AUTOMATIC SYSTEMS

BL 4X

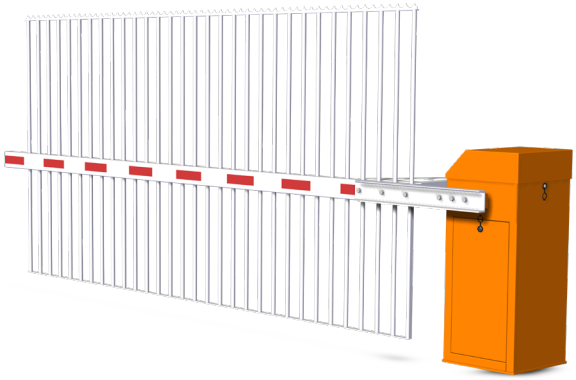
Industrial lifting barrier

TECHNICAL MANUAL

(Translated from the original French version)

Rev. 29 • Update 04/2022

BL 40



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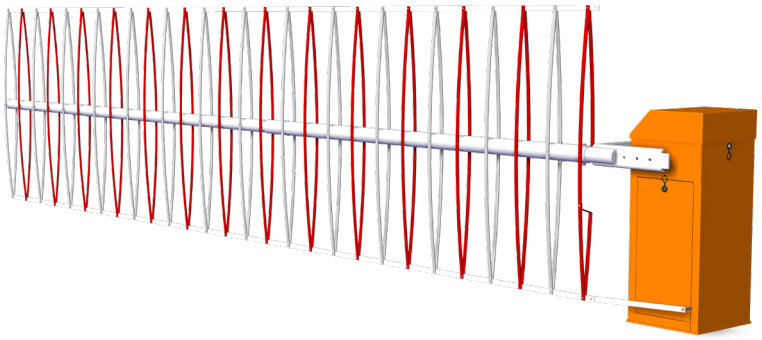

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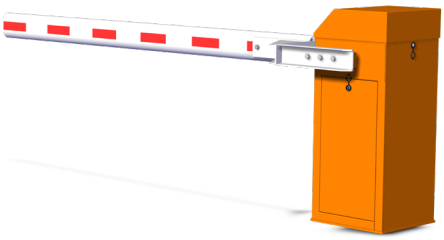

BL 43 / BL 44

BL 41

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TABLE OF ILLUSTRATIONS

1. 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.

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).

2. TERMINOLOGY

AS	**Automatic Systems**
CMD	Control
DI	Digital input
DO	Digital output
I/O	Input/Output
O/S	Out of Service
MMI	Man-Machine Interface
CRA	Card reader direction A
CRB	Card reader direction B
NC	(Contact) Normally Closed (Closed in at-rest state (power off))
NO	(Contact) Normally Open (Open in at-rest state (power off))
OP	Opening
MVT	Movement
RGBW	Red – Green – Blue – White

3. SAFETY WARNING

Read this document carefully and in full before using the barrier and keep it in a safe place for future use. Failure to comply with the instructions in this document may lead to damage to the barrier as well as bodily injuries that could be serious.

Installing a barrier exposes the user to responsibilities with regard to the safety of people.

- Pedestrian traffic must be prohibited in the zone of barrier arm movement (risk of impact and pinching injuries).
- Two pedestrian access prohibition pictograms are provided with the equipment which, pursuant to the EC Machinery Directive, should be fixed on each side of the barrier, in a place visible to pedestrians.
- All operations on the equipment must be carried out by qualified personnel. Any work on this product that is unauthorized or carried out by an unqualified technician will automatically void the manufacturer's warranty.
- The access keys to the mechanism must be used by personnel who are aware of the electrical and mechanical risks they incur in the event of negligent handling. These personnel are required to lock the access door to the mechanism after the intervention.
- Personal protective equipment (PPE) must be worn when working on the barrier:

AS SOON AS THE ACCESS DOOR TO THE MECHANISM IS OPEN, CUT THE POWER SUPPLY VIA THE CIRCUIT BREAKER (⇨ ITEM 19, CHAP. 4.1. LOCATION OF THE COMPONENTS, PAGE 8).

LIFT THE ARM BEFORE PERFORMING ANY WORK INSIDE THE COLUMN TO RELEASE THE TENSION OF THE BALANCING SPRINGS AND PREVENT UNDESIRED MOVEMENTS OF THE DRIVE MECHANISM.

- Any internal component likely to be energized or in movement must be handled with caution.
- The equipment is configured in a "minimal risk" mode for users. Any changes to the settings must be undertaken by experienced and qualified personnel and is not the responsibility of **Automatic Systems**.
- The end of the arm must always be at least 0.5m from any object.
- The barrier must be fully visible to the user before being actuated.
- After a collision, even if there is no visible damage, the equipment must be carefully checked by a qualified technician.

ASSEMBLE THE ARM AND ITS ACCESSORIES BEFORE PERFORMING ANY ELECTRICAL TESTS (⇨ CHAP. 5. INSTALLATION, PAGE 12).

ATTENTION!

DO NOT WORK ON THE BARRIER OR STAND NEAR IT DURING A THUNDERSTORM, ESPECIALLY WHEN THE BARRIER IS IN THE OPEN POSITION (ARM UP), RISK OF ELECTRIC SHOCK!

NEVER OPERATE THE BARRIER WITHOUT THE BUMPERS (⇨ ITEM 10, CHAP. 4.1. LOCATION OF THE COMPONENTS, PAGE 8).

- The installation of detection loops must be validated by qualified personnel who will determine their optimal configuration as a function of the vehicle type and passageway configuration.

THERE IS A RISK OF INJURY IF STANDARD DETECTION LOOPS ARE USED, AS THESE MAY INCORRECTLY DETECT TRUCKS, BICYCLES OR MOTORCYCLES AND CLOSE THE BARRIER ON THESE VEHICLES!

IT IS IMPORTANT TO PAY ATTENTION TO THE ASSEMBLY DIRECTION OF THE COVER WHEN IT IS EQUIPPED WITH AN ACCESSORY (FLASHING LIGHT). INCORRECT ASSEMBLY OF THE COVER CAN CAUSE DAMAGE NOT ONLY TO THE ACCESSORY BUT ALSO TO THE BARRIER COVER.

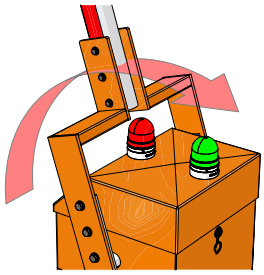


Fig. 1 - Assembly of the flashing light accessory

4. DESCRIPTION

4.1. LOCATION OF THE COMPONENTS

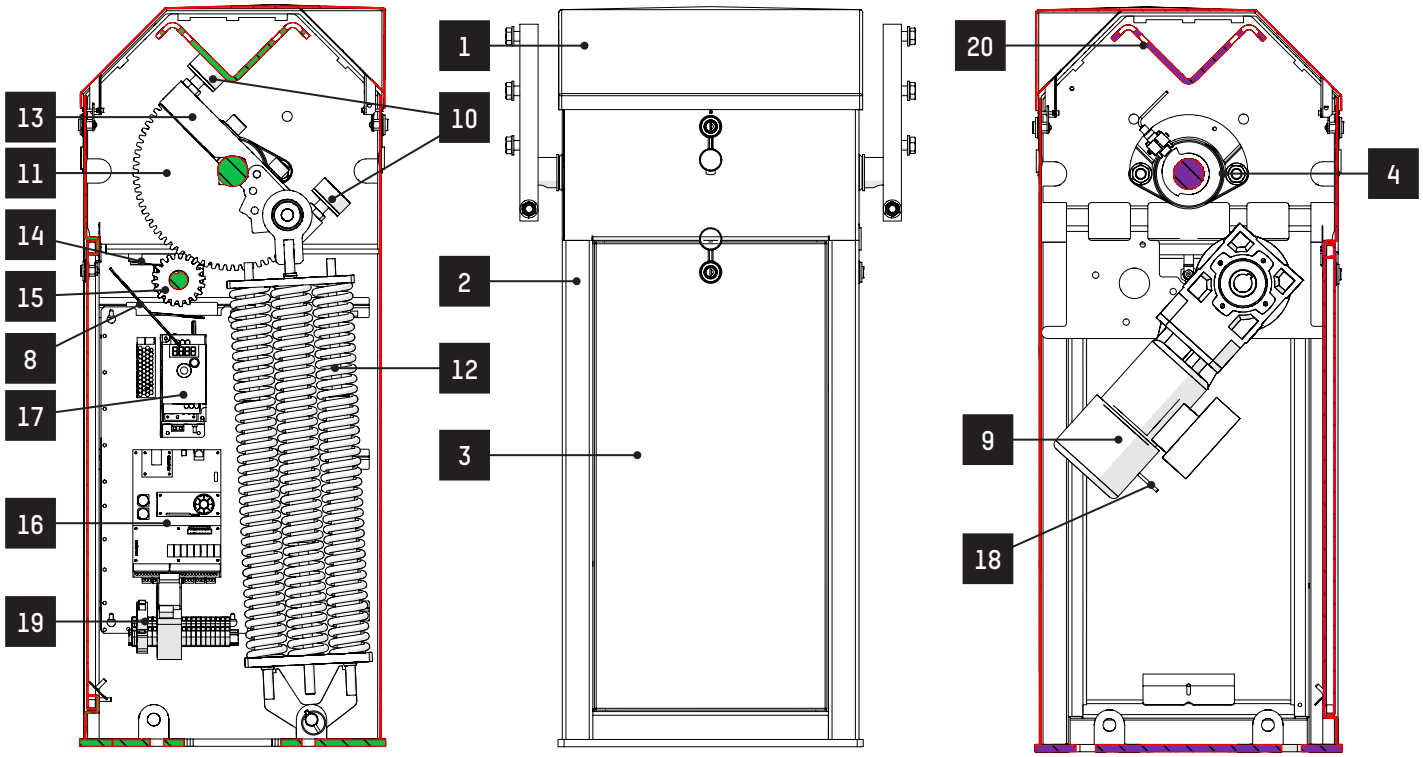


Fig. 2 - Location of the components

ITEM	DESCRIPTION
1	Hood, with two key locks
2	Column
3	Front door, key locked
4	Bearing for arm shaft (x2 per barrier)
8	Protective housing
9	Gear motor
10	Bumper (x2 per barrier)
11	Sector gear
12	Spring assembly (x1 or x2 per barrier) (⇨ Chap. 6.3, page 32)
13	Hub
14	Plummer block
15	Pinion + gear shaft
16	Control logic
17	Variable Frequency Drive
18	Unlocking lever
19	Circuit breaker
20	Reinforcing V-block, optional arm locking support

