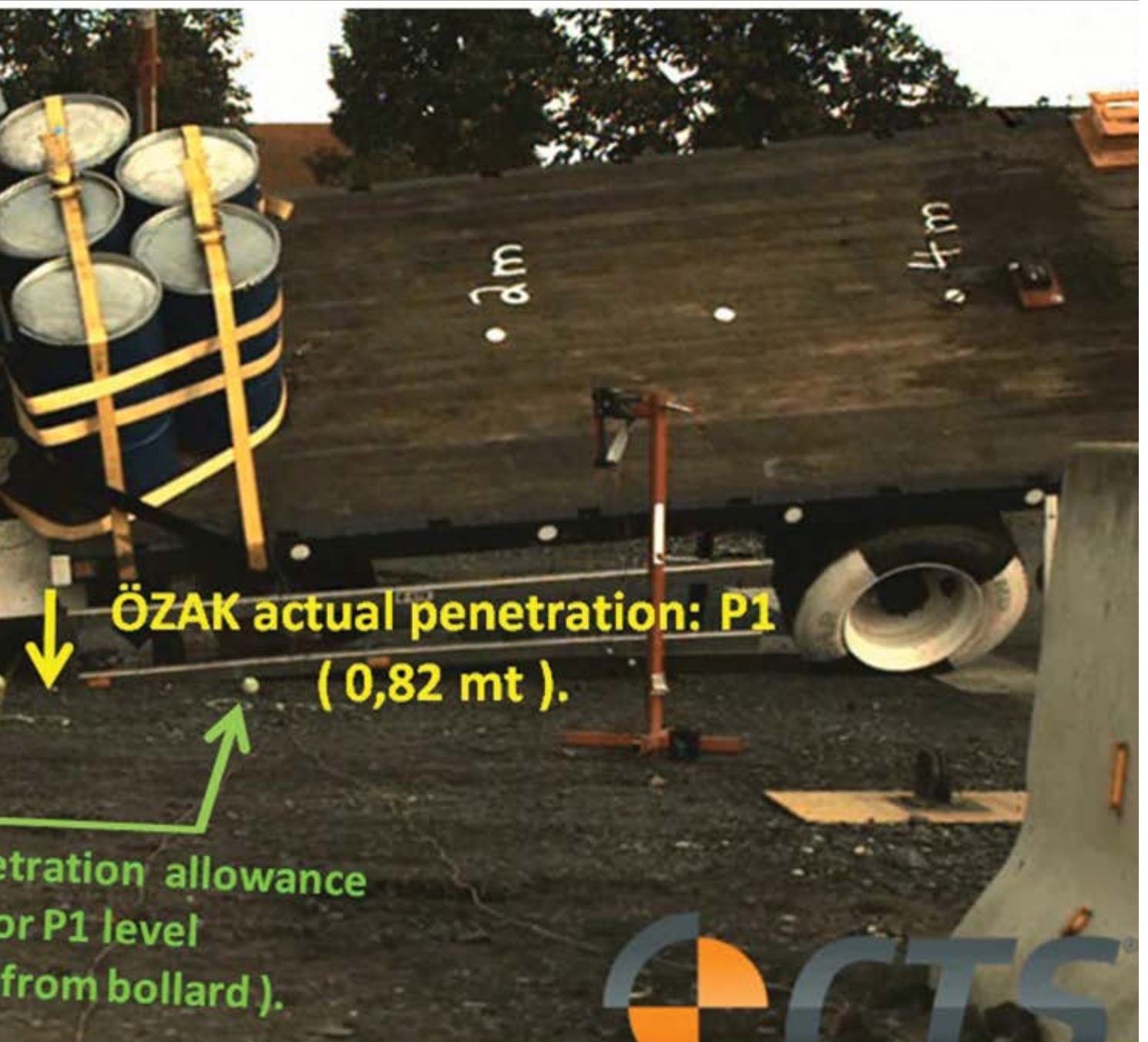


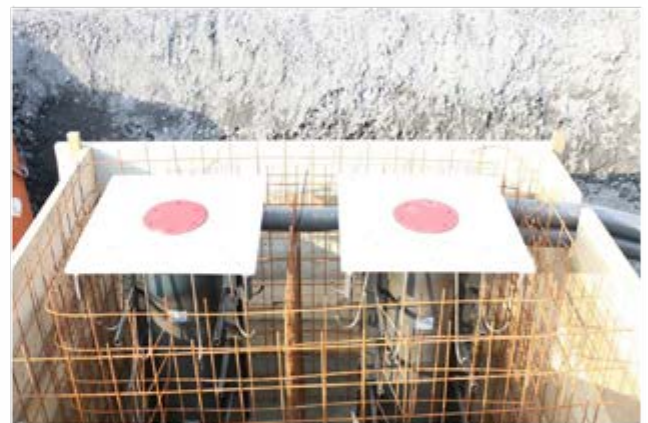
M40 (K8)
ASTM 2656-07



for crash
test video







M50 Installation



HBD HEAVY DUTY BOLLARD



M50 (K12)
M40 (K8)
ASTM F2656-07



Power	Standard 380V AC 3-Phase 50/60 Hz, 2,2-5,5 kW motor (depending on the number of bollards in the set to be fed). Opt. 220V, 110V 1-Phase 50/60 Hz; or 24V DC (for some models/sizes only).
Control Pack	24V DC powered and PLC control unit is placed in power unit cabinet. Solenoids 24V DC (Ops.12V DC / 220V AC)
Speed	Standard Operation ~2.5 - 5 sec. (ascend/descend) (depending on the number of bollards in the set to be fed). Emergency raise up (upwards) by optional hydraulic accumulator ~1,5 sec.
IP Rating	IP 55 - Hydraulic Power Unit, IP 67 - Electronics (optional), protection with housing/box, IP 68 - Hydraulic Piston
Crash / Impact Rating	M50 (K-12) & M40 (K-8) crash tested and certified according to ASTM 2656-07 (HBD 275 H 90 only).
Axle Load Resistance	70T
Hydraulic Cylinder Unit	Heavy duty, double acting, electrostatic powder coated, dust sealed hydraulic cylinder.
Hydraulic Power Unit	Strengthened industrial pump, 30-150 lt (depending on the number of bollards in the set to be fed) oil tank capacity with magnetic metal collector and particle filter. Built-in oil level and oil temperature indicators and oil level sensor with low oil level warning. 20-120 Bar (depending on the number of bollards in the set to be fed) pressure (max. 160 bar); 10mt R2 (double wire braided mesh) reinforced hydraulic hose. Interconnecting hoses for multiple bollard installations will be supplied.
System	Down, Up, Emergency and external sensor inputs/outputs (e.g. Loop Detector, Beam Detector, Signalization, Remote Control, etc.). System alerts with an audio signal during lowering and raising operation. A loud siren output in case of alarm or emergency. Can be lowered or raised automatically in case of emergency (user's preference, optional at no cost), programmed to stop as standard. Can be lowered and raised manually in case of power failure or during the maintenance service with manual pump and manual discharge feature. Automatic raise up mode deploys (optionally with synchronized loop detector) the bollard after the vehicle has passed over.
Power Unit	Motor, hydraulic pump and solenoid valves are contained in an easily accessible hot-dip-galvanized and electrostatic powder painted cabinet with a built-in lock lid. (Opt. Stainless Steel Cabinet) Cabinet Dimensions: 1000 x 570 x 1200mm (W x L x H).
Underground Structure	Bollard Anchorage Casing: Ø338 / 420 mm steel casing hot dip galvanized and structured for maximum strength. Casing is designed so that no vehicle crashing effect can displace it after embedded or installed into the ground. Ground assembly is supported with bars. Hydraulic hose and cable entry openings enabling to use both of the directions as per hydraulic power unit position and site conditons. Designed for easy access to hydraulic hose and cable connections. Ground mounting plate with installation holes for bolt type easy ground fixing. Includes cut-out for connection of submersible pump for rainwater drainage. Main Housing: Ø324 / 406 mm hot dip galvanised steel, structured to provide main housing for the bollard cylinder. Bollard cylinder pivoted with and moves through replaceable 5 rails (inner railing) made of special non-metal and positioned with equal distances from eachother for maximum rigidity and minimum material fraction. Contains the hydraulic cylinder lower connection. Thanks to the bollard anchorage casing, the main housing can be easily replaceable together with the bollard cylinder in case of a damage in any kind.

