

# BL 4X

Automatic rising barrier

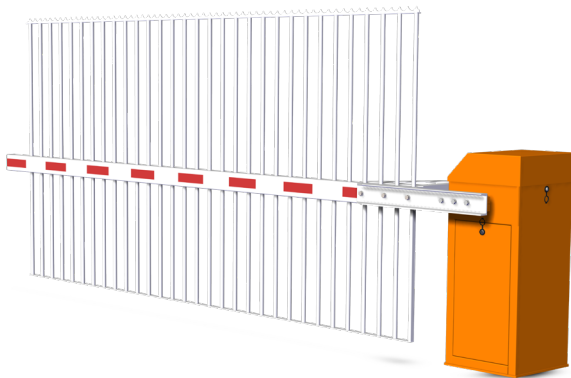
## TECHNICAL MANUAL

(English translation of the original French version)

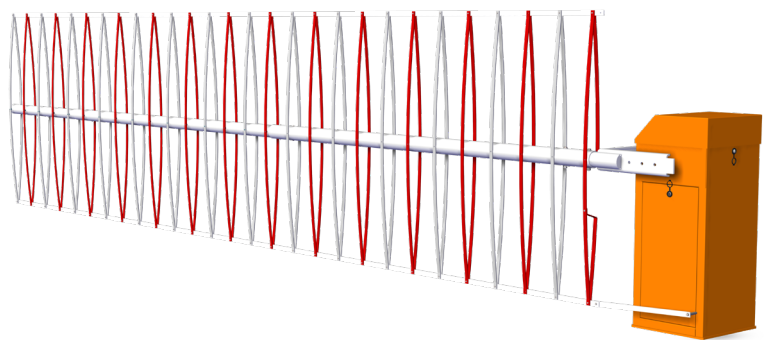
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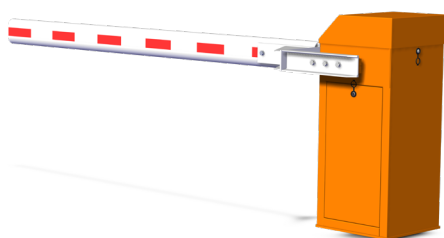
BL 40



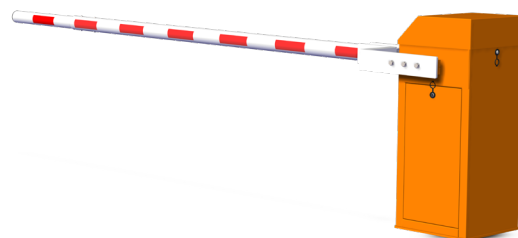
BL 47



BL 46



BL 43 / BL 44



BL 41



## TABLE OF CONTENTS

1.	Introduction .....	4
2.	Safety warnings .....	5
3.	General symbols .....	7
4.	Terminology .....	8
5.	Description .....	9
5.1.	The range .....	9
5.1.1.	BL 40 .....	9
5.1.2.	BL 41 .....	9
5.1.3.	BL 43 and BL 44 .....	9
5.1.4.	BL46 .....	9
5.1.5.	BL47 .....	10
5.2.	Overall Dimensions .....	10
5.2.1.	BL 40 .....	10
5.2.2.	BL 41 .....	11
5.2.3.	BL 43 .....	11
5.2.4.	BL 44 .....	12
5.2.5.	BL 46 .....	12
5.2.6.	BL 47 .....	13
5.3.	Conventions .....	14
5.3.1.	BL 40 .....	14
5.3.2.	BL 41 .....	14
5.3.3.	BL 43 and BL 44 .....	14
5.3.4.	BL 46 .....	15
5.3.5.	BL 47 .....	15
5.4.	Technical specifications .....	16
5.5.	Location of Components .....	17
5.5.1.	General .....	17
5.5.2.	Mechanical assembly .....	18
5.5.3.	Analogue sensor .....	19
5.5.4.	Control Board Assembly .....	20
5.5.5.	Spring assembly .....	21
5.6.	Location of labels and documents .....	22
5.7.	Operating principle .....	24
6.	Installation .....	25
6.1.	Storage of equipment prior to installation .....	25
6.2.	Installation plan: concrete base .....	26
6.3.	Preparation of the mounting base .....	27
6.4.	Installation of the Equipment .....	28
6.4.1.	Installation on a fixing frame .....	28
6.4.2.	Installation on a Raised Base (optional) .....	29
6.5.	Installation of the arm .....	30
6.5.1.	Releasing the Tension from the Spring(s) (Steps common to all barriers) .....	30
6.5.2.	Installation of the round arm for BL 40 .....	31
6.5.3.	Installation of the Round Centre Arm for BL 41 .....	32
6.5.4.	Installation of the Oval Arm for BL 43 & BL 44 .....	33
6.5.5.	Installation of the Arm with folding Fence for BL 46 .....	34
6.5.6.	Installation of aluminium rectangular arm with rigid fence for BL 47 .....	39



- 6.6. Installation of the tip support ..... 40
- 6.7. Installation of a detection loop (optional)..... 41
- 6.8. Mechanical lock (optional)..... 42
  - 6.8.1. Preassembly ..... 43
  - 6.8.2. Installation in the frame ..... 44
  - 6.8.3. Wiring ..... 46
  - 6.8.4. Adjustment ..... 46
  - 6.8.5. Operation ..... 47
- 6.9. Electrical Connections ..... 48
- 6.10. FIRST STARTUP..... 50
- 7. Settings ..... 51
  - 7.1. Setting the Analogue Position Sensor ..... 51
    - 7.1.1. Calibrating the Analogue Sensor ..... 51
  - 7.2. Setting the variable frequency drive ..... 54
  - 7.3. Setting the Counterbalance..... 55
    - 7.3.1. Setting the Spring Compression ..... 56
  - 7.4. Table of main spring settings ..... 57
- 8. Maintenance ..... 58
  - 8.1. Opening the Cover and the Side and Front Doors..... 58
  - 8.2. Switching Off the Equipment ..... 58
  - 8.3. Service ..... 59
- 9. Troubleshooting ..... 60
  - 9.1. Table of major faults ..... 60
  - 9.2. Automatic rising of the arm in case of a power outage ..... 62
- 10. Extended Shutdown / Disposal / Destruction ..... 63
- 11. Assignment of board components ..... 64
  - 11.1. AS1620 Motherboard (CPU)..... 64
- 12. Electrical Diagrams ..... 66
- 13. Control logic ..... 66
- 14. Declaration of Conformity..... 67

## TABLE OF ILLUSTRATIONS

<i>Fig. 1 - Installation of the flashing light accessory.</i>	6
<i>Fig. 2 - BL 40 dimensions</i>	10
<i>Fig. 3 - BL 41 dimensions</i>	11
<i>Fig. 4 - BL 43 dimensions</i>	11
<i>Fig. 5 - BL 44 dimensions</i>	12
<i>Fig. 6 - BL 46 dimensions</i>	12
<i>Fig. 7 - BL 47 dimensions</i>	13
<i>Fig. 8 - Component location - General</i>	17
<i>Fig. 9 - Component location - Mechanical assembly</i>	18
<i>Fig. 10 - Component location - Analogue sensor</i>	19
<i>Fig. 11 - Location of components - Control board assembly (AS1620)</i>	20
<i>Fig. 12 - Component location - Spring assembly</i>	21
<i>Fig. 13 - Location of identification labels</i>	22
<i>Fig. 14 - Installation diagram: concrete stand</i>	26
<i>Fig. 15 - Preparation of the mounting base</i>	27
<i>Fig. 16 - Installation on a fixing frame</i>	28
<i>Fig. 17 - Installation of the raised base</i>	29
<i>Fig. 18 - Installation of the arm - Releasing the tension from the spring(s)</i>	30
<i>Fig. 19 - Installation of the BL 40 arm - Exploded view</i>	31
<i>Fig. 20 - Installation of the BL 41 arm - Exploded view</i>	32
<i>Fig. 21 - Installation of the BL 41 arm - Exploded view</i>	33
<i>Fig. 22 - Installation of the arm with folding fence for BL 46 - Exploded view</i>	34
<i>Fig. 23 - Installation of the folding fence</i>	35
<i>Fig. 24 - Installation of the folding fence - First bar</i>	36
<i>Fig. 25 - Installation of the folding fence - Assembly of the bars</i>	37
<i>Fig. 26 - Installation of the folding fence - Assembly of the upper and lower link bars</i>	38
<i>Fig. 27 - Installation of aluminium rectangular arm with rigid fence for BL 47 - Exploded view</i>	39
<i>Fig. 28 - Installation of the tip support</i>	40
<i>Fig. 29 - Mechanical lock - Exploded view</i>	42
<i>Fig. 30 - Assembly of the electromagnet assembly</i>	43
<i>Fig. 31 - Installation of the jaws</i>	44
<i>Fig. 32 - Adjustment of the electromagnet</i>	46
<i>Fig. 33 - Operation of the lock when power is on and off</i>	47
<i>Fig. 34 - Setting the Analogue Position Sensor</i>	51
<i>Fig. 35 - Integrated Human-Machine Interface</i>	52
<i>Fig. 36 - Variable frequency drive</i>	54
<i>Fig. 37 - Installation of a spring assembly (1 to 3 springs)</i>	55
<i>Fig. 38 - Installation of a spring assembly (4 to 6 springs)</i>	55
<i>Fig. 39 - Positioning of the eccentric</i>	56
<i>Fig. 40 - Spring settings table</i>	57
<i>Fig. 41 Opening the Cover and the Side and Front Doors</i>	58
<i>Fig. 42 - Switching Off the Equipment</i>	58
<i>Fig. 43 - AS1620 Motherboard (CPU)</i>	64
<i>Fig. 44 - Declaration of Conformity</i>	67

## 1. INTRODUCTION

Thank you for choosing an automatic rising barrier from the **BL 4x** range, designed and manufactured by Automatic Systems. The BL 4X series offers **extra-long barriers** and **security barriers**.

### EXTRA-LONG BARRIERS

These barriers are capable of closing off wide lanes, particularly for industrial sites. They are robust and can be equipped with many accessories, such as rigid mesh or traffic lights.

The **BL 40 barrier** is equipped with a powerful motor. It can raise arms equipped with accessories and has a long range.

The **BL 41 barrier** is a variant of the BL 40. Equipped with a central arm, it can carry arms up to 12 metres in length.

### SECURITY BARRIERS

These barriers are equipped with powerful mechanisms and are capable of withstanding vandalism and break-ins. They are recommended for all sensitive sites where a high level of security is required.

The **BL 43 barrier** is specially adapted to challenging environments where vandalism or fraud are likely. The built-in locking system denies entry to any unauthorised vehicle and the reinforced arm protects against forced entry.

The **BL 44 barrier** is the rapid version of the **BL 43**. It is also designed for environments where vandalism is a concern. Its rapid movements enable it to handle large vehicle flows, making it suitable for use in parking and traffic management applications.

Rising barrier **BL 46** is equipped as standard with an articulated fence. BL 46 is designed to completely block access (up to 7 metres), making it impassable for vehicles and pedestrians alike.

Rising barrier **BL 47** is equipped as standard with a vertically barred arm with a spiked top and security-sensitive profiles. It is designed to close off an access up to 4.35 metres, making it impassable for vehicles and pedestrians alike.

A wide range of options and accessories is available to ensure these barriers are optimally tailored to your requirements.

We are confident that you will be completely satisfied with your purchase for many years to come, and to that end, we recommend that you carefully read the following information.

It will guide you through the unpacking, installation, commissioning, and servicing of your equipment.

Proper installation and regular servicing will ensure that the system functions correctly and that the components have a significantly longer service life.

## 2. SAFETY WARNINGS



Please read this document carefully and in its entirety before commissioning the barrier and keep it in a safe place for future reference. Failure to follow the instructions in this document may result in damage to the barrier and personal injury, which could be serious.

This equipment is designed to block the passage of vehicles and cannot be used for any other purpose without risk to the user or to the integrity of the equipment. Automatic Systems cannot be held liable for damage resulting from improper use of the equipment.

The installation of a barrier or other vehicle access control obstacle exposes the user to liabilities relating to the safety of persons:

- Pedestrians, cyclists and motorcyclists must be prohibited from using the lane in which the barrier is located. However, if pedestrians must use this lane, it is mandatory to effectively signal its direction (audible and/or light signal, pavement markings, etc.).
- In European Union countries in particular, the EC Machinery Directive stipulates that a pictogram prohibiting pedestrian access to hazardous areas (i.e., within 1 metre upstream and downstream of the barrier arm in the horizontal position) must be affixed to both sides of the equipment:



- Any work on the equipment must be carried out by qualified staff. Any unauthorised servicing or maintenance of this product by an unqualified technician will automatically and legally void the manufacturer's warranty.
- The wearing of personal protective equipment (PPE) is mandatory for any work carried out on the barrier:



**INSTALL THE ARM AND ANY ACCESSORIES BEFORE CONDUCTING ANY ELECTRICAL TESTS. (⇒ CHAP. 6. INSTALLATION, PAGE 25)**



**NEVER OPERATE THE BARRIER WITHOUT ADJUSTABLE STOPS (⇒ REF. 23, CHAP. 5.5.2, PAGE 18), EITHER MANUALLY OR ELECTRICALLY.**



**CAUTION!  
RAISE THE ARM BEFORE CARRYING OUT ANY WORK INSIDE THE HOUSING IN ORDER TO RELEASE THE TENSION ON THE BALANCE SPRINGS AND PREVENT ANY UNWANTED MOVEMENT OF THE DRIVE MECHANISM!**


**CAUTION!**

**DO NOT TOUCH OR STAND NEAR THE BARRIER DURING A THUNDERSTORM, ESPECIALLY IF THE BARRIER IS IN THE OPEN POSITION (ARM RAISED), AS THERE IS A RISK OF ELECTROCUTION!**

- The access keys to the mechanism must be used by personnel who have been informed of the electrical and mechanical hazards involved in careless handling. These personnel are required to lock the access door to the mechanism after servicing.
- As soon as you open the bodywork, switch off the power supply at the circuit breaker (⇒ Chap. 8.2, page 58)
- Any internal parts that may be live or moving must be handled with care.
- The equipment is configured in “minimal risk” mode for its users. Any changes to the settings must be made with full knowledge of the facts by qualified personnel and do not engage the liability of Automatic Systems.
- The end of the arm must always be at least 0.5 m away from any object.
- The barrier must be fully visible to the user before it is activated.
- The installation of detection loops must be approved by qualified personnel, who will determine the layout of the loops best suited to the type of vehicle and the configuration of the lane.


**CAUTION**

**THERE IS A RISK OF INJURY TO PEOPLE WHEN USING STANDARD DETECTION LOOPS, WHICH MAY INCORRECTLY DETECT LORRIES OR (MOTOR)CYCLISTS AND CAUSE THE BARRIER TO CLOSE ON THEM!**

- Do not add any unapproved accessories (contact between different metals causes a galvanic effect that is detrimental to the corrosion resistance of the equipment).


**CAUTION!**

**IT IS IMPORTANT TO PAY ATTENTION TO THE DIRECTION IN WHICH THE COVER IS INSTALLED IF IT IS EQUIPPED WITH AN ACCESSORY (FLASHING LIGHT). INCORRECT INSTALLATION OF THE COVER MAY RESULT IN DAMAGE NOT ONLY TO THE ACCESSORY BUT ALSO TO THE BARRIER COVER.**

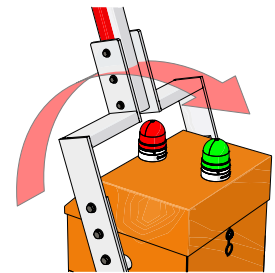


Fig. 1 - Installation of the flashing light accessory

### 3. GENERAL SYMBOLS

The following symbols are used in this manual or as labels on the equipment:



This symbol is used to highlight **a tip** that may help you better understand the product.



**Reminder** or **quick tip** useful for understanding how the product works.



This symbol is used to highlight **an important instruction** for the correct use and/or maintenance of the product.



Important! : This symbol is used to highlight a risk of injury or material damage.



This symbol is used to highlight a **risk of electric shock or electrocution**.



This symbol is used to highlight a **risk of cutting yourself**.



This symbol is used to identify the **principal ground connection point**.  
(Either in the form of an affixed label or directly engraved on a mechanical part).



This symbol is used to indicate the **tools** required for the relevant operation.



This symbol indicates that the equipment **conforms to European standards and directives**.



This symbol indicates that the equipment must **be disposed of in accordance with the applicable European Directives** (DEEE 2012/19/EU).

## 4. TERMINOLOGY

<b>AS</b>	<b>Automatic Systems</b>
<b>CMD</b>	Control
<b>DI</b>	Digital input
<b>DO</b>	Digital output
<b>I/O</b>	Input/Output
<b>OOS</b>	Out of Service
<b>HMI</b>	Human-Machine Interface
<b>NF</b>	(Contact) Normally Closed (Closed at rest (power off))
<b>NO</b>	(Contact) Normally Open (Open at rest (power off))
<b>OV</b>	Opening ("Ouverture")
<b>MVT</b>	Movement
<b>Arm</b>	Obstacle to passage, materialised by a pivoting arm from top (barrier open) to bottom (barrier closed).
<b>VFD</b>	Variable Frequency Drive
<b>N/A</b>	Not Applicable
<b>SR barrier</b>	Barrier without automatic rising ("Sans Relevage")
<b>AVR barrier</b>	Barrier with automatic rising ("Avec Relevage")
<b>DTE</b>	Electrical Technical File ( <b>D</b> ossier <b>T</b> echnique <b>É</b> lectrique)- File containing electrical diagrams of the product and its most common options

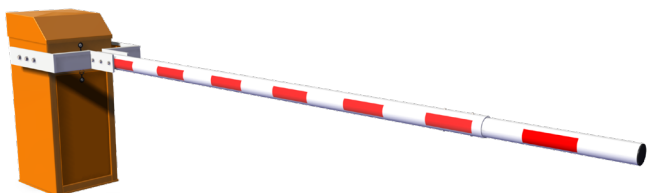
## 5. DESCRIPTION

### 5.1. THE RANGE

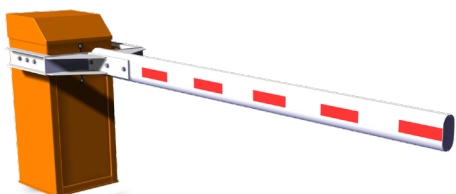
#### 5.1.1. BL 40



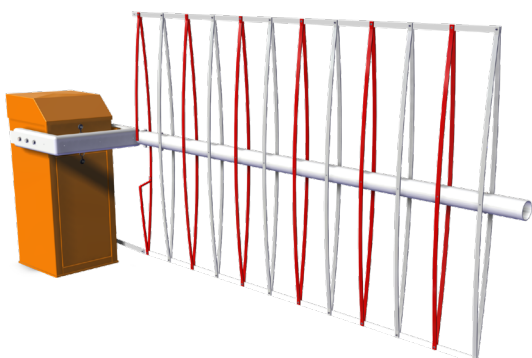
#### 5.1.2. BL 41



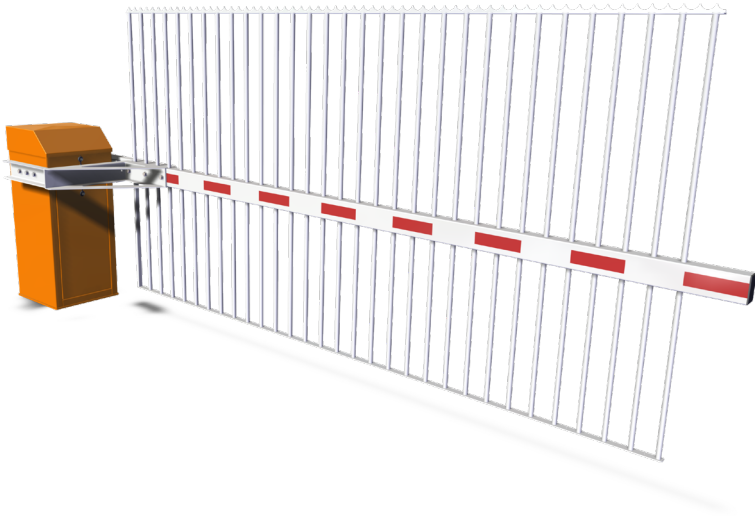
#### 5.1.3. BL 43 AND BL 44



#### 5.1.4. BL46



5.1.5. BL47



5.2. OVERALL DIMENSIONS

5.2.1. BL 40

(Arm to the left or right)

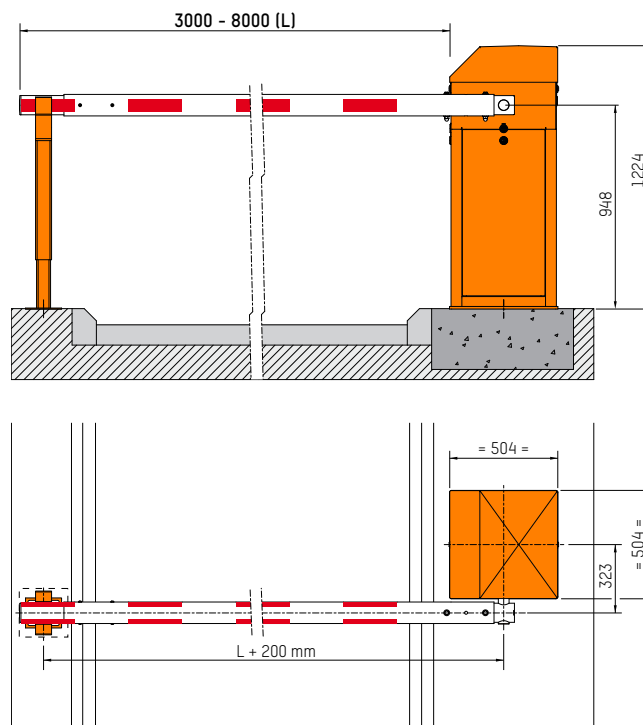


Fig. 2 - BL 40 dimensions

# BL 4X



## 5.2.2. BL 41

(Central arm)

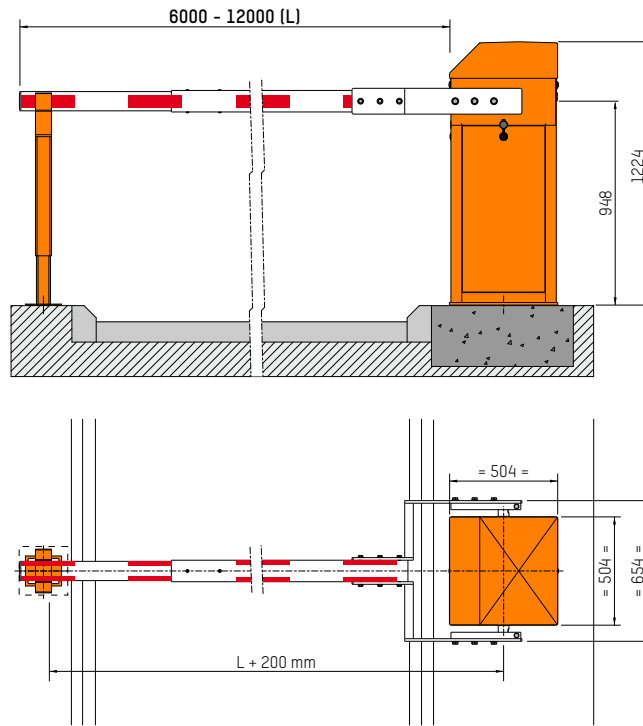


Fig. 3 - BL 41 dimensions

## 5.2.3. BL 43

(Central arm)

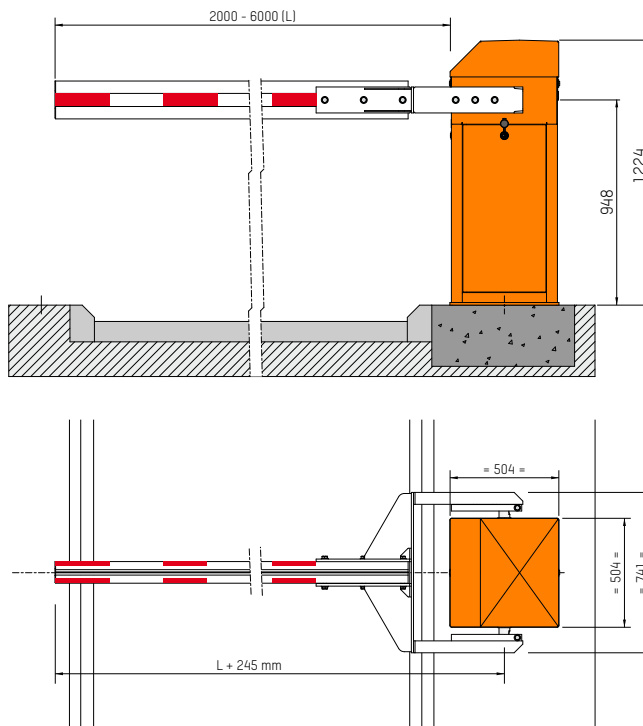


Fig. 4 - BL 43 dimensions

**5.2.4. BL 44**

(Central arm)

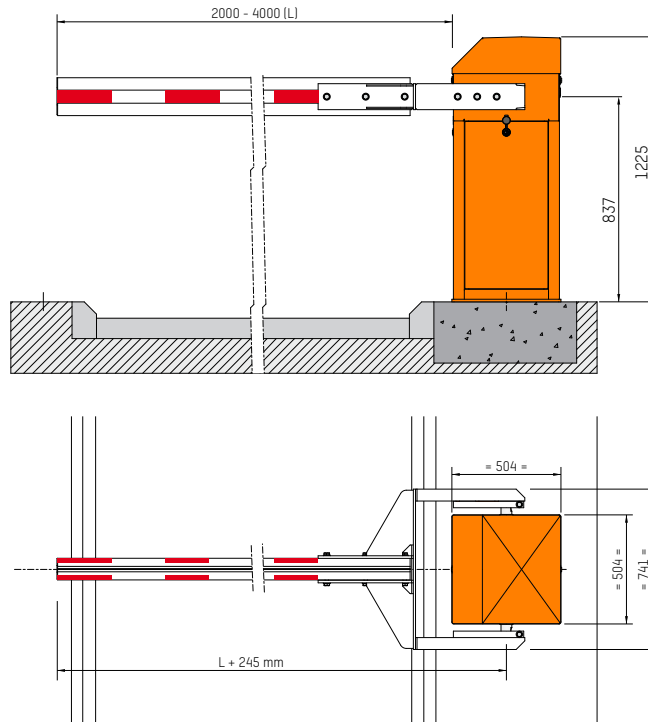


Fig. 5 - BL 44 dimensions

**5.2.5. BL 46**

(Arm to the left or right)

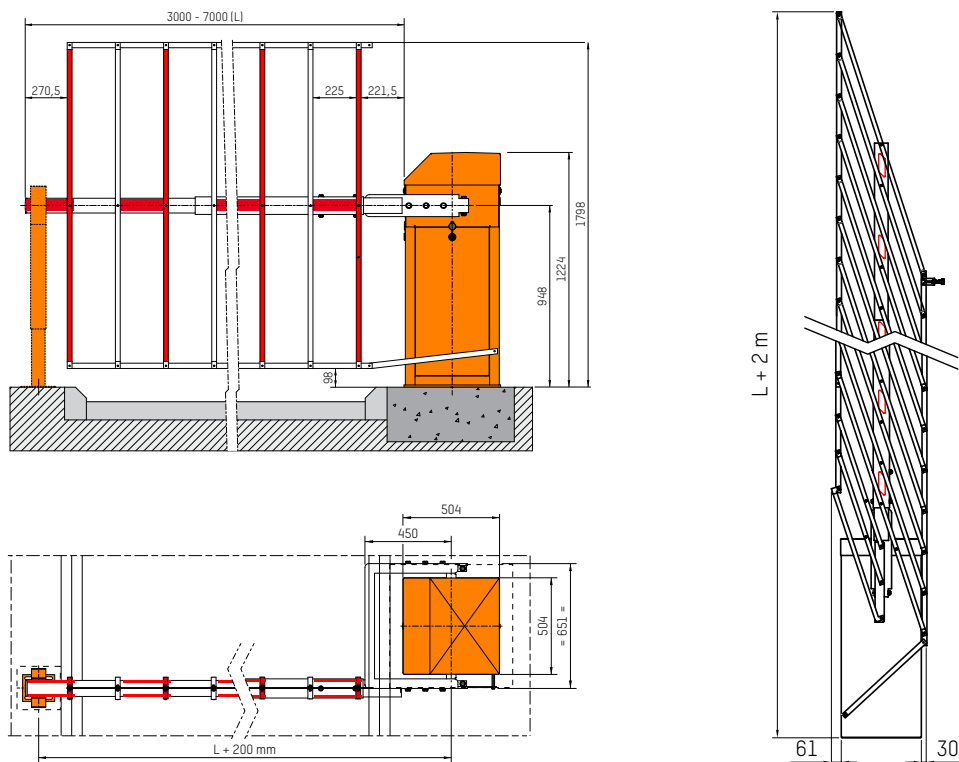


Fig. 6 - BL 46 dimensions



In the open position, the fence projects by 10 mm with respect to the housing (clear passage (L) reduced by 10 mm).  
 For a BL 46 equipped with an articulated rigid mesh, the actual length of the arm = useful length (L) + 35 mm.