4.1.1. ASSEMBLY WITH ANALOGUE SENSOR

If your barrier is equipped with an AS1620 control logic, an analogue sensor will communicate the exact position of the arm during the opening and closing movements to the control logic:

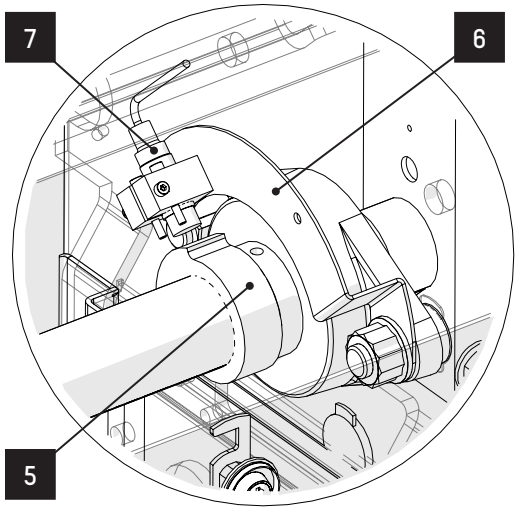


Fig. 3 - Location of the components, inductive sensor variant

ITEM	DESCRIPTION
5	Detection cam
6	Analogue sensor support bracket
7	Analogue sensor

4.1.2. ASSEMBLY WITH INDUCTIVE SENSORS

If your barrier is equipped with a PLA1300 control logic, two inductive sensors replace the analogue sensor and perform the same function:

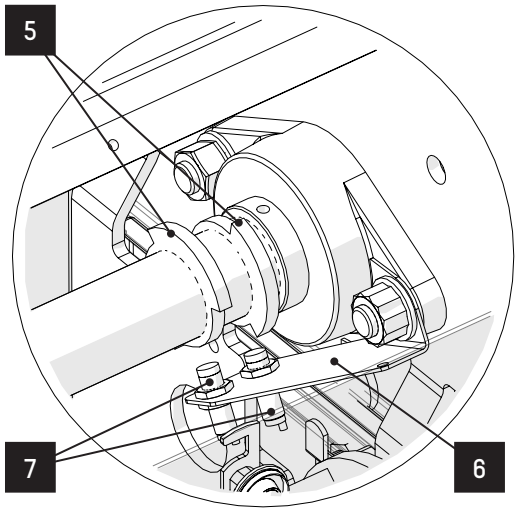


Fig. 4 - Location of the components, inductive sensor variant

ITEM	DESCRIPTION
5	Detection cams
6	Inductive sensor support bracket
7	Inductive sensors

4.2. OPERATING PRINCIPLE

Items referred to in this chapter can be seen on the images in chapter 4.1. Location of the components, page 8

The opening of the arm is controlled by the user (by means of a key switch, a push button, a radio transmitter), by detection loops buried under the roadway, or by an external component.

Closing is controlled in the same way, or automatically via a timer.

The movement created by the gear motor (**9**) is transmitted to the arm by a pinion and gearwheel system (**15** + **11**).

The speed of the arm controlled by the variable frequency drive (**17**), is adjustable for both opening and closing movements. Movements are factory-configured to provide fast acceleration and slow deceleration at the end of the movement.

The position sensor(s) (**7**) indicate(s) the end positions of the arm (open and closed) to the control logic (**16**).

The latter coordinates the activity of the barrier: management of movements, options, processing of incoming and outgoing information, etc. (see dedicated 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 spring(s) (**12**) act(s) as a counterweight in order to help the motor during the opening and closing of the barrier (models without automatic lifting*).

For barrier models with automatic lifting*, the pre-compression of the springs is increased in order to ensure that they can lift the arm on their own in the event of a power outage.

(*) Automatic lifting of the arm during a power outage: standard on BL44, optional on other models.

Maintaining the arm in its two end positions (open and closed) as well as after a Stop command is achieved by means of an electromagnetic break.

In order to increase protection against vandalism (forcing on the arm), the arm can also be equipped with an optional mechanical locking device which locks the arm in the open and/or closed position (⇨ Chap. 4.3, page 11).

The following table summarises the various possible combinations:

BARRIER MODEL	ELECTROMAGNETIC BRAKE	ARM LOCKING MECHANISM (OPTION)	
		LOCKED POSITION	LOCK TYPE (SEE NOTE CHAP. 4.3, PAGE 11)
Without lifting of the arm	NC brake, powered during the movement of the arm to release it.	Locking of arm in open position	NO lock, powered when the arm is opened to lock it.
			NC lock, powered when the arm moves to unlock it.
		Locking of arm in closed position	NO lock, powered when the arm is closed to lock it.
			NC lock, powered when the arm moves to unlock it.
With automatic lifting of the arm	NO brake, powered in end positions to block the arm.	Locking of arm in open position	NC lock, powered when the arm moves to unlock it.
			NO lock, powered when the arm is opened to lock it.
		Locking of arm in closed position	NO lock, powered when the arm is closed to lock it.

NC: Normally Closed = Closed in at-rest state (power off)

NO: Normally Open = Open in at-rest state (power off)

4.3. ARM LOCKING MECHANISM (OPTION)

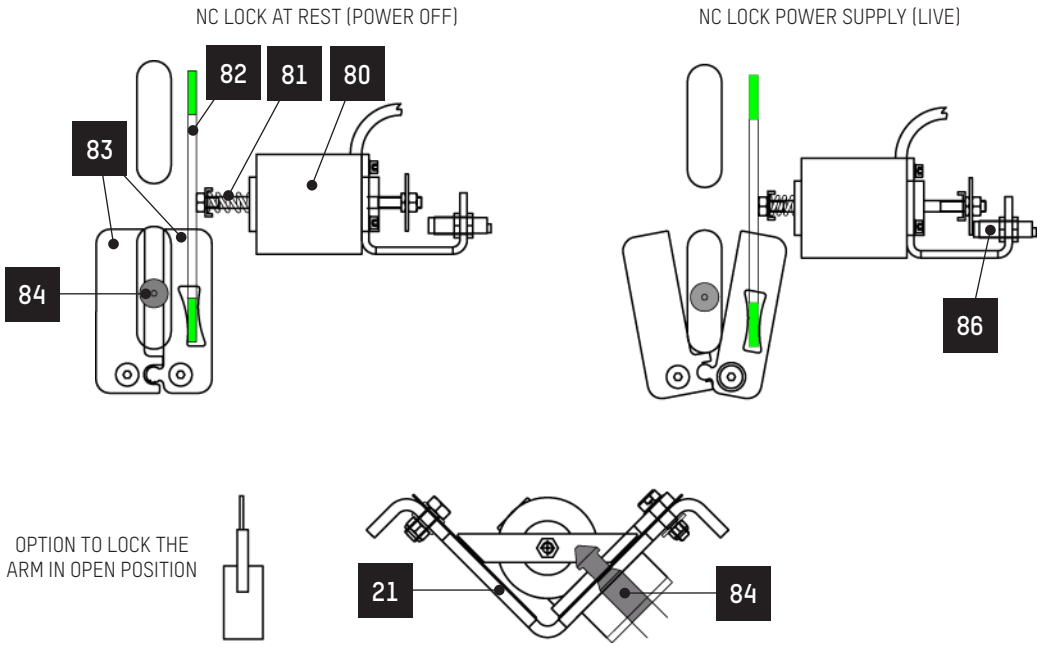


Fig. 5 - Arm locking mechanism.

ITEM	DESCRIPTION
21	Reinforcing V-block (⇨ Fig. 2, page 8)
80	Electromagnet
81	Counter spring
82	Clip driving rod
83	Locking clips
84	Locking pin
86	Inductive sensor

Two locks are available as an option, to lock the arm in the open and/or closed position.

These locks are located on the reinforcing V-blocks (**21**), under the cover.

Depending on the desired operating mode (specified when ordering), the locks installed will be NO or NC type (see table Chap. 4.2, page 10). However, when locking in the two positions, the two locks will always be of the same type (NO or NC), since they are controlled by the same electromagnet.

The illustration above shows the arm locked in the open position by means of an NC lock. The operation described below corresponds to this configuration but can be transposed in principle to other configurations.

The lock is of the "Normally Closed" type: in the at-rest state (de-energised), the spring (**81**) pushes the rod (**82**) out of the electromagnet (**80**), closing the clips (**83**) around the locking pin (**84**). The locking pin is fastened to the hub (**13**) which is in turn anchored to the arm drive shaft, thus locking the arm.

When a command is given to close the barrier, the electromagnet is switched on. The rod (**82**) is pulled towards the electromagnet by compressing the spring (**81**), which opens the clips (**83**).

At the same time, a pulse is given to the arm in the other direction (opening), to unlock the mechanism (the clips could be stuck by the locking pin if the arm has been subjected to major stress in a locked position).

The closing movement of the arm is only started when the inductive sensor (**86**) detects that the rod has reached the end position, which corresponds to the opening of the clips and the unlocking of the arm. If the arm is not unlocked within 3 seconds, the barrier is deactivated. Once the arm is closed (detection by the end position sensor) (⇨ Item **7**, Chap. 4.1, page 8), the electromagnet is switched off.

5. INSTALLATION

THE INSTALLATION MUST BE CARRIED OUT IN ACCORDANCE WITH THE SAFETY INSTRUCTIONS. (⇨ CHAP. 3, PAGE 6)

5.1. EQUIPMENT STORAGE BEFORE INSTALLATION

Before installation, protect the equipment from impact and store it in its original packaging in a dry area protected from dust, heat and the weather.

Storage temperature range: -30 to +80 °C.

5.2. INSTALLATION OF THE EQUIPMENT

SINCE THE BARRIER CANNOT BE LAID FLUSH WITH THE GROUND, A PERFECTLY HORIZONTAL RAISED CONCRETE BASE MUST BE PREPARED, ACCORDING TO THE INSTRUCTIONS IN THE INSTALLATION DRAWING BELOW.