HBD HEAVY DUTY BOLLARD

Above Ground Structure

Bollard Cylinder (impact blocking unit):

Ø270 and 324 mm hot-dip galvanised steel pipe with 10 mm wall thickness and eccentrically 65-90 mm solid steel (providing higher resistance compared to pipes with 40 mm wall thickness) and composite infilled impact surface, colored with electrostatic powder coating in RAL9006 as standard (other RAL colors are optionally available).

Demountable bollard top plate made of aluminium with 360° visible red flashing LED indicators.

Furnished with red, white or yellow reflecting strips compliant to "E" standard.

Special star-formed, vertical 10 mm solid steel infills for evenly distributed impact absorption.

Bollard cylinder pivoted with and moves through replaceable 5 rails (outer railing) made of special non-metal and positioned with equal distances from each other for maximum rigidity and minimum material fraction.

Contains the hydraulic cylinder upper connection.

Road Surface Plate:

15 mm steel hot-dip galvanised, colored with electrostatic powder coating in RAL9006 (other RAL colors are optionally available).

Easy disassembly by its bolt type connection.

Dust sealant / wiper seal.

Battery Back-up for Power-off Situation

Contains battery unit with capacity of 60-100 movements at full charge (deploy/retract) is optionally available (minimum number of movements change according to the number of bollards in the system).

Control System

Manual Control Button Unit:

Provided with an IP67 CRM yellow box and 10mt cable including 3 switches for downwards, upwards, stop (optional emergency operation), equipped with built-in LED visual indications.

Compatibility with Access Control Systems:

Compatible with any access control system (by third parties).

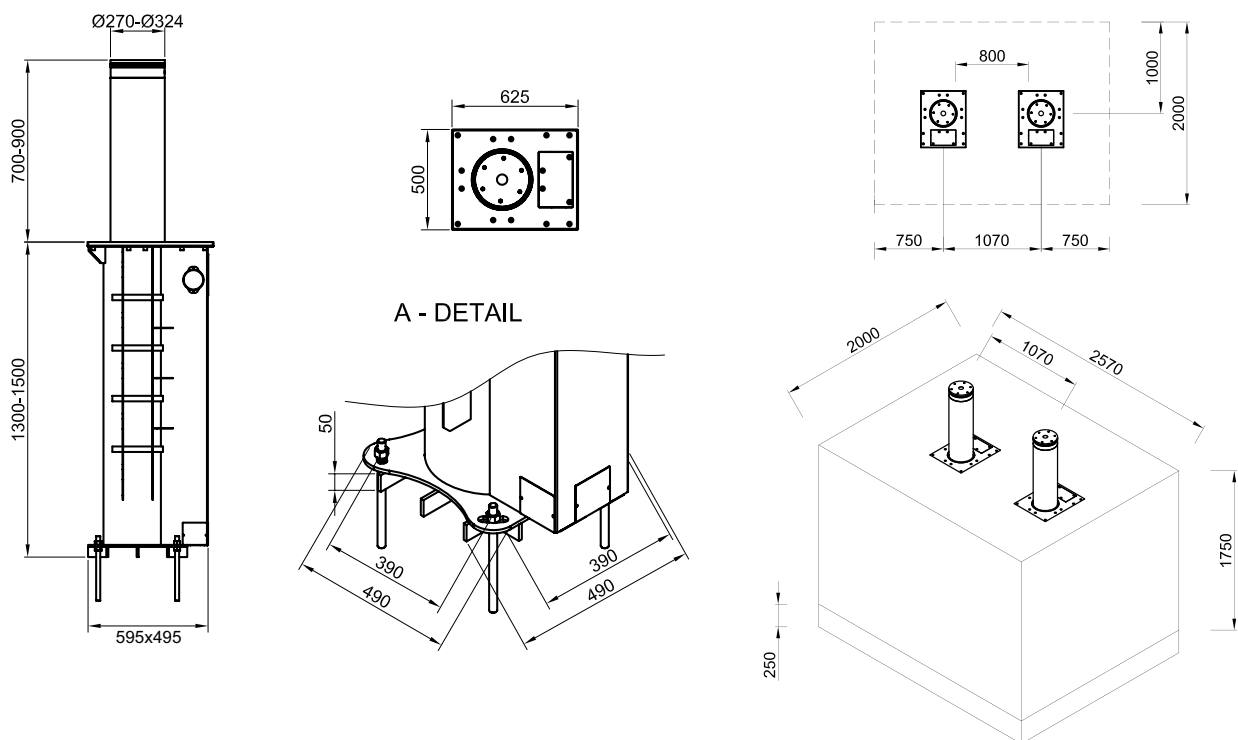
Optional Features and Accessories

Traffic Lights (red-green), Traffic Light Pole, Loop Detector (double/single antenna), Beam Detector, 220V or 24V DC Motor, Remote Control (receiver and transmitter are 3 channels), UPS, Photocell Sensor (receiver+ transmitter with 50cm height pole), RB CONT. UNIT.V.001 Control Unit, Intercom, External Buttons, Emergency Submersible Pump, Hydraulic Accumulator for Emergency Fast Raise-up, Oil Cooler, Oil Heater, Heater for Electronic Components, Powered Audio Signal (siren), PLC Diagnostic Monitor, IP67 box (for PLC, SMPS, connectors etc inside power unit).

Installation

Easy Installation with C30 grade concrete and steel rebar reinforcement. Possible to install multiple units. In case of multiple unit installation, 1200mm gap between the bollards is recommended for M40 certified installations.

