Perimeter Protection Systems
Bollards, road blockers, tyre killers, lift barriers
4 Hörmann brand quality
6 Good reasons to try Hörmann
8 Quality and safety testing

10 Security Line
12 Automatic bollards
15 Semi-automatic bollards
16 Removable bollards
17 Fixed bollards

20 High Security Line
22 Safety certifications
23 Automatic bollards
24 Removable bollards
25 Fixed bollards
26 Road blockers
28 Lift barriers
29 Tyre killers

30 Standard equipment for bollards
31 Optional equipment for bollards
32 Optional equipment for road blockers, lift barriers and tyre killers

33 Key switch posts
34 Accessories

38 Hörmann product range
In-house product development
At Hörmann, innovation is produced in-house – highly qualified employees of the development departments are in charge of product optimisation and new developments. This results in market-ready, high-quality products that are very popular around the globe.

Modern manufacturing
All major system components are developed and manufactured by Hörmann, guaranteeing high compatibility, full functionality and optimal safety.
As Europe’s leading manufacturer of construction components, we are committed to high product and service quality. This is how we set standards on an international scale.

Highly-specialised factories develop and produce industrial doors, operators, loading technology and perimeter protection systems that are marked by excellent quality, functional safety and a long service life.

Our wide range of bollards with different functions, road blockers, lift barriers and tyre killers, through to complete control concepts make us a strong, future-oriented partner for perimeter protection systems.

**Competent advice**

Experienced specialists within our customer-oriented sales organisation support you from the planning stage, through technical clarification up to the final building inspection. Complete working documentation, such as technical manuals, is not only available in printed form, but is also always accessible and up-to-date at www.hoermann.com.

**Efficient service**

We recommend a semi-annual maintenance cycle for our perimeter protection systems. Our extensive service network means that we are always nearby and at your service.
Good reasons to try Hörmann
Innovations from the market leader

For bollards with an **integrated hydraulic operator**, all the functional components are installed in the bollard unit. The integrated hydraulic system requires only small amounts of oil, reducing the environmental risk significantly. Optionally, you can choose biodegradable oil to rule out environmental risks completely.

Another advantage: The control can be fitted up to 80 m away from the bollard using a power / connection cable.

The cylinders of all bollards have a matching appearance, allowing for a **customized combination of Security and High Security Line bollards**.

In addition, fixed, semi-automatic and automatic bollards can be combined perfectly thanks to the bottom plate with a matching appearance.

**The result is a harmonious overall look.**
Complete control concepts, e.g. comprising multiple bollards, can be operated using a single control. The concept also allows master and slave relationships to be configured between the bollards. The control is connected via service-friendly quick-connect terminals. These simplify fitting and make subsequent maintenance easier. The control can also be extended with control elements (such as code switches) and/or other activating kits, e.g. for induction loops.

The perimeter protection systems can also be conveniently operated using the BiSecur radio system. The extremely secure BiSecur encryption protocol, developed by Hörmann, makes sure that no one can copy your radio signal.
New and further developments in the Security Line and High Security Line are tested in both internal and external tests, examining the resistance to collisions with different loads, as well as their function depending on temperature and weather.

**Climatic testing**
Functional safety is ensured in various climatic conditions through special climatic tests. Different temperatures (from −30°C to +50°C), weather conditions and humidities are simulated in climatic test chambers. These tests have high demands and guarantee the reliable function and long service life of our perimeter protection systems.

**Pendulum impact testing**
The impact resistance of bollards is examined in special pendulum impact tests. A steel ball on a pendulum simulates the loads resulting during an impact with different speeds and vehicle types. The impact height is also tested individually. This allows us to ensure and even improve upon the high safety of our bollards.

**Uncompromising functional safety**
All perimeter protection systems are tested to ensure full functionality before delivery. All fine mechanical and hydraulic adjustments and the electric and electronic settings of each individual system component are tested. For systems with multiple components, the compatibility of all interfaces and functions is ensured. With this process, we can guarantee the fastest fitting possible as well as reliable operation of our perimeter protection systems.
The security provided by a bollard is measured based on different impact energies. The energy caused by a colliding vehicle depends on the vehicle type, weight and speed. The impact energy is crucial when it comes to damage and function.

**Impact energy with destruction**
This value indicates what speed of a specific vehicle type the bollard can resist. For example, if a vehicle weighing 1200 kg hits the bollard at a speed of 57 km/h (see graphic above), this may result in permanent damage to the mechanics and structure, meaning the bollard would have to be replaced following the crash. In the majority of cases, passage would be prevented.

**Impact energy without destruction**
This value indicates that a collision of this vehicle type moving at a specific maximum speed is stopped and no damage will result to the mechanics or structure of the bollard. For example, if a vehicle weighing 1200 kg hits the bollard at a speed of 25 km/h, the function and safety of the bollard would be maintained (see graphic above).
**Security Line**

Security for private and public applications

---

**Automatic bollards**

Automatic bollards are available in three versions: one version with an integrated electromechanical operator for average use frequencies and a variant with an integrated hydraulic operator for very frequent use. The third variant, automatic bollard RI-H with reinforced cylinder material, offers particularly high protection.

---

**Semi-automatic bollards**

Semi-automatic bollards with integrated gas springs are suitable for less frequent use. Installation does not require a power connection.
**Removable bollards**

Removable bollards, which can be detached without any tools, are recommended for very infrequent use of approximately 2 movements per day.

