



## TECHNICAL MANUAL

Translated from French

Rev 05

## Document revision

Revision no.	Date	Written by	Checked by	Subject
00	2009-01-15	MFy		First edition.
01	2009-06-03	MFy		- Eyelets provided. - Resistance modified.
02	2009-07-06	MFy		- Installation procedure detailed.
03	2009-08-26	MFy		- EC certificate update.
04	2010-01-04	MFy		- EC certificate update.
05	2012-03-23	MFy		- Maintenance detailed.

## Table of contents

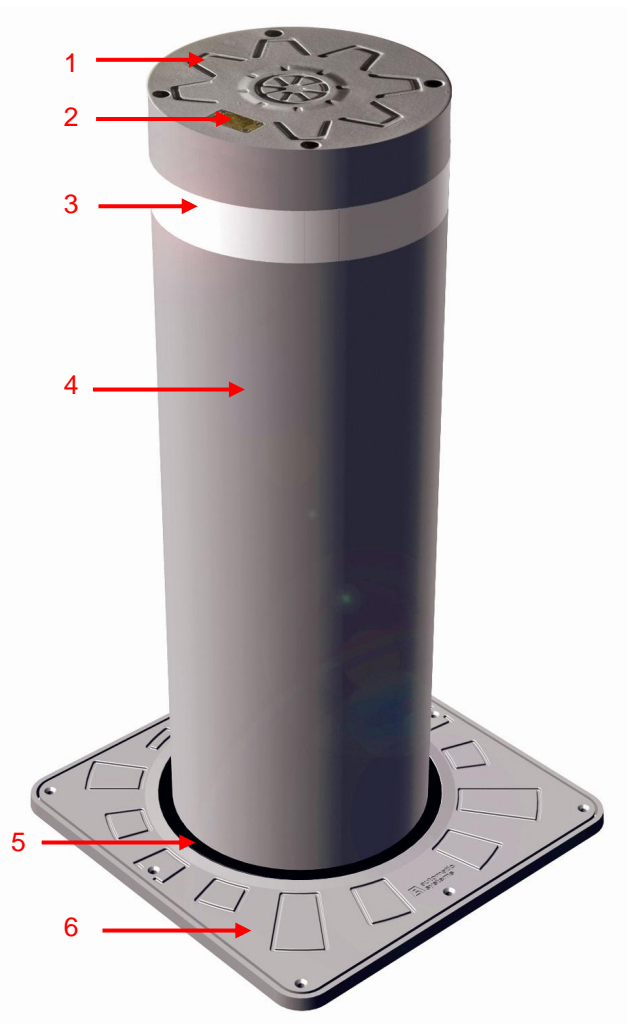
<b>1. SAFETY WARNINGS</b>	<b>4</b>
<b>2. DESCRIPTION</b>	<b>5</b>
2.1. Location of the components	5
<b>3. INSTALLATION</b>	<b>6</b>
3.1. Storing the equipment before installation	6
3.2. List of tools required	6
3.3. Installation plan	7
3.4. Positioning of the sealing casing	8
3.5. Installing the moving obstacle	9
<b>4. USE</b>	<b>10</b>
4.1. Operating principle	10
4.1.1. Allowing circulation procedure (lowering the bollard)	10
4.1.2. Blocking circulation procedure (raising the bollard)	10
4.2. Maintenance	10
4.3. Replacing the gas jack	11
<b>5. TECHNICAL SPECIFICATIONS</b>	<b>12</b>
<b>6. CERTIFICATE OF COMPLIANCE</b>	<b>13</b>

## 1. SAFETY WARNINGS

- This manual must be available for any person involved with the equipment: installer, maintenance operator, end user, etc.
- This equipment is intended for blocking vehicle access and cannot be assigned any other usage without risk to the users or the integrity of the equipment.  
Automatic Systems cannot be held accountable for damage resulting from inappropriate usage of the equipment.
- Do not install this equipment in areas where there is a risk of explosions.
- Do not install manual bollards on frequently accessed roads, or the repeated passing of vehicles may cause locking and inadvertent rising of the bollard.
- The contractor ensures that the local standards are respected during the installation of the equipment.
- All operations performed on the equipment must be undertaken by qualified personnel.  
All operations that are not authorised or that are carried out on this product by an unqualified technician shall automatically lead to the denial of the manufacturer's warranty.
- All internal elements that can be moved must be handled with care.
- Passing over the bollard can only happen when it is completely lowered.
- After a collision, even if there is no visible damage, the equipment must be checked carefully by a certified technician.

## 2. DESCRIPTION

### 2.1. Location of the components



1. Upper ring.
2. Key lock for stopping the moving obstacle.
3. Reflective band.
4. Moving obstacle.
5. Sealing ring.
6. Lower ring, under which is located the nameplate with serial number.
7. Sealing casing.