1. Assemble the fixing frame:
   - Insert the four anchoring rods (**3**), each with a flat washer (**6a**) and a nut (**7a**) into the holes of the fixing frame (**2**). The netting must face upwards as illustrated in Fig. 6.
   - Attach the anchoring rods to the fixing frame using a flat washer (**6b**) and a nut (**7b**) on each netting, protruding by 40mm (Fig. 8). Tighten the nuts.
   - Use adhesive tape to protect the netting emerging from the fixing frame from concrete splashes.
2. Lay a PVC tube (**4**) with a minimum diameter of 60mm for the power and control cables (Fig. 8).
   If necessary, lay a PVC tube (5) with a diameter of 25mm to for the cables of the detection loops (optional).
   Cables must protrude 1 metre from the concrete base.
3. Prepare a concrete base (**8**) in which the fixing frame will be centred. The fixing frame must be flush with the surface of the concrete base and perfectly horizontal (Fig. 8).
4. When the concrete has set, remove the adhesive tape from the netting, remove the nuts (**7b**), the flat washers (**6b**), place the barrier column on the base and hold it in place using washers (**6b**) and nuts (**7b**) (Fig. 7). The base is smaller than the column to prevent water stagnating at the base of the column (Fig. 9).

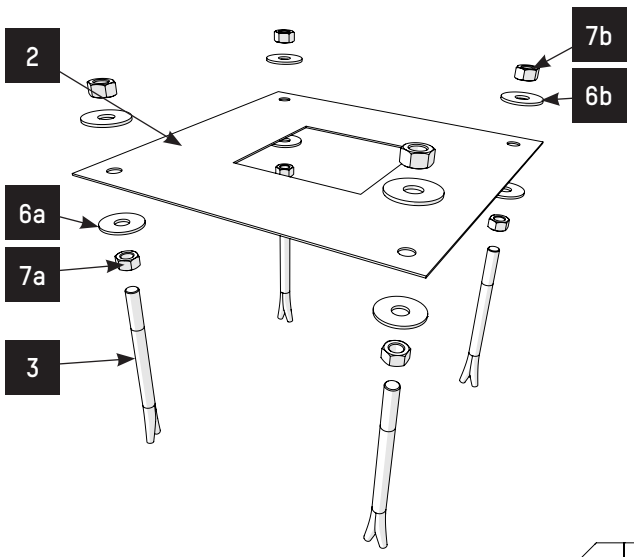


Fig. 6 - Fixing frame

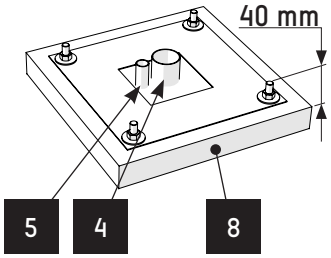


Fig. 8 - Protruding anchoring pins

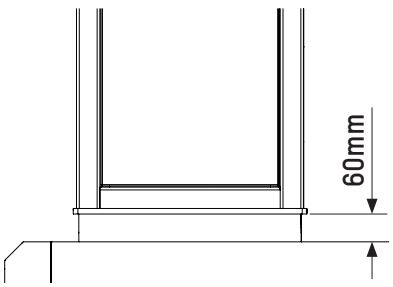


Fig. 9 - Base detail

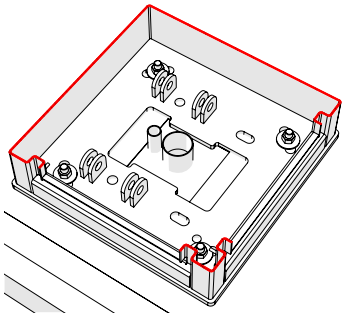


Fig. 7 - Footing

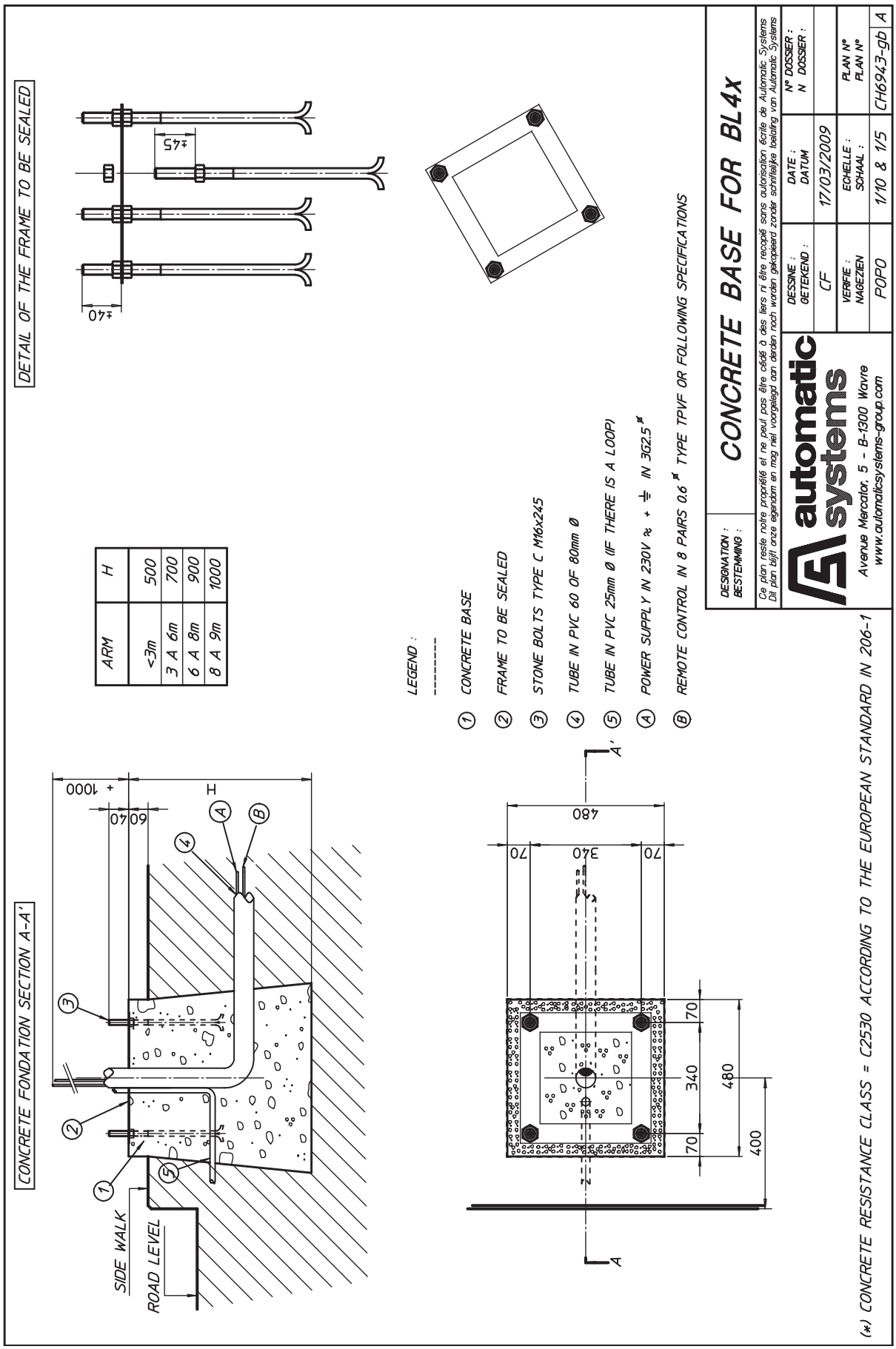


Fig. 10 - Installation drawing

5.3. PEDESTAL (OPTIONAL)

Assemble the sealing bracket (Chap. 5.2) taking care to allow the anchoring rods to protrude 100mm.

Check the orientation of the base frame in relation to the barrier (position of the notch, ⇨ Fig. 11).

Fasten the base to the four anchoring rods using the screws and washers, passing through the oblong holes in the base.

Fasten the barrier to the base using the four screws and washers supplied.