For M50 certified installations; minimum 2 bollards shall be installed keeping the gap between bollards at 800 mm.



RBD REINFORCED BOLLARD



Power	Standard 380V AC 3-Phase 50/60 Hz, 2,2-5,5 kW motor (depending on the number of bollards in the set to be fed). Opt. 220V, 110V 1-Phase 50/60 Hz; or 24V DC (for some models/sizes only).
Control Pack	24V DC powered and PLC control unit is placed in power unit cabinet. Solenoids 24V DC (Ops.12V DC / 220V AC)
Speed	Standard Operation ~2.5 -5 sec. (ascend/descend) (depending on the number of bollards in the set to be fed). Emergency raise up (upwards) by optional hydraulic accumulator ~1,5 sec.
IP Rating	IP 55 - Hydraulic Power Unit, IP 67 - Electronics (optional), protection with housing/box, IP 68 - Hydraulic Piston
Crash / Impact Rating	Designed and produced to stop a vehicle weighing 6800 kg and travelling with 30 miles/hour according to ASTM 2656-07 standard at M30 (K-4) level.
Axle Load Resistance	50T
Hydraulic Cylinder Unit	Heavy duty, double acting electrostatic powder coated, dust sealed hydraulic cylinder.
Hydraulic Power Unit	Strengthened industrial pump, 30-150 lt (depending on the number of bollards in the set to be fed) oil tank capacity with magnetic metal collector and particle filter. Built-in oil level and oil temperature indicators with low oil level warning. 20-120 Bar (depending on the number of bollards in the set to be fed) pressure (max. 160 bar); 10mt R2 (double wire braided mesh) reinforced hydraulic hose. Interconnecting hoses for multiple bollard installations will be supplied.
System	Down, Up, Emergency and external sensor inputs/outputs (e.g. Loop Detector, Beam Detector, Signalization, Remote Control, etc.). System alerts with an audio signal during lowering and raising operation. A loud siren output in case of alarm or emergency. Can be lowered or raised automatically in case of emergency (user's preference, optional at no cost), programmed to stop as standard. Can be lowered and raised manually in case of power failure or during the maintenance service with manual pump and manual discharge feature. Automatic raise up mode deploys (optionally with synchronized loop detector) the bollard after the vehicle has passed over.
Power Unit	Motor, hydraulic pump and solenoid valves are contained in an easily accessible hot-dip-galvanized and electrostatic powder painted cabinet with a built-in lock lid. (Opt. Stainless Steel Cabinet) Cabinet Dimensions: 1000 mm x 570 mm x 1200 mm (W x L x H).
Underground Structure	Bollard Anchorage Casing: Ø338 / 420 mm steel casing hot dip galvanized and structured for maximum strength. Casing is designed so that no vehicle crashing effect can displace it after embedded installed into the ground. Ground assembly is supported with bars. Hydraulic hose and cable entry openings enabling to use both of the directions as per hydraulic power unit position and site conditons. Designed for easy access to hydraulic hose and cable connections. Ground mounting plate with installation holes for bolt type easy ground fixing. Includes cut-out for connection of submersible pump for rainwater drainage. Main Housing: Ø324 / 406 mm hot dip galvanised steel, structured to provide main housing for the bollard cylinder. Bollard cylinder pivoted with and moves through replaceable 5 rails (inner railing) made of special non-metal and positioned with equal distances from eachother for maximum rigidity and minimum material fraction. Contains the hydraulic cylinder lower connection. Thanks to the bollard anchorage casing, the main housing can be easily replaceable together with the bollard cylinder in case of a damage in any kind.

RBD REINFORCED BOLLARD

Above Ground Structure

Bollard Cylinder (impact blocking unit) :

Ø270 and 324 mm hot-dip galvanised steel with 10mm wall thickness and eccentrically 65-90 mm solid steel (providing higher resistance compared to pipes with 27 mm wall thickness) and composite infilled impact surface, colored with electrostatic powder coating in RAL9006 as standard (other RAL colors are optionally available).

Demountable bollard top plate made of aluminium with 360° visible red flashing LED indicators.

Furnished with red, white or yellow reflecting strips compliant to "E" standard.

Special star-formed, vertical 5 mm solid steel infills for evenly distributed impact absorption.

Bollard cylinder pivoted with and moves through replaceable 5 rails (outer railing) made of special non-metal and positioned with equal distances from each other for maximum rigidity and minimum material fraction.

Contains the hydraulic cylinder upper connection.

Road Surface Plate:

15 mm steel hot-dip galvanised, colored with electrostatic powder coating in RAL9006 (other RAL colors are optionally available).

Easy disassembly by its bolt type connection.

Dust sealant / wiper seal.

Battery Back-up for Power-off Situation

Contains battery unit with capacity of 60-100 movements at full charge (deploy/retract) is optionally available (minimum number of movements change according to the number of bollards in the system).

Control System

Manual Control Button Unit:

Provided with an IP67 CRM yellow box and 10mt cable including 3 switches for downwards, upwards, stop (optional emergency operation), equipped with built-in LED visual indications.

Compatibility with Access Control Systems:

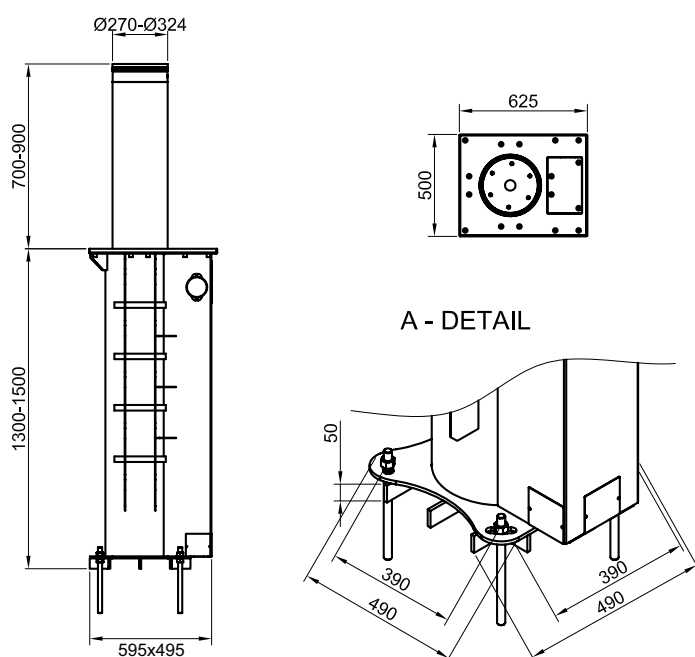
Compatible with any access control system (by third parties).

Optional Features and Accessories

Traffic Lights (red-green), Traffic Light Pole, Loop Detector (double/single antenna), Beam Detector, 220V or 24V DC Motor, Remote Control (receiver and transmitter are 3 channels), UPS, Photocell Sensor (receiver+ transmitter with 50cm height pole), RB CONT. UNIT.V.001 Control Unit, Intercom, External Buttons, Emergency Submersible Pump, Hydraulic Accumulator for Emergency Fast Raise-up, Oil Cooler, Oil Heater, Heater for Electronic Components, Powered Audio Signal (siren), PLC Diagnostic Monitor, IP67 box (for PLC, SMPS, connectors etc inside power unit), oil level sensor.