## 5.2.6. BL 47

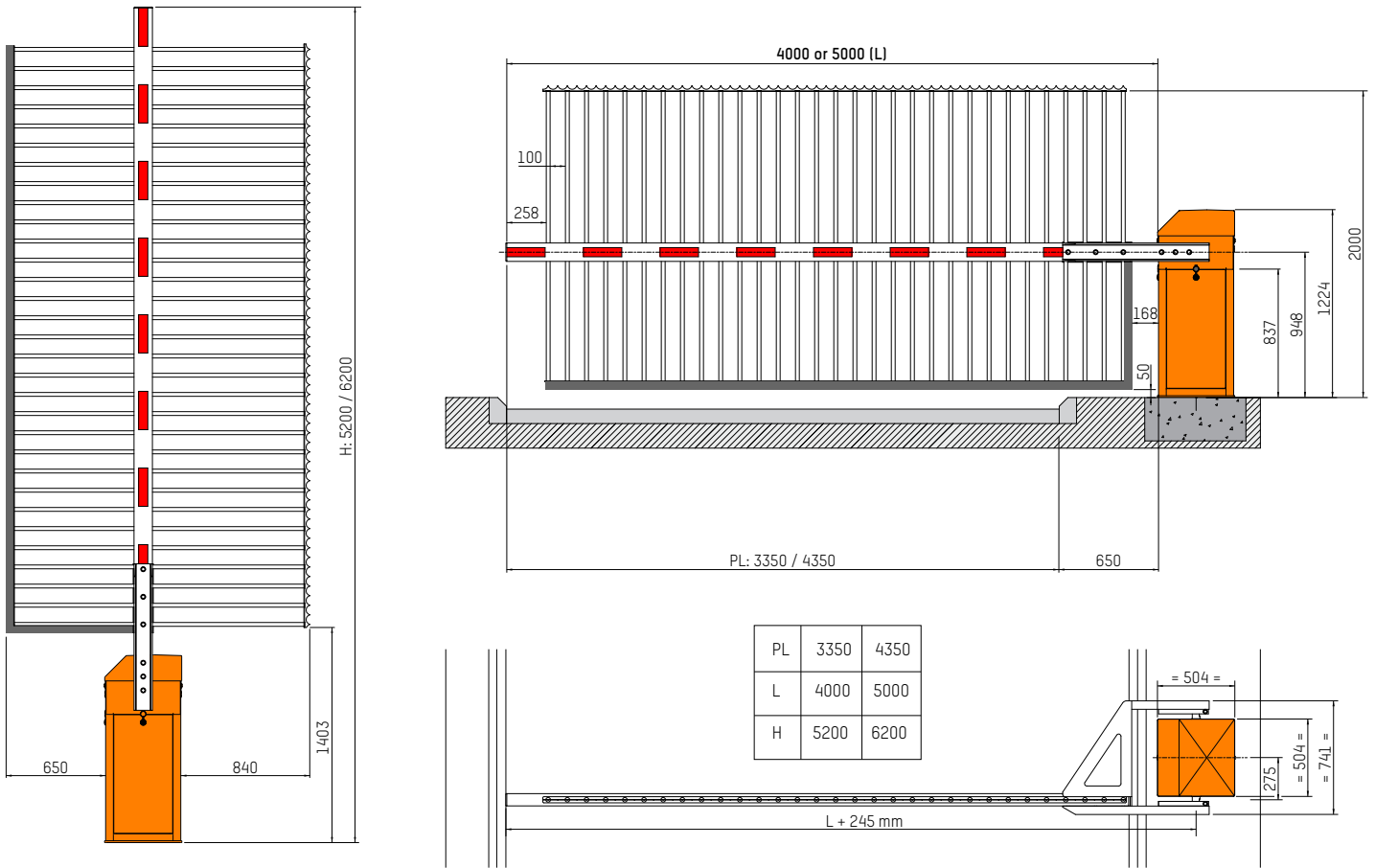


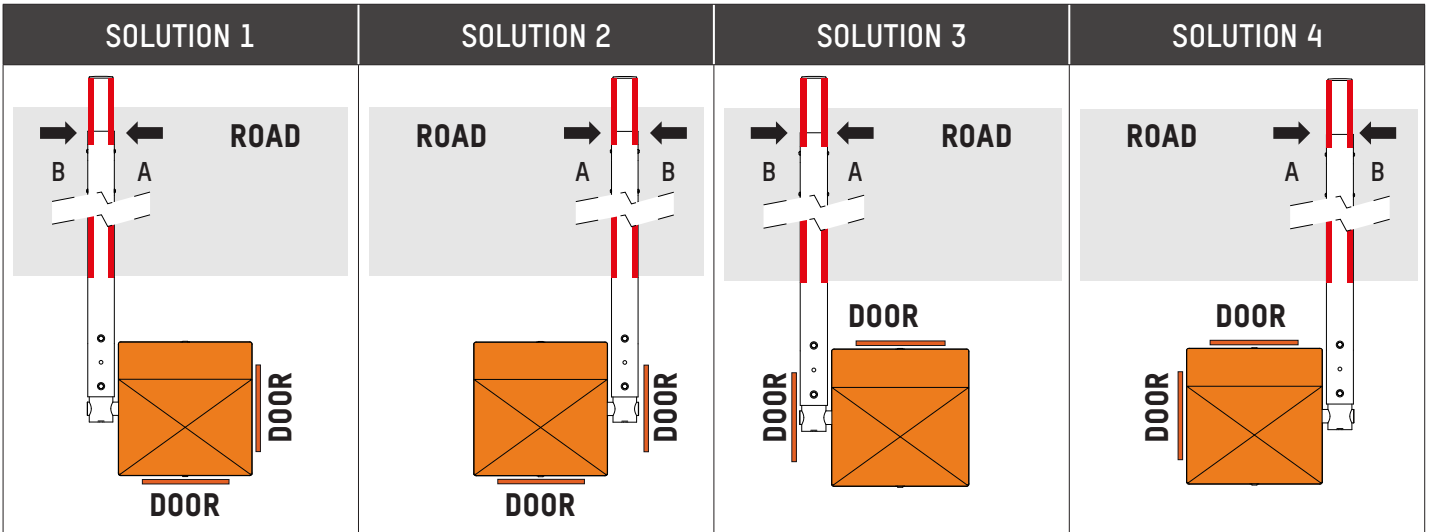
Fig. 7 - BL 47 dimensions



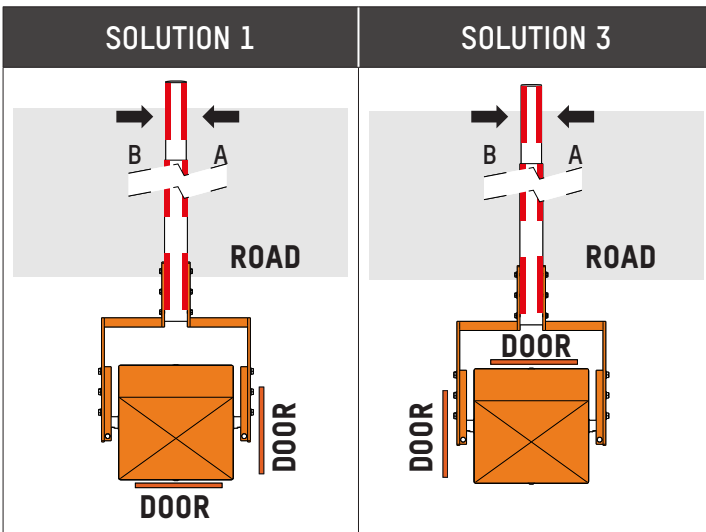
A arm with a total length of 5 metres allows for a clear passage of 4 metres.  
 A arm with a total length of 4 metres allows for a clear passage of 3 metres.

### 5.3. CONVENTIONS

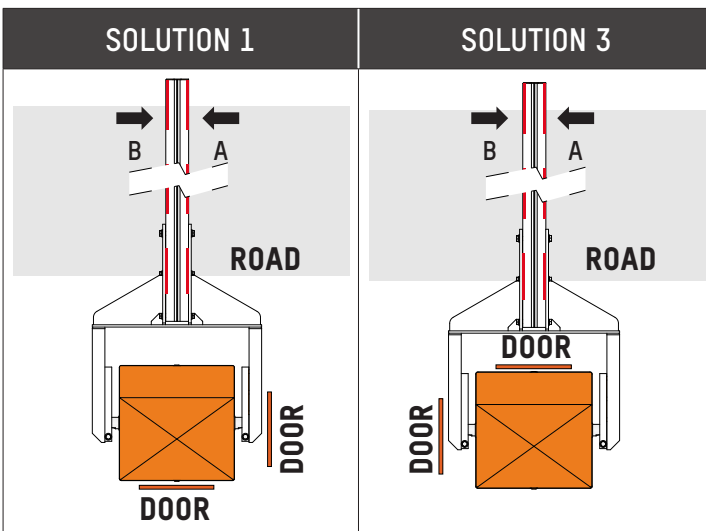
#### 5.3.1. BL 40



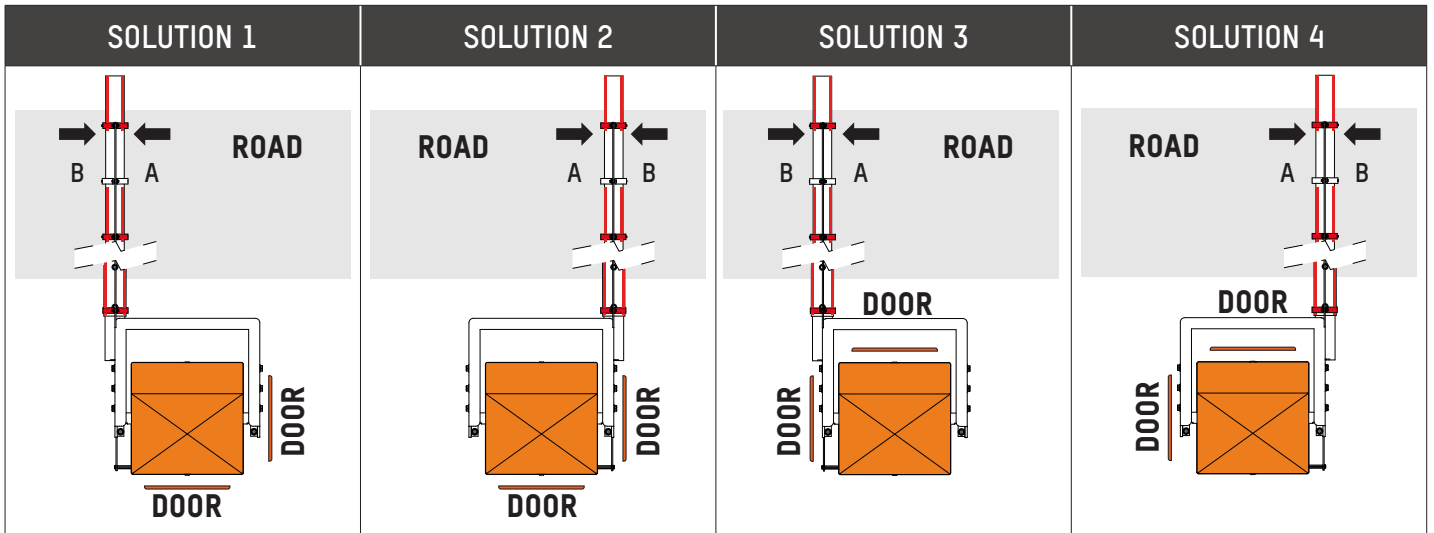
#### 5.3.2. BL 41



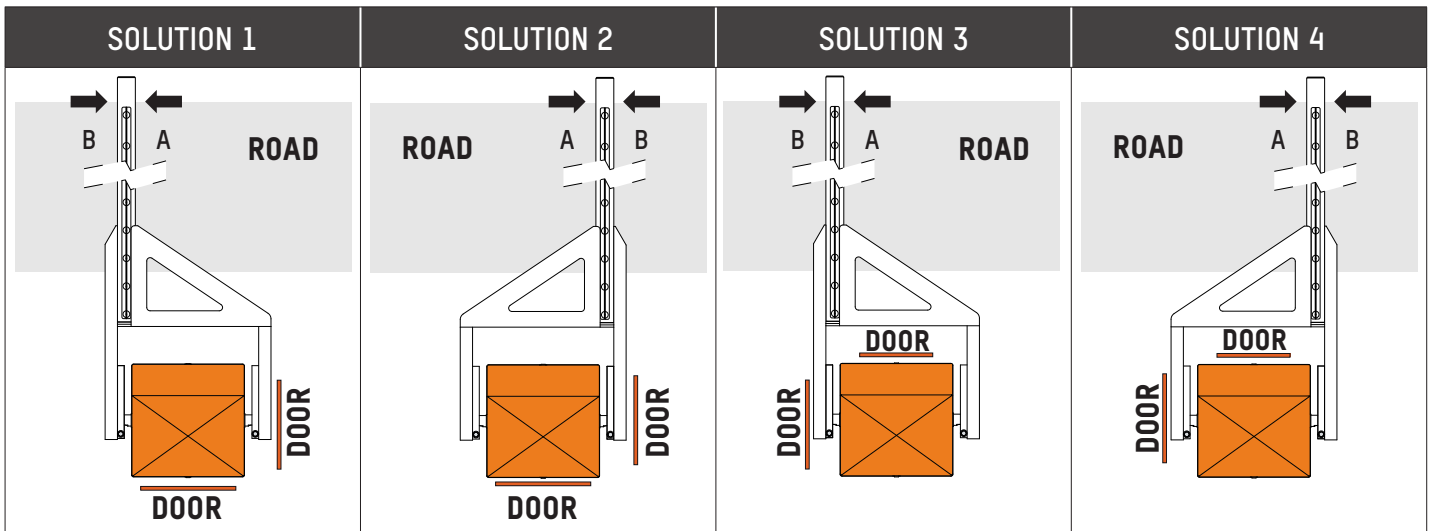
#### 5.3.3. BL 43 AND BL 44



## 5.3.4. BL 46



## 5.3.5. BL 47



## 5.4. TECHNICAL SPECIFICATIONS

Electrical Power Supply	230V~ (± 10%) / 50Hz <sup>1</sup>					
Power consumption	When moving: 450 W At rest: 44 W					
Motor	Three-phase asynchronous, 250 W					
	<b>BL 40</b>	<b>BL 41</b>	<b>BL 43</b>	<b>BL 44</b>	<b>BL 46</b>	<b>BL 47</b>
Clear passage (L)	From 3 to 8 m*	From 6 to 12 m*	From 2 to 6 m*	From 2 to 4 m*	From 3 to 7 m*	4 or 5 m**
Ambient operating temperature	-20°C to +50°C					
Ambient relative humidity	95%, without condensation					
MCBF (Mean number of cycles between failures)	<b>5,000,000 cycles</b> , in compliance with recommended maintenance					
Protection index	IP44					
	<b>BL 40</b>	<b>BL 41</b>	<b>BL 43</b>	<b>BL 44</b>	<b>BL 46</b>	<b>BL 47</b>
Net weight (excluding arm)	220 kg	230 kg	250 kg	250 kg	250 kg	250 kg
Noise level	<70 db(A) <sup>[2]</sup>					
<b>CE</b>	Compliant with European standards					

<sup>1</sup> Do not connect to an isolated ground network or to an industrial distribution network with high impedance grounding.

<sup>2</sup> Measured 1 metre from the surface of the machine and at a height of 1.60 metres above the ground in accordance with ISO 3744. No ear protection needed.

\* Per increment of 0.5 m

\*\* Leading to a clear passage of 3.35 or 4.35 m respectively

## 5.5. LOCATION OF COMPONENTS

### 5.5.1. GENERAL

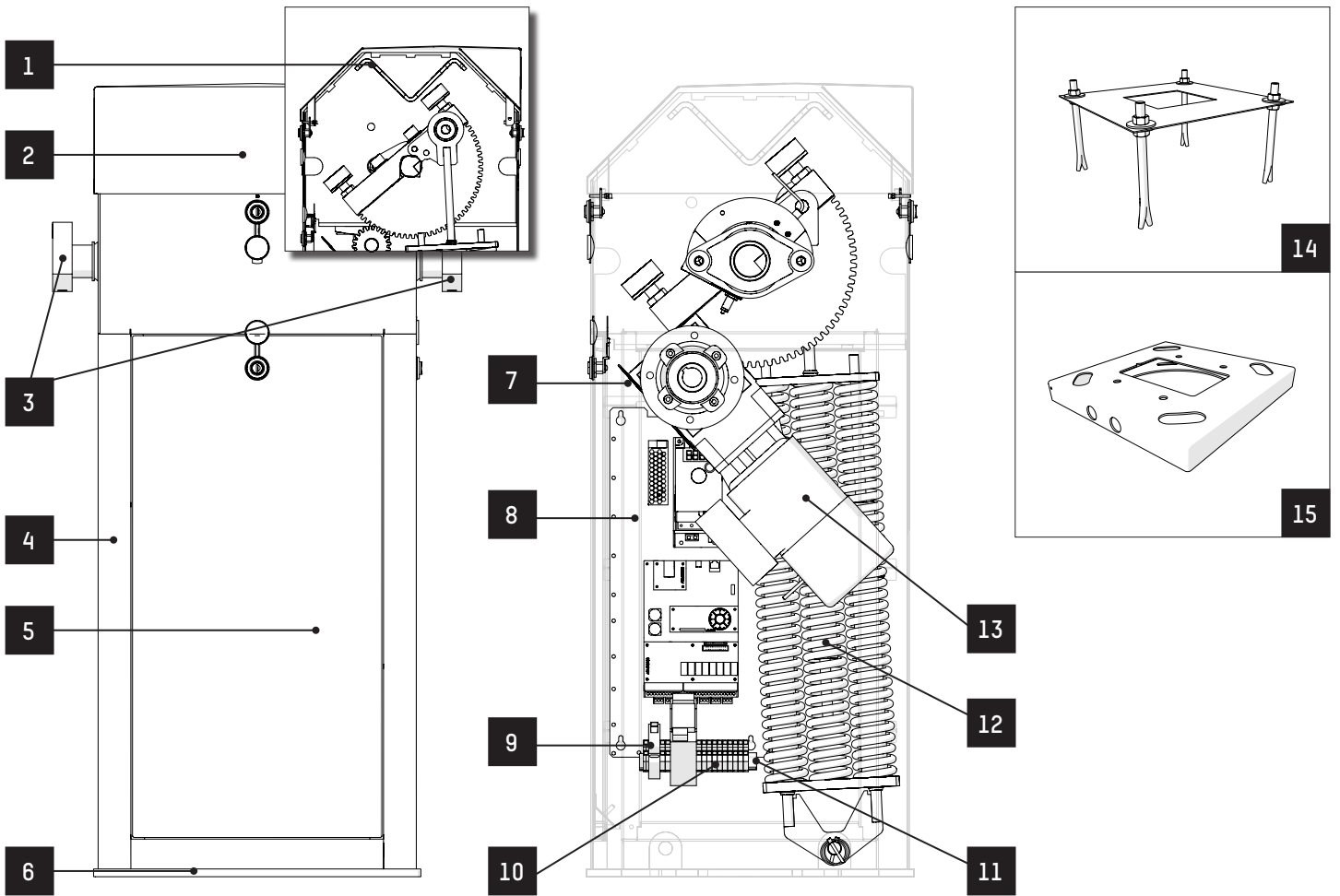


Fig. 8 - Component location - General

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Reinforcement V-block	10	Terminal blocks
2	Cover, locked by 2 key locks	11	DIN rail
3	Jaw brackets	12	Spring assembly (x1 or x2 per barrier) (⇒ Chap. 5.5.5, page 21)
4	Housing	13	A102 SR gear motor A102 AVR gear motor (optional)
5	Front door, locked by key lock	14	Fixing frame
6	Frame base plate	15	Raised base (optional)
7	Protective housing		
8	Control plate assembly		
9	Main circuit breaker		

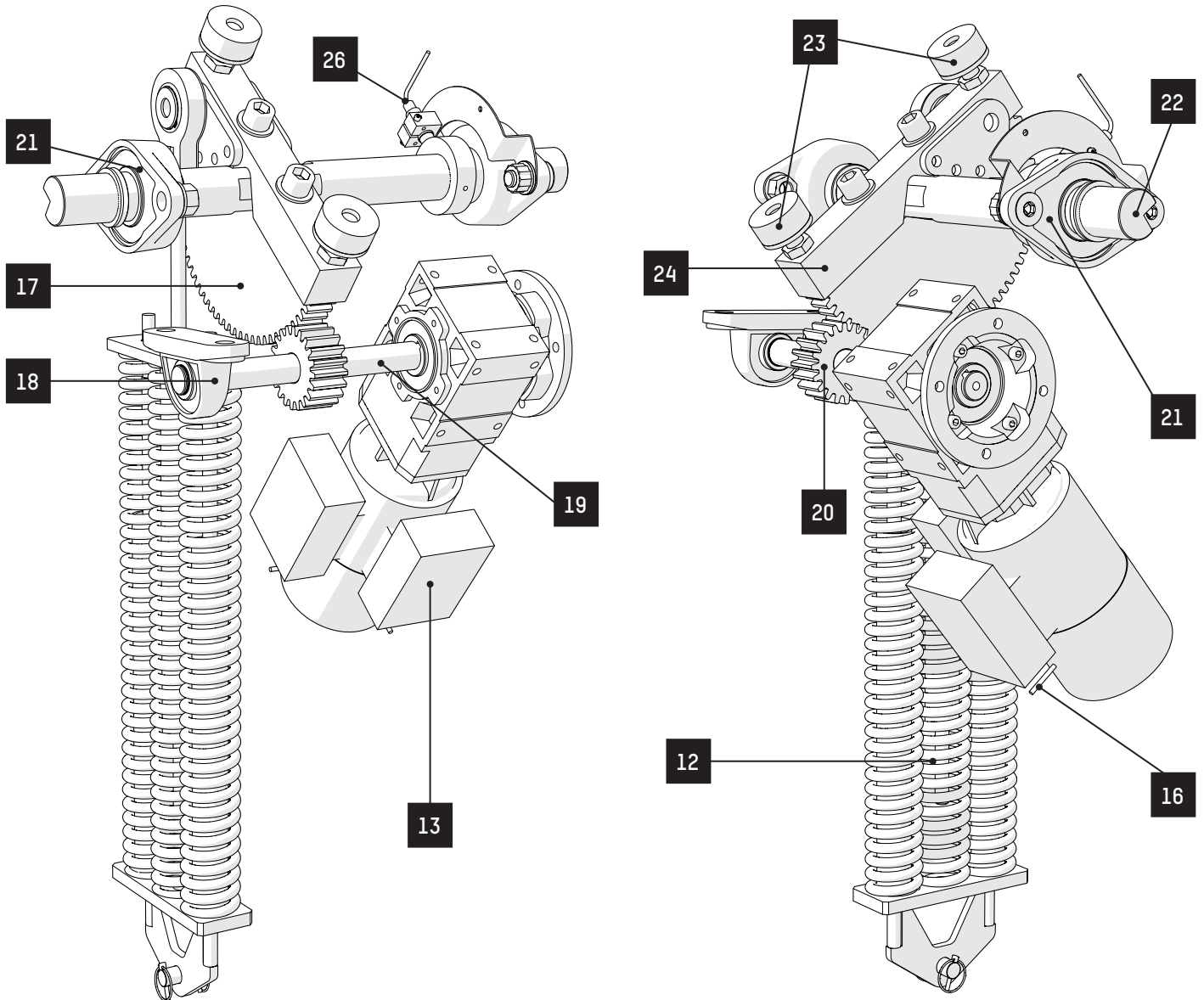
**5.5.2. MECHANICAL ASSEMBLY**


Fig. 9 - Component location - Mechanical assembly

REF.	DESCRIPTION	REF.	DESCRIPTION
12	Spring assembly (x1 or x2 per barrier) (⇒ Chap. 5.5.5, page 21)	20	Pinion
		21	Oval bearing for shaft Ø 50
13	A102 SR gear motor A102 AVR gear motor (optional)	22	Shaft for bracket
		23	Position stop (x2 per barrier)
16	Brake release lever	24	Stop hub
17	Toothed sector	25	Bearing bracket for analogue sensor
18	Foot-mounted bearing	26	Analogue position sensor
19	Reducer shaft		

## 5.5.3. ANALOGUE SENSOR

An analogue sensor communicates the exact position of the arm to the control logic during opening and closing movements.