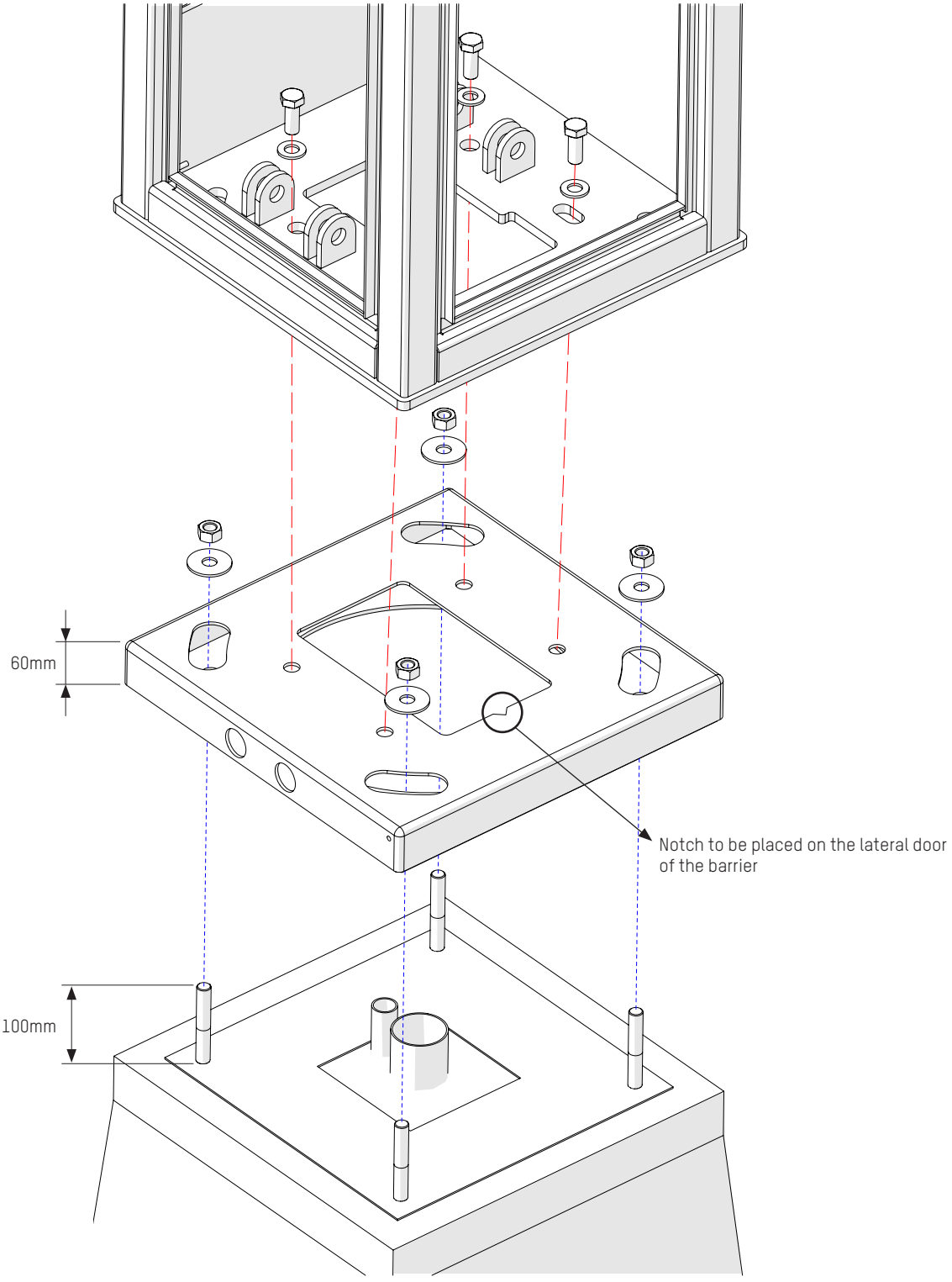


Fig. 11 - Assembly on pedestal

5.4. ASSEMBLY OF THE ROUND OFFSET ARM FOR BL40

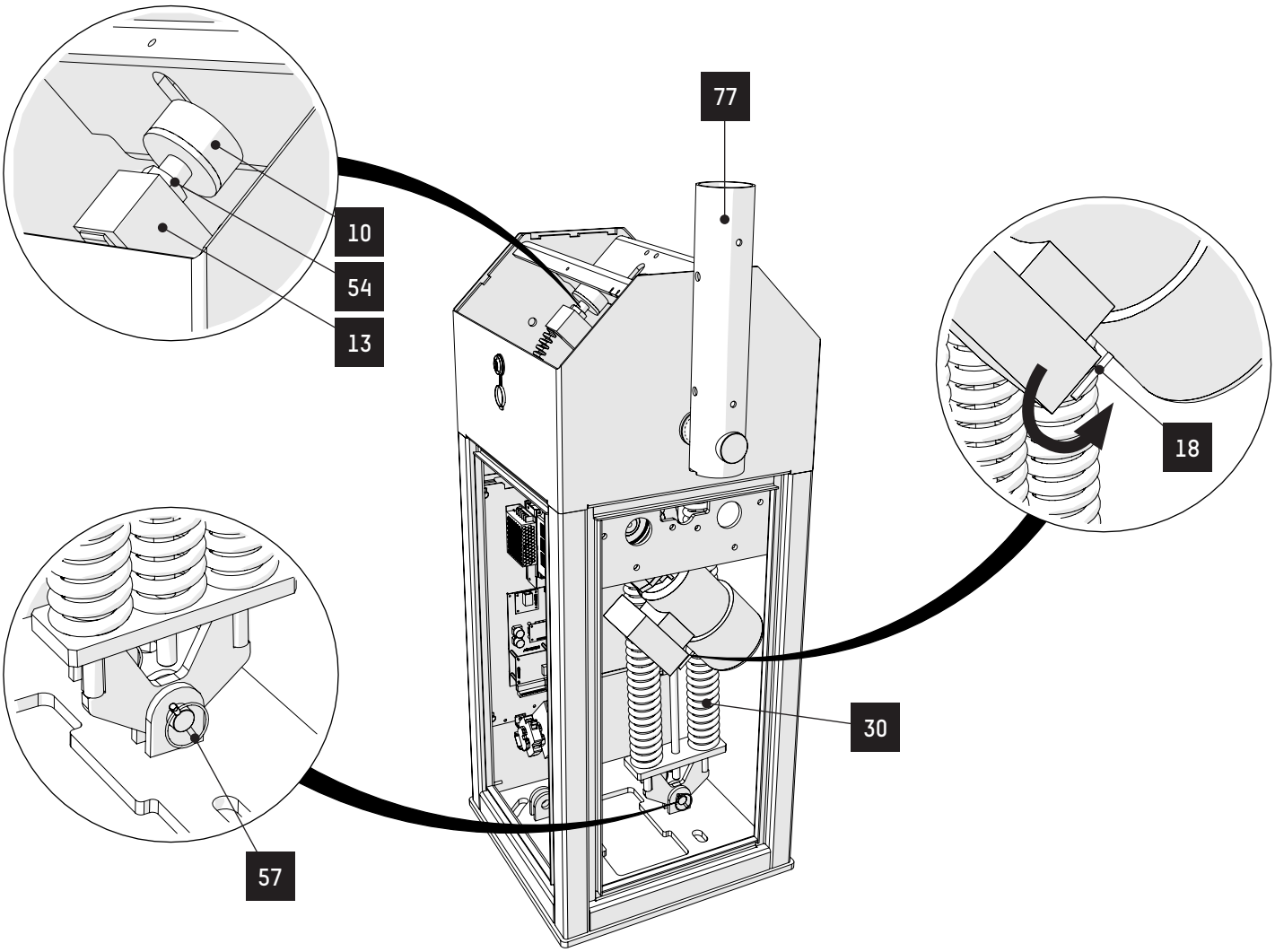


Fig. 12 - Assembly of the BL40 arm - Spring(s) switched off

ITEM	DESCRIPTION	ITEM	DESCRIPTION
10	Upper bumper	71	Round arm aluminium Ø 100
13	Hub	72	Round arm aluminium Ø 89.5 or Ø 83.5
18	Brake release lever	73	Assembly clip for round arm
30	Balancing spring	74	H M 12 x 120 stainless steel screw (torque 80Nm)
54	Nut	75	M 12 stainless steel flat washer
57	Pin	76	Nylstop M 12 stainless steel washer
70	Screw CBLH M 8 x 25 stainless steel (torque 20Nm)	77	Arm shaft

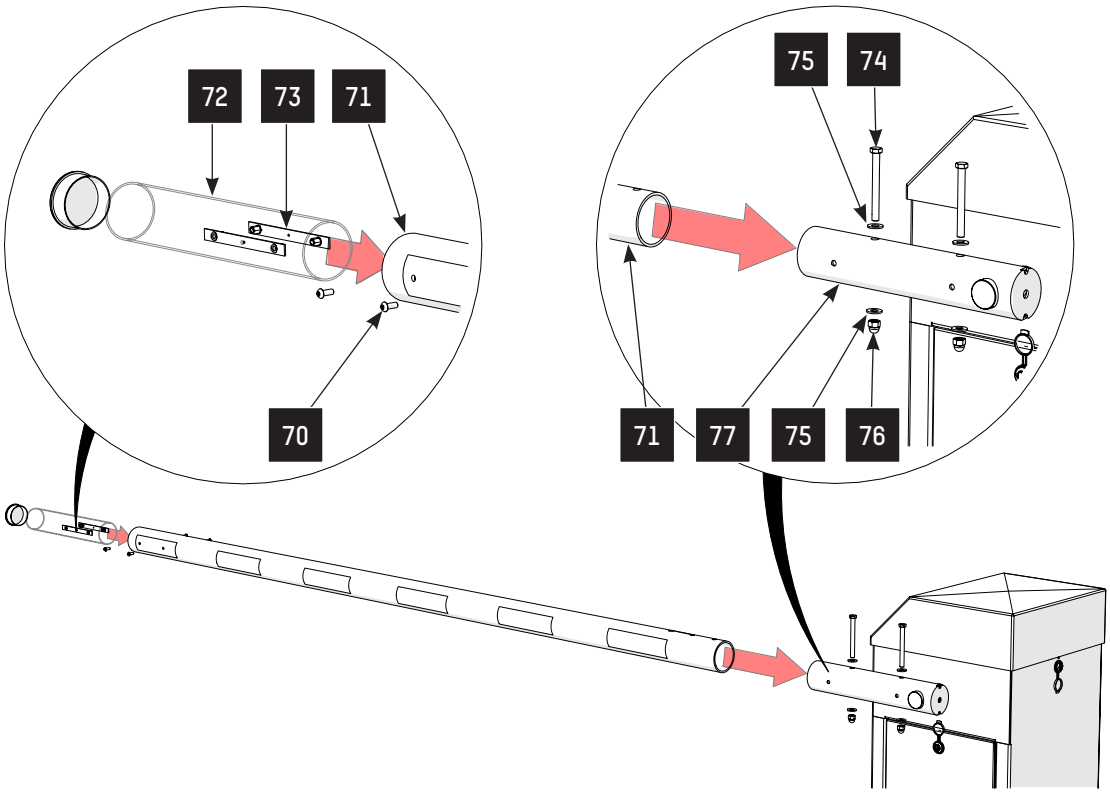


Fig. 13 - Assembly of the BL40 arm - Exploded view

All screws should be lubricated before assembly.

Nominal tightening torques are given in the caption of the figure.

WHEN REMOVING THE ARM ASSEMBLY, THE SPRING ASSEMBLIES' LOWER FASTENING PIN (57) MUST BE REMOVED BEFOREHAND IN ORDER TO RELEASE THE TENSION IN THE SPRINGS.

1. Switch off the power to the barrier by turning off the circuit breaker (⇨ Rep. **19**, Fig. 2 - Location of the components, page 8).
2. Loosen the nut (**54**) and screw the upper bumper (**10**) into the hub (**13**), as far as it will go to remove the compression constraint on the springs (**30**), and then lift the shaft (**77**).
3. Remove the spring assembly's lower fastening pin by removing the hinge pin (**57**).
4. Slowly lower the arm shaft. If the barrier does not have the "automatic lifting" option, the shaft can only be rotated by disengaging the motor brake (using the lever (**18**)).
5. Insert the first arm coupler (**71**) into the arm shaft (**77**).
6. Tighten with screws (**74**), washers (**75**) and nuts (**76**).
7. Insert the second coupler (**72**) into the first one and tighten the screws (**70**).
8. Insert the third coupler (**72**), if any, into the second one and tighten the screws (**70**).
9. Lift the arm (if necessary by disengaging the brake: lever **18**).
10. Replace the spring assembly's lower fastening pin and lock it using its pin (**57**).
11. Adjust the verticality of the arm by tightening or loosening the upper bumper (**10**), then tighten the lock nut (**54**).
12. Fasten and, where necessary, tighten the bracing wire (⇨ illustration on the folding fence Chap. 5.7, page 21).