Installation

Easy Installation with C30 grade concrete and steel rebar reinforcement. Possible to install multiple units. In case of multiple unit installation, 1200mm gap between the bollards is recommended.

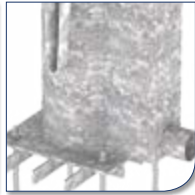






TBD

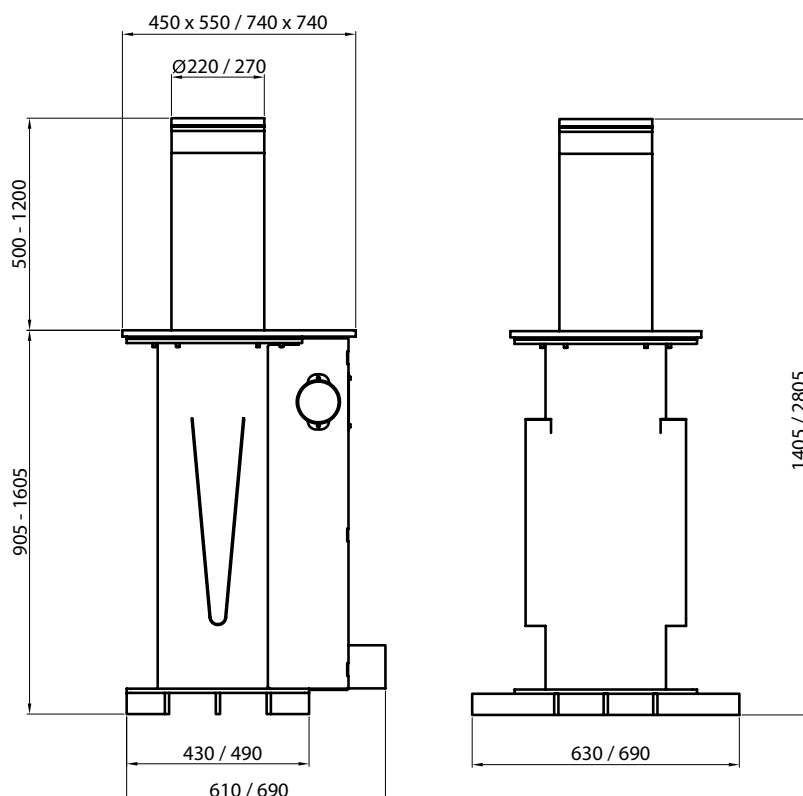
TRAFFIC BOLLARD



Power	Standard 380V AC 3-Phase 50/60 Hz, 2,2-5,5 kW motor (depending on the number of bollards in the set to be fed). Opt. 220V, 110V 1-Phase 50/60 Hz; or 24V DC (for some models/sizes only).
Control Pack	24V DC powered and PLC control unit placed in power unit cabinet. Solenoids 24V DC (Ops.12V DC / 220V AC)
Speed	Standard Operation ~1,8 - 4 sec. (ascend/descend) (depending on the number of bollards in the set to be fed). Emergency raise up (upwards) by optional hydraulic accumulator ~1,5 sec.
IP Rating	IP 55 - Hydraulic Power Unit, IP 67 - Electronics (optional), protection with housing/box, IP 68 - Hydraulic Piston
Crash / Impact Rating	-
Axle Load Resistance	50T
Hydraulic Cylinder Unit	Heavy duty, double acting electrostatic powder coated, dust sealed hydraulic cylinder.
Hydraulic Power Unit	Strengthened industrial pump, 30-150 lt (depending on the number of bollards in the set to be fed) oil tank capacity with magnetic metal collector and particle filter. Built-in oil level and oil temperature indicators with low oil level warning. 20-120 Bar (depending on the number of bollards in the set to be fed) pressure (max. 160 bar); 10mt R2 (double wire braided mesh) reinforced hydraulic hose. Interconnecting hoses for multiple bollard installations will be supplied.
System	Down, Up, Emergency and external sensor inputs/outputs (e.g. Loop Detector, Beam Detector, Signalization, Remote Control, etc.). System alerts with an audio signal during lowering and raising operation. A loud siren output in case of alarm or emergency Can be lowered or raised automatically in case of emergency (user's preference, optional at no cost), programmed to stop as standard. Can be lowered and raised manually in case of power failure or during the maintenance service with manual pump and manual discharge feature. Automatic raise up mode deploys (optionally with synchronized loop detector) the bollard after the vehicle has passed over.
Power Unit	Motor, hydraulic pump and solenoid valves are contained in an easily accessible hot-dip-galvanized and electrostatic powder painted cabinet with a built-in lock lid. (Opt. Stainless Steel Cabinet) Cabinet Dimensions: 1000 mm x 570 mm x 1200 mm (W x L x H).
Underground Structure	Bollard Anchorage Casing: Ø284 / 338 mm steel casing hot dip galvanized and structured for maximum strength. Casing is designed so that no vehicle crashing effect can displace it after embedded or installed into the ground. Hydraulic hose and cable entry openings enabling to use either of the three directions as per hydraulic power unit position and site conditons. Designed for easy access to hydraulic hose and cable connections. Ground mounting plate with installation holes for bolt type easy ground fixing. Includes cut-out for connection of submersible pump for rainwater drainage. Main Housing: Ø273 / 324 mm hot dip galvanised steel, structured to provide main housing for the bollard cylinder. Bollard cylinder pivoted with and moves through replaceable 5 rails (inner railing) made of special non-metal and positioned with equal distances from eachother for maximum rigidity and minimum material fraction. Contains the hydraulic cylinder lower connection. Thanks to the bollard anchorage casing, the main housing can be easily replaceable together with the bollard cylinder in case of a damage in any kind.