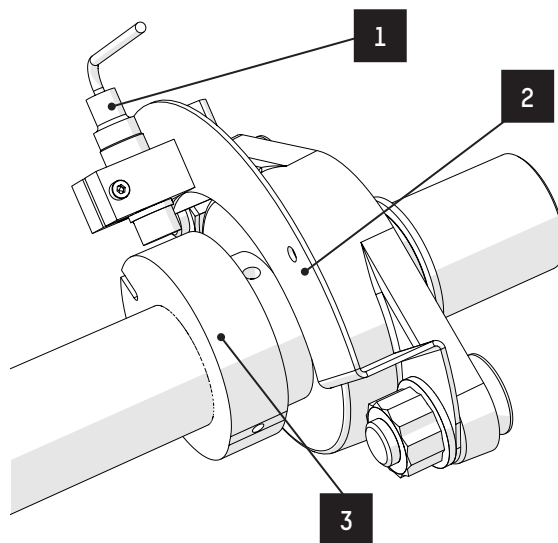


Fig. 10 - Component location - Analogue sensor

REF.	DESCRIPTION
1	Analogue sensor
2	Bearing bracket for analogue sensor
3	Spiral cam

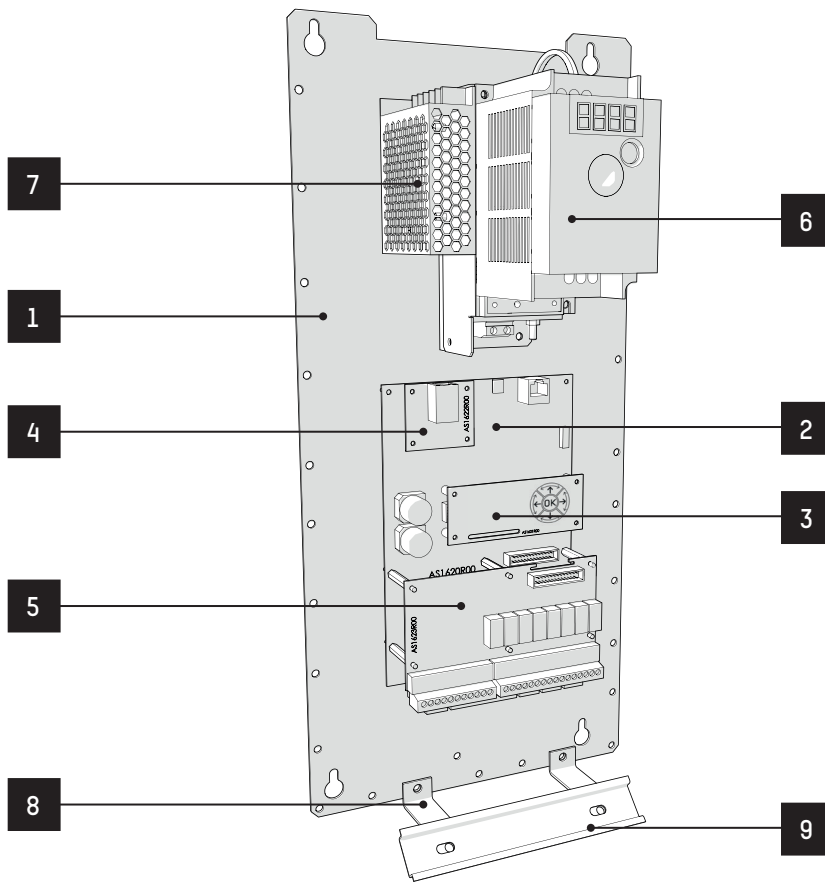
**5.5.4. CONTROL BOARD ASSEMBLY**


Fig. 11 - Location of components - Control board assembly (AS1620)

REF.	DESCRIPTION
1	Sheet metal plate
2	AS1620 control logic
3	HMI board with OLED RGB display - AS1621
4	Ethernet communication card - AS1622
5	Card for additional relay inputs/outputs - AS1623
6	Variable frequency drive (+ filter)
7	Power supply
8	Support plate for terminal blocks
9	DIN rail

## 5.5.5. SPRING ASSEMBLY

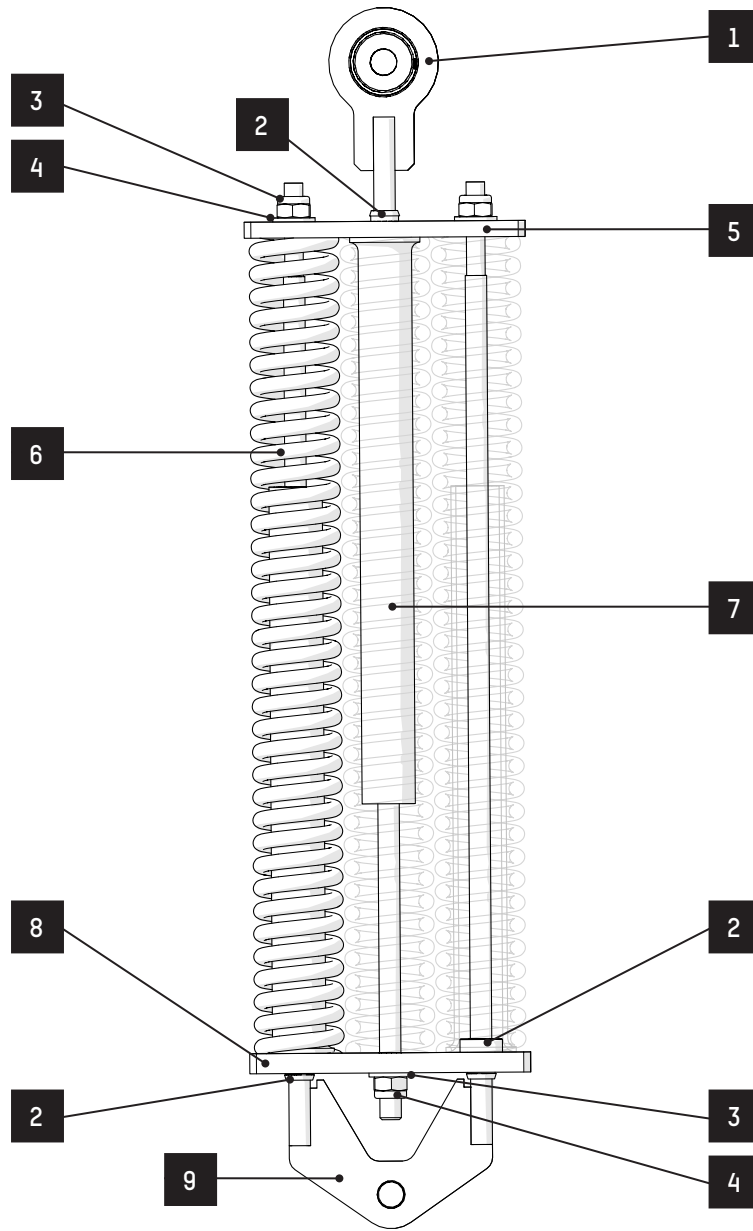


Fig. 12 - Component location - Spring assembly

REF.	DESCRIPTION
1	Central spring support rod
2	Guide bushing
3	M16 Nylstop nut (steel)
4	M 16 flat washer (steel)
5	Upper flange plate
6	Compression spring
7	Guide tube
8	Lower flange plate
9	Double spring support rod

### 5.6. LOCATION OF LABELS AND DOCUMENTS

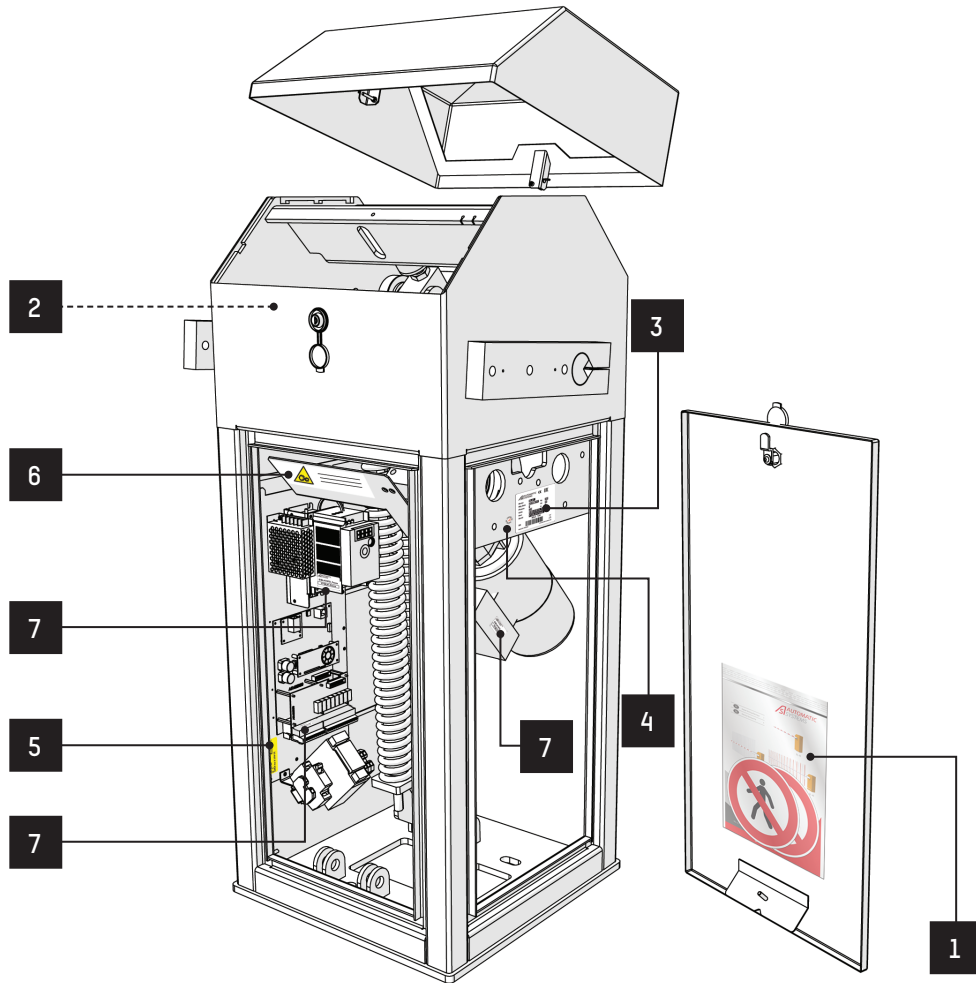


Fig. 13 - Location of identification labels

REF.	GRAPHIC	DESCRIPTION	LOCATION(S)
1		Plastic sleeve containing the following documents: <ul style="list-style-type: none"> <li>• Electrical Technical File.</li> <li>• 2 x "No pedestrians" stickers.</li> </ul>	Affixed inside the door on the gear motor side.
2		Conformity label	Affixed to the upper part of the housing. 

REF.	GRAPHIC	DESCRIPTION	LOCATION(S)
3		Product identification label.	Affixed to the frame on the gear motor side. 
4		"Tested: OK" dielectric test label	Affixed to the frame on the gear motor side. 
5		"Electrical hazard - power supply" label	Affixed to the logic plate 
6		Label indicating removal of protective housing + indication of removal of the arm	Affixed to the protective housing. 
7		Product identification label, mini version.	1. On the control logic. 2. On the variable frequency drive. 3. On the nameplate of the gear motor.

## 5.7. OPERATING PRINCIPLE



The references in this chapter refer to the illustrations in chapter 5.5. Location of Components, page 17.

Opening the arm is controlled by the user (using a key switch, push button, radio transmitter), via detection loops buried under the pavement, or by an external device.

Closing is controlled in the same way, or automatically after a timeout period.

The movement created by the gear motor (13) is transmitted to the arm by a pinion and gear wheel system (20 + 17).

The speed at which the arm moves, controlled by a variable frequency drive (⇒ Ref. 6, Chap. 5.5.4, page 20), can be adjusted both during opening and closing. The movements are factory-set to provide rapid acceleration and slow deceleration at the end of the movement.

The position sensor(s) (26) indicate(s) the end positions of the arm (open and closed) to the control logic (⇒ Ref. 6, Chap. 5.5.4, page 20).

The latter coordinates the barrier's activity: movement management, options, processing of incoming and outgoing information, etc. (see separate control logic manual). However, this information can be retrieved and processed by an external terminal (not supplied by Automatic Systems).

One to six pre-compressed balancing springs (12) act as a counterweight to assist the motor both when opening and closing the barrier (models without automatic rising\*).

For barrier models with automatic rising\*, the pre-compression of the springs is increased so that they alone can raise the arm if there is a power outage.

(\*) Automatic rising of the arm during a power outage: standard on BL 44, as an option on the other models.

The arm is held by an electromagnetic brake in its two end positions (open and closed), as well as when a Stop command is given.

For increased protection against vandalism (forcing open the arm), the arm can also be equipped with an optional mechanical lock that locks the arm in the open and/or closed position. (⇒ Chap. 6, page 25)

The following table summarises the various possible combinations:

BARRIER MODEL	ELECTROMAGNETIC BRAKE	ARM LOCKING (OPTIONAL)	
		LOCKED POSITION	LOCK TYPE
Without the arm rising (SR)	Brake NF, powered during arm movement to release it.	Locking with arm open	NO lock, powered when arm is open to lock it.
			NF lock, powered during arm movement to unlock it.
		Locking with arm closed	NO lock, powered when arm is closed to lock it.
			NF lock, powered during arm movement to unlock it.
With automatic rising of the arm	NO brake, powered in end positions to lock the arm.	Locking with arm open	NF lock, powered during arm movement to unlock it.
			NO lock, powered when arm is open to lock it.
		Locking with arm closed	NO lock, powered when arm is closed to lock it.

NF: Normally closed = Closed at rest (power off)

NO: Normally open = Open at rest (power off)

## 6. INSTALLATION

When you receive the equipment, check its condition and inform the insurance company or distributor immediately of any damage that may have occurred during transport. Where applicable, restore it to working order.



### CAUTION: SAFETY MEASURES!

4. The installer must comply with all applicable laws where the barrier will be installed and used.
5. Installation operations must be carried out by qualified and authorised personnel, in keeping with the safety warnings set out in Chap. 2, page 5.
6. The barrier must be installed with a permanent electrical connection in accordance with the codes and standards in force where it is installed.
7. Special attention must be paid to the proper connection of grounding wires to reduce any risk of injury.
8. The barrier must be installed in a location with sufficient space between the barrier and existing structures to reduce the risk of someone becoming trapped. (minimum 600 mm)
9. The barrier activation controls must be located at least 2 metres away from any moving parts of the barrier. The controls must be located in a position that keeps the user from being above, below, or around the barrier when it is in motion.

### 6.1. STORAGE OF EQUIPMENT PRIOR TO INSTALLATION

Prior to installation, avoid any impact on the equipment and place it in its original packaging in a dry place, protected from dust, heat, and inclement weather.

Extreme storage temperatures: -30 to +80°C.

6.2. INSTALLATION PLAN: CONCRETE BASE

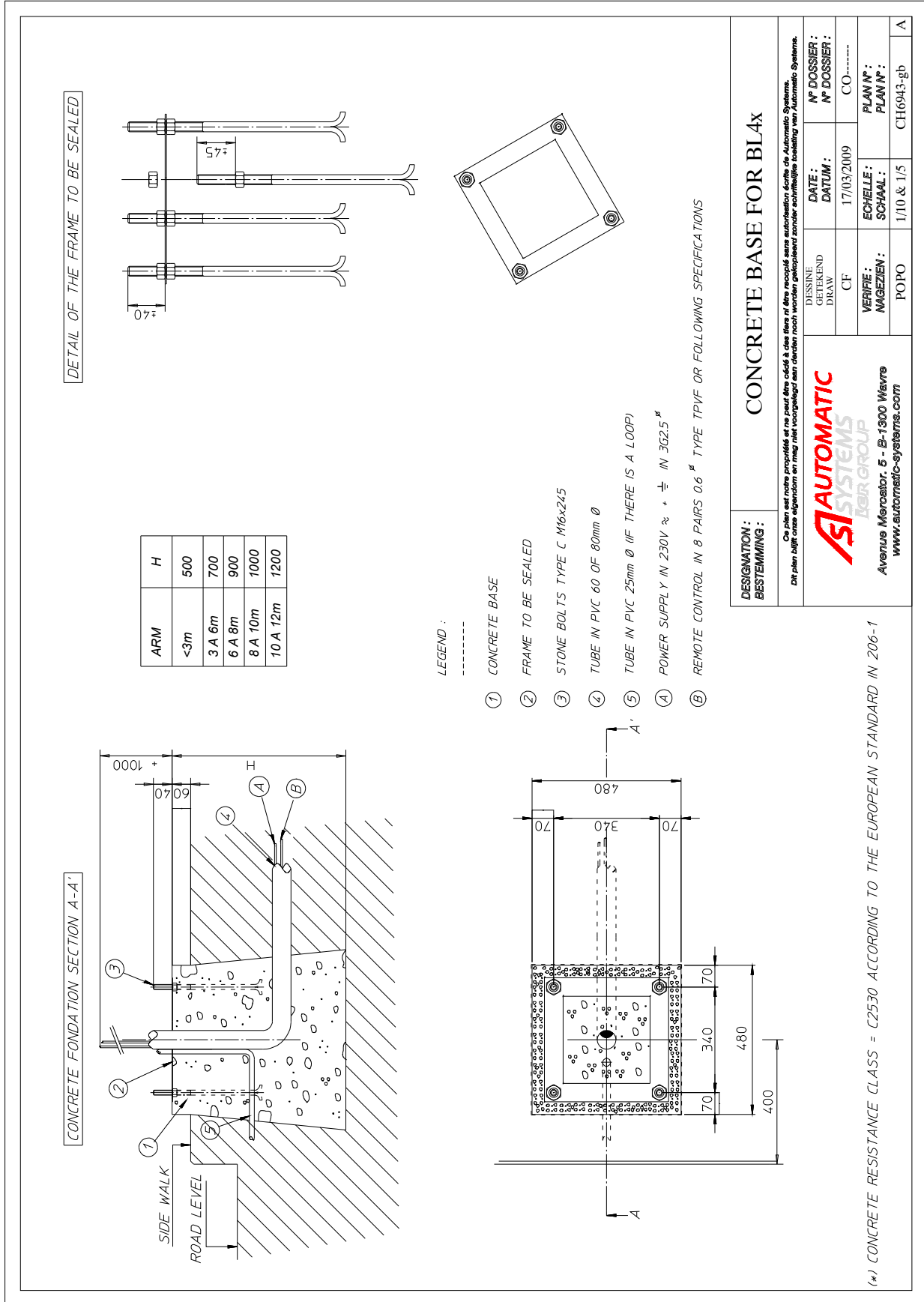


Fig. 14 - Installation diagram: concrete stand

## 6.3. PREPARATION OF THE MOUNTING BASE

As the barrier cannot rest directly on the ground, it must be secured in one of the following ways:

- on a concrete mounting base, using a fixing frame provided on request (detailed procedure below);
- or on a steel raised base (provided as an option);

To position the mounting base, refer to the installation diagram, which takes precedence over any other information.

1. Insert the four anchoring studs (1), each with a nut (2) and a flat washer (3), into the holes in the fixing frame (4). The thread should be oriented upwards as shown. Assemble the anchoring studs on the fixing frame by tightening a flat washer (3) and a nut (2) on each thread, and letting the thread protrude from the frame (4) by the height defined on the installation diagram (40 mm). Tighten the nuts. Use adhesive tape to protect the threads from concrete splashes.
2. Lay the PVC pipes and run the power cables (to the main distribution board), control wiring (to the control box) and detection wiring (to the loops and/or any cells) through them, allowing them to protrude from the concrete stand by approximately 1 metre.
3. Wiring must be installed in accordance with the applicable standards in the country in which the installation is carried out.
4. Build a concrete stand (7) and place the mounting base on it. The frame (4) must be flush with the finished level of the base and perfectly horizontal.
5. When the concrete has set, remove the adhesive tape from the threads and remove the nuts (6) and flat washers (5) from the top of the fixing frame.

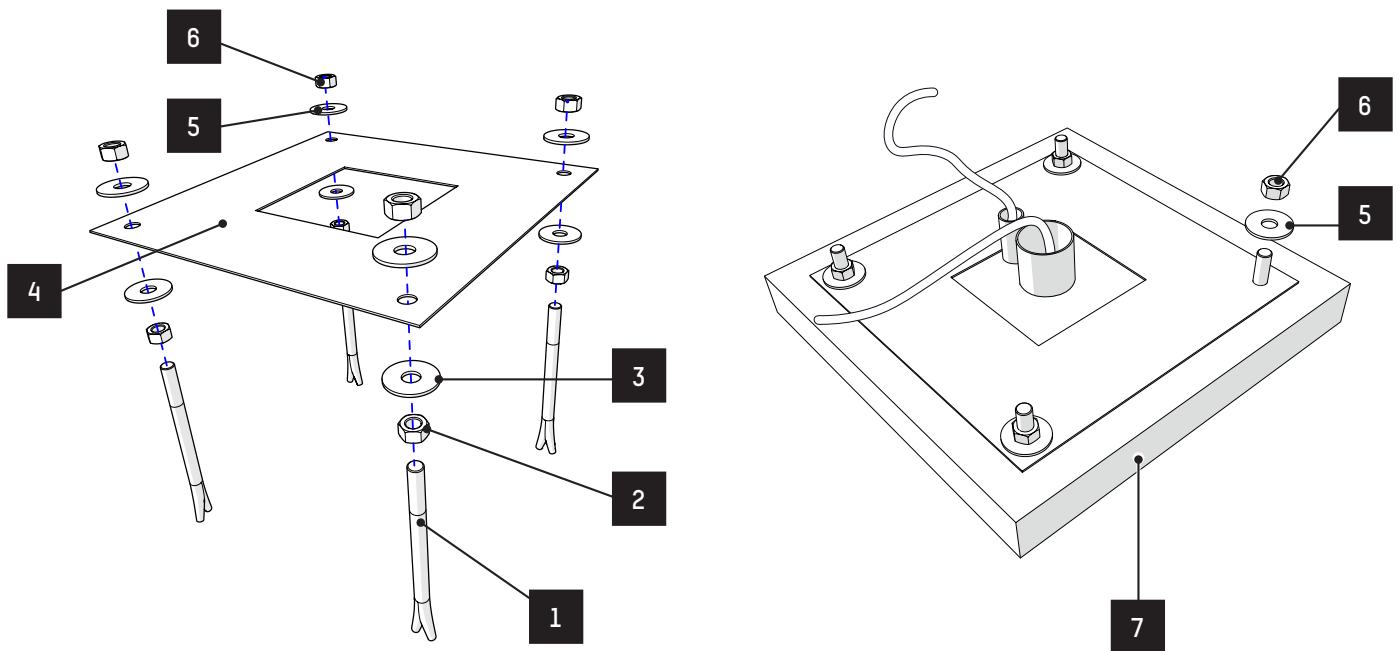


Fig. 15 - Preparation of the mounting base

REF.	DESCRIPTION
1	M16 anchoring stud
2 - 5	Nut
3 - 6	Large flat washer
4	Fixing frame

## 6.4. INSTALLATION OF THE EQUIPMENT

1. Handle equipment on site using appropriate handling equipment (such as a hand truck or equivalent).
2. Unlock and remove the side and front doors (⇒ Chap. 8.1, page 58)
3. Strip the cable sheath starting at 50 cm from the ground.
4. Remove the wooden slats attached to the bottom of the housing.

### 6.4.1. INSTALLATION ON A FIXING FRAME

1. To avoid damaging the anchoring studs, place the base plate of the barrier (8) on its stand according to the solution chosen prior to the command (position of the arm in relation to the door and the road: ⇒ ).
2. Ensure that the housing is secured to the mounting base by tightening the washers (5) and nuts (6) previously removed from the studs (1).

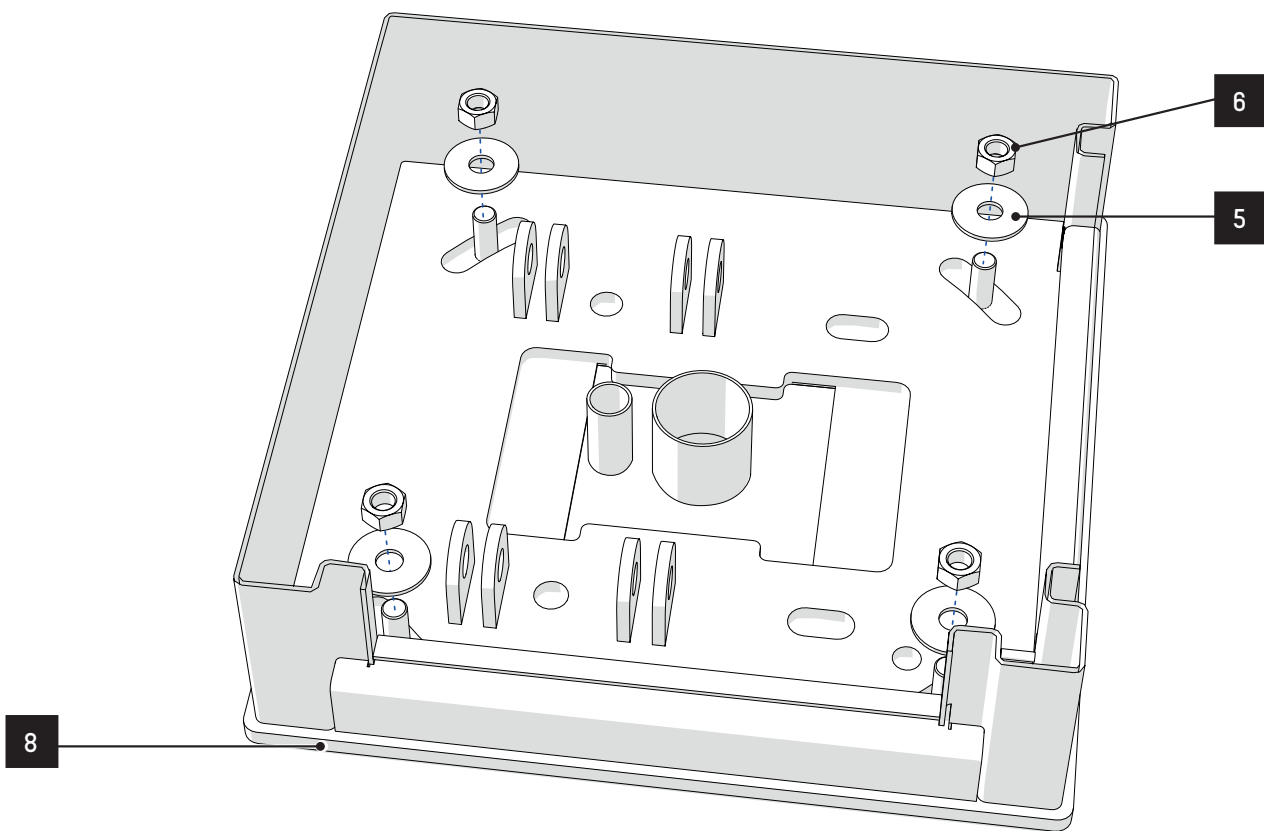


Fig. 16 - Installation on a fixing frame

3. If necessary, add layers of shims under the housing so that the barrier is levelled correctly.



Do not tighten the nuts (6) until after the installation of the arm (⇒ Chap. 6.5, page 30) or of a tip support (optional).