## 3. INSTALLATION

### 3.1. Storing the equipment before installation

Before installation, ensure that the equipment does not receive any hits, leave it in its original packaging, and place it in a dry area protected from dust, heat and the weather.

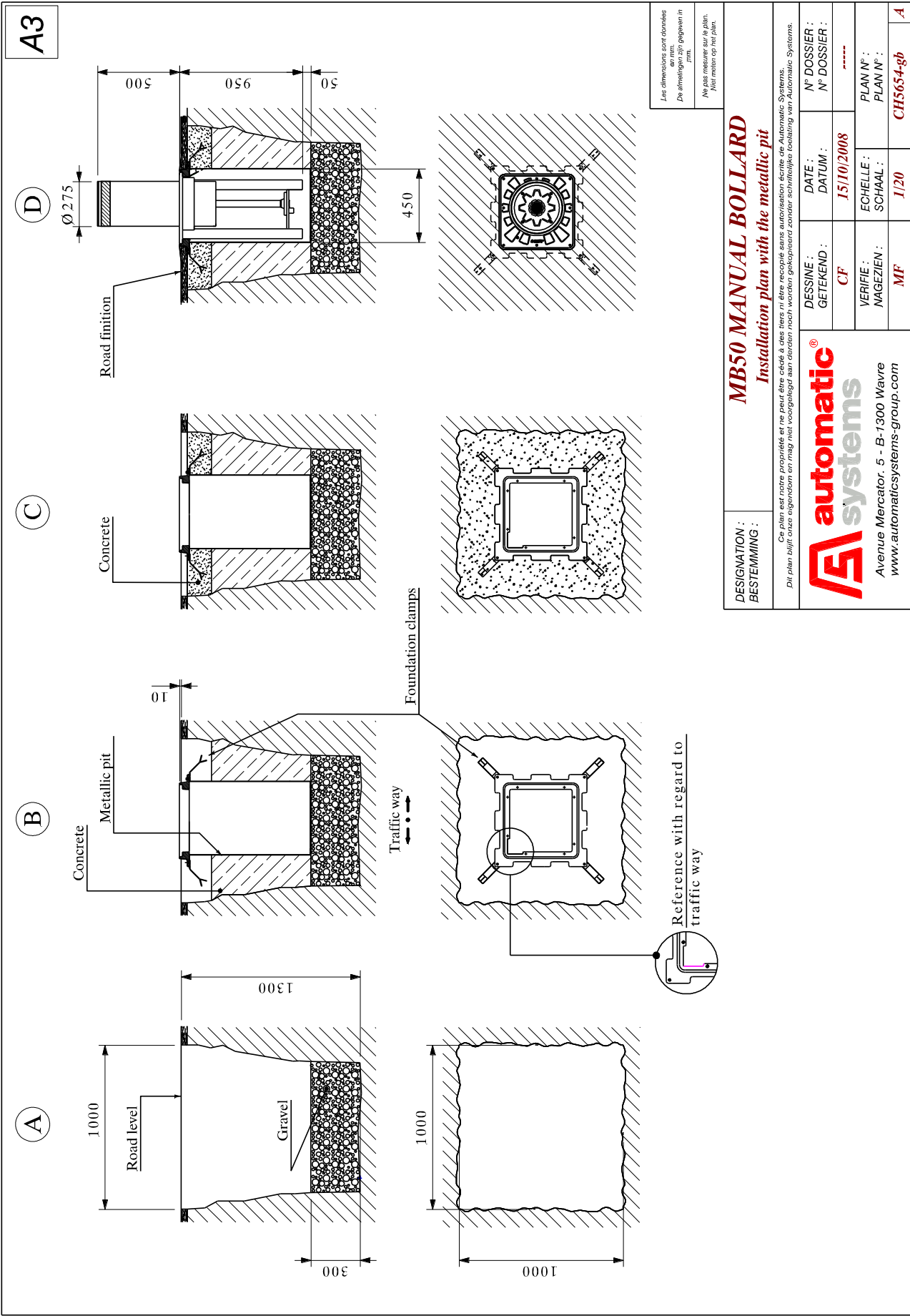
Store between: -30 and +80°C.

The bollard can be transported in either a horizontal or vertical position.

### 3.2. List of tools required

- Standard toolkit.
- Set of Allen keys.
- Bar to lift the bollard (see Ch.1.1. ).

3.3. Installation plan



### 3.4. Positioning of the sealing casing

Please refer to the installation plan, Ch.3.3.