TBD TRAFFIC BOLLARD

Above Ground Structure	<p>Bollard Cylinder (impact blocking unit) : $\varnothing 220 / 270$ mm stainless steel sleeve on hot-dip galvanised steel with 5 mm wall thickness.</p> <p>Demountable bollard top plate made of aluminium with 360° visible red flashing LED indicators.</p> <p>Furnished with red, white or yellow reflecting strips compliant to "E" standard.</p> <p>Bollard cylinder pivoted with and moves through replaceable 5 rails (outer railing) made of special non-metal and positioned with equal distances from eachother for maximum rigidity and minimum material fraction.</p> <p>Contains the hydraulic cylinder upper connection.</p> <p>Road Surface Plate: 15 mm steel hot-dip galvanised, colored with elctrostatic powder coating in (other RAL colors are optionally available). Easy disassembly by its bolt type connection.</p> <p>Dust sealant / wiper seal.</p>
Battery Back-up for Power-off Situation	<p>Contains battery unit with capacity of 60-100 movements at full charge (deploy/retract) is optionally available (minimum number of movements change according to the number of bollards in the system).</p>
Control System	<p>Manual Control Button Unit: Provided with an IP67 CRM yellow box and 10mt cable including 3 switches for downwards, upwards, stop (optional emergency operation), equipped with built-in LED visual indications.</p> <p>Compatibility with Access Control Systems: Compatible with any access control system (by third parties).</p>
Optional Features and Accessories	<p>Traffic Lights (red-green), Traffic Light Pole, Loop Detector (double/single antenna), Beam Detector, 220V or 24V DC Motor, Remote Control (receiver and transmitter are 3 channels), UPS, Photocell Sensor (receiver+ transmitter with 50cm height pole), RB CONT. UNIT.V.001 Control Unit, Intercom, External Buttons, Emergency Submersible Pump, Hydraulic Accumulator for Emergency Fast Raise-up, Oil Cooler, Oil Heater, Heater for Electronic Components, Powered Audio Signal (siren), PLC Diagnostic Monitor, IP67 box (for PLC, SMPS, connectors etc inside power unit), oil level sensor.</p>
Installation	<p>Easy Installation with C30 grade concrete and steel rebar reinforcement. Possible to install multiple units. In case of multiple unit installation, 1200mm gap between the bollards is recommended.</p>



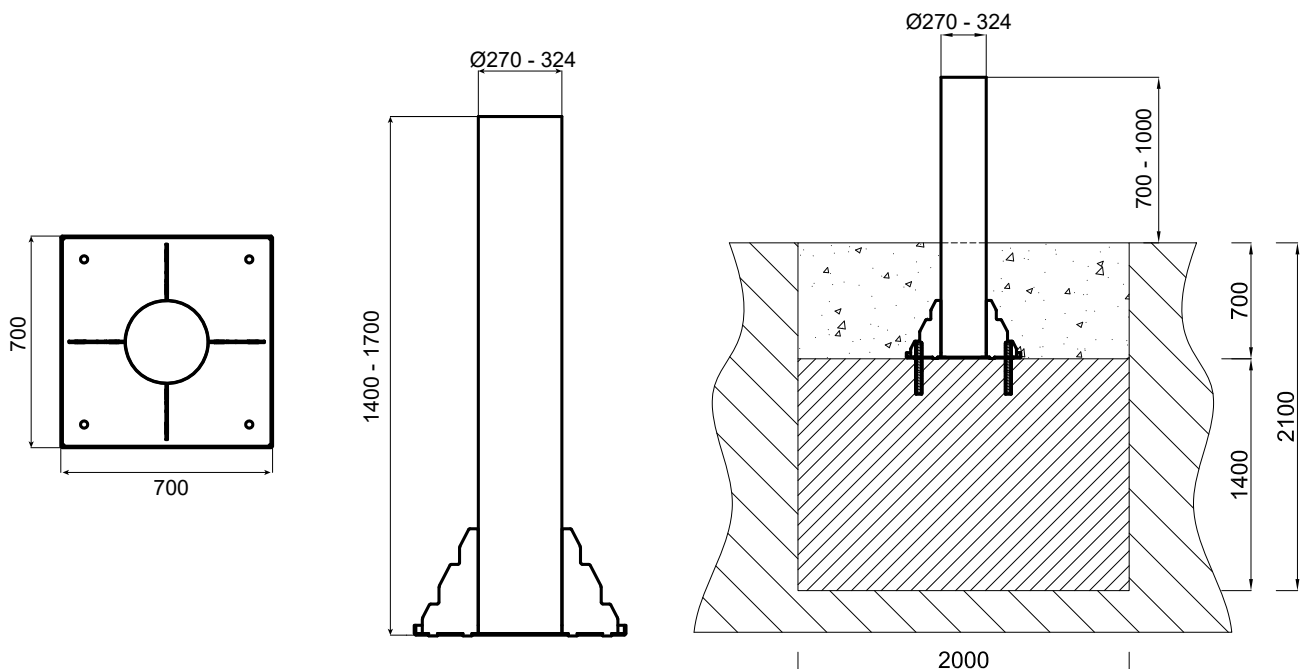
HBD FIXED BOLLARD



**M50 (K12)
ASTM F2656-15**



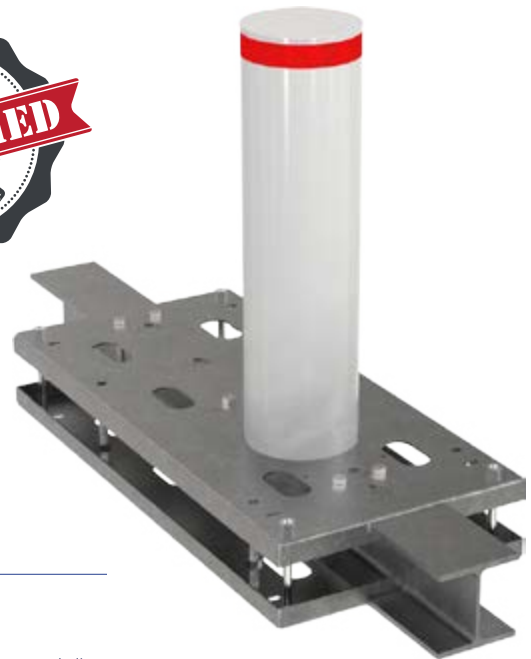
Bollard Type	Anti-terror/high security, fixed/static type.
Impact Resistance	Crash tested and certified according to ASTM 2656-15 M50 (K-12) standard (HBD 275 S 100 model only).
Underground Structure	Bollard Anchorage High resistant bollard anchorage, containing 700 x 700 mm anchorage plate with 4 vertical anchorage supports welded to the bollard cylinder (impact blocking unit) and having 4 stud bolts/nuts for easy leveling. Bollard anchorage is strengthened and designed so that no vehicle crashing effect can displace it after installed into the ground.
Above Ground Structure	Bollard Cylinder (impact blocking unit) 700 - 1000 mm high from the ground, Ø270 and 324mm hot-dip galvanised steel, colored with electrostatic powder coating in RAL9006 as standard (other RAL colors are optionally available). Furnished with red, white or yellow reflecting strips compliant to "E" standard.
Optional Features and Accessories	Demountable bollard top plate with 360° visible red flashing LED indicators, stainless steel bollard post sleeve, different color options, different product dimensions.
Installation	With 4 bolts for easy leveling and using C30 grade concrete and steel rebar reinforcement. Ground leveling and preparation works shall be done before concrete pouring. Allowable bearing value of the ground shall be minimum 1/2 kg/cm².