If there is no fixing frame, the barrier can be fixed to the ground using at least four M16 chemical anchors. A rubber base plate (Peptic Fab) can be added between the concrete block and the barrier frame.

## 6.4.2. INSTALLATION ON A RAISED BASE (OPTIONAL)

1. Assemble the fixing frame (⇒ Chap. 6.3), making sure that the anchoring bolts protrude by 100 mm.
2. Check the orientation of the base with respect to the barrier (position of the notch, ⇒ Fig. 17).
3. Attach the stand to the 4 anchoring studs using the bolts and washers, through the oblong holes in the base.
4. Attach the barrier to the base using the 4 bolts and washers provided.

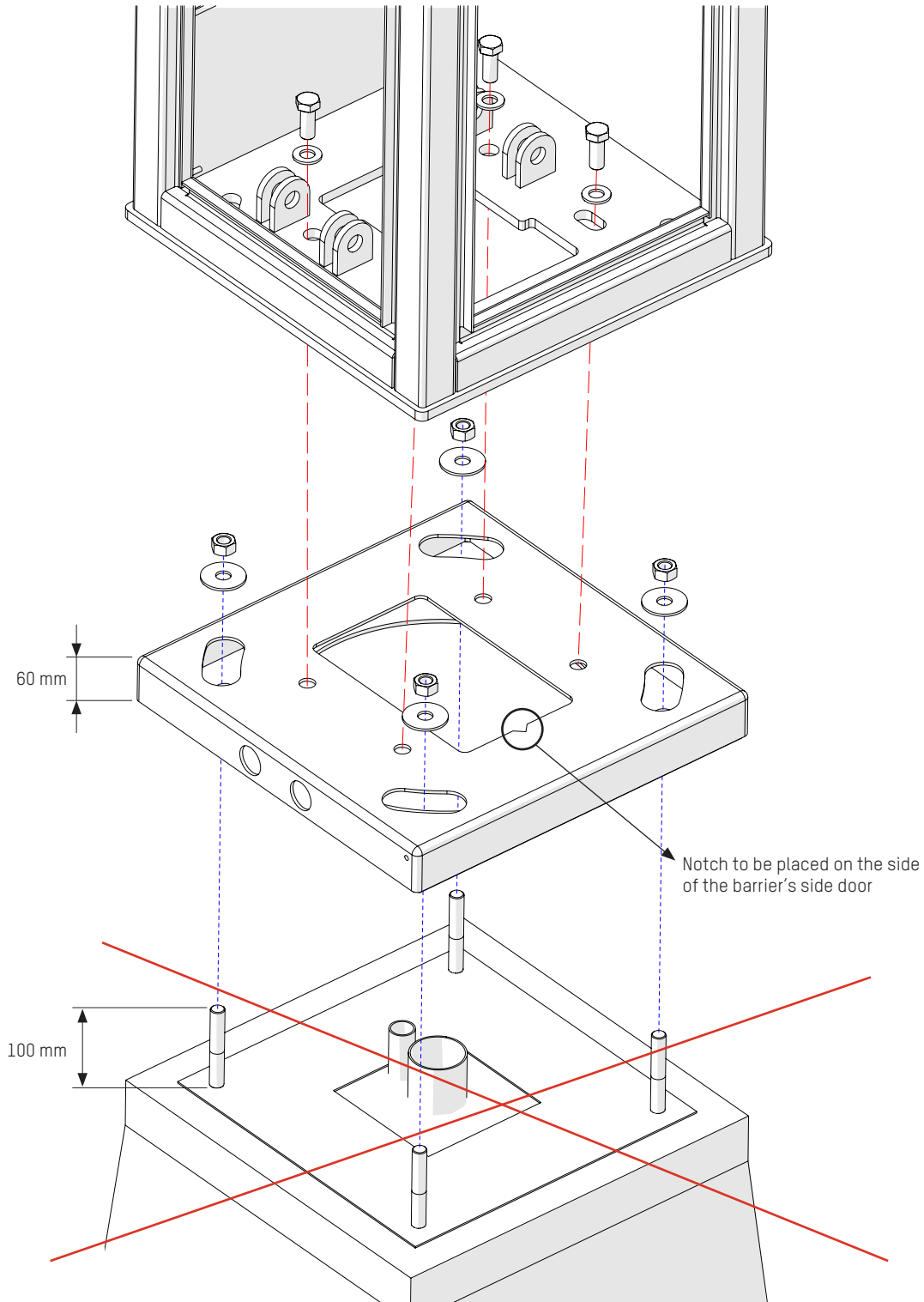


Fig. 17 - Installation of the raised base

## 6.5. INSTALLATION OF THE ARM



- All bolts must be lubricated before assembly.
- The nominal torques are given in the caption of the illustration.



**IF REMOVING THE ENTIRE ARM, IT IS ESSENTIAL TO FIRST REMOVE THE LOWER AXLE FROM THE SPRING ASSEMBLIES BY REMOVING THE PIN (5) TO RELEASE THE TENSION IN THE SPRINGS.**

### 6.5.1. RELEASING THE TENSION FROM THE SPRING(S) (STEPS COMMON TO ALL BARRIERS)

1. Switch off the barrier by triggering the circuit breaker (⇒ Chap. 8.2, page 58)
2. Loosen the nut (1) and screw the upper stop (2) fully into the hub (3) to remove the compression stress on the springs (4), then raise the arm shaft (for BL 40) or the arm bracket (for BL 41, BL 43, BL 44, BL 46 and BL 47).
3. Remove the lower axle(s) from the spring assembly(ies) by removing the swing pin (5).
4. Slowly lower the arm shaft or bracket. If the barrier does not have the “automatic rising” option, the shaft can only be rotated by disengaging the motor brake (using the brake release lever (6)).

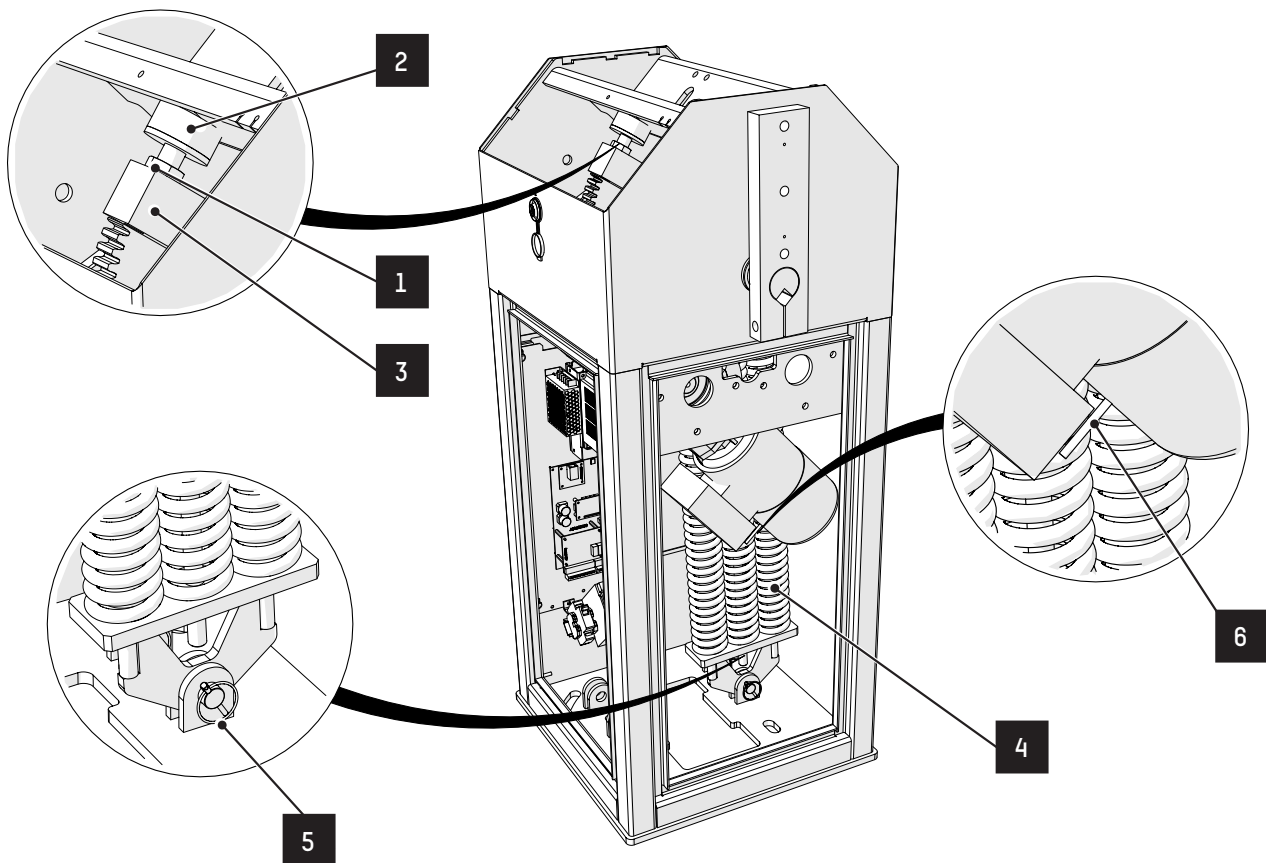


Fig. 18 - Installation of the arm - Releasing the tension from the spring(s)

## 6.5.2. INSTALLATION OF THE ROUND ARM FOR BL 40

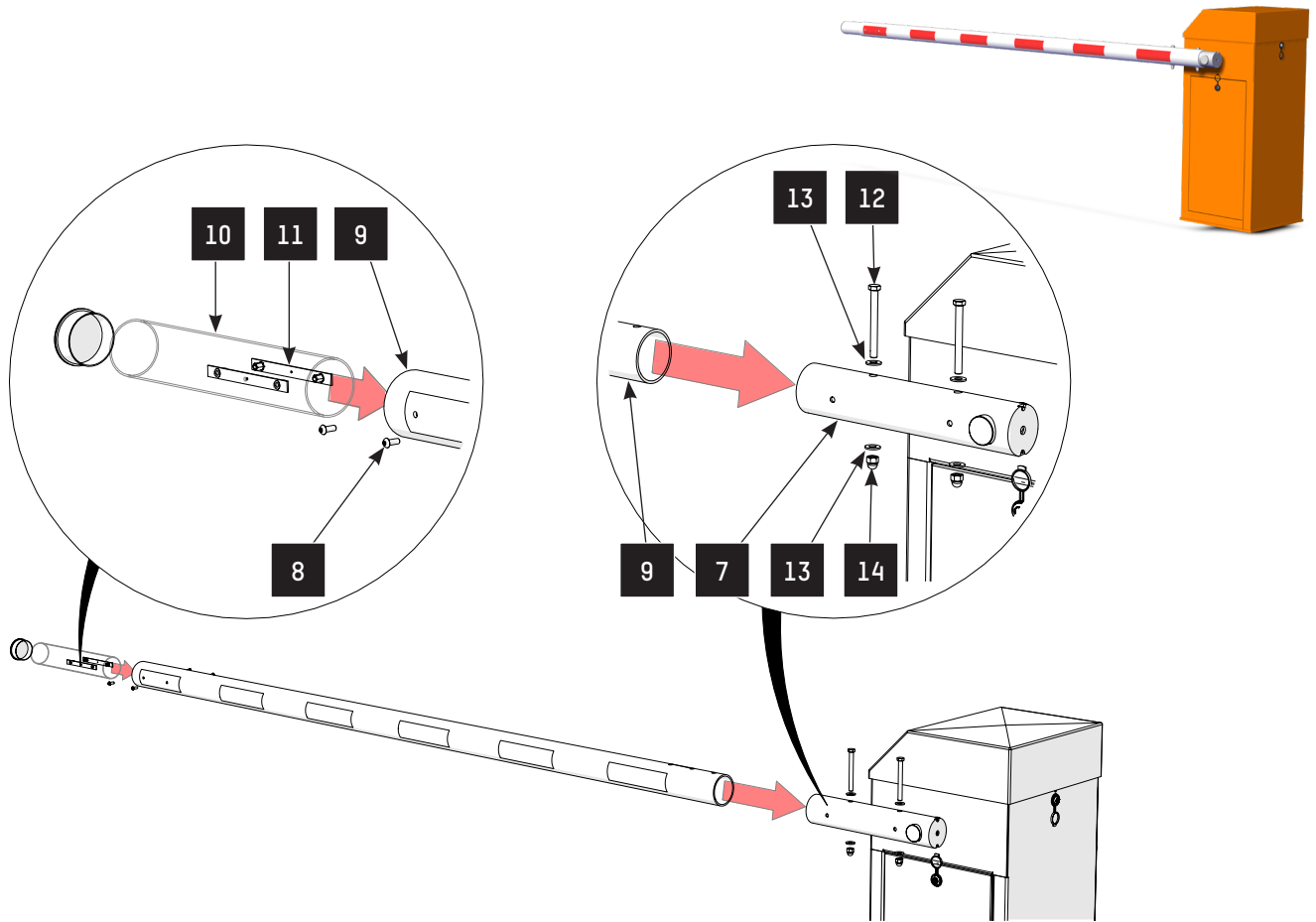


Fig. 19 - Installation of the BL 40 arm - Exploded view

REF.	DESCRIPTION	REF.	DESCRIPTION
7	Arm shaft	11	Assembly clamp for round arm
8	M 8 x 25 stainless-steel CBLH bolt (20 Nm torque)	12	M 12 x 120 stainless-steel hex bolt (80 Nm torque)
9	Round aluminium arm Ø 100	13	M 12 stainless-steel flat washer
10	Round aluminium arm Ø 89.5 or Ø 83.5	15	M 12 Nylstop stainless-steel nut

1. Insert the first arm sleeve (9) into the arm shaft (7).
2. Tighten using the bolts (12), washers (13) and nuts (14).
3. Insert the optional second sleeve (10) into the first and tighten the bolts (8).
4. Insert the optional third sleeve (10) into the second and tighten the bolts (8).
5. Raise the arm (if necessary by releasing the brake: brake release lever (⇒ Ref. 6, page 30)).
6. Replace the lower axle of the spring assembly and lock it with its pin (⇒ Ref. 5, page 30).
7. Adjust the verticality of the arm by screwing or unscrewing the upper stop (⇒ Ref. 2, page 30), then tighten the lock nut (⇒ Ref. 1, page 30).
8. Attach and tighten any guy wires (⇒ illustration on the folding fence Chap. 6.5.5.1, page 35).

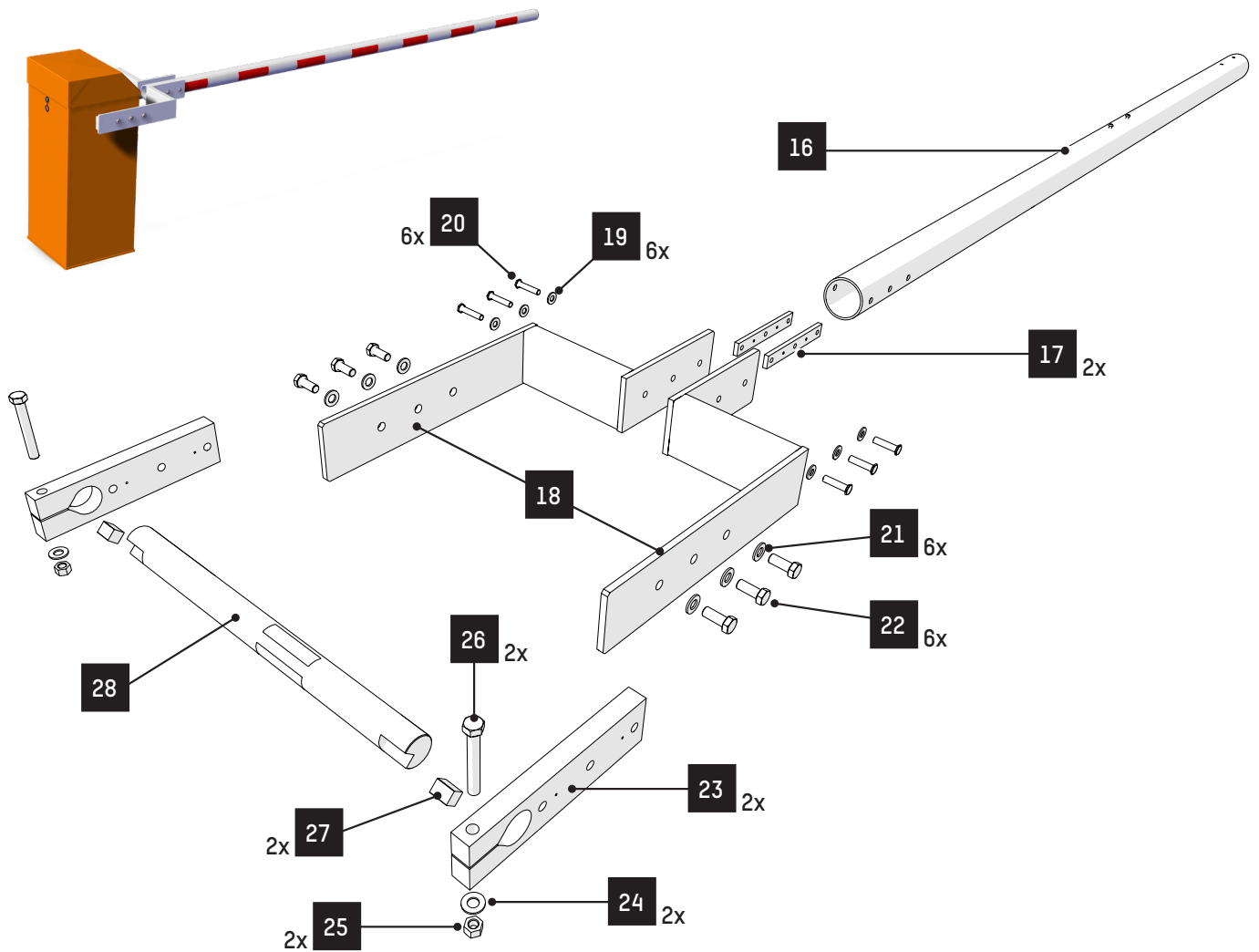
**6.5.3. INSTALLATION OF THE ROUND CENTRE ARM FOR BL 41**


Fig. 20 - Installation of the BL 41 arm - Exploded view

REF.	DESCRIPTION	REF.	DESCRIPTION
16	Round aluminium arm $\varnothing$ 100	23	Jaw bracket
17	Clamp for central arm	24	M 14 stainless-steel flat washer
18	Central bracket for round arm (in 2 pieces)	25	M 14 Nylstop stainless-steel nut
19	M 12 stainless-steel flat washer	26	M 14 x 100 stainless-steel hex bolt (130 Nm torque)
20	M 12 x 40 stainless-steel hex bolt (80 Nm torque)	27	Bracket pin
21	M 16 stainless-steel flat washer	28	Shaft for bracket
22	M 16 x 40 stainless-steel hex bolt (190 Nm torque)		

1. Insert the first arm sleeve (16) into the bracket (18).
2. Tighten using the bolts (20), washers (19) and clamps (17).
3. Insert the second sleeve, if any, into the first (see "Installation of the round arm for BL 40").
4. Raise the arm, if necessary by releasing the brake: brake release lever ( $\Rightarrow$  Ref. 6, page 30).
5. Replace the lower axle of the spring assembly and lock it with its pin ( $\Rightarrow$  Ref. 5, page 30).
6. Adjust the verticality of the arm by screwing or unscrewing the upper stop ( $\Rightarrow$  Ref. 2, page 30), then tighten the lock nut ( $\Rightarrow$  Ref. 1, page 30).
7. Attach and tighten any guy wires ( $\Rightarrow$  illustration on the folding fence Chap. 6.5.5.1, page 35).

## 6.5.4. INSTALLATION OF THE OVAL ARM FOR BL 43 & BL 44

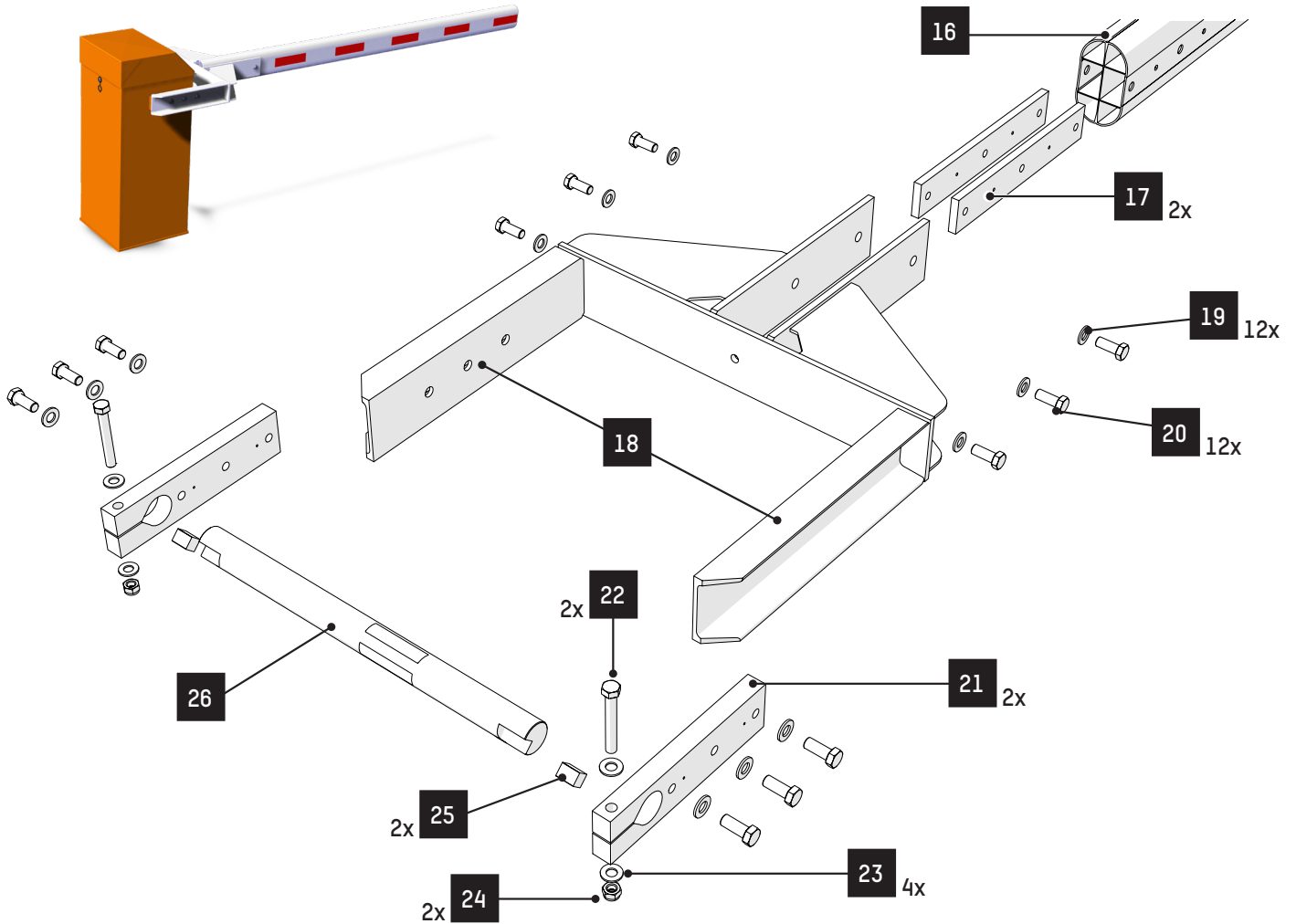


Fig. 21 - Installation of the BL 41 arm - Exploded view

REF.	DESCRIPTION	REF.	DESCRIPTION
16	Oval aluminium arm	22	M 14 x 100 stainless-steel hex bolt (130 Nm torque)
17	Clamp for oval arm	23	M 14 stainless-steel flat washer
18	Arm bracket	24	M 14 Nylstop stainless-steel nut
19	M 12 stainless-steel flat washer	25	Bracket pin
20	M 12 x 40 stainless-steel hex bolt (80 Nm torque)	26	Shaft for bracket
21	Jaw bracket		

1. Insert the ~~first~~ arm sleeve (16) into the bracket (18) and tighten using the bolts (20), washers (19) and clamps (17).
2. Raise the arm, if necessary by releasing the brake: brake release lever (⇒ Ref. 6, page 30).
3. Replace the lower axle of the spring assembly and lock it with its pin (⇒ Ref. 5, page 30).
4. Adjust the verticality of the arm by screwing or unscrewing the upper stop (⇒ Ref. 2, page 30), then tighten the lock nut (⇒ Ref. 1, page 30).