5.5. ASSEMBLY OF THE CENTRAL ROUND ARM FOR BL41

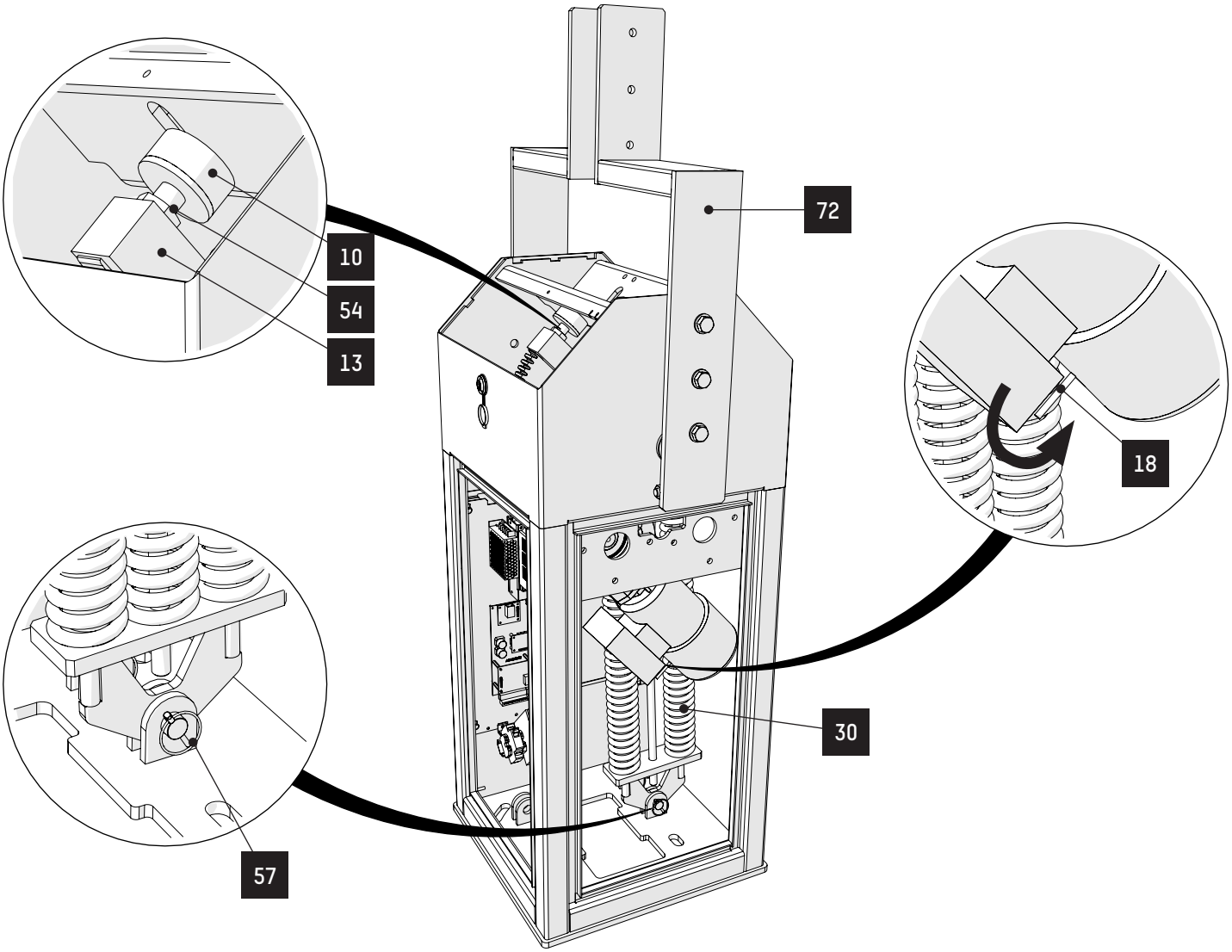


Fig. 14 - Assembly of the BL41 arm - Switching off the spring(s)

ITEM	DESCRIPTION	ITEM	DESCRIPTION
10	Upper bumper	74	H M 12 x 40 stainless steel screw (torque 80Nm)
13	Hub	75	M 16 stainless steel flat washer
18	Brake release lever	76	H M 16 x 40 stainless steel screw (torque 190Nm)
30	Balancing spring	77	H M 16 x 40 stainless steel screw (standard) H M 16 x 50 screw if bracings (torque 190Nm)
54	Nut		
57	Pin	78	H M 14 x 100 stainless steel screw (torque 130Nm)
70	Round arm aluminium Ø 100	79	M 14 stainless steel flat washer
71	Clip for central arm	80	Fixing jaw
72	Central bracket for round arm (in two parts)	82	Nylstop M 14 stainless steel nut
73	M 12 stainless steel flat washer	83	Shaft for bracket

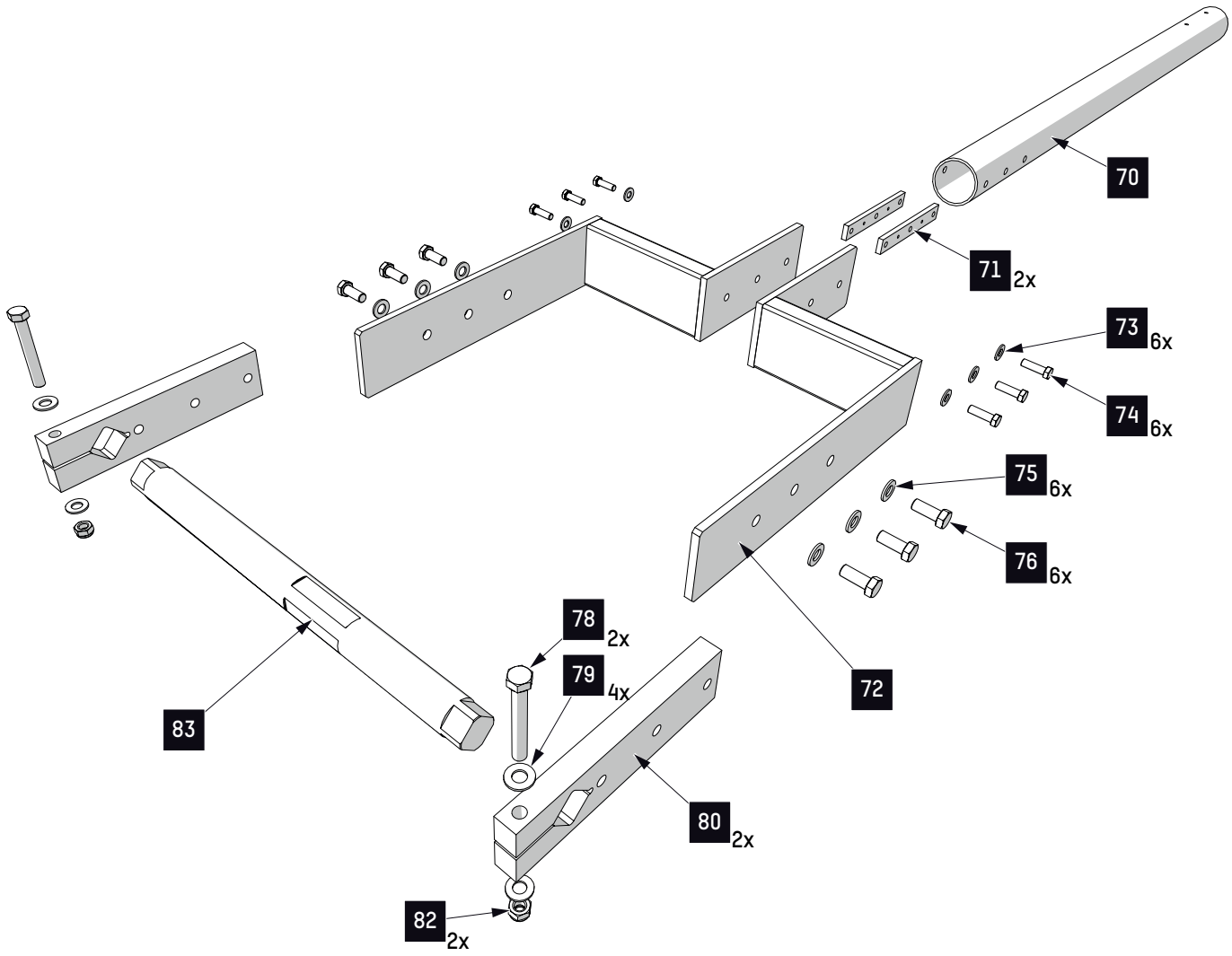


Fig. 15 - Assembly of the BL41 arm - Exploded view

All screws must be lubricated before installation.

The nominal tightening torques are given in the caption of the figure.

WHEN REMOVING THE ARM ASSEMBLY, THE SPRING ASSEMBLIES' LOWER FASTENING PIN (57) MUST BE REMOVED BEFOREHAND IN ORDER TO RELEASE THE TENSION IN THE SPRINGS.

1. Switch off the power to the barrier by turning off the circuit breaker (⇨ Item **19**, Fig. 2 - Location of the components, page 8).
2. Loosen the nut (**54**) and screw the upper bumper (**10**) into the hub (**13**) as far as it will go, so that the compression constraint on the springs (**30**), is removed, and then raise the bracket (**72**).
3. Remove the spring assembly's lower fastening pin by removing the hinge pin (**57**).
4. Slowly lower the arm bracket. If the barrier does not have the "automatic lifting" option, the shaft can only be rotated by disengaging the motor brake (using lever **18**).
5. Insert the first arm coupler (**70**) into the bracket (**72**).
   Tighten with screws (**74**), washers (**73**) and clips (**71**).
   Insert the second coupler, if any, into the first one (see "Assembly of the round offset arm for BL40").

6. Lift the arm, if necessary by disengaging the brake: lever (**18**).
7. Replace the lower fastening pin of the spring assembly and lock it using its pin (**57**).
8. Adjust the verticality of the arm by tightening or loosening the upper bumper (**10**), then tighten the lock nut (**54**).
9. Fasten and, where necessary, tighten the bracing wire (illustration on the folding fence Fig. 8).