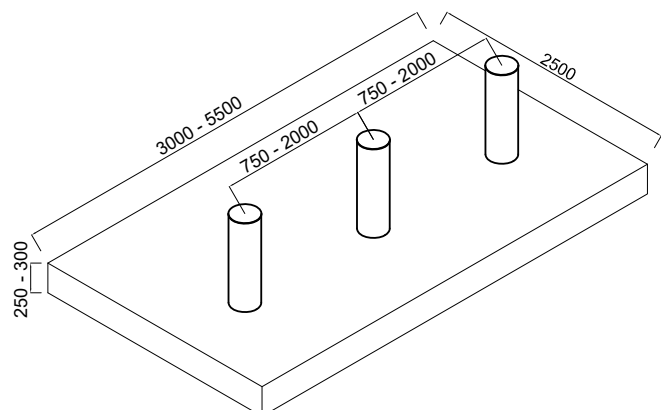
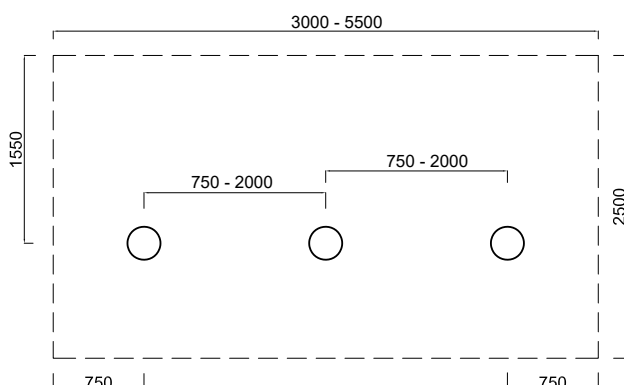
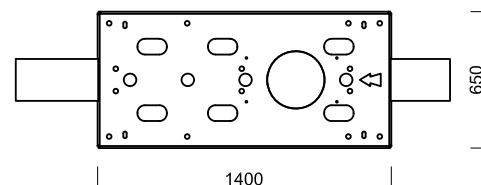
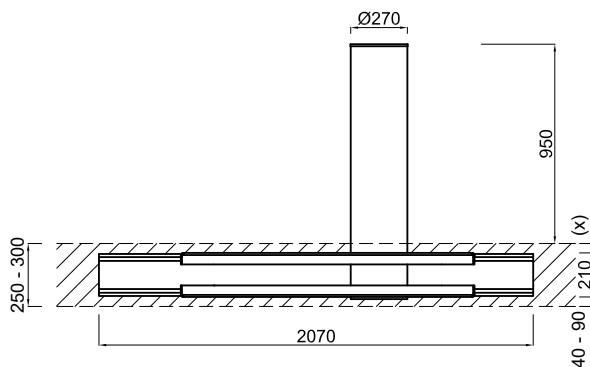
HBD

FIXED BOLLARD

(Shallow Mount)



Bollard Type	Anti-terror/high security, shallow mount type (bollard underground anchorage height of 210mm only).
Impact Resistance	Crash tested and certified according to; IWA 14-1:2013 Fixed Bollard V/7200[N3C]/64 PAS68:2013 Fixed Bollard V/7500[N3]/64 ASTM 2656-18 C740/7200 standards (HBD 275 S 95/8 SRF model).
Underground Structure	Bollard Anchorage High resistant bollard anchorage with 2 anchorage plates having gaps for easy and overall penetration of the concrete, strengthened with 200mm thick "HEB" beams on impact direction and having 4 stud bolts/nut for easy levelling. Providing shallow mounting with bollard underground anchorage height of 210mm only. Underground element connections are extra strengthened by fastening wedge type, 10.9 grade bolted and welded together at the same time. Bollard post is hot-dip galvanized, strengthened and designed so that no vehicle crashing effect can be displace it after installed into the ground.
Above Ground Structure	Bollard Cylinder (impact blocking unit) 950mm high from the ground, Ø270 mm hot-dip galvanized steel in RAL9006 color as standard (other RAL colors optionally available). Furnished with red, white or yellow reflecting strips compliant to "E" standard.
Optional Features and Accessories	Demountable bollard top plate with 360° visible red flashing LED indicators, stainless steel bollard post sleeve, different color options, different product dimensions.
Installation	With 4 bolts for easy leveling and gaps for easy and overall penetration of the concrete easy installation using C30 grade concrete and steel rebar reinforcement. Ground leveling and preparation works shall be done before concrete pouring. Allowable bearing value of the ground shall be minimum 1/2 kg/cm ² .



*Design and specifications are subject to change without notice.

FIXED BOLLARD



Operation	Fixed, non-retractable
Diameter	220mm - 324mm (other diameters available optionally)
Height (Above Ground)	500-1200mm (other heights available optionally)
Installation	Ground embedding, easy fixed.
Options and Accessories	Different material and colour options, 360° visible LED indicator.

**Shape and sizes are for reference only. Fixed bollards can be identical with your retractable bollard or are available in any other specific shape and dimension.*

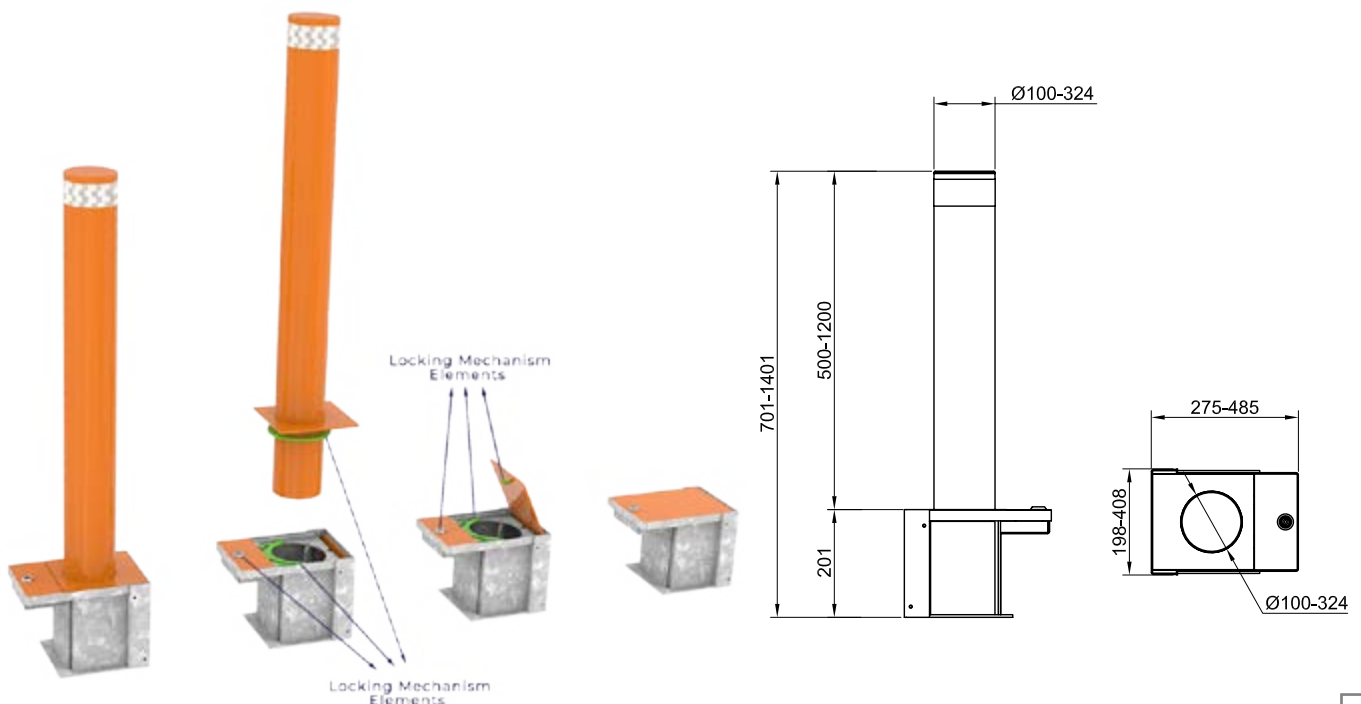
	RBD 270 S.../ RBD 324 S...	TBD 220 S.../ TBD 270 S...
Wall Thickness	10mm +65/90mm special star formed solid beams of 5mm thickness.	5 mm
Impact Resistance Crash Test	Designed and produced to withstand M40 (K8)	Can optionally be designed and produced to withstand M30 (K4)
Outer Body Surface	Electrostatic powder coated hot dip galvanised steel.(opt. stainless steel)	Stainless steel sleeve on hot dip galvanised body.
Visibility	Reflecting strips compliant to "E" standard, red/white/yellow colours.	
Installation	Easy installation with adjustable balance pedestals and C30 grade concrete and steel rebar reinforcement.	