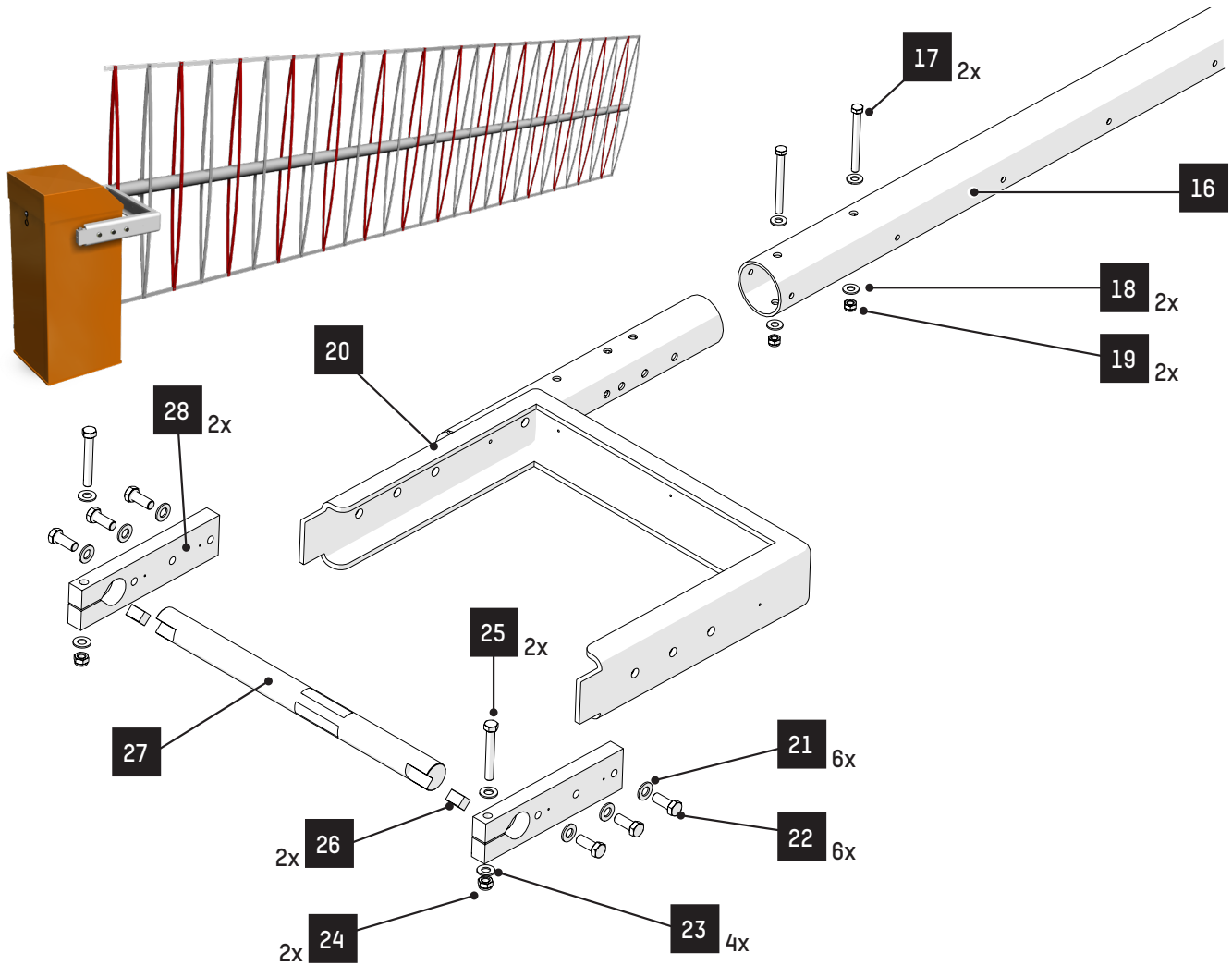
**6.5.5. INSTALLATION OF THE ARM WITH FOLDING FENCE FOR BL 46**


Fig. 22 - Installation of the arm with folding fence for BL 46 - Exploded view

REF.	DESCRIPTION	REF.	DESCRIPTION
16	Round aluminium arm $\varnothing 100$	23	M 14 stainless-steel flat washer
17	M 12x120 stainless-steel hex bolt (80 Nm torque)	24	M 14 Nylstop stainless-steel nut
18	M 12 stainless-steel flat washer	25	M 14x100 stainless-steel hex bolt (130 Nm torque)
19	M 12 Nylstop stainless-steel nut	26	Bracket pin
20	DAKOTA arm bracket	27	Shaft for bracket
21	M 16 stainless-steel flat washer	28	Jaw bracket
22	M 16x40 stainless-steel hex bolt (190 Nm torque)		

1. Insert the first arm sleeve (16) into the bracket (20) and tighten using the bolts (17), washers (18) and nuts (19). Insert the second sleeve, if any, into the first ( $\Rightarrow$  Chap. 6.5.2, page 31).
2. Raise the arm, if necessary by releasing the brake: brake release lever ( $\Rightarrow$  Ref. 6, page 30).
3. Replace the lower axle pin of a single spring assembly.
4. Lower the arm, if necessary by releasing the brake: brake release lever ( $\Rightarrow$  Ref. 6, page 30).

5. Assemble the entire fence in one of the following ways [the references refer to the illustrations (Fig. 23, Fig. 24, Fig. 25 and Fig. 26)]:
  - If the fence is delivered completely disassembled or during repairs: start by fitting the guy ring, the first bar kit (9), then alternately a white and red bar (11), along with the link bars (1).
  - If the fence is delivered assembled on the various arm segments: by connecting the link bars (1) of the various elements.
6. Raise the arm, if necessary by releasing the brake: brake release lever (⇒ Ref. 6, page 30).
7. Replace the lower axle of the second spring assembly and lock it with its swing pin (⇒ Ref. 5, page 30).
8. Adjust the verticality of the arm by screwing or unscrewing the upper stop (⇒ Ref. 2, page 30), then tighten the lock nut (⇒ Ref. 1, page 30).
9. Lower the arm and install the return bar (⇒ Ref. 12, page 35) of the fence.
10. Attach and tighten any guy wires (⇒ Ref. 14, page 35).

### 6.5.5.1. INSTALLATION OF THE FOLDING FENCE

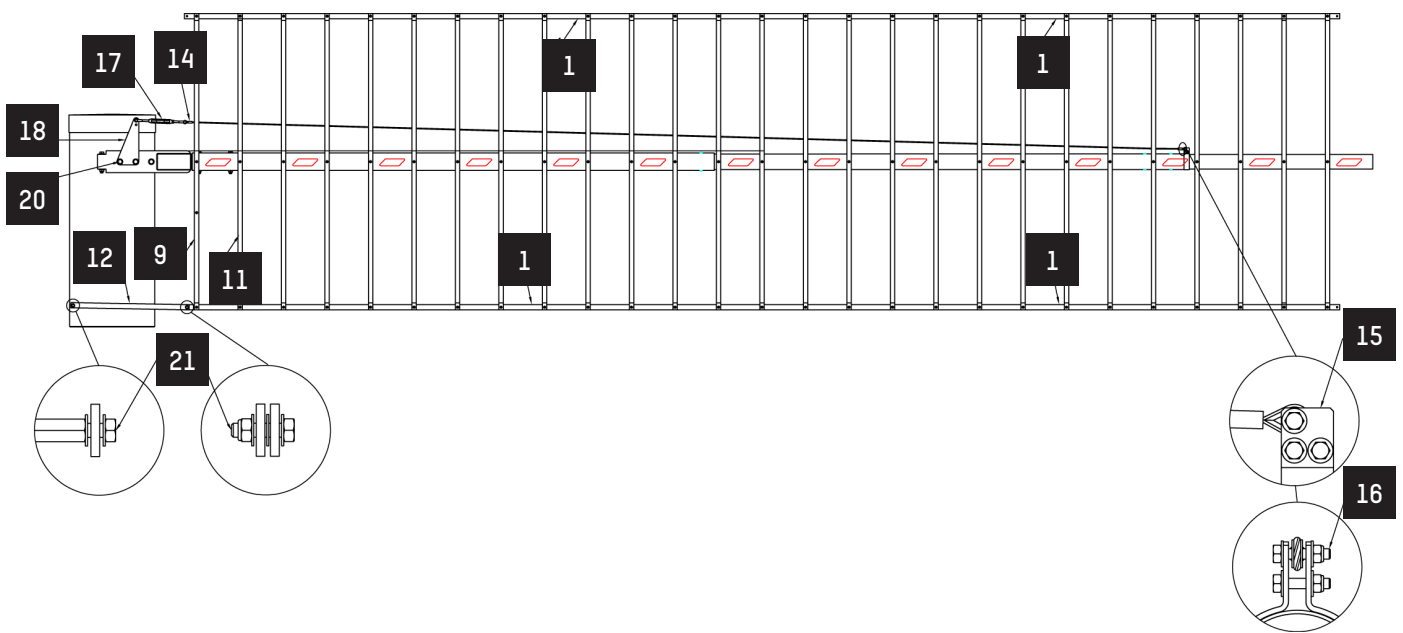


Fig. 23 - Installation of the folding fence

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Flat link bar	16	HM6 x 35 stainless-steel bolt
9	First bar kit	17	Cable tensioner
11	Curved bar	18	Guying mast
12	Tie bar	20	HM16 x 50 stainless-steel bolt
14	Guy wire	21	HM8 x 30 stainless-steel bolt
15	Guy wire clamp		

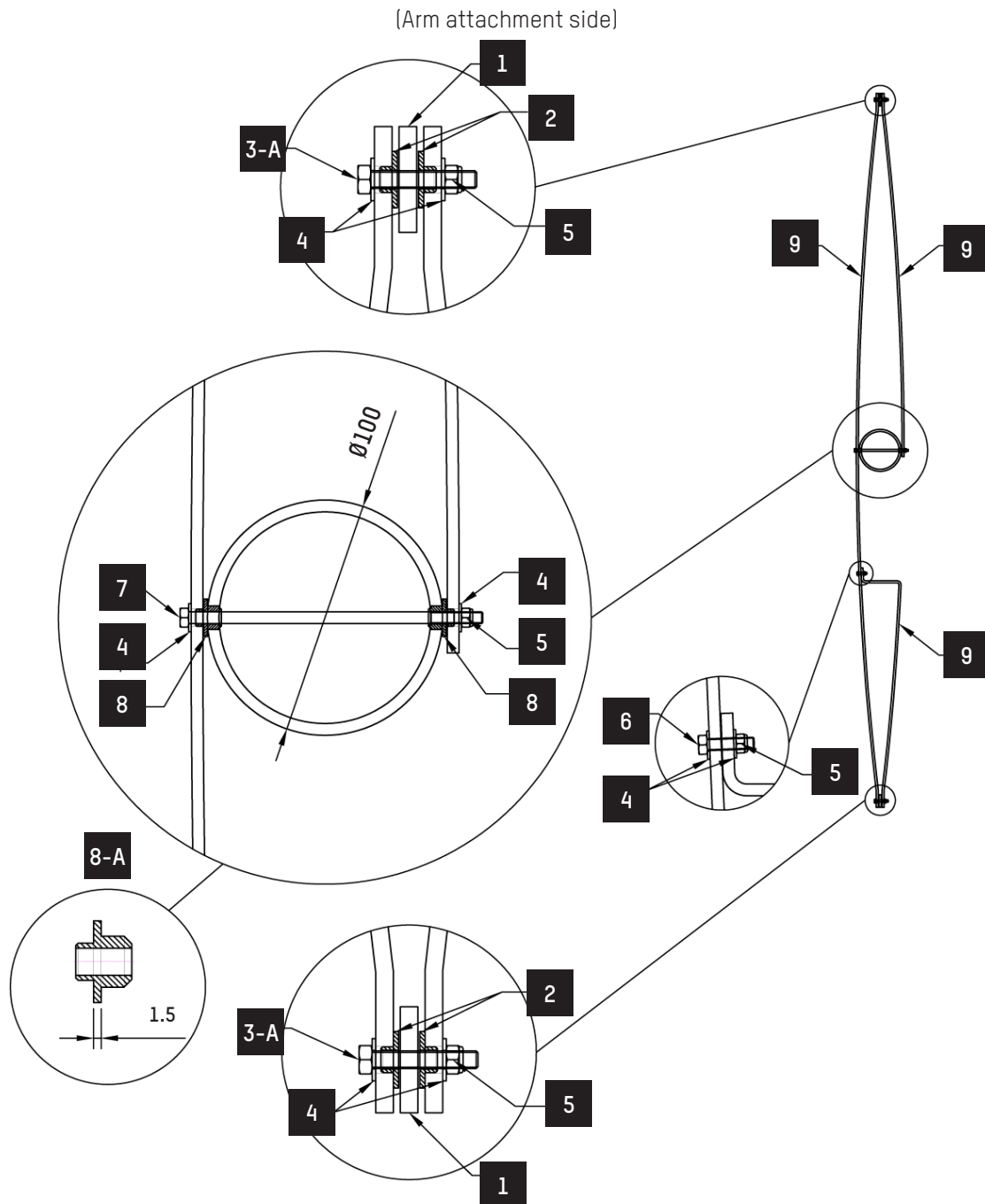
**6.5.5.2. ASSEMBLY OF THE FIRST BAR**


Fig. 24 - Installation of the folding fence - First bar

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Flat link bar	6	HM5 x 20 stainless-steel bolt
2	Shouldered washer	7	HM5 x 125 stainless-steel bolt
3-A	HM5 x 30 stainless-steel bolt	8-A	Shouldered spacer for Ø100 arm
4	MU5 stainless-steel washer	9	First bar kit
5	HFR5 lock nut		



Do not lock bolts 3-A and 7 to allow the fence to fold freely.

## 6.5.5.3. ASSEMBLY OF THE BARS ON Ø 100 – 89.5 – 83.5 ARM

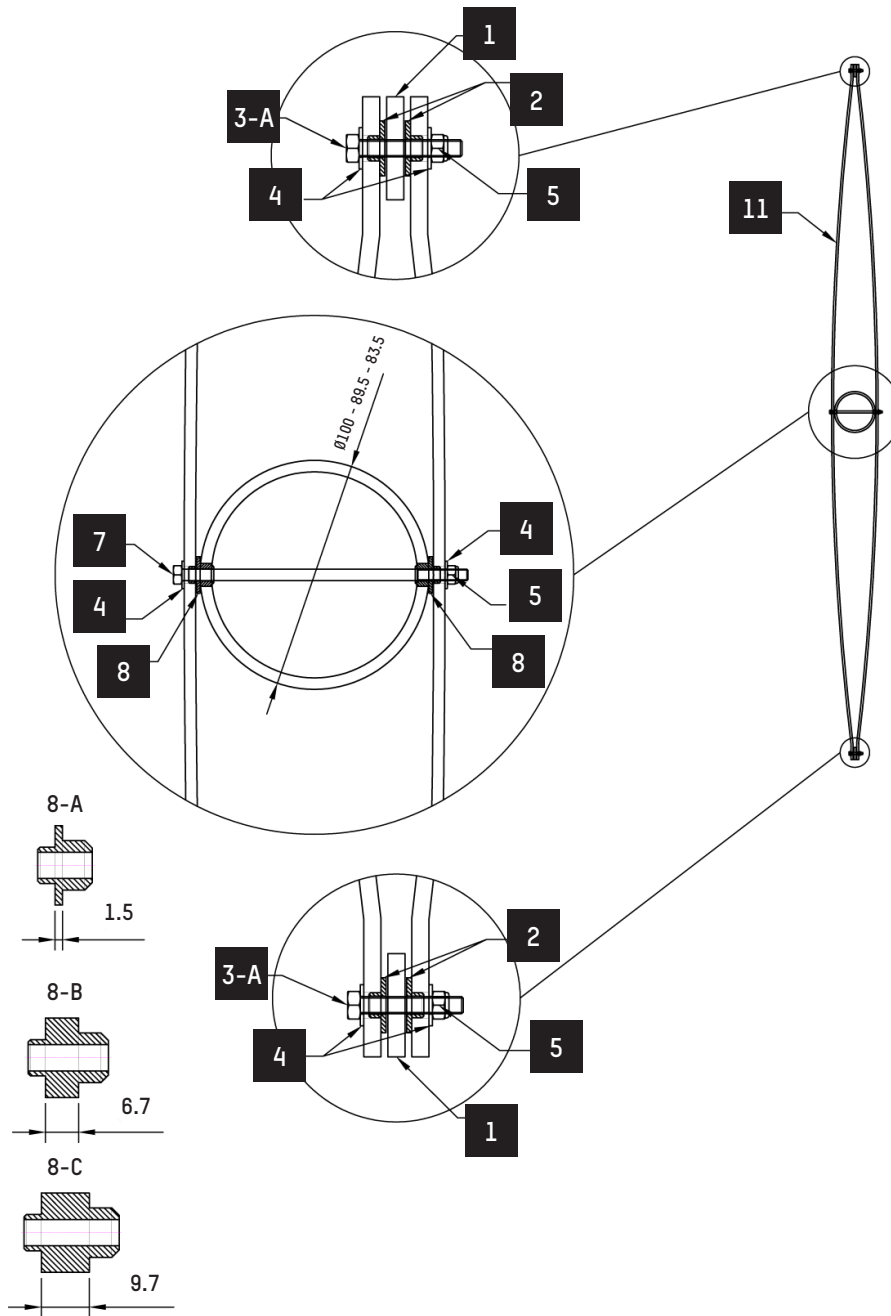


Fig. 25 - Installation of the folding fence - Assembly of the bars

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Flat link bar	7	HM5 x 125 stainless-steel bolt
2	Shouldered washer	8-A	Shouldered spacer for Ø100 arm
3-A	HM5 x 30 stainless-steel bolt	8-B	Shouldered spacer for Ø89.5 arm
4	MU5 stainless-steel washer	8-C	Shouldered spacer for Ø83.5 arm
5	HFR5 lock nut	11	Curved bar



Do not lock bolts 3-A and 7 to allow the fence to fold freely.

6.5.5.4. ASSEMBLY OF THE UPPER AND LOWER LINK BARS

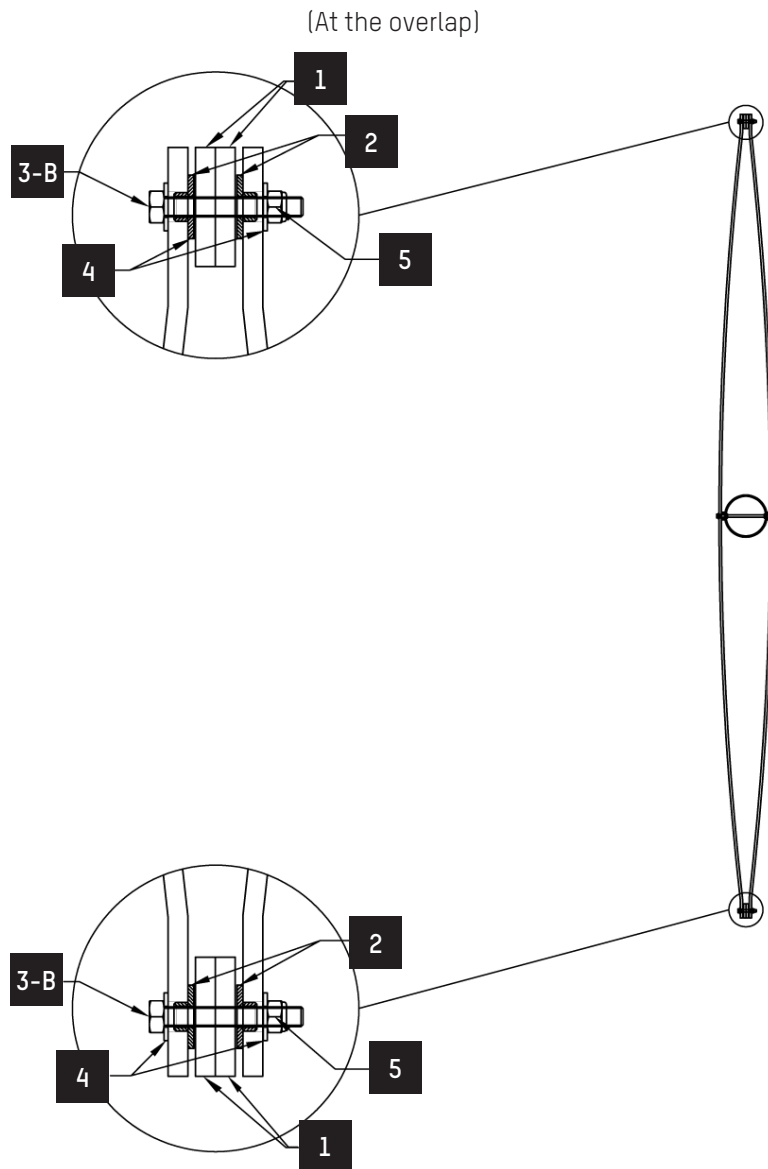


Fig. 26 - Installation of the folding fence - Assembly of the upper and lower link bars

REF.	DESCRIPTION
1	Flat link bar
2	Shouldered washer
3-B	HM5 x 35 stainless-steel bolt
4	MU5 stainless-steel washer
5	HFR5 lock nut



Do not lock bolts 3-B to allow the fence to fold freely.

## 6.5.6. INSTALLATION OF ALUMINIUM RECTANGULAR ARM WITH RIGID FENCE FOR BL 47

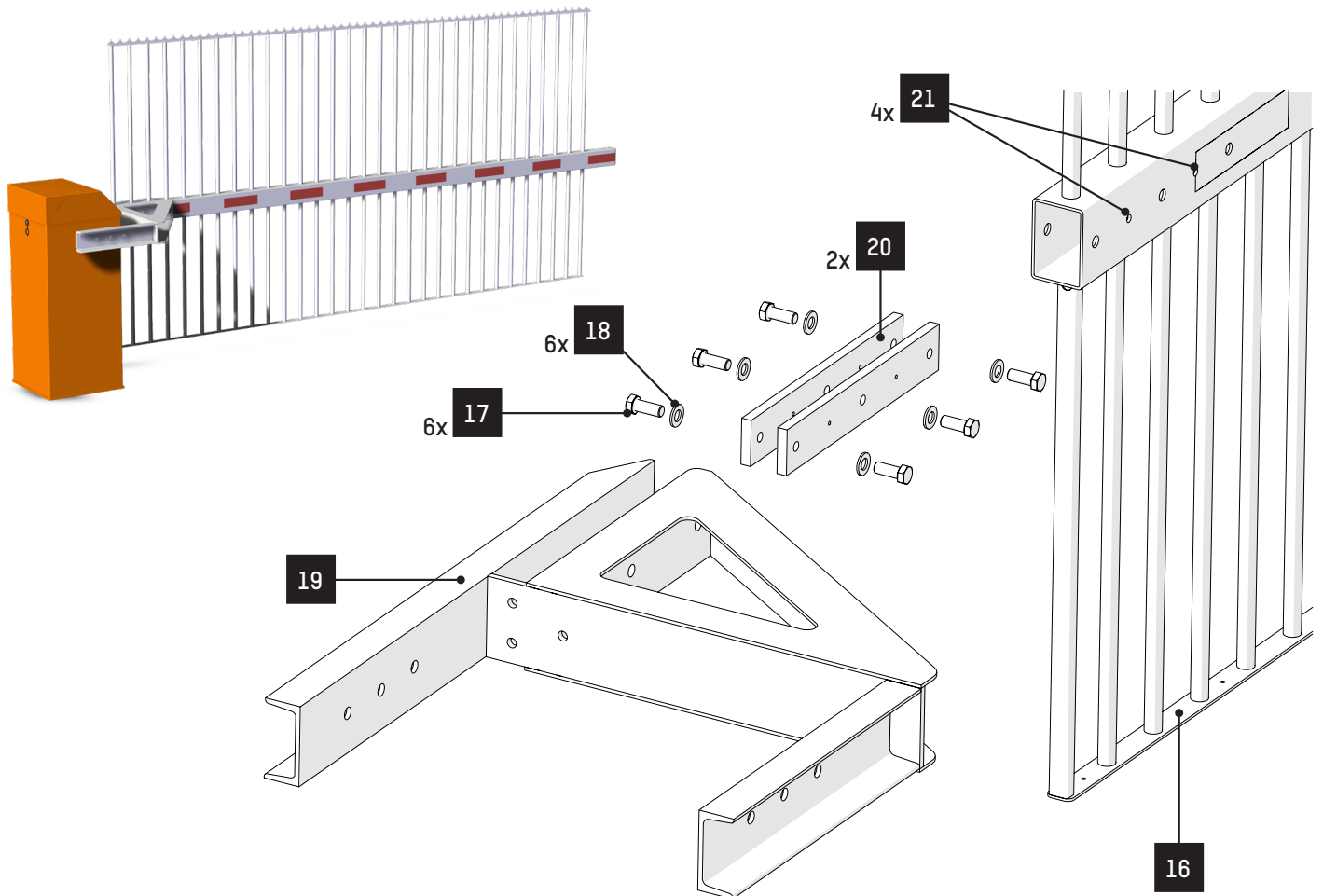


Fig. 27 - Installation of aluminium rectangular arm with rigid fence for BL 47 - Exploded view

REF.	DESCRIPTION
16	120x80 arm
17	M 16x40 stainless-steel hex bolt (190 Nm torque)
18	M 16 stainless-steel flat washer
19	Arm bracket
20	Clamp for 120x80 arm
21	Ø4.8 x 24 steel/aluminium countersunk rivet

1. Insert the arm (16) into the bracket (19) and tighten it using the bolts (17), washers (18) and clamps (20).
2. Raise the arm, if necessary by releasing the brake: brake release lever (⇒ Ref. 6, page 30).
3. Replace the lower axle of the spring assembly and lock it with its pin (⇒ Ref. 5, page 30).
4. Adjust the verticality of the arm by screwing or unscrewing the upper stop (⇒ Ref. 2, page 30), then tighten the lock nut (⇒ Ref. 1, page 30).

## 6.6. INSTALLATION OF THE TIP SUPPORT

The role of the tip support is to keep the end of the arm in a horizontal position and ensure its rigidity. The tip support must be fixed to a 400x400x400 concrete stand, following the instructions in diagram IMP1308.

The height of the tip support can be adjusted after levelling the arm.

1. Slide the upper part (2) so that the end of the arm (3) rests above the tip support in the closed position ⇒ **Fig. A**.
2. Mark the lower part (2) using the 2 holes provided to insert the bolts (4) of the upper part.
3. Remove the upper part and tap at the level of the markings on the bottom post.
4. Replace the upper part and insert the 2 bolts ⇒ **Fig. B**.
5. Align the arm in the tip support, pivoting the barrier on its stand if necessary.
6. You can further fine-tune the adjustment using the rubber stop (5) provided for this purpose ⇒ **Fig. C**.