---

**Fixed bollards**

The **fixed bollards with bottom plate** have a matching appearance with automatic and semi-automatic bollards. If damaged, the cylinders can be removed. The **fixed bollards with ground anchor** make for an introductory model featuring an excellent price-performance ratio. **Fixed bollards RI-FF with reinforced cylinder material and reinforced ground fitting** are ideal for particularly high protection.
**Automatic bollards E**

With integrated electromechanical operator

**A 275-600 E**

- For average use frequencies (approx. 100 movements/day)
- Introductory model featuring an excellent price-performance ratio
- Automatic lifting and lowering by integrated electromechanical operator
- Control unit for controlling max. 3 bollards
- Distance between bollard and control unit of up to 20 m

---

<table>
<thead>
<tr>
<th>Standard equipment</th>
<th>Optional equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️</td>
<td></td>
</tr>
</tbody>
</table>

For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th>A 275-600 E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Speed, lifting</td>
</tr>
<tr>
<td>Speed, lowering</td>
</tr>
<tr>
<td>Automatic lowering in case of power failure (via battery)</td>
</tr>
<tr>
<td>Automatic safety cut-out (can be deactivated)</td>
</tr>
<tr>
<td>Integrated electromechanical operator</td>
</tr>
<tr>
<td>Movements (approx. per day)</td>
</tr>
<tr>
<td>Total movements (max. service life)</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
</tr>
<tr>
<td>Impact energy without destruction</td>
</tr>
<tr>
<td>Temperature range</td>
</tr>
</tbody>
</table>

* For temperatures below –10°C, we recommend an optional heater

---

Impact energy with destruction
- 150000 J

Impact energy without destruction
- 30000 J
Automatic bollards H
With integrated hydraulic operator

A 220-600 H / A 220-800 H
A 275-600 H / A 275-800 H

• For very frequent use
  (approx. 2000 movements/day)
• Automatic lifting and lowering by integrated
  hydraulic operator
• Optionally with EFO emergency function
  (Emergency Fast Operation)
• Control unit can be extended to control multiple
  bollards simultaneously
• Distance between bollard and control unit of up to 80 m

● Standard equipment  ○ Optional equipment
For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th></th>
<th>A 220-600 H</th>
<th>A 220-800 H</th>
<th>A 275-600 H</th>
<th>A 275-800 H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>220 mm</td>
<td>220 mm</td>
<td>273 mm</td>
<td>273 mm</td>
</tr>
<tr>
<td>Height</td>
<td>600 mm</td>
<td>800 mm</td>
<td>600 mm</td>
<td>800 mm</td>
</tr>
<tr>
<td>Speed, lifting</td>
<td>15 cm/s</td>
<td>15 cm/s</td>
<td>15 cm/s</td>
<td>15 cm/s</td>
</tr>
<tr>
<td>Speed, lowering</td>
<td>25 cm/s</td>
<td>25 cm/s</td>
<td>25 cm/s</td>
<td>25 cm/s</td>
</tr>
<tr>
<td>Automatic lowering in case of power failure</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>EFO emergency function</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Automatic safety cut-out (can be deactivated)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Integrated hydraulic operator</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Movements (approx. per day)</td>
<td>2000</td>
<td>2000</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>Total movements (max. service life)</td>
<td>3000000</td>
<td>3000000</td>
<td>3000000</td>
<td>3000000</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
<td>150000 J</td>
<td>150000 J</td>
<td>250000 J</td>
<td>250000 J</td>
</tr>
<tr>
<td>Impact energy without destruction</td>
<td>30000 J</td>
<td>30000 J</td>
<td>40000 J</td>
<td>40000 J</td>
</tr>
<tr>
<td>Temperature range</td>
<td>–40°C – +70°C*</td>
<td>–40°C – +70°C*</td>
<td>–40°C – +70°C*</td>
<td>–40°C – +70°C*</td>
</tr>
</tbody>
</table>

* For temperatures below –10°C, we recommend an optional heater

Impact energy with destruction
- 250000 J
- 150000 J

Impact energy without destruction
- 40000 J
- 30000 J

For information about the equipment options, see pages 30 – 31.
A 275-RI-600 H / A 275-RI-800 H

• For very frequent use (approx. 2000 movements/day)
• Especially high protection level thanks to reinforced cylinder material
• Automatic lifting and lowering by integrated hydraulic operator
• Optionally with EFO emergency function (Emergency Fast Operation)
• Control unit can be extended to control multiple bollards simultaneously
• Distance between bollard and control unit of up to 80 m

<table>
<thead>
<tr>
<th>Standard equipment</th>
<th>Optional equipment</th>
</tr>
</thead>
</table>