REMOVABLE BOLLARD



Bollard Type	Removable, traffic control type
Underground Structure	Hot-dip galvanised steel in reinforced structure.
Above Ground Structure	Hot-dip galvanised and electrostatic powder coated in RAL colors steel (opt. 304 grade stainless steel) bollard body and lockable road level lid. Road level lid is designed to retract into underground unit when the bollard is in use avoiding risk of getting lost. Road level lid can be closed and locked when the bollard is removed providing a plain road surface. Furnished with red, White or yellow reflecting strips compliant to "E" standard.
Locking Mechanism	Hot-dip galvanised steel, special design sliding type locking mechanism. It is impossible to unlock the locking mechanism without its own key. Locking mechanism fastens the bollard body when it is in use and the road level lid when the bollard body is not in use.
Optional Features and Accessories	360° visible red flashing indicators, different product dimensions and various material options.
Installation	Easy installation, leveling with 4 bolts and using steel rebars and concrete.

Fixed bollard versions also identical with removable bollards are available upon request.

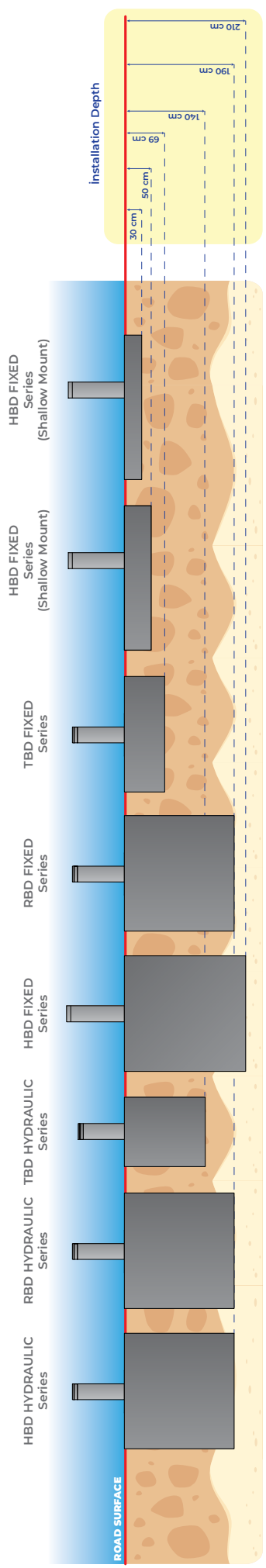


**Design and specifications are subject to change without notice.*



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BARIYER İNMEYEN
GEÇMEYİNİZ.

Impact Resistances According to Product Types*



	900 mm	900 mm	900 mm	1000 mm	900 mm	900 mm	950 mm	950 mm
Bollard Height	900 mm	900 mm	800 mm	1000 mm	900 mm	900 mm	950 mm	950 mm
M50 (K-12) Truck 6,800 kg - 50 mph								
C740 Truck 7,200 kg - 40 mph								
M40 (K-8) Truck 6,800 kg - 40 mph								
M30 (K-4) Truck 6,800 kg - 30 mph								
PU60 Pick-up 2,300 kg - 60 mph								
PU50 Pick-up 2,300 kg - 50 mph								
PU40 Pick-up 2,300 kg - 40 mph								
PU30 Pick-up 2,300 kg - 30 mph								
SC60 Car 1,100 kg - 60 mph								
SC50 Car 1,100 kg - 50 mph								
SC40 Car 1,100 kg - 40 mph								
SC30 Car 1,100 kg - 30 mph								
PAS 68 Truck 7,500 kg - 40 mph								
IWA 14 Truck 7,200 kg - 40 mph								

* According to standard specifications of the products and 270mm diameter. Consult with OZAK for products with 100 - 324 mm diameters and 500 - 1200 mm heights from ground.

ASTM 2656

PAS 68
IWA 14

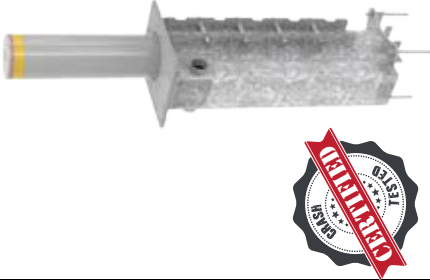



Tested & Certified

Compliant

N/A



Bollards

General Technical Specifications (hydraulic series)				
	HBD (Heavy Duty Bollard)	RBD (Reinforced Bollard)	TBD (Traffic Bollard)	
	 			
Standard Features and Built-in Properties				
Axle Load	70 T.	50 T.	50 T.	
Wall Thickness	10 mm + 65/90 mm special star formed solid beams of 10 mm thickness (providing higher resistance compared to pipes with 40 mm wall thickness)	10 mm + 65/90 mm special star formed solid beams of 5 mm thickness (providing higher resistance compared to pipes with 27 mm wall thickness)	5 mm	
Oil Level Sensor (PLC)	Standard	Optional	Optional	
Impact Resistance Crash Test	M50 (K 12) & M40 (K 8) tested & certified (HBD 275 H 90).	Designed and produced to withstand M30 (K4)	-	
Ground Assembly Supporting Bars	Standard	Standard	V form	
Finish	Electrostatic powder coated.	Electrostatic powder coated.	Stainless steel sleeve.	
Speed	2.5 - 5 sec. (single unit installation)	2.5 - 5 sec. (single unit installation)	1,8 - 4 sec. (single unit installation)	
380V 3-Phase AC.				
IP 67 manual control button unit 3 functions.				
Emergency button.				
Down/descend valve (manual) in case of power off or maintenance				