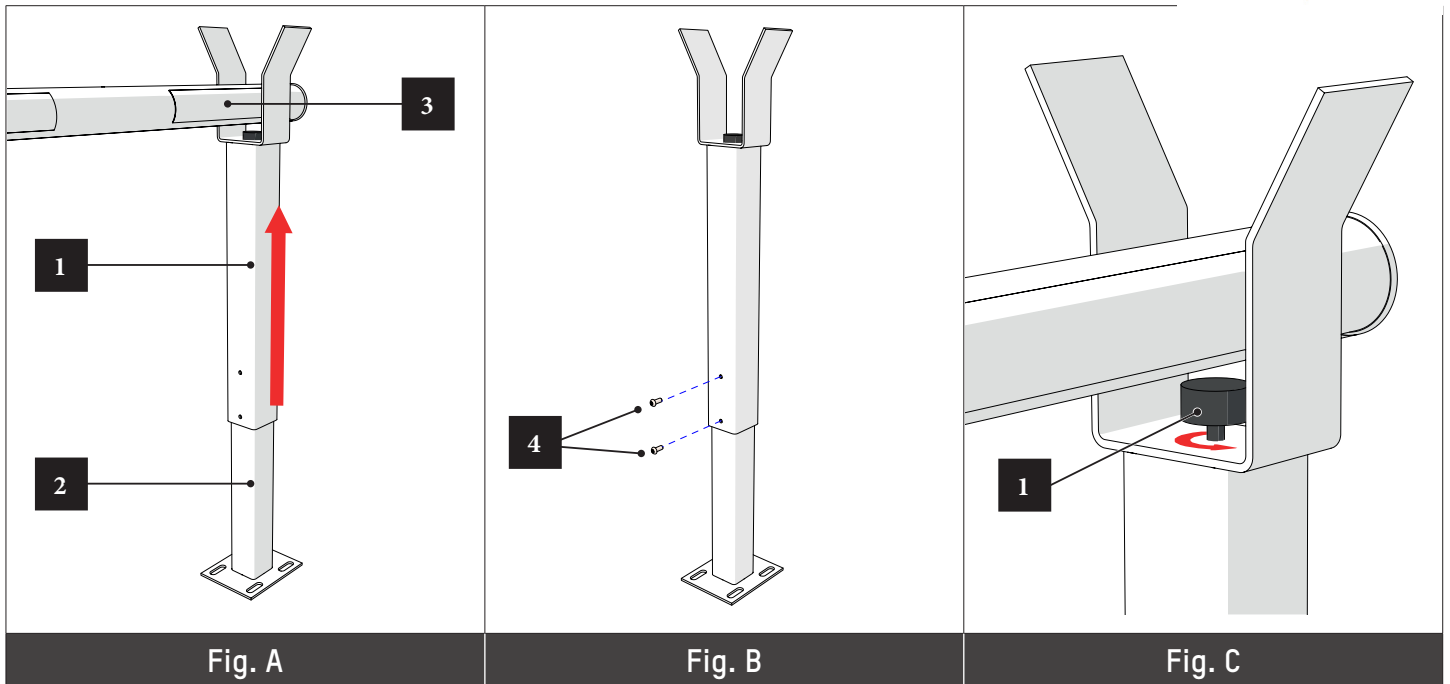
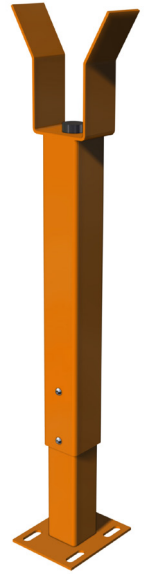
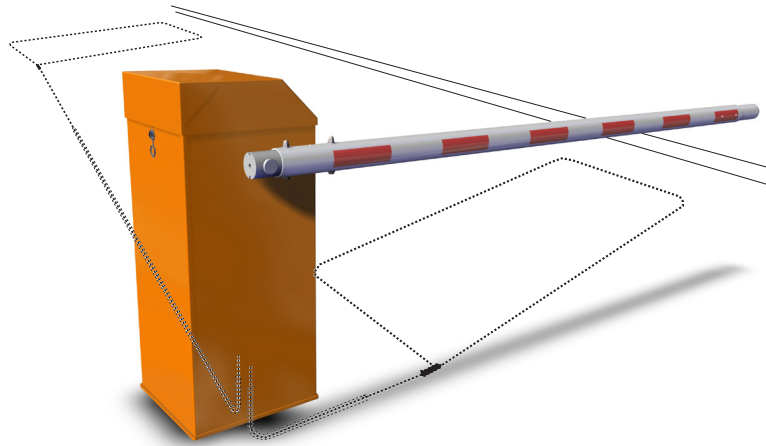


Fig. 28 - Installation of the tip support

## 6.7. INSTALLATION OF A DETECTION LOOP (OPTIONAL)



A detection loop is actually an induction coil through which an alternating current generated by the detector to which it is connected passes. The frequency of this current ranges from 15 kHz to 50 kHz depending on the configuration of the site and of the detector. The passage of this alternating current creates a magnetic field around the wires of the loop. When a vehicle passes over the loop, its metal parts absorb this field and create a reaction that modifies the inductance of the loop and consequently the frequency of the oscillator. If the frequency variation exceeds a predefined threshold in the detector, detection occurs.

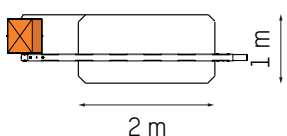
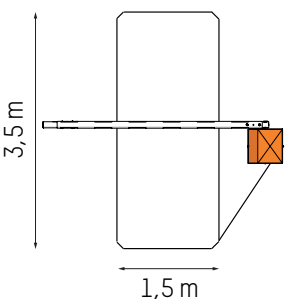
### Checks before cutting the trench

Before starting any work on installing the loop, a few checks are necessary:

- The loop must be at least two metres away from any power supply cable.
- The loop must be at least one metre away from any moving metal objects.
- If the loop is installed in reinforced concrete, it must be at least 100 mm away from the reinforcement.
- The sub-base and surfacing must be sufficiently dense to keep the loop from moving when vehicles drive over it.

### CUTTING THE TRENCH

The trench must be cut in the required dimensions:

Loop for cars	Loop for trucks
	

For more explanations, please refer to the manual:



**6.8. MECHANICAL LOCK (OPTIONAL)**

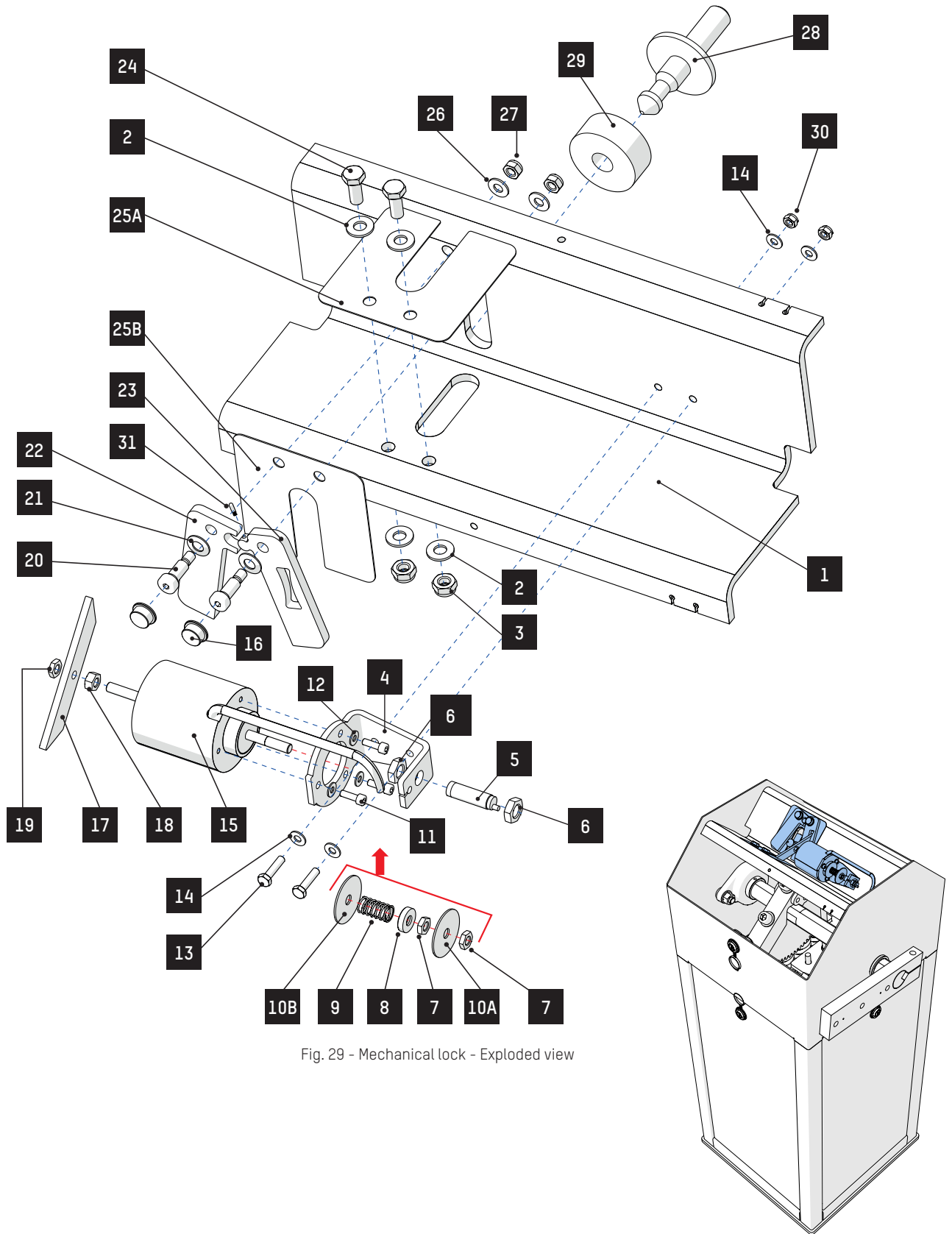


Fig. 29 - Mechanical lock - Exploded view

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Upper reinforcement V-block (frame)	17	Connecting bracket
2	M10 washer	18	M8 hex nut
3	M10 HFR nut	19	M8 Hm nut
4	Electromagnet holder	20	M8 treated shoulder bolt Ø10x20
5	Lock sensor	21	Dynamic spring washer
6	Lock sensor counter nut	22	Driven locking jaw
7	M8 Hm nut	23	Drive locking jaw
8	Hollow washer	24	M10 x 25 hex bolt
9	Release spring	25A-B	Stainless-steel backing plates
10A-B	Body washers Ø8x40	26	M8 washer
11	M5 x 12 CHC stainless-steel bolt	27	HFR M8 nut
12	Stainless-steel M5 washer	28	Locking plunger
13	M6 x 25 hex bolt	29	Rubber stop
14	M6 washer	30	HFR M6 nut
15	Electromagnet	31	Spring plunger for locking
16	Cap for shoulder bolt		

## 6.8.1. PREASSEMBLY

### 6.8.1.1. - ASSEMBLY OF THE ELECTROMAGNET ASSEMBLY

1. Install the electromagnet (15) on its holder (4) using the 3 bolts (11) and 3 washers (12).
2. Install, in the following order: the body washer (10B), the return spring (9), the trough washer (8), a lower nut (7), the body washer (10A) and a second lower nut (7) on the shaft of the electromagnet.
3. Adjust and lock the two nuts (7), allowing the shaft of the electromagnet to protrude 1 mm beyond the lock nut as shown in the figure below.
4. Install, on the opposite side of the previous assembly, in the following order: a nut (18), the connecting bracket (17) on the shaft of the electromagnet.
5. To be able to make adjustments during the operating tests, allow the shaft to protrude by 9 mm from the link bar and **do not tighten this assembly**.

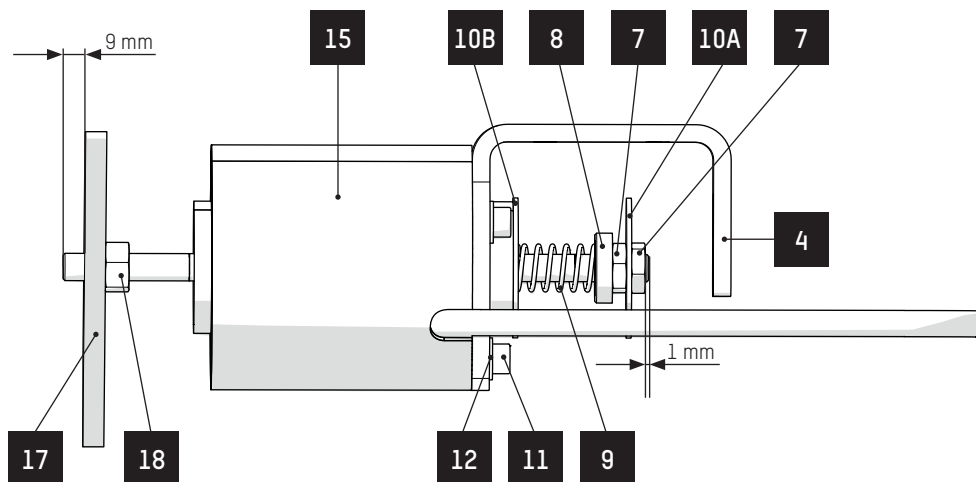


Fig. 30 - Assembly of the electromagnet assembly

## 6.8.2. INSTALLATION IN THE FRAME



**ALL INSTALLATION OPERATIONS DESCRIBED BELOW MUST BE CARRIED OUT WITH THE POWER SUPPLY SWITCHED OFF AND IN ACCORDANCE WITH INDUSTRY STANDARDS.**

### 6.8.2.1. INSTALLATION OF THE JAWS

1. Remove any excess paint from the holes in the frame used to secure the jaws by drilling ( $\varnothing 10$ ) (22 and 23).
2. Install the stainless-steel back plate (25A) using the two bolts, each consisting of Ref. 24, 2 and 3.
3. Assemble, using a bolt, the stainless-steel back plate (25B) and the driven jaw (22) in the V-block of the frame.
4. Oil and position the plunger (31), spring downwards, in the drive jaw (23).
5. While compressing the plunger, insert the drive jaw into the driven jaw (22), then attach the assembly using a pre-oiled bolt. The latter will consist of references 20, 21, 26 and 27.
6. Tighten the nuts (27) and add the protective caps (16).

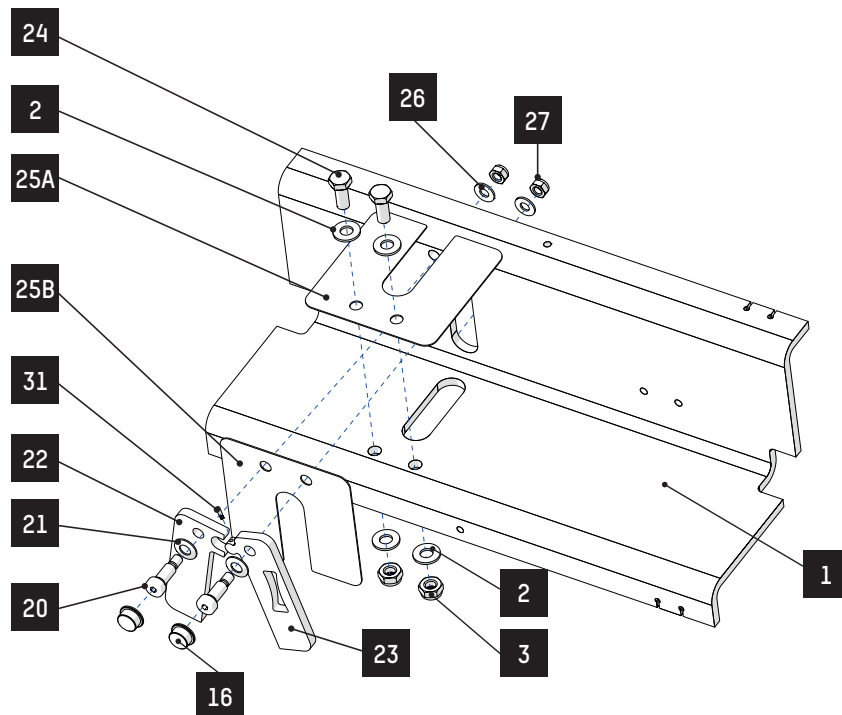


Fig. 31 - Installation of the jaws

### 6.8.2.2. INSTALLATION OF THE ELECTROMAGNET ASSEMBLY IN THE V-BLOCK

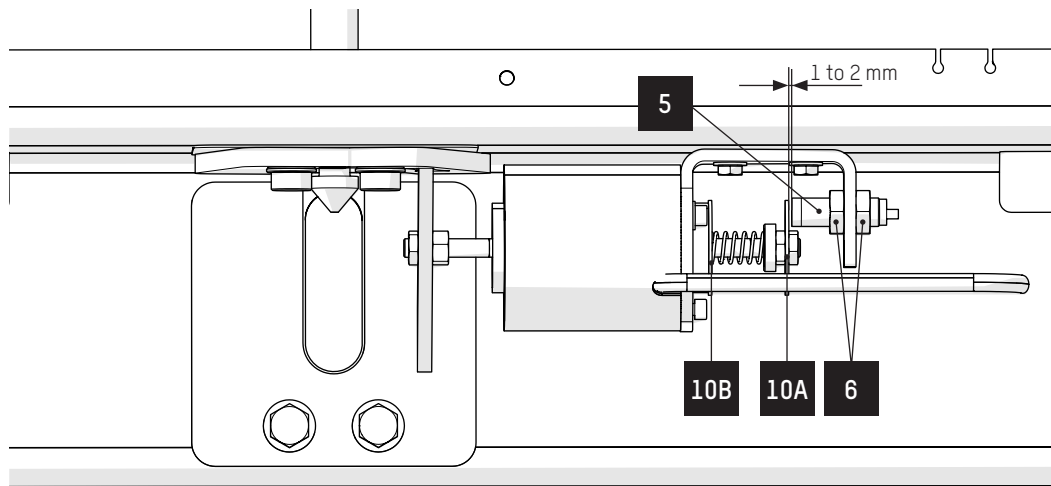
1. Position the pre-assembled electromagnet assembly in the V-block of the frame by inserting the end of the link bar (17) into the hollow shape located in the centre of the drive jaw (23).
2. Attach the electromagnet assembly using the bolts consisting of references 13, 14, and 30.

### 6.8.2.3. INSTALLATION OF THE LOCKING PLUNGER

1. In the case of a barrier that locks in the lowered position, position the arm vertically, then release the lock and remove the lowered position stop assembly.
2. In the case of a barrier that locks in the raised position, position the arm horizontally, then release the lock and remove the upper stop assembly.
3. Retrieve the lower M20 nut and screw it back onto the locking plunger/rubber stop assembly (28, 29), then reassemble everything in place of the position stop.
4. Depending on the situation, adjust the horizontality or verticality of the arm by screwing or unscrewing the locking plunger, then lock the nut against the hub.

### 6.8.2.4. INSTALLING AND ADJUSTING THE LOCK SENSOR

1. Install the lock sensor (5) and its nuts (6) in the hole provided for this purpose in the electromagnet holder.
2. Adjust the gap so that the distance between the end of the sensor and the face of the washer (10A) is between 1 and 2 mm (see figure below).  
During this operation, ensure that the face of the second washer (10B) is firmly pressed against the face of the electromagnet.
3. Tighten the two lower nuts of the sensor (6).




### 6.8.3. WIRING

To wire the electromagnet and the lock sensor, refer to the information below.

ELECTRICAL WIRES	CONNECTORS AND TERMINALS
Electromagnet wire 1	46 (GND)
Electromagnet wire 2	19 (OUTPUT 2)
Brown wire lock sensor	13 (24V)
Blue wire lock sensor	44 (GND)
Black wire lock sensor	8 (INPUT 7)

### 6.8.4. ADJUSTMENT

 To carry out the operations below, and as described in the Chap. 6.8.1. Preassembly, page 43, The connecting bracket and its lock nuts must not be tightened.

1. Switch on the barrier, then actuate it electrically to place the arm in the horizontal position for a lowered barrier or in the vertical position for a raised barrier.  
At the end of the movement, the electromagnet (15) is automatically turned on, causing the locking jaws to close.
2. Adjust the position of the drive jaw (23) so that it comes into contact with the locking plunger (28).  
Turn the axis of the electromagnet using the nut (7); this movement causes the connecting arm to move (by unscrewing) and thereby moves the jaw until it comes into contact with the locking plunger.
3. Add the lower nut (19) and tighten the nuts (18 and 19).

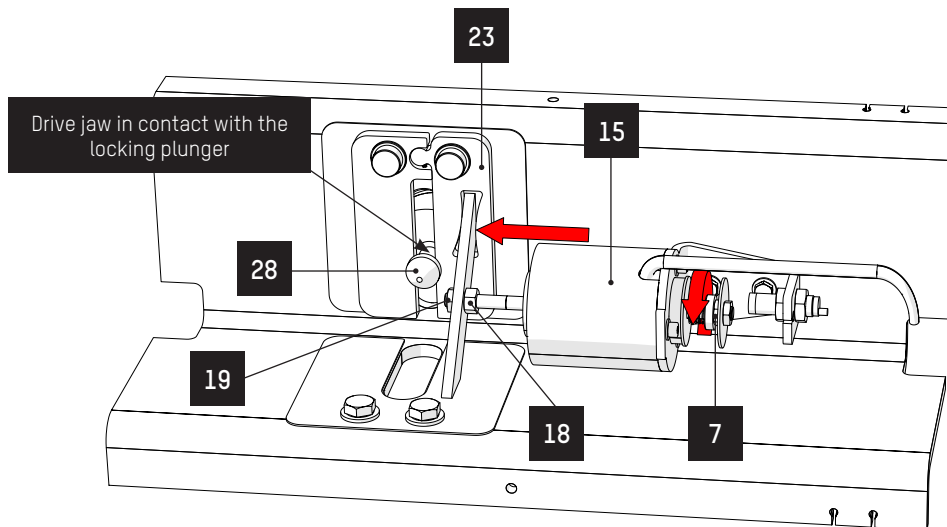


Fig. 32 - Adjustment of the electromagnet

## 6.8.5. OPERATION

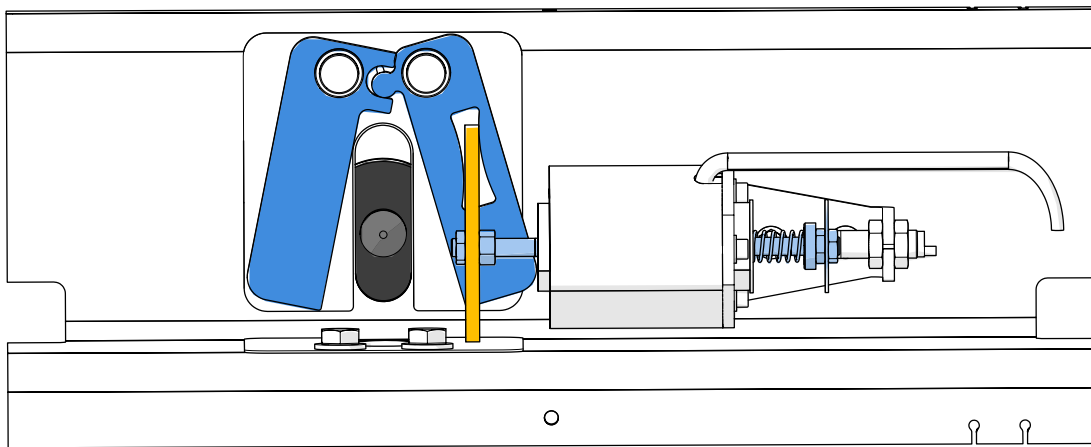
Two types of locks are available as an option for locking the arm: in the closed or open position.

When the arm is in the lowered position, the lock is under tension, the spring (9) is compressed, the jaws (22 and 23) are closed around the locking plunger (28), since the locking plunger is attached to the hub, which is itself secured to the arm drive shaft, and the arm is therefore locked.

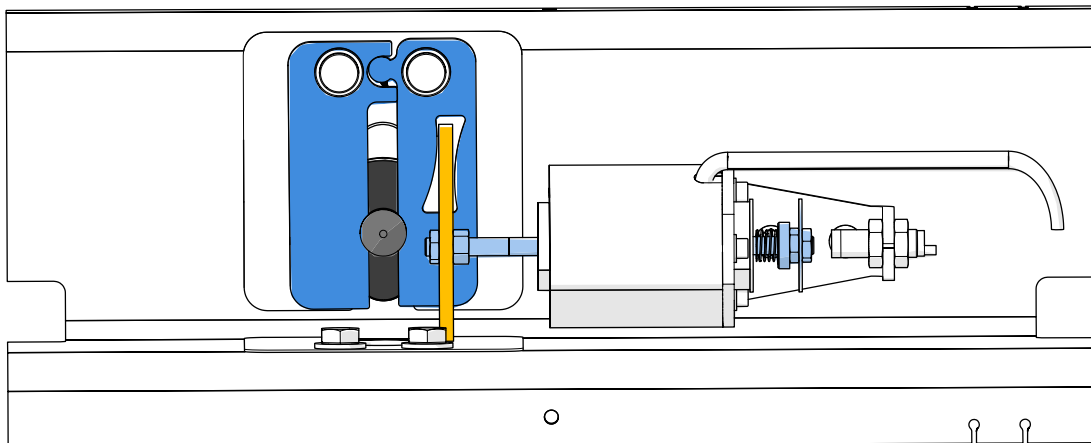
When an opening command is given or when the barrier's power supply is cut off, the electromagnet (15) is switched off. The return spring (9) then moves the link bar (17) towards the electromagnet (15), causing the jaws (22 and 23) to open. As the locking plunger (28) is released, the arm is therefore unlocked.

When a command is given, if the jaws were jammed by the locking plunger (for example, as a result of vandalism), the locking sensor would not detect that they had opened and, therefore, would not unlock the arm.

In this case, a brief reverse pulse would be given to free the mechanism, allowing the barrier to resume the current command.



Lock off in open position



Lock on in closed position

Fig. 33 - Operation of the lock when power is on and off

## 6.9. ELECTRICAL CONNECTIONS



DO NOT CONNECT TO AN ISOLATED GROUND NETWORK OR TO AN INDUSTRIAL DISTRIBUTION NETWORK WITH HIGH IMPEDANCE GROUNDING.

HIGH LEAKAGE CURRENT.

GROUNDING IS ESSENTIAL USING A CABLE WITH A MINIMUM CROSS-SECTION OF 2.5 MM<sup>2</sup> BEFORE CONNECTING TO THE POWER SUPPLY.

DO NOT CONNECT MULTIPLE PIECES OF EQUIPMENT TO THE SAME CIRCUIT BREAKER.



CONNECTIONS MUST BE MADE IN ACCORDANCE WITH THE WIRING DIAGRAMS<sup>1</sup> LOCATED INSIDE THE EQUIPMENT.