For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th>A 275-RI-600 H</th>
<th>A 275-RI-800 H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>273 mm</td>
</tr>
<tr>
<td>Height</td>
<td>600 mm</td>
</tr>
<tr>
<td>Speed, lifting</td>
<td>15 cm/s</td>
</tr>
<tr>
<td>Speed, lowering</td>
<td>25 cm/s</td>
</tr>
<tr>
<td>Automatic lowering in case of power failure</td>
<td>○</td>
</tr>
<tr>
<td>EFO emergency function</td>
<td>○</td>
</tr>
<tr>
<td>Automatic safety cut-out (can be deactivated)</td>
<td>●</td>
</tr>
<tr>
<td>Integrated hydraulic operator</td>
<td>●</td>
</tr>
<tr>
<td>Movements (approx. per day)</td>
<td>2000</td>
</tr>
<tr>
<td>Total movements (max. service life)</td>
<td>3000000</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
<td>400000 J</td>
</tr>
<tr>
<td>Impact energy without destruction</td>
<td>40000 J</td>
</tr>
<tr>
<td>Temperature range</td>
<td>–40°C – +70°C*</td>
</tr>
</tbody>
</table>

* For temperatures below –10°C, we recommend an optional heater

Impact energy with destruction
- 400000 J

Impact energy without destruction
- 40000 J
Semi-automatic bollards G
With integrated gas spring

S 220-600 G / S 220-800 G
S 275-600 G / S 275-800 G

- For less frequent use
  (approx. 5 movements/day)
- No power supply required
- Manual lowering of bollard by depressing it,
  automatic lifting by integrated gas spring

For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th></th>
<th>S 220-600 G</th>
<th>S 220-800 G</th>
<th>S 275-600 G</th>
<th>S 275-800 G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>220 mm</td>
<td>220 mm</td>
<td>273 mm</td>
<td>273 mm</td>
</tr>
<tr>
<td>Height</td>
<td>600 mm</td>
<td>800 mm</td>
<td>600 mm</td>
<td>800 mm</td>
</tr>
<tr>
<td>Speed, lifting</td>
<td>20 cm/s</td>
<td>20 cm/s</td>
<td>20 cm/s</td>
<td>20 cm/s</td>
</tr>
<tr>
<td>Integrated gas spring</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Movements (approx. per day)</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total movements (max. service life)</td>
<td>3000000</td>
<td>3000000</td>
<td>3000000</td>
<td>3000000</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
<td>150000 J</td>
<td>150000 J</td>
<td>250000 J</td>
<td>250000 J</td>
</tr>
<tr>
<td>Impact energy without destruction</td>
<td>30000 J</td>
<td>30000 J</td>
<td>40000 J</td>
<td>40000 J</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40°C – +60°C*</td>
<td>-40°C – +60°C*</td>
<td>-40°C – +60°C*</td>
<td>-40°C – +60°C*</td>
</tr>
</tbody>
</table>

Impact energy
with destruction
- 250000 J
- 150000 J

Impact energy
without destruction
- 40000 J
- 30000 J
Removable bollards
With closed socket

R 275-600

- For very infrequent use (approx. 2 movements/day)
- Can be detached without tools
- Ground-level fitting
- No floor opening when bollard is removed

For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th>R 275-600</th>
<th>Diameter 273 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height 600 mm</td>
<td></td>
</tr>
<tr>
<td>Movements (approx. per day) 2</td>
<td></td>
</tr>
<tr>
<td>Impact energy with destruction 200000 J</td>
<td></td>
</tr>
<tr>
<td>Impact energy without destruction 40000 J</td>
<td></td>
</tr>
</tbody>
</table>

Impact energy with destruction ■ 200000 J
Impact energy without destruction ■ 40000 J
Fixed bollards CF
With bottom plate

F 220-600 CF / F 220-800 CF
F 275-600 CF / F 275-800 CF

- Harmonious look in combination with automatic and semi-automatic bollards thanks to matching bottom plate
- Simple cylinder removal in case of damage or certain events

For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>F 220-600 CF</th>
<th>F 220-800 CF</th>
<th>F 275-600 CF</th>
<th>F 275-800 CF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (mm)</td>
<td>220</td>
<td>220</td>
<td>275</td>
<td>275</td>
</tr>
<tr>
<td>Impact energy with destruction (J)</td>
<td>150000</td>
<td>150000</td>
<td>250000</td>
<td>250000</td>
</tr>
<tr>
<td>Impact energy without destruction (J)</td>
<td>30000</td>
<td>30000</td>
<td>40000</td>
<td>40000</td>
</tr>
</tbody>
</table>

Impact energy with destruction
- 250000 J
- 150000 J

Impact energy without destruction
- 40000 J
- 30000 J
F 220-600 BR / F 220-800 BR
F 275-600 BR / F 275-800 BR

- Introductory model featuring an excellent price-performance ratio

For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th></th>
<th>F 220-600 BR</th>
<th>F 220-800 BR</th>
<th>F 275-600 BR</th>
<th>F 275-800 BR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>220 mm</td>
<td>220 mm</td>
<td>273 mm</td>
<td>273 mm</td>
</tr>
<tr>
<td>Height</td>
<td>600 mm</td>
<td>800 mm</td>
<td>600 mm</td>
<td>800 mm</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
<td>150000 J</td>
<td>150000 J</td>
<td>250000 J</td>
<td>250000 J</td>
</tr>
<tr>
<td>Impact energy without destruction</td>
<td>30000 J</td>
<td>30000 J</td>
<td>40000 J</td>
<td>40000 J</td>
</tr>
</tbody>
</table>

Impact energy with destruction
- 250000 J
- 150000 J

Impact energy without destruction
- 40000 J
- 30000 J
Fixed bollards RI-FF
With reinforced ground fitting