1. Dig a hole 1 m x 1 m and around 1.30 m deep with regards to the road surface.
2. Ensure that the ground drainage is sufficient: pour +/- 40 litres of water and check that it is absorbed in less than 30 minutes.  
If this is not the case, allow rainwater to pass by way of, for example, a 60 mm diameter draining tube connected to a collection system.
3. If installed in a sloping road, a drain trough must be placed on the upstream side of the bollards.
4. Pour gravel (8-20 mm in diameter) into the hole, to a thickness of around 30 cm (adjust according to the following step) and compact it.
5. Place the casing on the gravel, in such a way that:
  - The marker on the frame is in the lower left in the direction of traffic (fig. d).
  - The upper level of the frame extends 1 cm beyond the road surface, in order to limit the entry of rainwater (fig. e). If necessary, adjust the gravel layer.
  - The casing is in a vertical line.
6. Pour an additional 10 cm of gravel around the casing to avoid blocking the drainage holes (fig. f) when the concrete is poured. A layer of polyester foam can be sprayed onto the surface of the gravel, to render it impervious to the concrete that will subsequently be poured.
7. Turn the 4 anchors towards the outside of the casing (fig. h).
8. Pour the concrete around the casing up to a level approximately 10 cm below the road level (allow for the thickness for the road surfacing).  
**Note:** where a large volume of concrete is to be poured (particularly where casings are placed in a trench rather than individual pits), the concrete should be poured in two steps to prevent uplift due to the pressure of the liquid concrete: place approximately 20 cm of concrete and allow it to set before completing the remainder.  
Vibrate the concrete to ensure that it is properly compacted over the full height in order to withstand the weight of the traffic. Ensure that no concrete has entered the casing.
9. When the concrete has hardened, finish by placing the road surfacing around the bollard, with a slight slope on all sides from the top of the frame.

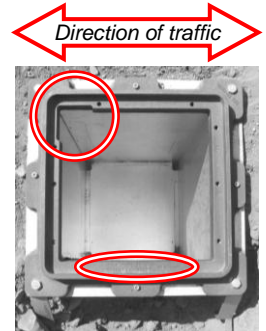


Fig. d: marks

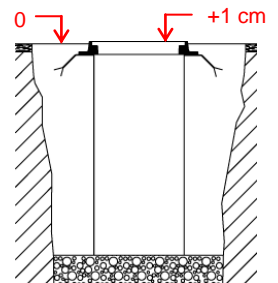


Fig. e: gravel bed

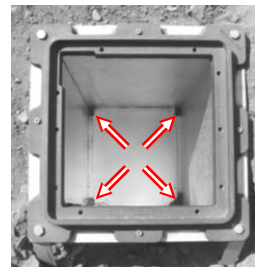


Fig. f: drainage

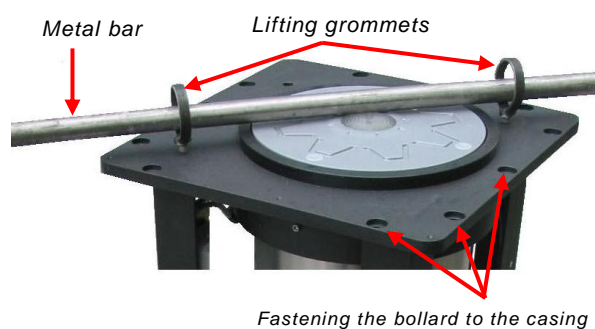


Fig. h: anchor



### 3.5. Installing the moving obstacle

10. Screw the M10 lifting grommets (provided) into the bollard, and pass a metal bar (not provided) through them so as to lift the bollard.
11. Place the bollard into the casing.
12. Screw the bollard into the casing.
13. Screw the lower ring into the bollard.



## 4. USE

### 4.1. Operating principle

The semi-automatic bollard is fitted with a single acting gas actuator which allows the bollard to be lifted automatically after the insertion of the unlocking key. The command to lower is executed by exerting pressure by foot or hand on the top of the bollard.

#### 4.1.1. Allowing circulation procedure (lowering the bollard)

- Insert the key into the lock located at the top of the bollard.
- Turn the key around 70° in an anti-clockwise direction in order to unlock the bollard.
- Lower the bollard by exerting gentle pressure downwards with hand or foot.
- Once the bollard is completely lowered, remove the key in order to lock the mechanism.

#### 4.1.2. Blocking circulation procedure (raising the bollard)

- Insert the key into the lock located at the top of the bollard.
- Turn the key around 70° in an anti-clockwise direction in order to unlock the bollard.
- The bollard lifts automatically thanks to the incorporated gas actuator.
- Once the bollard is fully raised, remove the key in order to lock the mechanism.