Double acting hydraulic movement.
PLC control unit.
24 V DC control.
24 V DC solenoids.
Automatic/manual programmable access authorisation.
Outputs (siren, light, beam, flashes).
Movement buzzer.
Hot dip galvanised steel main body.
Easy accesibility for servicing.
Aluminium top plate with 25mm thickness.
360 °C with high visibility flashing LED's in red.
Reflecting strips compliant to "E" standard, red/white/yellow colors.
Hose for Hydraulic Oil (10mt)
Hoses for Hydraulic Oil (for interconnection in case of multiple installations).
25 cc hand pump (manual).
Oil level and temperature indicator.
45 / 60 lt oil tank capacity (depending on the number of bollards in case of multiple installations).
Oil tank with particule filter.
Oil tank with magnetic metal collector.
Hot dip galvanised power & control unit cabin.
-5°C / +55°C (Opt. -30°C / +70°C)
Easy installation.
IP 55 - Hydraulic Power Unit, IP 58 - Underground Structure, IP 68 - Hydraulic Piston

Optional Features
PLC diagnostic monitor (LAN).
Accumulator for emergency fast raise up (app.1,5sn speed).
Traffic lights (red-green), dia:100mm or 200mm
Traffic light pole.
Loop dedector.
Beam dedector.
Photocell.
Remote control (wireless).
Rain water drainage pump (emergency submersible pump).
Oil level sensor.
1 phase 220 V AC or 24 V DC Motor.
UPS.
Oil cooler.
Oil heater.
Component heater.
IP 67 control box (for PLC, SMPS, connectors, circuit breakers, loop detector (if any), relays) .
Different materials and colors.
Audio Signal (Siren, powered).





SAC MİE

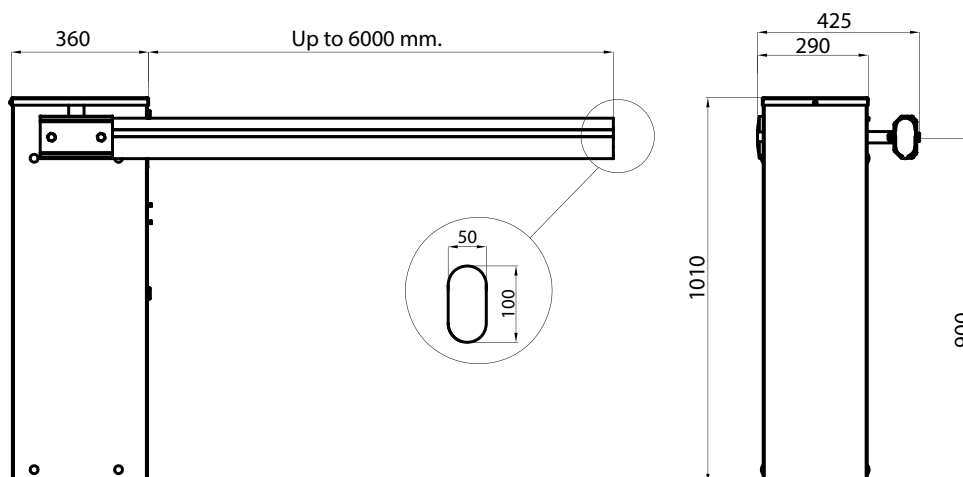
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BR1S / BR3S / BR6S ARM BARRIER



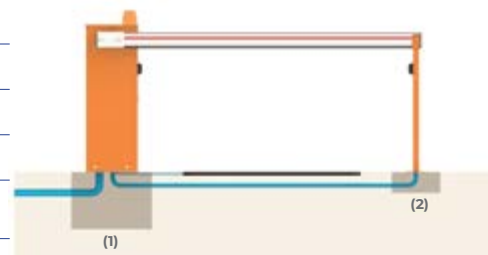
**for PUBLIC &
RESIDENTIAL AREA
CAR PARKS...**

- Easy to install and use,
- Durable body structure,
- Wide options and accessories alternatives,
- Compatible with any kind of access control system.



General Features	
Body Dimensions	360 x 290 x 1010(height) mm
Body Material – Finish	Galvanised steel – electrostatic powder coated
Body Colour	Orange (RAL 1033)
Access to Body Interiors	Through locked lids on the top and side
Arm (Barrier) Length	up to 6.0 m
Arm (Barrier) Material	Aluminium
Arm Colour	Anodized (opt. electrostatic powder coated in RAL colours)
Body Substructure / Stand	Concrete, 500 x 500 x 250 (height) mm
Power	220 V. 60/50 Hz. AC (%±10)
Power Consumption	Stand-by: 8W, During operation: 220-270 W (depending on the arm length.)
Locking / Interlock	Mechanical reduction
Operation	Electromechanical
Operation Speed	1 - 6 sec.
Manual Control	By manual lever
Operation Temperature , Humidity	-20°C/+68°C (Opt. -50°C with heater positive), RH 95% non-condensing.
IP Grade	IP 54, suitable for outdoor usage
Net Weight	~45 kg (without arm)
Options and Accessories	Safety sensor (photocell), loop dedector, top flashing indicator, LED indicator and diffuser on the arm (flashing in 4 different types), traffic light, arm resting post, support leg, folding arm, under arm curtain barrier, rubber cushion for arm, under arm impact sensor, battery and charging unit, wireless remote control (receiver&transmitter), manual remote control

Installation View

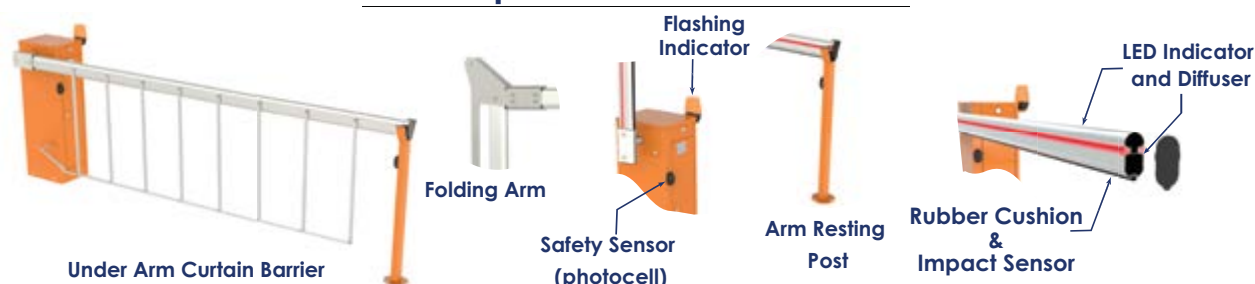


- (1) : 500x500x250 mm concrete
(2) : 300x300x150 mm concrete

Loop Dedector View



Main Options and Accessories







TOKOL OTOLARI
HARIÇ

OKAT
YANEDEN
KAYINIZ.

THE RIGHT CHOICE



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