**F 275-RI-600 FF / F 275-RI-800 FF**

- Especially high protection level thanks to reinforced cylinder material and reinforced ground fitting

For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th></th>
<th>F 275-RI-600 FF</th>
<th>F 275-RI-800 FF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>273 mm</td>
<td>273 mm</td>
</tr>
<tr>
<td>Height</td>
<td>600 mm</td>
<td>800 mm</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
<td>400000 J</td>
<td>400000 J</td>
</tr>
<tr>
<td>Impact energy without destruction</td>
<td>40000 J</td>
<td>40000 J</td>
</tr>
</tbody>
</table>
High Security Line
Maximum protection for high security areas

High Security bollards
High Security Line bollards are perfect for protecting sensitive areas. They are available in automatic, removable and fixed versions and certified to crash tests, or they meet the relevant security requirements. The High Security Line cylinders match the Security Line cylinders.
Tyre killers
Tyre killers enable controlled, uni-directional passage while preventing passage in the other direction. While the Tyre Killer M variant is suitable for average use frequencies, Tyre Killer H is installed for frequent use.

Road blockers
For optimized security for entrances and exits up to 6 m wide, road blockers are recommended. They are available in the Road Blocker 500 variant with a barrier height of 500 mm or in the Road Blocker 1000 version with a barrier height of 1000 mm. Road Blocker 500 SF is suitable for fitting on finished floor surfaces since no groundwork is required.

Lift barriers
Lift barriers safeguard controlled entrances and exits up to 10 meters in width. They are suitable for very frequent use and meet high safety requirements.

Security fast in case of emergency
thanks to optional EFO emergency function
Crash tests allow us to optimally prepare our innovations for the official inspections by the accredited testing centres for official approvals. Bollard, road blocker and lift barrier certification requires real crash tests with very high loads. In this test, a 7.5 tonne lorry (remote-controlled) crashes into a road blocker at a speed of 80 km/h, for example. The various certifications from the USA and Europe are equally recognised internationally if they meet the same requirements.

<table>
<thead>
<tr>
<th>Crash test – K12 rating</th>
<th>Test method</th>
</tr>
</thead>
</table>
| American Certification DOS SD-SDT – 02.01  
The Texas A&M University System, Texas U.S.A. | Vehicle weight: 6.8 t  
Speed: 80 km/h  
Impact energy: 1695000 J |

<table>
<thead>
<tr>
<th>Crash test – M50 rating</th>
<th>Test method</th>
</tr>
</thead>
</table>
| Certification ASTM F2656-07  
Performed at Karco Engineering, LLC.  
Automotive Research Center, Adelanto CA, U.S.A. | Vehicle weight: 6.8 t  
Speed: 80 km/h  
Impact energy: 1680000 J |

<table>
<thead>
<tr>
<th>Crash test – M30 rating</th>
<th>Test method</th>
</tr>
</thead>
</table>
| Certification ASTM F2656-07  
Performed at Karco Engineering, LLC.  
Automotive Research Center, Adelanto CA, U.S.A. | Vehicle weight: 6.8 t  
Speed: 50 km/h  
Impact energy: 656000 J |

<table>
<thead>
<tr>
<th>Crash test – rating PAS68:2013</th>
<th>Test method</th>
</tr>
</thead>
</table>
| Certification PAS68:2013  
Performed at Aisico srl  
Crash Test Center, Pereto (Aq) – Italy | Vehicle weight: 7.5 t  
Speed: 80 km/h  
Impact energy: 1852000 J  
Vehicle weight: 7.5 t  
Speed: 50 km/h  
Impact energy: 677800 J |

<table>
<thead>
<tr>
<th>Crash test – rating IWA14-1:2013</th>
<th>Test method</th>
</tr>
</thead>
</table>
| Certification IWA14-1:2013  
Performed at Aisico srl  
Crash Test Center, Pereto (Aq) – Italy | Vehicle weight: 7.2 t  
Speed: 50 km/h  
Impact energy: 677800 J |
Automatic bollards H
With integrated hydraulic operator

A 275-M30-900 H / A 275-M30-1200 H
A 275-M50-900 H / A 275-M50-1200 H

- For very frequent use
  (approx. 2000 movements/day)
- Automatic lifting and lowering by integrated hydraulic operator
- Optionally with EFO emergency function
  (Emergency Fast Operation)
- Control unit can be extended to control multiple bollards simultaneously
- Distance between bollard and control unit of up to 80 m