## 4.2. Maintenance

Every 6 months:

- Check that the bollard is operating correctly (see Ch.4. ): complete silent movements, without stuttering.
- Remove the moving obstacle (following the procedure in Ch.3.5 in reverse order) and clean the interior of the casing of any deposits.
- Remove any water from the bottom of the casing and ensure that it drains away quickly through the drain.
- Clean and grease the axle of the gas jack, using Teflon Spray lubricating oil.
- Check the state of the support stops.
- Clean the painted parts by means of a soft cloth impregnated with a non-aggressive detergent. For the countries with a lot of sun, it is also advised to treat with a glossing product.
- Clean the stainless steel parts/options to prevent deposition of metallic particles (approved product reference 0/6031/000).  
**Note:** The frequency of maintenance must be adjusted to the conditions of use of the equipment, in particular when it is located in an oxidizing atmosphere: near the sea, industrial environment, etc.
- Check the tightness of all of the fastenings.

### 4.3. Replacing the gas jack

- Remove the moving obstacle (following the procedure in Ch.1.1. in reverse order).
- Fully raise the obstacle.
- Remove the upper ring of the obstacle.
- Remove the 3 jack stops.
- Turn the locks and remove the jack.
- Proceed in reverse order to assemble the new jack.

## 5. TECHNICAL SPECIFICATIONS

- Height of the moving obstacle emerging from the ground: 500 mm.
- Diameter of the moving obstacle: 275 mm.
- Maximum weight on lowered bollard: 25000 kg.
- Maximum weight on raised bollard, before lowering: 2500 kg.
- Weight of the bollard  $\pm$  90 kg
- Weight of the casing:  $\pm$  60 kg
- Lifting speed: 20 cm/s.
- Frequency of use > 1500 movements per day.
- MCBF (Mean Cycle Between Failure), with respect for the recommended maintenance: 2,000,000
- Impact resistance without warping (guaranteed operation): 9,000 joules.  
Maximum impact resistance, with permanent warping: 120,000 joules.
- Operating temperature -15 to +70°C.
- Maximum relative humidity: 95% without condensation.
- IP67.
- Compliant with CE standards.

## 6. CERTIFICATE OF COMPLIANCE

### Déclaration CE de conformité

Nous, soussignés,

AUTOMATIC SYSTEMS s.a.  
Avenue Mercator, 5  
B-1300 WAVRE  
Belgique

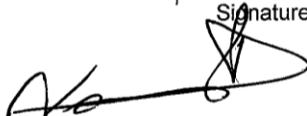
Déclarons que la machine

**Borne manuelle  
MB50**

est conforme aux dispositions des Directives, normes  
et autres spécifications suivantes:

- Directive Sécurité des Machine 2006/42/CE.
- Directive Basse Tension 2006/95/CE.
- Directive Compatibilité électromagnétique 2004/108/CE.
- EN 12100-1: 2003 Sécurité des machines- Terminologie de base et méthodologie.
- EN 12100-2: 2003 Sécurité des machines- Principes techniques et spécifications.
- EN 60204-1: 2006 Sécurité des machines, Equipement des machines- Règles générales.
- EN 61000-6-3: 2001 Compatibilité électromagnétique- Norme générique émission- Résidentiel, commercial, industrie légère.
- EN 61000-6-2: 2001 Compatibilité électromagnétique- Norme générique immunité- Résidentiel, commercial, industrie lourde.

Fait à WAVRE,  
le : 2009-12-03  
Nom du signataire : Denis VANMOL  
Fonction : Directeur du développement  
Signature :



### EC declaration of conformity

We, undersigned,

AUTOMATIC SYSTEMS s.a.  
Avenue Mercator, 5  
B-1300 WAVRE  
Belgium

Herewith declare that the machinery

**Manual bollard  
MB50**

is in accordance with the conditions of the following  
Directives, standards and other specifications:

- Machinery Directive 2006/42/CE
- Low-voltage Directive 2006/95/CE
- Electromagnetic compatibility Directive 2004/108/EC
- EN 12100-1: 2003 Machinery – Basic terminology and methodology.
- EN 12100-2: 2003 Machinery – Technical principles and specifications.
- EN 60204-1: 2006 Safety of machinery. Electrical equipment of machines. General requirements.
- EN 61000-6-3: 2001 Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments.
- EN 61000-6-2: 2001 Electromagnetic compatibility (EMC). Generic standards. Immunity standard for industrial environments.

Made in WAVRE  
Date: 2009-12-03  
Name : Denis VANMOL  
Function : Director of Development  
Signature :





**AUTOMATIC SYSTEMS BELGIUM - HQ**

E-mail: [asmail@automatic-systems.com](mailto:asmail@automatic-systems.com)

Tel.: +32.10.23 02 11

Fax: +32.10.23 02 02