5.6. ASSEMBLY OF THE OVAL ARM FOR BL43 & BL44

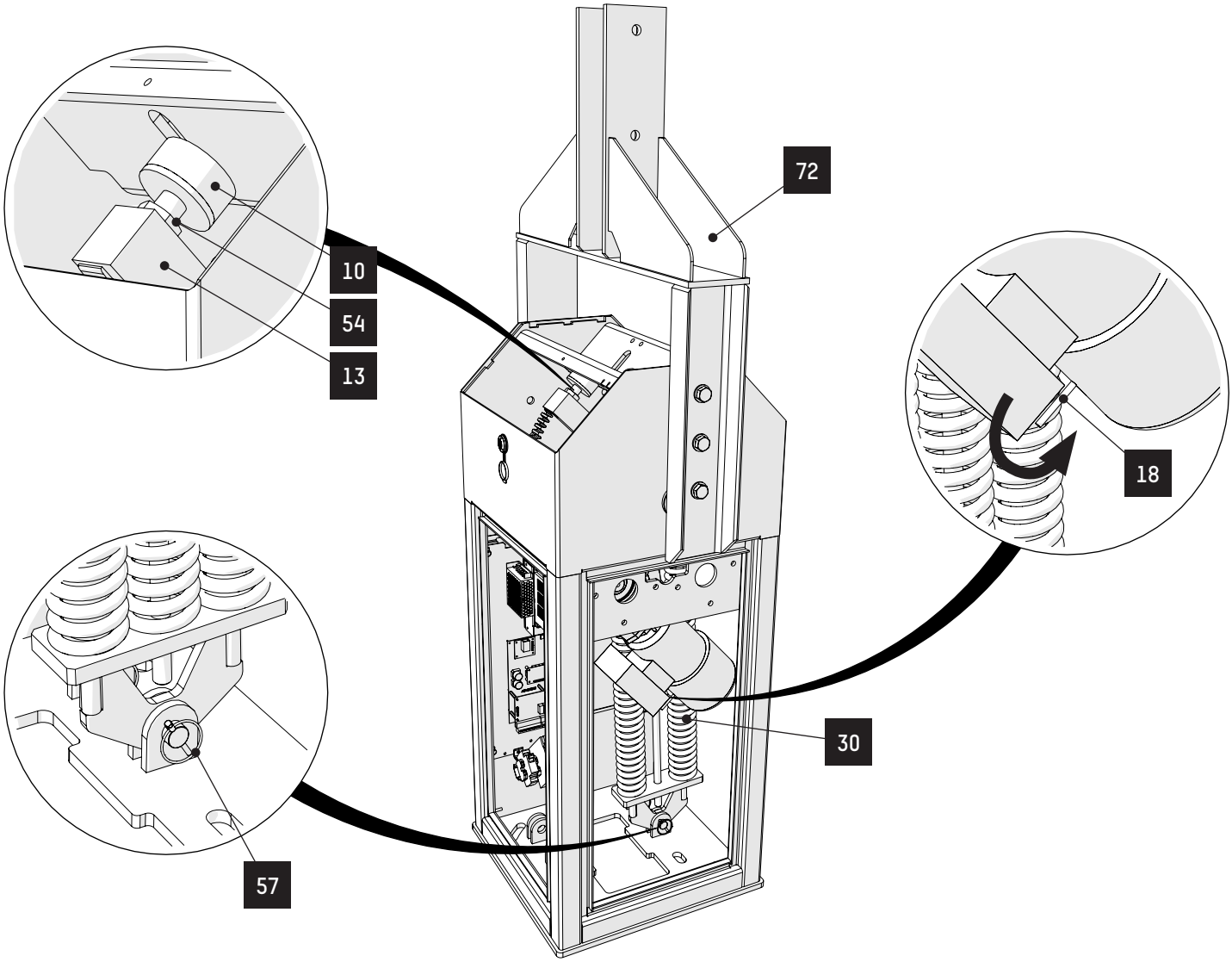
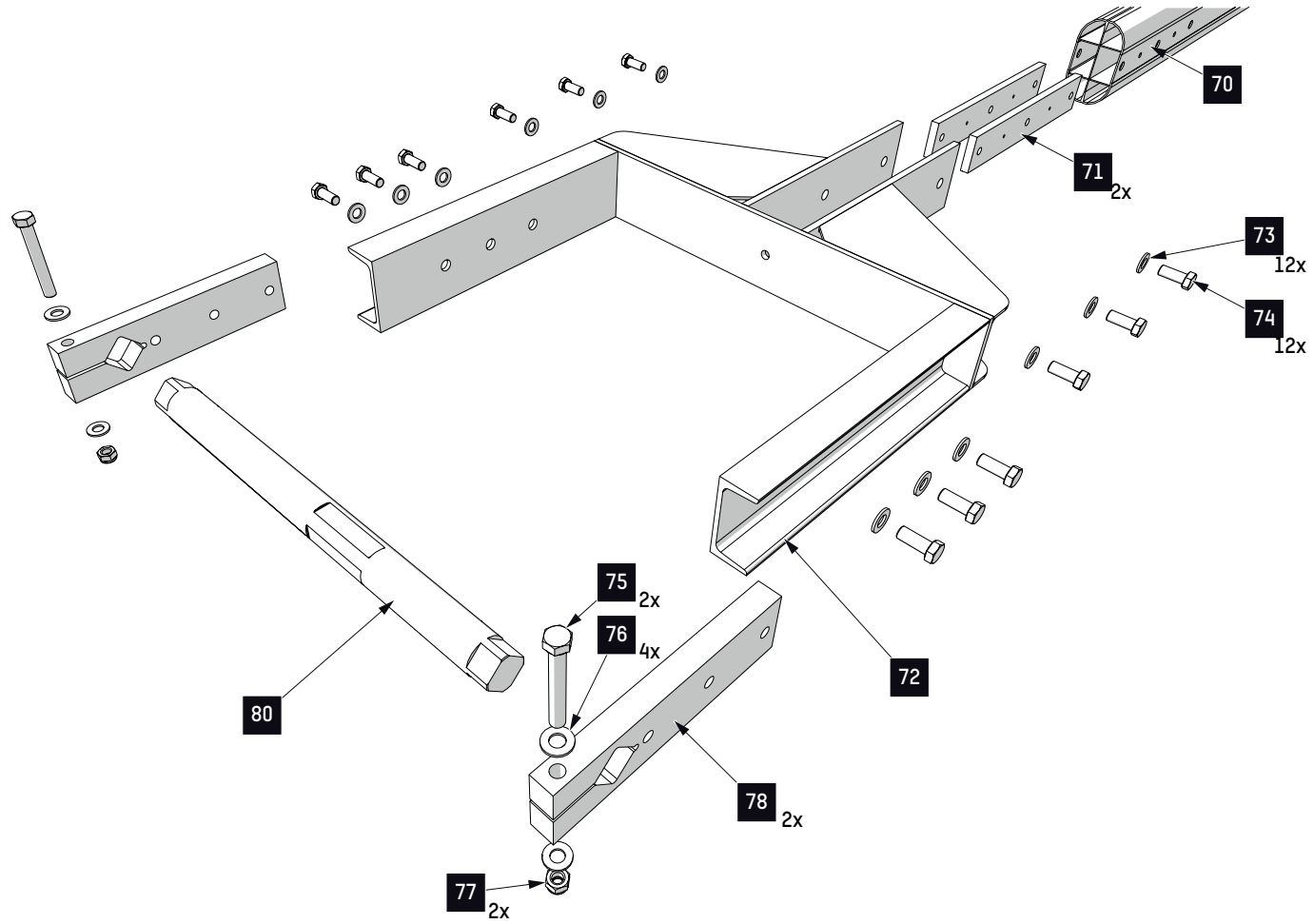


Fig. 16 - Assembly of the BL43 & BL44 arm - Switching off the spring(s)

ITEM	DESCRIPTION	ITEM	DESCRIPTION
10	Upper bumper	72	Arm bracket
13	Hub	73	M 12 stainless steel flat washer
18	Brake release lever	74	H M 12 x 40 stainless steel screw (torque 80Nm)
30	Balancing spring	75	H M 14 x 100 stainless steel screw (torque 130Nm)
54	Nut	76	M 14 stainless steel flat washer
57	Pin	77	Nylstop M 14 stainless steel nut
70	Oval arm in aluminium	78	Bracket jaw
71	Fixing bracket for oval arm	80	Shaft for bracket

Fig. 17 - Assembly of the BL43 & BL44 arm - Exploded view



All screws must be lubricated before installation.

The minimum tightening torques are given in the figure caption.

WHEN REMOVING THE ARM ASSEMBLY, THE SPRING ASSEMBLIES' LOWER FASTENING PIN (57) MUST BE REMOVED BEFOREHAND IN ORDER TO RELEASE THE TENSION IN THE SPRINGS.

1. Switch off the barrier off by triggering the circuit breaker (⇨ Item **19**, Fig. 2 - Location of the components, page 8).
2. Loosen the nut (**54**) and screw the upper bumper (**10**) into the hub (**13**) as far as it will go, so that the compression constraint on the springs (**30**), is removed, and then raise the bracket (**72**).
3. Remove the lower fixing pin from the spring assembly by removing the hinge pin (**57**).
4. Slowly lower the arm bracket. If the barrier does not have the "automatic lifting" option, the shaft can only be rotated by disengaging the motor brake (using lever **18**).
5. Insert the first arm coupler (**70**) onto the bracket (**72**) and tighten with screws (**74**), washers (**73**) and clips (**71**).
6. Raise the arm, if necessary by disengaging the brake: lever (**18**).
7. Replace the spring assembly's lower fastening pin and lock it using its pin (**57**).
8. Adjust the verticality of the arm by screwing or unscrewing the upper stop (**10**), then tighten the lock nut (**54**).