● Standard equipment  ○ Optional equipment
For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>273 mm</td>
<td>271 mm</td>
<td>271 mm</td>
<td>271 mm</td>
</tr>
<tr>
<td>Height</td>
<td>900 mm</td>
<td>1200 mm</td>
<td>900 mm</td>
<td>1200 mm</td>
</tr>
<tr>
<td>Speed, lifting</td>
<td>10 cm/s</td>
<td>20 cm/s</td>
<td>22 cm/s</td>
<td>22 cm/s</td>
</tr>
<tr>
<td>Speed, lowering</td>
<td>25 cm/s</td>
<td>25 cm/s</td>
<td>22 cm/s</td>
<td>22 cm/s</td>
</tr>
<tr>
<td>Automatic lowering in case of power failure</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>EFO emergency function</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Automatic safety cut-out (can be deactivated)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Integrated hydraulic operator</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Movements (per day)</td>
<td>2000</td>
<td>2000</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>Total movements (max. service life)</td>
<td>3000000</td>
<td>3000000</td>
<td>3000000</td>
<td>3000000</td>
</tr>
<tr>
<td>Certified to</td>
<td>PAS68, IWA14-1</td>
<td>M30, K4</td>
<td>M50, K12</td>
<td>M50, K12, PAS68</td>
</tr>
<tr>
<td>Compliant with</td>
<td>M30, K4</td>
<td>PAS68, IWA14-1</td>
<td>PAS68, IWA14-1</td>
<td>IWA14-1</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
<td>750000 J</td>
<td>1200000 J</td>
<td>2000000 J</td>
<td>2000000 J</td>
</tr>
<tr>
<td>Impact energy without destruction</td>
<td>250000 J</td>
<td>700000 J</td>
<td>700000 J</td>
<td>700000 J</td>
</tr>
<tr>
<td>Temperature range</td>
<td>–40°C – +70°C*</td>
<td>–40°C – +70°C*</td>
<td>–40°C – +70°C*</td>
<td>–40°C – +70°C*</td>
</tr>
</tbody>
</table>

* For temperatures below –10°C, we recommend an optional heater
Removable bollards
With reinforced socket

R 275-M30-900
• For very infrequent use
• Can be detached with special tool

For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th>R 275-M30-900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
</tr>
<tr>
<td>Impact energy without destruction</td>
</tr>
</tbody>
</table>

Impact energy with destruction
750000 J

Impact energy without destruction
250000 J
Fixed bollards FF
With reinforced ground fitting

F 275-M30-900 FF / F 275-M30-1200 FF
F 275-M50-900 FF / F 275-M50-1200 FF

- Reinforced ground fitting for setting in concrete

For information about the equipment options, see pages 30 – 31.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>900 mm</td>
<td>1200 mm</td>
<td>900 mm</td>
<td>1200 mm</td>
</tr>
<tr>
<td>Compliant with</td>
<td>M30, K4, PAS68, IWA14-1</td>
<td>M30, K4, PAS68, IWA14-1</td>
<td>M50, K12, PAS68, IWA14-1</td>
<td>M50, K12, PAS68, IWA14-1</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
<td>750000 J</td>
<td>1200000 J</td>
<td>2000000 J</td>
<td>2000000 J</td>
</tr>
<tr>
<td>Impact energy without destruction</td>
<td>250000 J</td>
<td>700000 J</td>
<td>700000 J</td>
<td>700000 J</td>
</tr>
</tbody>
</table>

Impact energy with destruction:
- 2000000 J
- 1200000 J
- 750000 J

Impact energy without destruction:
- 700000 J
- 250000 J

![Graph showing speed versus weight for different impact energies]
Road Blocker 500

- For very frequent use (approx. 2000 movements/day)
- Barrier height 500 mm
- Flush-fitting to floor
- External hydraulic operator (max. distance 30 m)
- Optionally with EFO emergency function (Emergency Fast Operation)

Road Blocker 1000

- For very frequent use (approx. 2000 movements/day)
- Barrier height 1000 mm
- Flush-fitting to floor
- External hydraulic operator (max. distance 30 m)
- Optionally with EFO emergency function (Emergency Fast Operation)

<table>
<thead>
<tr>
<th></th>
<th>Road Blocker 500</th>
<th>Road Blocker 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>300 mm</td>
<td>1000 mm</td>
</tr>
<tr>
<td>Standard length</td>
<td>2, 3, 4, 5, 6 m</td>
<td>2, 3, 4, 5, 6 m</td>
</tr>
<tr>
<td>Fitting depth</td>
<td>500 mm</td>
<td>300 mm</td>
</tr>
<tr>
<td>External hydraulic operator</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Speed, lifting</td>
<td>10 cm/s</td>
<td>12.5 cm/s</td>
</tr>
<tr>
<td>Speed, lowering</td>
<td>16 cm/s</td>
<td>20 cm/s</td>
</tr>
<tr>
<td>EFO emergency function</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Manual operation</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>LED lighting strips</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Protective sections</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Load class acc. to EN 124</td>
<td>D250</td>
<td>D400</td>
</tr>
<tr>
<td>Movements (approx. per day)</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>Total movements (max. service life)</td>
<td>3000000</td>
<td>3000000</td>
</tr>
<tr>
<td>Certified to</td>
<td>M30, K4, PAS68, IWA14-1</td>
<td>M50, K12, IWA14-1</td>
</tr>
<tr>
<td>Compliant with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact energy with destruction</td>
<td>750000 J</td>
<td>2000000 J</td>
</tr>
</tbody>
</table>

● Standard equipment  ○ Optional equipment

For information about the equipment options, see page 32.
Road Blocker 500 SF

- For very frequent use (approx. 2000 movements/day)
- Barrier height 500 mm
- Integrated hydraulic operator
- Simple, fast fitting on finished floor surface, no groundwork required