IF YOUR PRODUCT IS EQUIPPED WITH ONE OR MORE OPTIONS, REFER TO THE WIRING DIAGRAMS CORRESPONDING TO THAT OR THOSE OPTIONS.

TO AVOID INTERFERENCE, POWER AND CONTROL CABLES MUST BE ROUTED THROUGH TWO DIFFERENT CABLE DUCTS SEPARATED BY AT LEAST 10 CM.

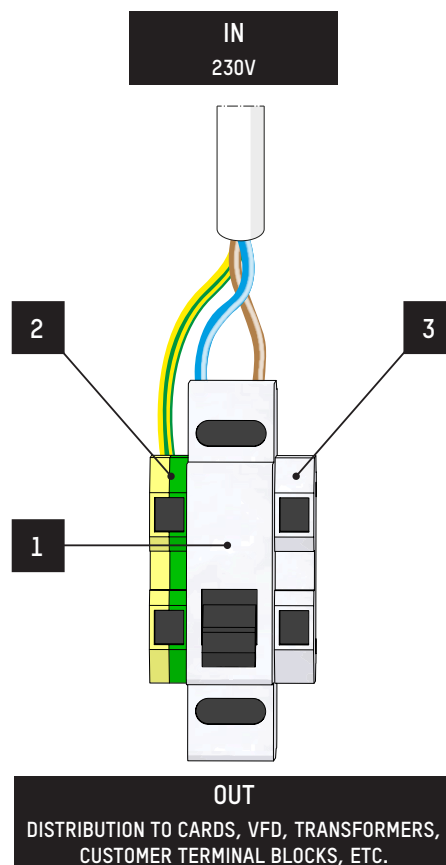
THE ARM MUST BE INSTALLED BEFORE MAKING ANY ELECTRICAL CONNECTIONS!



THE POWER CABLE MAINS MUST NOT BE ATTACHED TO OTHER CABLES COMING OUT OF THE HOUSING!  
ON THE CONTRARY, IT MUST BE KEPT AS FAR AWAY FROM THEM AS POSSIBLE.



RAISE THE ARM BEFORE MAKING ANY ELECTRICAL CONNECTIONS!



<sup>1</sup> See the **Electrical Technical File**

1. Unlock and remove the side and front doors (⇒ **Ref. 5**, Chap. 5.5.1, page 17).
2. Connect the power supply cable<sup>2</sup>:
  - Trigger the circuit breaker (1).
  - Connect the neutral (blue) and live (brown or black) wires from the power supply to the circuit breaker.
  - Connect the ground wire (yellow/green) to the earth terminal (2).
3. Connect the ground wires to their terminals:
  - The cable between the housing and the cover;  
(Check this connection every time you close the cover)
  - The cable between the housing and the doors;  
(Check this connection every time you close the door)
  - The cable between the terminal block (2) and the logic.
4. Allow for the following at the feed inlet:
  - a 10A/30mA selective super-immunised differential circuit breaker (for 1 barrier max.)
  - a 10A/300 mA differential circuit breaker (for a maximum of 5 barriers)
5. Connect the various control units and any optional extras in accordance with the diagram provided, leaving a 15 cm gap with the power cable reaching the terminals (3).



**THE BARRIER MUST BE USED IN ACCORDANCE WITH SAFETY WARNINGS (⇒ CHAP. 2, PAGE 5)**



**NEVER OPERATE THE BARRIER WITHOUT THE STOPS (⇒ REF. 23, CHAP. 5.5.2, PAGE 18), OR WITHOUT A ARM.**

## 6.10. FIRST STARTUP

Before initial commissioning, review the procedures described in the following chapters: 6. Installation, 7. Settings, 8. Maintenance.



The following list can be used as a checklist for commissioning the barrier.

- Secure the barrier to the ground in accordance with the recommendations (⇒ Chap. 6. Installation, page 25)
- Install the arm (⇒ Chap. 6.5. Installation of the arm, page 30)
- Check the counterbalance (⇒ Chap. 7.3. Setting the Counterbalance, page 55)
- Connect the inputs and outputs to the control logic.
- Make the electrical connections in accordance with current regulations and the electrical diagrams provided.
- Switch on the barrier via the main circuit breaker (Ref. **9**, page 17), and wait a few seconds ( $\pm 5$  sec.) for the control logic to initialise.
- The boot message appears on the Human-Machine Interface (HMI) built into the control logic.
- After a few seconds, it is replaced by the run indication, which means that the equipment is ready to operate.



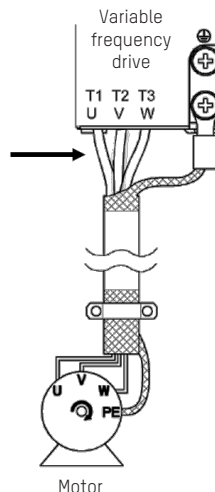
Refer to the Control Logic Manual for the meaning of the various messages that appear on the HMI.

- Run the calibration (⇒ Chap. 7.1. Setting the Analogue Position Sensor, page 51)



**THE BARRIER WILL START MOVING TO DEFINE THE RAISED AND LOWERED POSITIONS!**

- Check that the barrier is correctly configured. If necessary, adjust the settings via the maintenance interface.
- Check that all possible options and safety features are working properly.
- Run a few electrical opening and closing tests using the integrated HMI (Menu > Commands) or using the control mode available to you (button box, transmitter/receiver, etc.).
- If the movement is in the opposite direction, reverse the connection of 2 phase cables between the motor and the variable frequency drive after switching off the power supply (= reverse the T1/U and T3/W cables in the illustration below):



- Carry out servicing (⇒ Chap. 8.3, page 59)

## 7. SETTINGS

The factory settings protect the variable frequency drive and gear motor against all malfunctions. Therefore, under no circumstances should the drive settings be changed.



**ANY CHANGES TO THESE SETTINGS WITHOUT THE EXPRESS PRIOR AUTHORISATION OF AUTOMATIC SYSTEMS WILL INCUR YOUR LIABILITY AND VOID THE PRODUCT WARRANTY.**

### 7.1. SETTING THE ANALOGUE POSITION SENSOR

The analogue sensor makes it possible to control the opening and closing movements of the arm.

Due to its design, this type of sensor allows for much finer control of the arm's movements, enabling precise acceleration and deceleration. It also makes it possible to know the exact position of the arm at any time.

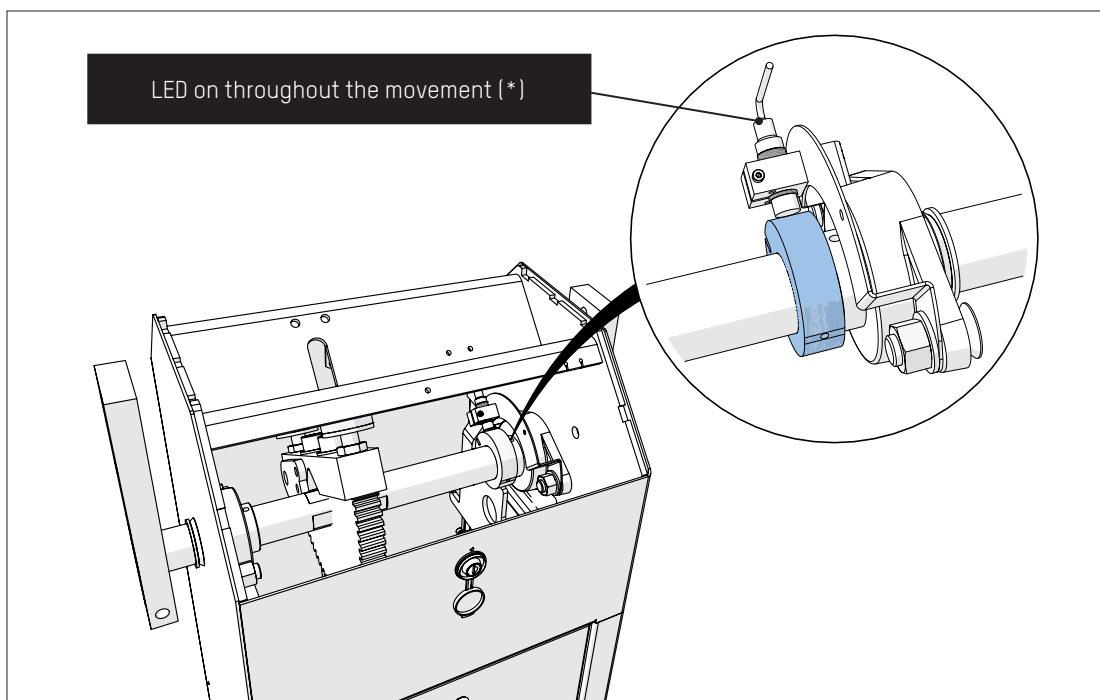


Fig. 34 - Setting the Analogue Position Sensor



By convention, the cam is as close as possible to the sensor when the arm is in the horizontal position.



(\*) If the LED flashes, it is because it is no longer in contact with the cam.

#### 7.1.1. CALIBRATING THE ANALOGUE SENSOR



**THE BARRIER WILL START MOVING TO DEFINE THE RAISED AND LOWERED POSITIONS!**

1. Position the arm of the barrier in the closed position.
2. Disconnect the RJ45 connector from the AS1620 variable frequency drive to prevent the barrier from moving.
3. Adjust the analogue sensor. It must be positioned 3 mm from the cam (if using the web interface, go to the "Visualisation" tab, check the value in the "Angular position sensor" box and adjust the analogue sensor until the value displayed is 2000 ( $\pm 100$ )).

4. Connect the RJ45 connector on the variable frequency drive to the control logic.
5. Follow the analogue sensor calibration procedure.



For further information on the following steps, refer to the technical manual for the AS1620 control logic.

#### 7.1.1.1. CALIBRATION OF THE ANALOGUE SENSOR VIA THE WEB INTERFACE

- a. Go to the "Unit tests" page and select the 'Calibration' menu.
- b. Run the "Stop Position" test.
- c. The interface will confirm that the calibration was successful if the arm is in the open position at the end of the test.

If calibration fails, go back to step 3. The analogue sensor is not correctly positioned.

#### 7.1.1.2. CALIBRATION OF THE ANALOGUE SENSOR VIA THE INTEGRATED HMI INTERFACE

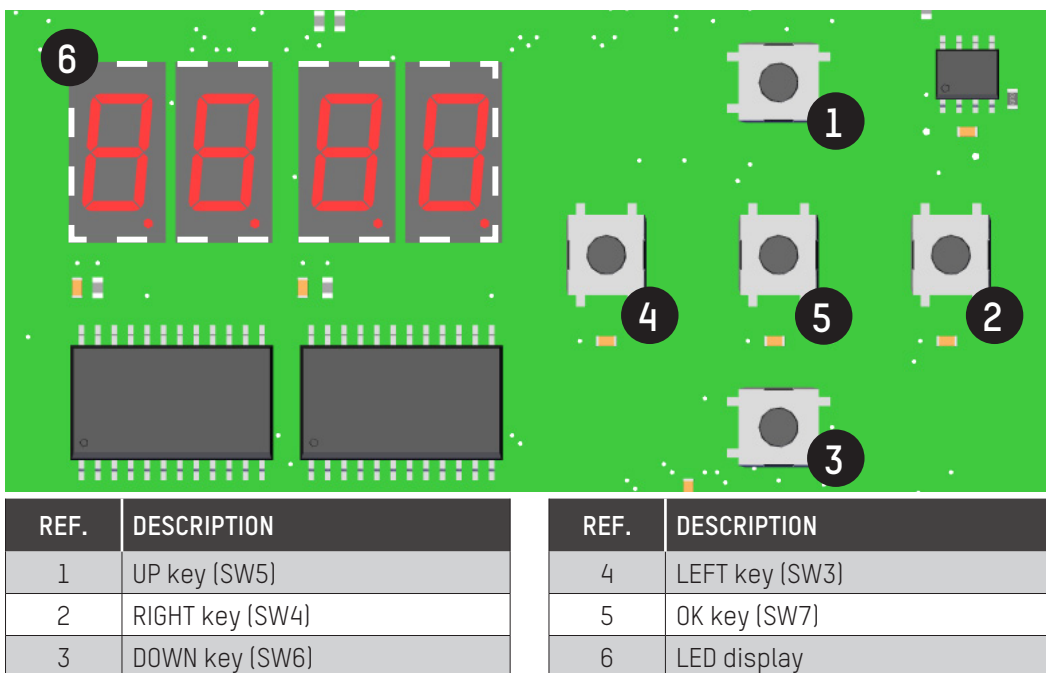


Fig. 35 - Integrated Human-Machine Interface

Calibrating the analogue sensor:

- a. Press the "OK" key (5) for 2 seconds ⇒ **SET**.
- b. Press the UP ▲ (1) and DOWN ▼ (3) keys to find the **PR** menu.
- c. Press the UP ▲ (1) and DOWN ▼ (3) keys to find the **END** menu.
- d. Press the RIGHT ► key for 2 seconds to display **YES**.
- e. Press the RIGHT ► key for 3 seconds to initiate calibration.



During calibration, the display switches to chaser mode (turns each LED point on and off successively).



Once calibration is complete, the arm is in the vertical position and the display indicates **YES**.

- f. To exit this mode, press the "OK" (5) key again for 2 seconds or wait one minute.

If calibration fails, go back to step 3. The analogue sensor is not correctly positioned.

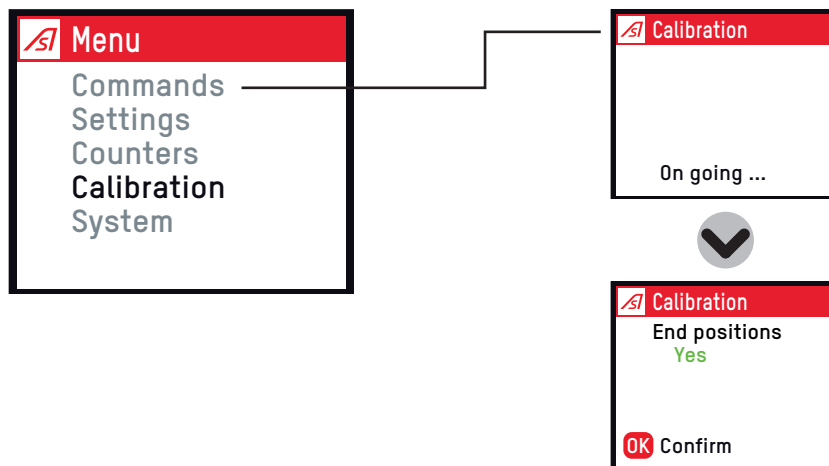
### 7.1.1.3. CALIBRATION OF THE ANALOGUE SENSOR USING THE AS1621 OLED DISPLAY (OPTIONAL)



The Calibration menu is only applicable if the barrier is equipped with an analogue sensor. In the **Stops** option, the arm rotates slowly to memorise the value of the analogue signal in the raised and lowered position.

Calibrating the analogue sensor:

- Press the "OK" button for a few seconds (3 to 10 sec.) to activate the screen;
- Press the UP ▲ (1) and DOWN ▼ (3) arrows to activate the "Menu" and press "OK" to confirm;
- Press the UP ▲ (1) and DOWN ▼ (3) keys to activate the "Calibration" menu and press "OK" to confirm.
- Once the calibration is complete, the result is displayed on the OLED screen.



If calibration fails, go back to step 3. The analogue sensor is not correctly positioned.

## 7.2. SETTING THE VARIABLE FREQUENCY DRIVE

The factory settings protect the variable frequency drive and gear motor against all malfunctions. Therefore, under no circumstances should the drive settings be changed.



**ANY CHANGE TO THESE SETTINGS WITHOUT THE PRIOR EXPRESS AUTHORISATION OF AUTOMATIC SYSTEMS WILL INCUR YOUR LIABILITY AND VOID THE PRODUCT WARRANTY.**

The variable frequency drive used is connected in Modbus.

The configuration is done in Modbus. The only parameters to enter manually are the Modbus address (add = 1) and the baud rate (tbr = 38400). They can be accessed via the configuration menu:

```

Conf (Configuration) ⇒ Frl ⇒ mda (Modbus)
Conf (Configuration) ⇒ Full ⇒ Com (Communication) ⇒ Add = 1
                                                         ⇒ tbr (Transfer baud rate) = 38400
    
```

Switch the power off and then on again at the circuit breaker to apply the changes.



Once the control logic is restarted, the drive must display a value. For example: **0.0**

### 7.2.1.1. MAIN ERROR MESSAGES (ATV12)

If a fault occurs, the converter can indicate the cause of the fault using codes.

The most common are described below.



**AFTER THE POWER IS SHUT OFF, THIS CODE DISAPPEARS AND CAN NO LONGER BE READ WHEN THE POWER IS TURNED BACK ON. IT IS THEREFORE CRUCIAL TO NOTE THIS DOWN BEFORE RESETTING THE BARRIER!**



Fig. 36 - Variable frequency drive

CODES	DESCRIPTION
<b>OHF</b> (OHF)	VFD overheating.
<b>OLF</b> (OLF)	Motor overload.
<b>ObF</b> (ObF)	Excessive braking.
<b>SLF1</b> (SLF1)	Modbus communication fault: check that the cable connecting the control logic and the variable frequency drive is correctly connected.
<b>OPF1</b> (OPF1)	Loss of one phase at the drive output.

## 7.3. SETTING THE COUNTERBALANCE

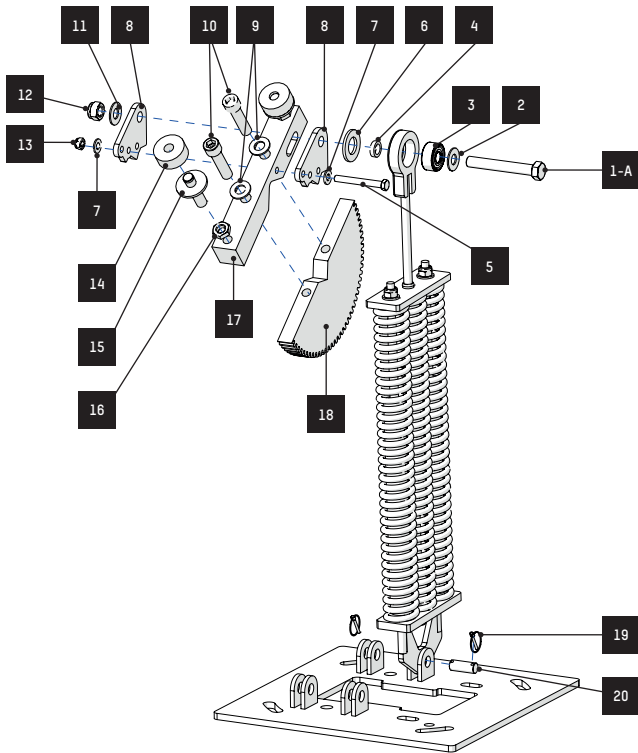


Fig. 37 - Installation of a spring assembly (1 to 3 springs)

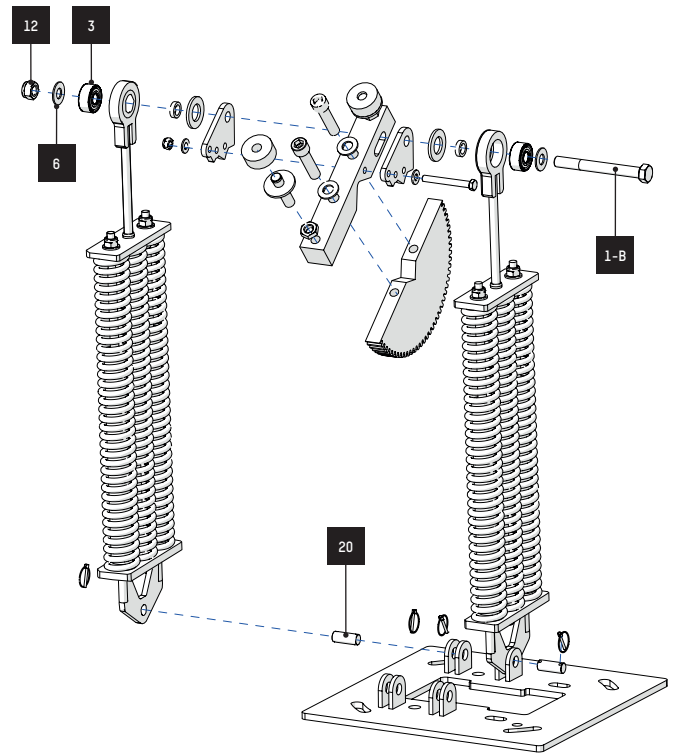


Fig. 38 - Installation of a spring assembly (4 to 6 springs)

REF.	DESCRIPTION	REF.	DESCRIPTION
1-A	M20 x 140 hex bolt NF EN 24014 (steel class 8.8) (376 Nm)	10	M20 x 80 hex (or CHC) bolt NF EN 24014 (steel class 8.8) (376 Nm)
1-B	M20 x 180 hex bolt NF EN 24014 (steel class 8.8) (376 Nm)	11	M 20 flat washer (steel)
2	Bearing stop	12	M20 Nylstop nut (steel)
3	3304B 2-row ball bearing	13	M16 Nylstop nut (steel)
4	Steel spacer	14	Rubber stop (x2 per barrier)
5	M16x100 hex bolt (steel class 8.8) (193 Nm)	15	M20 stop (x2 if no "arm locking" option)
6	Nylon washer	16	Hm M20 nut (steel) (x2 per barrier)
7	M 16 flat washer (steel)	17	Hub
8	Eccentric for spring adjustment (x2 per barrier)	18	Toothed sector
9	M 20 flat washer (steel)	19	Swing pin Ø 4.5
		20	Spring pin shaft

**For operation without the arm rising** (SR models) in the event of a power outage, the spring tension must be adjusted to ensure minimal motor effort both at the opening and closing of the barrier.

- While holding down the brake release lever (⇒ Ref. 16, Chap. 5.5.2, page 18), manually raise the arm and then release it: it must remain in balance when the arm is at 45°, and must remain on its stops in the raised and lowered positions.
- Let go of the motor brake release lever.
- Repeat the operation for different angular positions of the arm.
  - ▶ If the arm falls back, the spring tension needs to be increased.
  - ▶ If the arm rises back up, the spring tension needs to be reduced.

**For operation with automatic rising** of the arm (AVR models - optional) in case of a power outage, the spring tension must be adjusted so that the arm rises slowly and completely, up to its vertical position. The contact between the upper stop (⇒ Ref. 14, Fig. 37) and the frame must not be too aggressive, or rapid deterioration will result.

- ▶ If the arm does not rise completely, the spring compression should be increased.
- ▶ If the arm rises too abruptly, the spring compression should be reduced.

### 7.3.1. SETTING THE SPRING COMPRESSION

1. Tighten or loosen the nuts (⇒ Ref. 3, Chap. 5.5.5, page 21) to compress the respective springs more or less firmly.



**THE PLATES (⇒ REF. 5 AND 8, CHAP. 5.5.5, PAGE 21) MUST REMAIN PARALLEL AND THE DISTANCE BETWEEN THEM (DIMENSION A) CANNOT BE LESS THAN 444 MM, OR THE SPRINGS WILL DETERIORATE.**

2. If this adjustment is insufficient, change the configuration of the eccentrics (⇒ Ref. 8, Fig. 37):

- a. Bring the arm into the vertical position.
- b. Switch off the equipment by triggering the circuit breaker (⇒ Chap. 8.2, page 58)
- c. Release the central spring rods (⇒ Ref. 1, Chap. 5.5.5, page 21) by loosening the nut a few turns (⇒ Ref. 12, Fig. 37).
- d. Completely remove the bolt (⇒ Ref. 5, Fig. 37), taking care not to drop the flat washers (⇒ Ref. 7, Fig. 37) or the nut (⇒ Ref. 13, Fig. 37).
- e. Position the eccentrics (⇒ Ref. 8, Fig. 37) in the hub (⇒ Ref. 17, Fig. 37) according to the desired configuration:

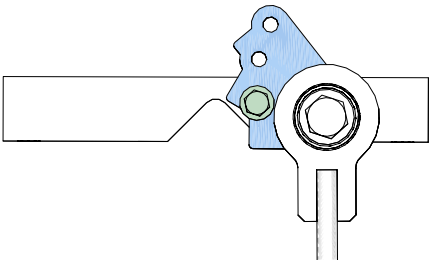
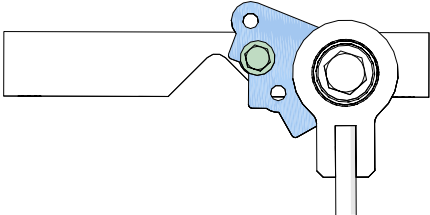
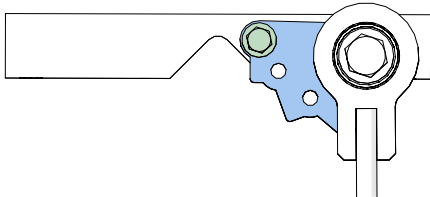
A	B	C
		
minimum lever arm ⇒ minimum compression	-	maximum lever arm ⇒ maximum compression

Fig. 39 - Positioning of the eccentric

- f. Screw the bolt (⇒ Ref. 5, Fig. 37), the washers (⇒ Ref. 7, Fig. 37) and the nut (⇒ Ref. 13, Fig. 37) back in.
  - g. Tighten the bolt (⇒ Ref. 5, Fig. 37).
3. If the adjustment is still insufficient, increase or decrease the number of springs.

## 7.4. TABLE OF MAIN SPRING SETTINGS



The following table provides an indication of the spring settings for the configurations listed therein. For any other non-standard configurations or equipment, please contact our Helpdesk.