5.7. ASSEMBLY OF THE ARM WITH FOLDING FENCE FOR BL46

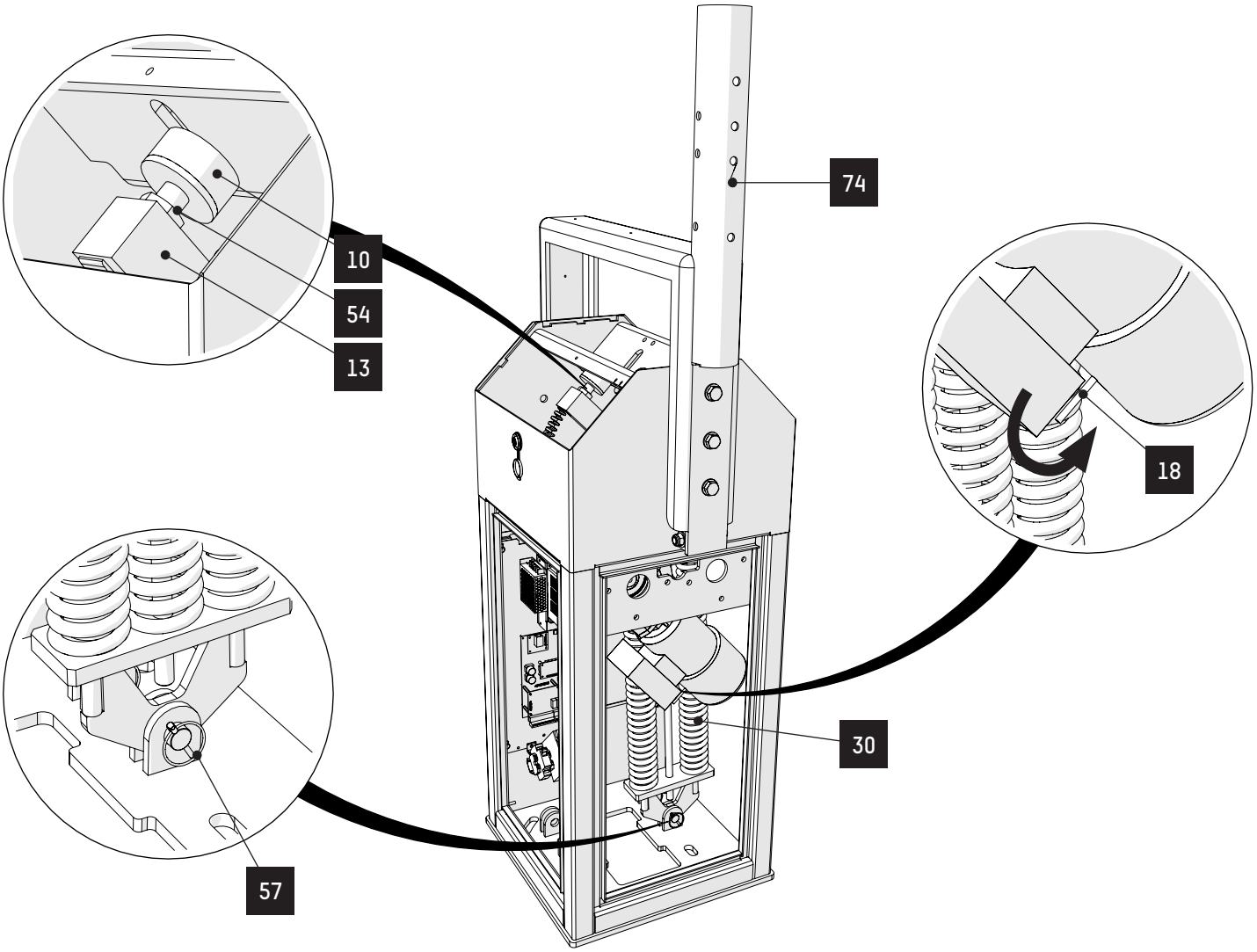


Fig. 18 - Assembly of the arm with folding fence BL46 - Switching off the spring(s)

ITEM	DESCRIPTION	ITEM	DESCRIPTION
10	Upper bumper	74	DAKOTA arm bracket
13	Hub	75	M 16 stainless steel flat washer
18	Brake release lever	76	H M16 x 40 stainless steel screw (torque 190Nm)
30	Balancing spring	77	H M 16 x 40 stainless steel screw (standard) H M16x50 screw if bracing (torque 190Nm)
54	Nut		
57	Pin	78	H M14x100 stainless steel screw (torque 130Nm)
70	Round arm aluminium Ø100	79	M 14 stainless steel flat washer
71	H M 12 x 120 stainless steel screw (torque 80Nm)	80	Bracket jaw
72	Flat washer M 12 stainless steel	82	Nylstop M 14 stainless steel nut
73	Nylstop M12 stainless steel nut	83	Shaft for bracket

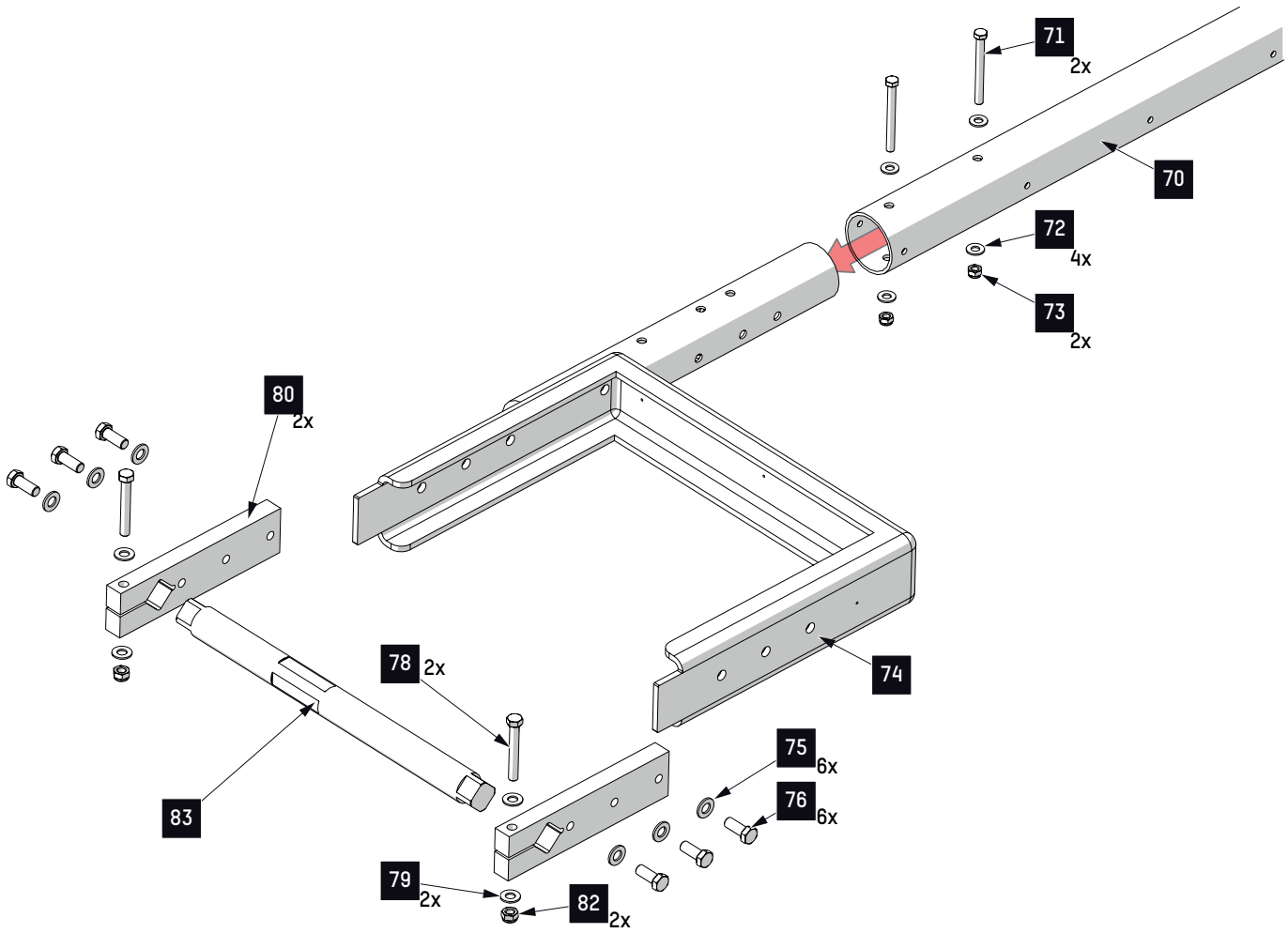


Fig. 19 - Assembly of the arm with folding fence BL46 - Exploded view

All screws must be greased before installation.

The minimum tightening torques are given in the figure caption.

WHEN REMOVING THE ARM ASSEMBLY, IT IS IMPERATIVE TO REMOVE THE LOWER FASTENING PIN OF THE SPRING ASSEMBLIES BEFOREHAND BY REMOVING THE PIN (57), IN ORDER TO RELEASE THE TENSION IN THE SPRINGS.

1. Switch off the barrier by triggering the circuit breaker (⇨ Item **19**, Fig. 2 - Location of the components, page 8).
2. Loosen the nut (**54**) and screw the upper bumper (**10**) into the hub (**13**) as far as it will go, so that the compression constraint on the springs (**30**), is removed and then raise the bracket (**74**).
3. Remove the lower fastening pins of the spring assemblies by removing the hinge pin (**57**).
4. Slowly lower the arm bracket. If the barrier does not have the "automatic lifting" option, the shaft can only be rotated by disengaging the motor brake (using the lever **18**).
5. Insert the first arm coupler (**70**) into the bracket (**74**) and tighten using screws (**71**), washers (**72**) and clips (**73**). Insert the second coupler, if any, into the first (⇨ Chap. 5.4, page 15).
6. Raise the arm, if necessary by disengaging the brake: lever (**18**).
7. Replace the lower fastening pin of a single spring assembly.
8. Lower the arm, if necessary by disengaging the brake: lever (**18**).
9. Install the folding fence assembly in one of the following ways (see illustrations on the following pages):

- When the folding fence is delivered completely disassembled, or after repair: starting by first fitting the bracing collar, the first bar kit (**9**), then alternating white and red bars (**11**), as well as the connecting bars (**1**).
- When the folding fence is delivered mounted on the various arm segments: by assembling the connecting bars (**1**) of the various components.

10. Lift the arm, if necessary by disengaging the brake: lever (**18**).
11. Replace the lower fastening pin of the second spring assembly and lock it using its hinge pin (**57**).
12. Adjust the verticality of the arm by tightening or loosening the upper bumper (**10**), then tighten the lock nut (**54**).
13. Lower the arm and mount the folding fence's articulation bar (**12**).
14. Fix and, where necessary, tighten the bracing wire (**14**).