For information about the equipment options, see page 32.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>500 mm</td>
</tr>
<tr>
<td>Standard length</td>
<td>3.5 – 4.5 – 5.5 m</td>
</tr>
<tr>
<td>Fitting depth</td>
<td></td>
</tr>
<tr>
<td>Integrated hydraulic pump</td>
<td>●</td>
</tr>
<tr>
<td>Speed, lifting</td>
<td>7 cm/s</td>
</tr>
<tr>
<td>Speed, lowering</td>
<td>5 cm/s</td>
</tr>
<tr>
<td>Manual operation</td>
<td>○</td>
</tr>
<tr>
<td>LED lighting strips</td>
<td>○</td>
</tr>
<tr>
<td>Load class acc. to EN 124</td>
<td>D400</td>
</tr>
<tr>
<td>Movements (approx. per day)</td>
<td>2000</td>
</tr>
<tr>
<td>Total movements (max. service life)</td>
<td>3000000</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
<td>400000 J</td>
</tr>
</tbody>
</table>

Impact energy with destruction:
- 2000000 J
- 750000 J
- 400000 J
Lift barriers
To secure passages up to 10 m wide

Lift Barrier H

- For very frequent use (approx. 2000 movements/day)
- Integrated hydraulic operator
- Fitting with low foundation depths
- Optionally with EFO emergency function (Emergency Fast Operation)

For information about the equipment options, see page 32.

<table>
<thead>
<tr>
<th>Standard equipment</th>
<th>Optional equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>1300 mm</td>
</tr>
<tr>
<td>Lengths</td>
<td>3, 4, 5, 6, 7, 8, 9, 10 m</td>
</tr>
<tr>
<td>Integrated hydraulic pump</td>
<td>●</td>
</tr>
<tr>
<td>Speed, lifting</td>
<td>18.5 cm/s</td>
</tr>
<tr>
<td>Speed, lowering</td>
<td>18.5 cm/s</td>
</tr>
<tr>
<td>Movements (approx. per day)</td>
<td>2000</td>
</tr>
<tr>
<td>Total movements (max. service life)</td>
<td>3000000</td>
</tr>
<tr>
<td>EFO emergency function</td>
<td>○</td>
</tr>
<tr>
<td>Manual operation</td>
<td>○</td>
</tr>
<tr>
<td>LED lighting strips</td>
<td>○</td>
</tr>
<tr>
<td>Reflector strips</td>
<td>●</td>
</tr>
<tr>
<td>Compliant with</td>
<td>K12</td>
</tr>
<tr>
<td>Impact energy with destruction</td>
<td>2000000 J</td>
</tr>
</tbody>
</table>

Impact energy with destruction

2000000 J
Tyre killers
To secure passages in one direction

Tyre Killer M
- For average use frequencies (approx. 100 movements/day)
- Fitting on finished floor surface, no groundwork required
- Spikes lifted by counter weights
- Optional: locking device when retracted to enable passage in both directions

Tyre Killer H
- For very frequent use (approx. 2000 movements/day)
- Flush-fitted to floor
- External hydraulic operator (max. distance 30 m)
- Optionally with EFO emergency function (Emergency Fast Operation)

<table>
<thead>
<tr>
<th></th>
<th>Tyre Killer M</th>
<th>Tyre Killer H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>70 mm</td>
<td>450 mm</td>
</tr>
<tr>
<td>Length</td>
<td>2, 3, 4, 5, 6 m</td>
<td>2, 3, 4, 5, 6 m</td>
</tr>
<tr>
<td>Spike width</td>
<td>10 mm</td>
<td>20 mm</td>
</tr>
<tr>
<td>Spike spacing</td>
<td>105 mm</td>
<td>200 mm</td>
</tr>
<tr>
<td>Fitting depth</td>
<td>–</td>
<td>700 mm</td>
</tr>
<tr>
<td>Extension via counter weight</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Extension by integrated hydraulic operator</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Manual lowering</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>EFO emergency function</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Locking device</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Movements (approx. per day)</td>
<td>100</td>
<td>2000</td>
</tr>
<tr>
<td>Load class acc. to EN 124</td>
<td>D250</td>
<td>D250</td>
</tr>
<tr>
<td>Total movements (max. service life)</td>
<td>200000</td>
<td>3000000</td>
</tr>
</tbody>
</table>

● Standard equipment  ○ Optional equipment
For information about the equipment options, see page 32.
Standard equipment
Bollards

1 Cylinder cover
- ABS plastic (Security Line)
- Aluminium with anti-corrosion coating (High Security Line)

2 Cylinder surface
- Steel, coated in Anthracite grey RAL 7016

3 Reflector strips
- Better visibility at night
- All-round

4 Automatic safety cut-out
- Stops lifting of automatic bollards in case of obstacles
- Can be deactivated
**Optional equipment**

**Bollards**

### Steel surface finishes
- Anti-corrosion coating
- Coating in RAL to choose

### Heating element
- Reliable operation in areas with temperatures below –10°C

### Stainless steel surfaces
- V2 A or V4 A
- K180 (polished)
- Coating in RAL to choose

### UPS uninterruptible power supply
- To bypass power failures for up to 10 movements
- Recharges during normal operation

### LED lighting strips
- Better visibility at night
- Warning light when bollard is lifted and lowered
- All-round

### EFO emergency function
- Fast extension within approx. 1.5 s in emergency situations for automatic bollards with hydraulic operator

### Reaction in case of power failure
- Automatic lowering of automatic bollards with hydraulic operator
- Emergency manual operation to lift and lower