		BL 40				BL 41		BL 43		BL 44		BL 46		BL 47		
CONFIGURATIONS		MODEL SR		MODEL AVR		MODEL SR	MODEL AVR	MODEL SR	MODEL AVR	MODEL SR	MODEL AVR	MODEL SR	MODEL AVR	MODEL SR	MODEL AVR	
		Bare arm	Aluminium skirt	Bare arm	Aluminium skirt	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	
USEFUL LENGTH (M)	2							1-B-586	2-A-606			1-C-610	1-B-590	2-A-608		
	2.5							2-A-610	2-A-584			2-A-606	2-A-602	2-A-574		
	3	1-A-598	1-B-594	1-B-592	2-A-610	1-B-598	2-A-610	2-A-586	2-B-606			2-A-580	2-B-606	3-A-598		
	3.5	1-A-576	1-C-610	1-C-610	2-A-590	1-C-610	2-A-590	2-B-604	3-A-596			2-B-598	3-A-586	3-B-610		
	4	1-B-604	2-A-598	2-A-610	2-B-610	2-A-610	2-A-582	3-A-592	3-B-610			3-A-588	3-B-608	3-B-592	3-C-606	5-A-580
	4.5	1-B-586	2-A-572	2-A-604	2-B-594	2-A-596	2-B-610	3-B-610	3-B-596			3-B-608	4-A-580	4-B-610		
	5	1-C-606	2-B-594	2-A-588	3-A-588	2-A-582	2-B-602	4-A-586	3-C-610			3-C-610	4-B-594	5-A-572	5-B-576	6-B-600
	5.5	2-A-600	3-A-586	2-B-610	3-B-610	2-B-610	3-A-602	4-B-610	4-B-598			4-B-606	5-B-606	5-B-596		
	6	2-A-582	3-B-610	2-B-602	3-B-592	2-B-592	3-A-586	5-A-586	5-B-610			5-B-610	6-B-610	6-B-602		
	6.5	2-A-570	3-B-592	2-B-592	3-C-610	3-A-598	3-A-578					6-B-592	6-B-586			
	7	2-B-594	4-B-606	3-A-588	4-B-602	3-A-584	3-B-600					6-C-610	6-C-610			
	7.5	3-A-598	4-B-598	3-A-580	5-B-610	3-B-608	3-B-592									
	8	3-A-594	4-B-586	3-B-610	5-B-600	3-B-600	3-C-610									
	8.5					3-B-590	3-C-610									
	9					4-A-580	4-B-610									
	9.5					4-A-584	4-B-604									
10					4-B-608	4-B-596										
10.5					4-B-598	5-A-576										
11					5-A-586	5-B-606										
11.5					5-B-610	5-B-600										
12					5-B-602	5-B-590										

Fig. 40 - Spring settings table

### READING THE TABLE

Column: barrier model and its options.

Line: useful length of the arm (distance from the end of the arm to the housing, ⇒ Chap. 5.1. The range, page 9).

Intersection: "X-Y-Z", where



X = number of springs

Y = position of the eccentric (⇒ Ref. 47, Chap. 7.3, page 55)

Z = spring compression, in mm

= distance between plates (29) and (32)

= dimension A.



**WHEN IN SERVICE, WITH THE BARRIER CLOSED (ARM DOWN), THE LENGTH OF THE COMPRESSED SPRINGS CAN NEVER BE LESS THAN 444 MM!**

## 8. MAINTENANCE



THE ARM MUST BE IN THE RAISED (OPEN) POSITION (⇒ CHAP. 9.2, PAGE 62) BEFORE ANY WORK IS CARRIED OUT INSIDE THE HOUSING, IN ORDER TO REDUCE SPRING TENSION AND PREVENT UNEXPECTED MOVEMENT OF THE DRIVE MECHANISM, WHICH COULD CAUSE SERIOUS INJURY.

### 8.1. OPENING THE COVER AND THE SIDE AND FRONT DOORS

1. Using the key provided for this purpose, turn the locks counterclockwise by 90°.
2. Remove the side and front doors without damaging the ground wire that connects them to the housing.
3. Remove the cover without damaging the ground wire connecting it to the housing.
4. Set the door(s) and cover aside nearby.

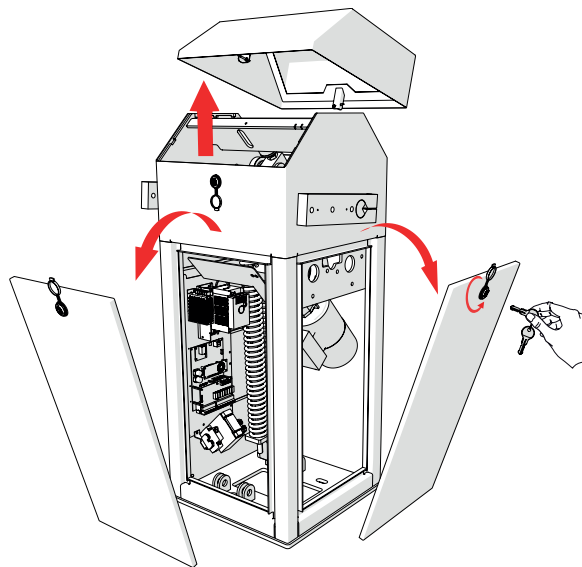


Fig. 41 Opening the Cover and the Side and Front Doors

### 8.2. SWITCHING OFF THE EQUIPMENT

1. Open the door.
2. Lower the circuit breaker (14) to switch off the barrier.

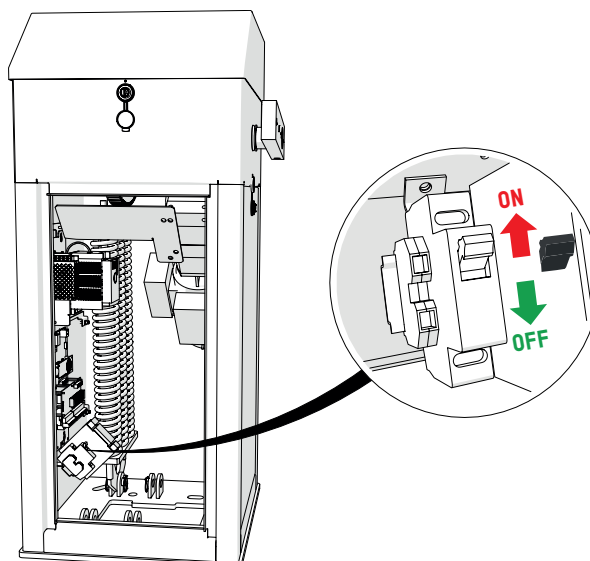


Fig. 42 - Switching Off the Equipment

### 8.3. SERVICE

The references in this chapter refer to the illustrations in Chap. 5.5. Location of Components, page 17.



**NEVER OPERATE THE BARRIER WITHOUT THE STOPS (⇒ REF. 23, CHAP. 5.5.2, PAGE 18), EVEN MANUALLY!**

Maintenance operations must be carried out in accordance with the safety warnings set out in Chap. 2, page 5.

Unlock and remove the side and front doors (⇒ Chap. 8.1, page 58) without damaging the ground wire that connects them to the housing. Switch off the circuit breaker (⇒ Chap. 8.2, page 58)

Remove the cover (⇒ Chap. 8.1, page 58) without damaging the ground wire connecting it to the housing.

#### **After the first 1,000 manoeuvres**

- Check the analogue position sensor setting (⇒ Chap. 7.1, page 51)

#### **Every 6 months**

- Visual inspection of the arm position: check that the arm is horizontal and vertical and that it is not bouncing. Otherwise, check that the position sensors **(26)** are not out of alignment or that the rubber stops **(23)** are not damaged.
- Check the settings described in Chap. 7, page 51.
- Clean the exterior of the bodywork and the arm using a soft cloth impregnated with a mild detergent.
- For countries where there is a lot of sunshine, it is also advisable to treat the exterior of the bodywork with a polish.
- Clean the stainless-steel components and/or options to prevent deposition of metal particles (Automatic Systems can supply a suitable product under reference 0/6031/000).



The servicing frequency must be adapted to the conditions of use, particularly in an oxidising atmosphere: coastal areas, industrial environments, etc.

- Auditory check that the bearings are rolling.
- Brake disengagement test: actuate the brake release lever **(16)** and raise the arm by hand (models without automatic rising).
- Test of the automatic rising of the arm, by cutting off the power supply (models with automatic rising).

#### **Every year**

- Check that all hardware is securely tightened (torque): bearings, gear motor, hub, sensors, spring assembly(ies), arm fastenings, ground fastenings, etc.
- Check the condition of the electrical connections.
- Lubrication with a multi-purpose, anti-corrosive grease:
  - of the gears **(17 + 20)**,
  - of the upper bearing(s) of the spring assembly (⇒ Ref. **3**, Chap. 7.3, page 55),
  - of the spring guide rods (⇒ Ref. **1** and **9**, Chap. 5.5.5, page 21),
  - of the lower part (in contact with the plate) of the locking jaws (⇒ Ref. **22 and 23**, Chap. 6.6, page 40) of the arm locking device.



The bearings **(18 + 21)** and the gear motor **(13)** are lubricated for life. Simply check their tightness (no leakage).

#### **Every 2 years**

- Check the tightness at the base of the barrier.
- Check the internal cleanliness of the barrier.

## 9. TROUBLESHOOTING

### 9.1. TABLE OF MAJOR FAULTS

SYMPTOM(S)	PROBABLE CAUSE(S)	APPROPRIATE CONTROL(S) OR SOLUTION(S)
The barrier remains open.	An opening command is given continuously.	<ul style="list-style-type: none"> <li>Check that the open command is a pulse and not a standing command or an active "locked open" command.</li> </ul>
	A safety feature is enabled.	<ul style="list-style-type: none"> <li>Check LD4.</li> <li>Adjust the programming if safety feature is not present.</li> </ul>
	Loop detector (optional) remains engaged.	<ul style="list-style-type: none"> <li>Review the sensitivity setting of the detector and reset the loop detector. Excessive sensitivity settings can cause the barrier to remain open.</li> <li>Check the status of the LEDs on the detector to see if it and/or the loop are in good condition.</li> </ul>
	The cell (optional) is sending a presence signal.	<ul style="list-style-type: none"> <li>Check the alignment of the cells.</li> <li>Check that the cells are not fouled.</li> </ul>
The barrier remains blocked, or locks during movement.	The variable speed drive is faulty.	<ul style="list-style-type: none"> <li>Check the LED of the analogue sensor: if it flashes, it means that the sensor has lost contact with the cam ⇒ adjust the position of the cam. (⇒ Chap. 7.1, page 51).</li> </ul>
The barrier remains blocked, and the LEDs on the control logic are off.	Power supply	<ul style="list-style-type: none"> <li>Check the power supply at the main switchboard.</li> <li>Check that the circuit breaker (⇒ Ref. 9, Chap. 5.5.1, page 17) is properly engaged and that the voltage corresponds to that required.</li> <li>Check the connection of the controls against the wiring diagram and make sure all electrical wires are securely fastened. Tighten them if necessary.</li> <li>Check the 24 Vdc power supply output and the corresponding LED.</li> <li>Check that the power indicator on AS1620 LD1 green is lit.</li> <li>Check that LD5 and LD24 are flashing. If not, programme the processor(s).</li> </ul>
The barrier remains locked, but the control logic display is lit.	Short circuit on external communication terminal block.	<ul style="list-style-type: none"> <li>In the input and output area, check whether the green LED diodes (inputs) and the orange diodes (outputs) correspond to the expected statuses.</li> <li>On the OLED screen, in the "Control" menu, identify the reason for the lack of movement.</li> <li>On the PC, display the "Visualisation" page: <ul style="list-style-type: none"> <li>Reason for lack of movement</li> <li>Position of the barrier</li> <li>Blue background = active inputs</li> </ul> </li> <li>Switch off the power supply and disconnect inputs/outputs as needed.</li> <li>Check and adjust the NO/NC parameters.</li> </ul>
The barrier closes long after the vehicle has passed through.	The closing timeout after passage is too long.	<ul style="list-style-type: none"> <li>Check the timeout values.</li> <li>View on: <ul style="list-style-type: none"> <li>OLED screen (Menu=&gt;Settings=&gt;Timeouts)</li> <li>Web interface (Menu=&gt;Configuration=&gt;Timeouts)</li> </ul> </li> </ul>
The barrier opens on its own.	The opening loop (optional) is too sensitive.	<ul style="list-style-type: none"> <li>Adjust the sensitivity and/or frequency of the opening detector. Excessive sensitivity settings or incorrect frequencies may cause untimely openings.</li> </ul>
	The access control system is giving erroneous commands.	<ul style="list-style-type: none"> <li>Carry out a check on it.</li> </ul>

SYMPTOM(S)	PROBABLE CAUSE(S)	APPROPRIATE CONTROL(S) OR SOLUTION(S)
The barrier rises and immediately falls again.	The barrier is not stable and when opening, the signal from the sensor (optional) is no longer aligned.	<ul style="list-style-type: none"> <li>Secure the barrier properly to the ground.</li> </ul>
The barrier rebounds in both the raised and lowered positions.	The rubber stops are overused inside the barrier.	<ul style="list-style-type: none"> <li>Set the position sensor(s) (⇒ Chap. 7.1, page 51).</li> <li>Adjust the brake delay and motor parameters.</li> <li>Install stiffer stops.</li> </ul>
The motor makes noise but the barrier does not move.	The power supply circuit of the brake is OOS.	<ul style="list-style-type: none"> <li>Check the brake wiring on the variable frequency drive or on the AS1620 logic connector</li> <li>Check the NO/NC configuration on the brake control: physical connection on the VFD or software configuration on the AS1620 outputs. To do this, you must know the type of BL 4x: AVR/SR respectively for barriers with/without automatic rising of the arm in case of a power outage. AVR = NO, SR = NC</li> <li>Open the motor terminal plate and check that the voltage-reducing diode bridge is in good condition. Input voltage: 240 VAC – Output voltage: 110 VDC.</li> <li>Measure at the input of the diode bridge whether it is powered during movement for SR models and whether it is powered when stationary for AVR models.</li> </ul>
The installation trips when the barrier is switched on.	The differential circuit breaker is not suitable.	<ul style="list-style-type: none"> <li>Use a <b>300 mA</b> differential circuit breaker for up to 5 barriers and for cases requiring a 30 mA system, use an SI (super-immunised) circuit breaker for each barrier.</li> <li>For IT networks with earth-isolated neutral and non-standard configurations, please consult your technical support team.</li> </ul>
The raised and lowered positions are reversed.	Wiring error.	<ul style="list-style-type: none"> <li>Check the wiring of the position sensor(s) and the NO/NC parameter.</li> <li>Reverse a phase on the motor.</li> </ul>

## 9.2. AUTOMATIC RISING OF THE ARM IN CASE OF A POWER OUTAGE

The procedure to be followed to manually raise the arm differs according to the options installed, as summarised in the following table:

BARRIER CONFIGURATION		PROCEDURE
With automatic rising of the arm in case of a power outage. (optional)	Without lock	<ul style="list-style-type: none"> <li>Switch the voltage OFF (⇒ Chap. 8.2, page 58).</li> </ul>
	With NO lock	<ul style="list-style-type: none"> <li>Switch the voltage OFF (⇒ Chap. 8.2, page 58).</li> </ul>
	With NF lock	<ul style="list-style-type: none"> <li>Switch the voltage OFF (⇒ Chap. 8.2, page 58).</li> <li>Open the cover (⇒ Chap. 8.1, page 58)</li> <li>Spread the clamps <b>(83)</b> to manually unlock the locking plunger <b>(84)</b> (⇒ Chap. 6, page 25)</li> <li>Manually activate the brake release lever (⇒ Ref. <b>18</b>, Chap. 5.5, page 17) and manually raise the arm.</li> </ul>
Without the arm rising in case of a power outage.	Without lock	<ul style="list-style-type: none"> <li>Switch the voltage OFF (⇒ Chap. 8.2, page 58).</li> <li>Activate the brake release lever (⇒ Ref. <b>18</b>, Chap. 5.5, page 17) and manually raise the arm.</li> </ul>
	With NO lock	<ul style="list-style-type: none"> <li>Switch the voltage OFF (⇒ Chap. 8.2, page 58).</li> <li>Activate the brake release lever (⇒ Ref. <b>18</b>, Chap. 5.5, page 17) and manually raise the arm.</li> </ul>
	With NF lock	<ul style="list-style-type: none"> <li>Switch the voltage OFF (⇒ Chap. 8.2, page 58).</li> <li>Open the cover (⇒ Chap. 8.1, page 58)</li> <li>Spread the locking jaws (⇒ Ref. <b>22 and 23</b>, Chap. 6.6, page 40) to manually unlock the locking plunger (⇒ Ref. <b>28</b>, Chap. 6.6, page 40).</li> <li>Manually activate the brake release lever (⇒ Ref. <b>18</b>, Chap. 5.5, page 17) and manually raise the arm.</li> </ul>

## 10. EXTENDED SHUTDOWN / DISPOSAL / DESTRUCTION

If the equipment is not used for an extended period, it is advisable to:

- Keep it under the same conditions as before installation (⇒ Chap. 6.1, page 25).
- Leave the barrier switched on. As the engine remains constantly powered, this results in a certain temperature being maintained in the bodywork. This eliminates condensation problems and, at low temperatures, prevents the gearbox oil from solidifying, which would prevent the barrier from performing correctly during the first few operations after a long period of inactivity.



If the equipment has been stored in a powered-off state, it is important to warm it up before switching it on if the ambient temperature is below -15° Celsius (5° F). The heating system must be activated between 30 minutes and 1 hour before the equipment is switched on.

- Before commissioning, perform a new running-in period of 3,000 opening and closing manoeuvres of the barriers.

When the equipment is taken out of service, drain the oil from the gearbox and dispose of the various machine components through the appropriate channels (metal parts, electronic components, etc.) in accordance with the legislation in force in the country concerned.

# 11. ASSIGNMENT OF BOARD COMPONENTS

## 11.1. AS1620 MOTHERBOARD (CPU)

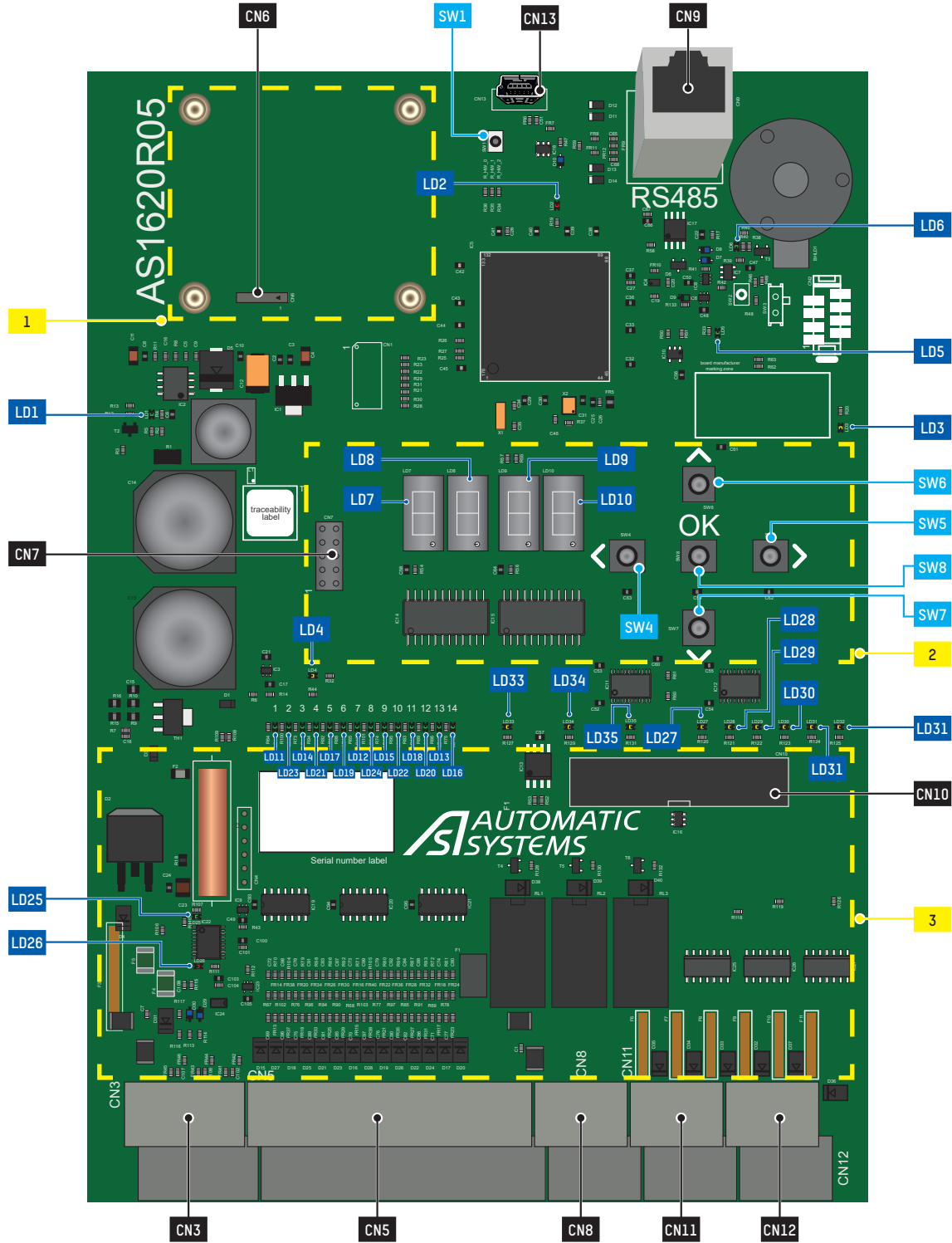


Fig. 43 - AS1620 Motherboard (CPU)

CN3		ANGULAR SENSOR + POWER SUPPLY 24 VDC	
1	0V	Angular sensor	
2	IN		
3	+ 24VDC		
4	+ 5V		
24	+ 24VDC	Power supply	
25			
26			
27	GND		

CN5		DIGITAL INPUTS
		DEFAULT CONFIG
5	IN1	Opening A
6	IN3	Closure
7	IN5	Manual mode
8	IN7	Off-hinge sensor
9	IN9	Inhibits opening loop B
10	IN11	Closing loop
11	IN13	Opening loop
12	+ 24VDC	-
13		-
14		-
28	IN2	Locked open
29	IN4	Locked closed
30	IN6	manual opening
31	IN8	manual closing
32	IN10	Lock check
33	IN12	Closing loop
34	IN14	Safety loop
35	+ 24VDC	-
36		-
37		-

CN6		AS1622 ETHERNET EXPANSION CARD (OPTIONAL)
-----	--	--

CN7		ADDITIONAL AS1621 HMI CARD
-----	--	----------------------------

CN8		RELAY OUTPUTS 1 AND 2
		DEFAULT CONFIG

15	Relay 1	NO	Open position
16		NF	
17		COM	
38	Relay 2	NO	Closed position
39		NF	
40		COM	

CN9		RJ45 CONNECTOR (VARIABLE FREQUENCY DRIVE CONNECTION)
-----	--	--

CN10		ADDITIONAL AS1623 INPUT/OUTPUT EXPANSION CARD
------	--	---

CN11		DIGITAL OUTPUTS 1 TO 3
		DEFAULT CONFIG

18	OUT1	Arm lights
19	OUT2	-
20	OUT3	Green light

		RELAY OUTPUTS 3
		DEFAULT CONFIG

41	Relay 3	NO	Faulty barrier
42		NF	
43		COM	

CN12		DIGITAL OUTPUTS 4 TO 6 + 3 GROUND TERMINALS (GND)
		DEFAULT CONFIG

21	OUT4	Brake
22	OUT5	Slave opening command
23	OUT6	Slave closing command
44	GND	-
45		-
46		-

SW1	RESET - Reset
SW4	HMI - LEFT key
SW5	HMI - RIGHT key
SW6	HMI - UP key
SW7	HMI - DOWN key
SW8	HMI - OK key

1	Slot for AS1622 Ethernet card (optional)
2	Slot for AS1621 OLED HMI (optional)
3	Slot for additional AS1623 I/O card (optional)

LD1	●	Green	Live voltage
LD2	●	Red	MAJOR error
LD3	●	Yellow	MINOR error
LD4	●	Yellow	Presence under arm
LD5	●	Green	Activity indicator ARM M3 processor watchdog (flashing)
LD6	●	Green	Activity indicator ARM M3 processor watchdog (flashing)
LD7	○	White	7-segment display (left HMI)
LD8	○	White	7-segment display (centre left HMI)
LD9	○	White	7-segment display (centre right HMI)
LD10	○	White	7-segment display (right HMI)
LD11	●	Green	Activity indicator input 1
LD12	●	Green	Activity indicator input 4
LD13	●	Green	Activity indicator input 7
LD14	●	Green	Activity indicator input 2
LD15	●	Green	Activity indicator input 5
LD16	●	Green	Activity indicator input 14
LD17	●	Green	Activity indicator input 3
LD18	●	Green	Activity indicator input 6

LD19	●	Green	Activity indicator input 10
LD20	●	Green	Activity indicator input 13
LD21	●	Green	Activity indicator input 9
LD22	●	Green	Activity indicator input 12
LD23	●	Green	Activity indicator input 8
LD24	●	Green	Activity indicator input 11
LD25	●	Green	Activity indicator ARM M3 processor watchdog (flashing)
LD26	●	Red	ARM M3 processor error
LD27	●	Yellow	Activity indicator digital output 1
LD28	●	Yellow	Activity indicator digital output 2
LD29	●	Yellow	Activity indicator digital output 3
LD30	●	Yellow	Activity indicator digital output 4
LD31	●	Yellow	Activity indicator digital output 5
LD32	●	Yellow	Activity indicator digital output 6
LD33	●	Yellow	Relay output 1
LD34	●	Yellow	Relay output 2
LD35	●	Yellow	Relay output 3

## 12. ELECTRICAL DIAGRAMS



See the **Electrical Technical File** provided with the device or accessible via the following links:



## 13. CONTROL LOGIC



## 14. DECLARATION OF CONFORMITY

### DECLARATION OF CONFORMITY

We, undersigned,

**AUTOMATIC SYSTEMS SAS**  
22 rue du 8 mai 1945  
95340 PERSAN  
FRANCE

Herewith declare that the following machines:

**Automatic rising barriers**  
**BL 40 / BL 41 / BL 43 / BL43 C50**  
**BL 44 / BL 45 / BL 46 / BL 47**



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

- Machinery Directive 2006/42/EC.
- Low-voltage Directive 2014/35/EU.
- Electromagnetic compatibility Directive 2014/30/EU.
- Directive RoHS 2 (Restriction of Hazardous Substances) (2011/65/EU) - Delegated Directive RoHS 3 (EU) 2015/863.
- EN 12453:2017+A1:2021: Industrial, commercial and garage doors and gates - Safety in use of powered doors - Requirements and test methods.
- EN 13241+A2: 2016: Industrial, commercial, garage doors and gates - Product standard, performance characteristics.
- EN 12100:2010: Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010).
- EN 60204-1:2018: Safety of machinery - Electrical equipment of machines - Part 1: General requirements.
- EN 61000-6-3:2021: Electromagnetic compatibility (EMC) - Generic standards - Emission standard for residential, commercial and light-industrial environments.
- EN 61000-6-2:2019: Electromagnetic compatibility (EMC) - Generic standards - Immunity standard for industrial environments.

Made in PERSAN,  
Date: 2026.04.30

**Karel VERGOTE** | Chief Innovation & Technology Officer

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Fig. 44 - Declaration of Conformity







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