### Acoustic warning signal
- Warning signal when lifting and lowering bollard

Additional equipment variants and options on request.
Optional equipment
Road blockers, lift barriers, tyre killers

**LED lighting strips**
- Better visibility at night
- Warning light when bollard is lifted and lowered
- For road blockers and lift barriers

**UPS uninterruptible power supply**
- To bypass power failures for up to 10 movements
- Recharges during normal operation

**EFO emergency function**
- Fast extension within approx. 1.5 s in emergency situations

**Acoustic warning signal**
- Warning signal when lifting and lowering

**Reaction in case of power failure**
- Manual emergency operation

Additional equipment variants and options on request.
Key switch posts
To control and regulate access

Key switch post, stainless steel 170
- Operation of automatic bollards directly at the bollard
- Access control using key switches, transponder key switches and code switches
- Access regulation using 1-sided or 2-sided traffic lights (red/green)

Key switch post, stainless steel 275
- Operation of automatic bollards directly at the bollard
- Harmonious appearance in combination with bollards with diameters of 275 mm
- Accommodates control for up to 4 bollards
- Access control using key switches, transponder key switches and code switches
- Access regulation using 1-sided or 2-sided traffic lights (red/green)
- Maintenance flap with lock

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Key switch post, stainless steel 170</th>
<th>Key switch post, stainless steel 275</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>170 mm</td>
<td>275 mm</td>
</tr>
<tr>
<td>Fixed</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Retractable</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>Mounting base</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Lockable maintenance flap</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

1. Stainless steel surface, coated in Anthracite grey RAL 7016 (as standard), coating in RAL to choose (optional)
2. Stainless steel surface, polished finish, K240 (brushed)
3. Maintenance flap
4. Access control using key switches, transponder key switches and code switches
5. Access regulation using 1-sided or 2-sided traffic lights (red/green)
Hörmann BiSecur (BS)
State-of-the-art radio system for door control and perimeter protection systems

The bi-directional BiSecur radio system is based on future-oriented technology for convenient and secure operation. The extremely secure BiSecur encryption protocol makes sure that no one can copy your radio signal. It was tested and certified by security experts at the Ruhr-Universität Bochum.

Your advantages
- 128-bit encryption with the same high security level as in online banking
- Interference-resistant radio signal with a stable range
- Compatible with Hörmann door control and perimeter protection systems

5-button hand transmitter
HS 5 BS
High-gloss black or white, with chrome caps

5-button hand transmitter
HS 5 BS
Black textured with chrome caps

4-button hand transmitter
HS 4 BS
Black textured with chrome caps

1-button hand transmitter
HS 1 BS
Black textured with chrome caps

4-button security hand transmitter
HSS 4 BS
Additional function: copy protection for hand transmitter coding, with chrome caps

2-button hand transmitter
HSE 2 BS
High-gloss black or white, with chrome caps

4-button hand transmitter
HSE 4 BS
Black textured with chrome or plastic caps

1-button hand transmitter
HSE 1 BS
Black textured with chrome caps
Accessories
Code switches, finger-scans, transponder key switches

Industrial hand transmitter
HSI BS
To control up to 1000 receivers, with a display and extra-large quick selection buttons for easier operation with work gloves, transferring of hand transmitter coding to other devices possible

Industrial hand transmitter
HSI 6 BS, HSI 15 BS
To control up to 6/15 receivers, with extra-large buttons for easier operation with work gloves, impact-resistant housing
Protection category: IP 65

Radio code switch
FCT 3 BS
For 3 functions, with illuminated buttons

Radio code switch
FCT 10 BS
For 10 functions, with illuminated buttons and protective cover

Radio finger-scan
FFL 12 BS
For 2 functions and up to 12 fingerprints

2-channel relay receiver
HET-E2 SL BS
With 2 volt-free relay outputs for choosing the direction, one 2-pin input for volt-free Retracted / Extended limit switch reporting, external antenna

Gateway BS
Central interface for operation of automatic perimeter protection systems via smartphone or tablet, up to 10 users with a max. of 16 functions
### Accessories

**Code switches, finger-scans, transponder key switches**

<table>
<thead>
<tr>
<th>Code switch CTR 1b-1, CTR 3b-1</th>
<th>Code switch CTV 3-1</th>
<th>Code switch CTP 3</th>
<th>Decoder housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>For 1 (CTR 1b-1) or 3 (CTR 3b-1) functions, with illuminated buttons</td>
<td>For 3 functions, with particularly robust metal keypad</td>
<td>For 3 functions, with illuminated lettering and touch-sensitive surface</td>
<td>For code switch CTR 1b-1, CTR 3b-1, CTV 3-1, CTP 3</td>
</tr>
<tr>
<td>Dimensions: 80 × 80 × 15 mm (W × H × D)</td>
<td>Dimensions: 80 × 80 × 15 mm (W × H × D)</td>
<td>Dimensions: 80 × 80 × 15 mm (W × H × D)</td>
<td>Dimensions: 140 × 130 × 50 mm (W × H × D)</td>
</tr>
<tr>
<td>Keypad protection category: IP 65</td>
<td>Decoder housing protection category: IP 54</td>
<td>Switching capacity: 2.5 A / 30 V DC 500 W / 250 V A</td>
<td></td>
</tr>
</tbody>
</table>

### Accessories

<table>
<thead>
<tr>
<th>Finger-scan FL 150</th>
<th>Transponder key switch TTR 1000-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>For 2 functions, up to 150 fingerprints can be saved</td>
<td>For 1 function via transponder key or transponder card, up to 1000 keys or cards can be saved</td>
</tr>
<tr>
<td>Dimensions: 80 × 80 × 13 mm (W × H × D)</td>
<td>Dimensions: 80 × 80 × 15 mm (W × H × D)</td>
</tr>
<tr>
<td>Decoder housing: 70 × 275 × 50 mm (W × H × D)</td>
<td>Decoder housing: 140 × 130 × 50 mm (W × H × D)</td>
</tr>
<tr>
<td>Switching capacity: 2.0 A / 30 V DC</td>
<td>Switching capacity: 2.5 A / 30 V DC 500 W / 250 V A</td>
</tr>
</tbody>
</table>
### Accessories

**Activating kits, key switches, LED traffic lights**

#### DI 1 induction loop

In a separate additional housing

Suitable for one induction loop. The detector has a normally open contact and a change-over contact. DI 2 induction loop (not shown) in a separate additional housing Suitable for two separate induction loops. The detector has two volt-free normally open contacts. Can be set for impulse or permanent contact, directional recognition possible.

- Dimensions of additional housing: 202 × 164 × 130 mm (W × H × D)
- Switching capacity:
  - DI 1: low voltage 2 A, 125 V A/60 W
  - DI 2: 250 V AC, 4 A, 1000 VA (resistive load AC), supplied without loop cable
- Loop cable for induction loop: 50 m roll, cable designation: SIAF, cross-section: 1.5 mm², colour: brown

#### Digital weekly timer

In a separate additional housing

The timer can switch command units on and off via a volt-free contact. Switching capacity: 230 V AC 2.5 A / 500 W

Can be switched over to summer / winter time

Manual switching: automatic operation, switching preselection “permanently ON / OFF”

- Dimensions of additional housing: 202 × 164 × 130 mm (W × H × D)
- Protection category: IP 65

#### Digital yearly timer

In additional housing

The timer can switch command units on and off via a volt-free contact. Switching capacity: 230 V AC 2.5 A / 500 W

Can be switched over to summer / winter time

Manual switching: automatic operation, switching preselection “permanently ON / OFF”

- Dimensions of additional housing: 202 × 164 × 130 mm (W × H × D)
- Protection category: IP 65

#### Key switch ESU 30

With 3 keys, impulse or “Open / Close” function selectable

- Dimensions of switch box: 60 mm (d), 58 mm (D)
- Dimensions of cover: 90 × 100 mm (W × H)
- Wall recess: 65 mm (d), 60 mm (D)
- Protection category: IP 54

#### Key switch STUP 50

With 3 keys

- Dimensions: 80 × 80 mm (W × H)
- Protection category: IP 54

#### Traffic lights red/green

As a visual indicator of authorized or blocked passage, not in combination with stainless steel key switch posts

- Dimensions: 180 × 250 × 290 mm (W × H × D)
- Contact load: 250 V AC 2.5 A / 500 W,
- Protection category: IP 65
Quick service with testing, maintenance and repairs

Our extensive service network means that we are always nearby and at your service around the clock.

Hörmann Product Range
Everything from a single source for your construction project

- Sectional doors
- Rolling shutters
- and rolling grilles
- High-speed doors
- Loading technology
- Steel and stainless steel sliding doors
- Steel and aluminium multi-function doors
- Steel and stainless steel doors
- Steel frames with high-quality timber function doors from Schörghuber
- Fully glazed tubular frame parts
- Automatic sliding doors
- Visibility window
- Collective garage doors

Perimeter Protection Systems
Quick service with testing, maintenance and repairs
Our extensive service network means that we are always nearby and at your service around the clock.

Sectional doors
Rolling shutters and rolling grilles
High-speed doors
Loading technology
Steel and stainless steel sliding doors
Steel and aluminium multi-function doors
Steel and stainless steel doors
Steel frames with high-quality timber function doors from Schörghuber
Fully glazed tubular frame parts
Automatic sliding doors
Visibility window
Collective garage doors
Perimeter Protection Systems
Hörmann is the only manufacturer worldwide that offers you a complete range of all major building products from one source. We manufacture in highly-specialised factories using the latest production technologies. The close-meshed network of sales and service companies throughout Europe, and activities in the USA and Asia, make Hörmann your strong partner for first-class building products, offering “Quality without Compromise”.

Hörmann KG Antriebstechnik, Germany
Hörmann KG Brandis, Germany
Hörmann KG Brockhagen, Germany

Hörmann KG Dissen, Germany
Hörmann KG Eckelhausen, Germany
Hörmann KG Freisen, Germany
Hörmann KG Lichtershausen, Germany

Hörmann KG Werne, Germany
Hörmann Alkmaar B.V., Netherlands
Hörmann Legnica Sp. z o.o., Poland
Hörmann Beijing, China

Hörmann Tianjin, China
Hörmann LLC, Montgomery IL, USA
Hörmann Flexon LLC, Burgettstown PA, USA
Shakti Hörmann Pvt. Ltd., India

GARAGE DOORS
OPERATORS
INDUSTRIAL DOORS
LOADING EQUIPMENT
HINGED DOORS
DOOR FRAMES