5.7.1. ASSEMBLY OF THE FOLDING FENCE

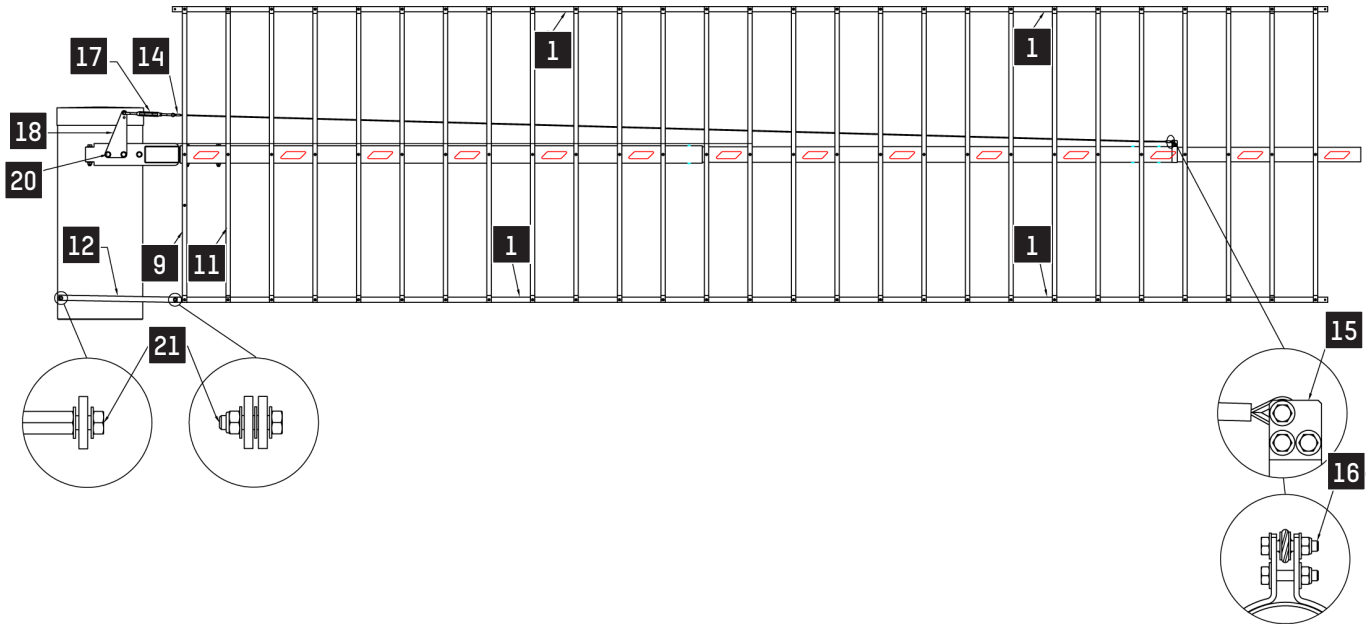


Fig. 20 - Assembly of the folding fence

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Flat connection bar	16	HM6 x 35 stainless screen screw
9	First bar kit	17	Cable adjuster
11	Curved bar	18	Bracing mast
12	Articulation bar	20	HM16 x 50 stainless steel screw
14	Bracing wire	21	HM8 x 30 stainless steel screw
15	Bracing collar		

5.7.2. ASSEMBLY OF THE FIRST BAR

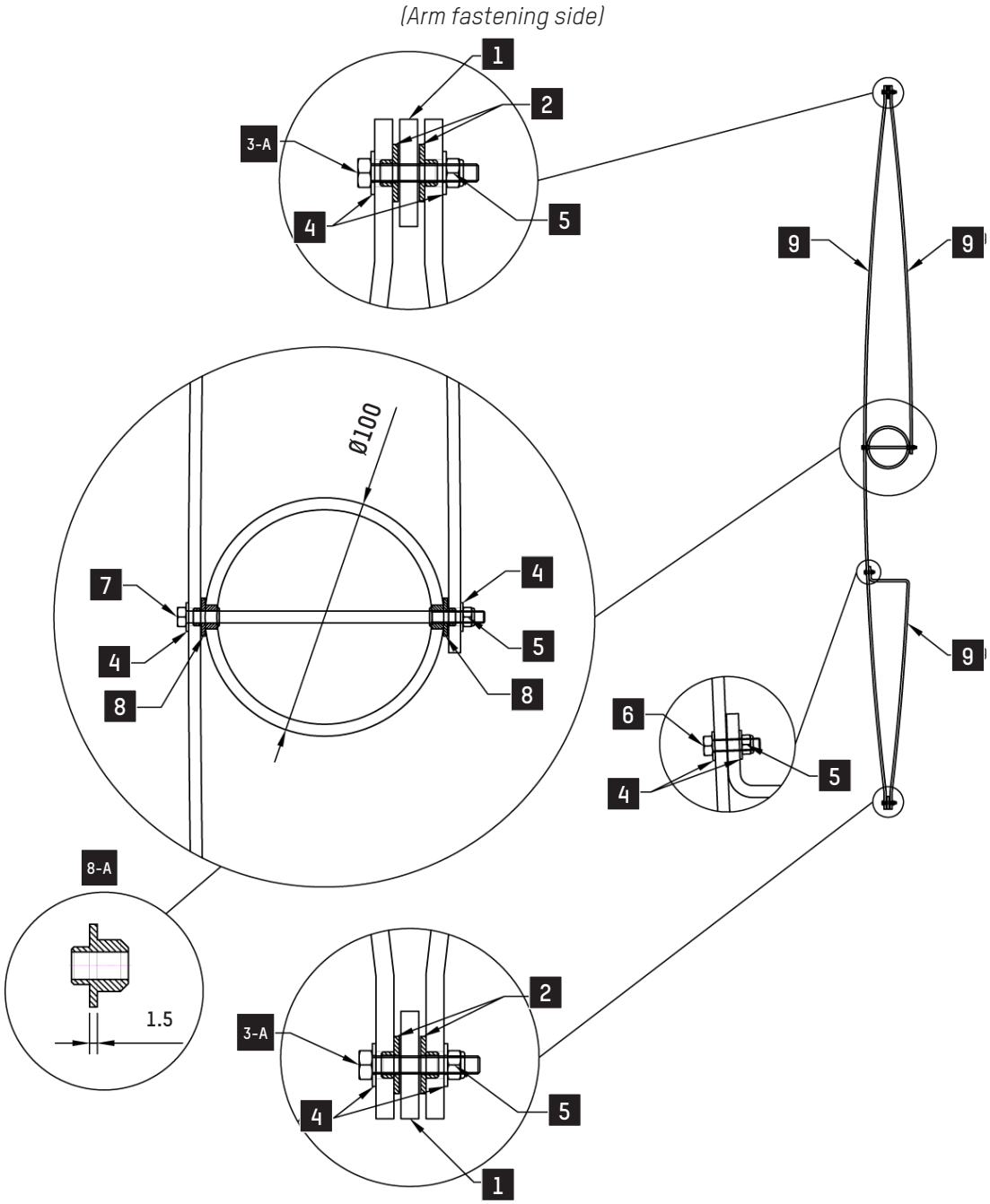


Fig. 21 - Assembly of the folding fence - First bar

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Flat connection bar	6	HM5 x 20 stainless steel screw
2	Shoulder washer	7	HM5 x 125 stainless steel screw
3-A	HM5 x 30 stainless steel screw	8-A	Shoulder spacer for arm Ø100
4	Stainless steel washer MU5	9	First bar kit
5	HFR5 brake nut		

Do not tighten screws 3-A and 7 in order to allow the folding fence to bend without constraint.

5.7.3. ASSEMBLY OF BARS ON ARM Ø 100 - 89.5 - 83.5

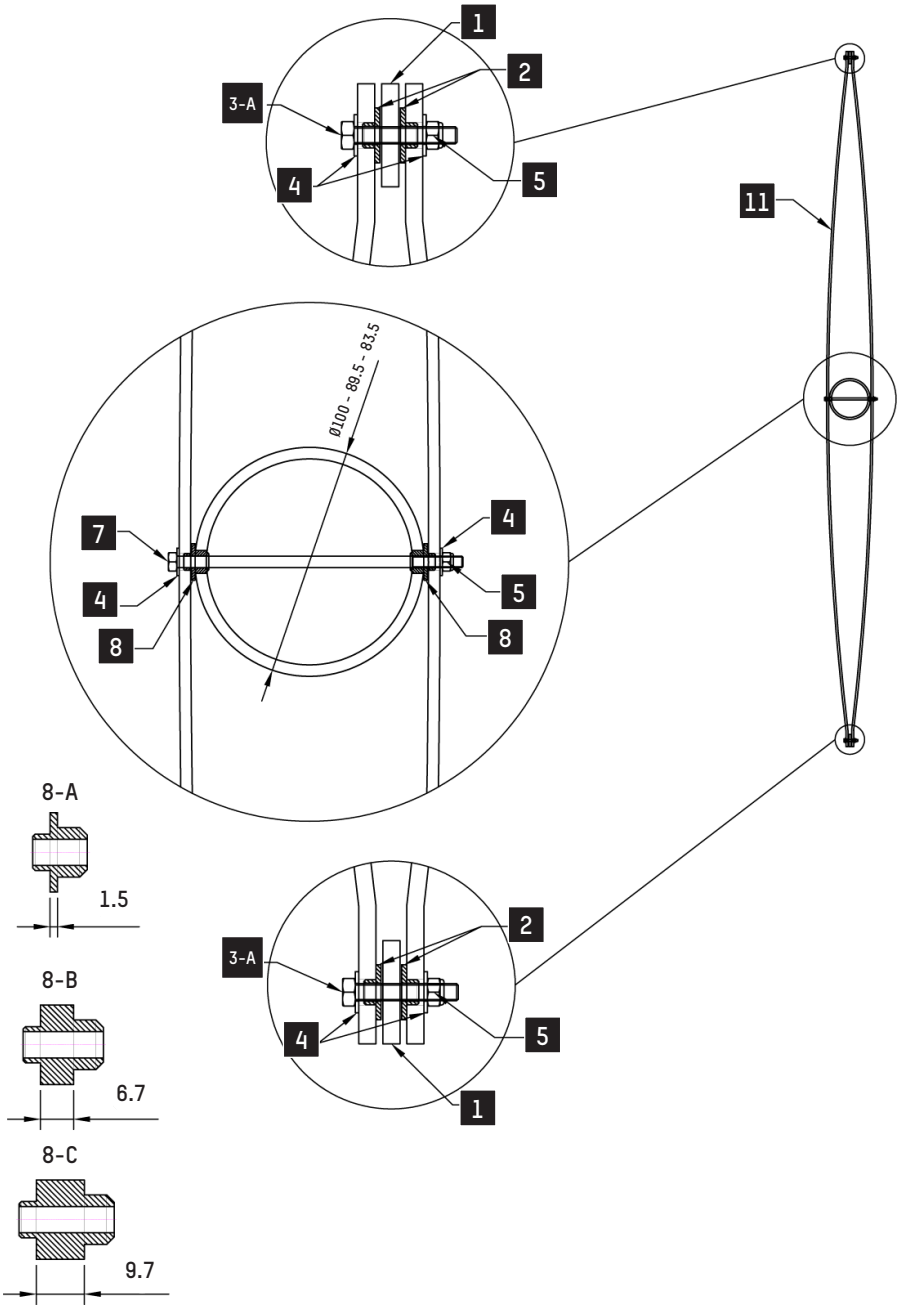


Fig. 22 - Assembly of the folding fence - Assembly of the bars

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Flat connection bar	7	HM5 x 125 stainless steel screw
2	Shoulder washer	8-A	Shoulder spacer for arm Ø100
3-A	HM5 x 30 stainless steel screw	8-B	Shoulder spacer for arm Ø89.5
4	MU5 stainless steel washer	8-C	Shoulder spacer for arm Ø83.5
5	HFR5 brake nut	11	Curved bar

Do not tighten screws 3-A and 7 in order to allow the folding fence to bend without constraint.

5.7.4. ASSEMBLY OF THE UPPER AND LOWER CONNECTION BARS

(Where they overlap)

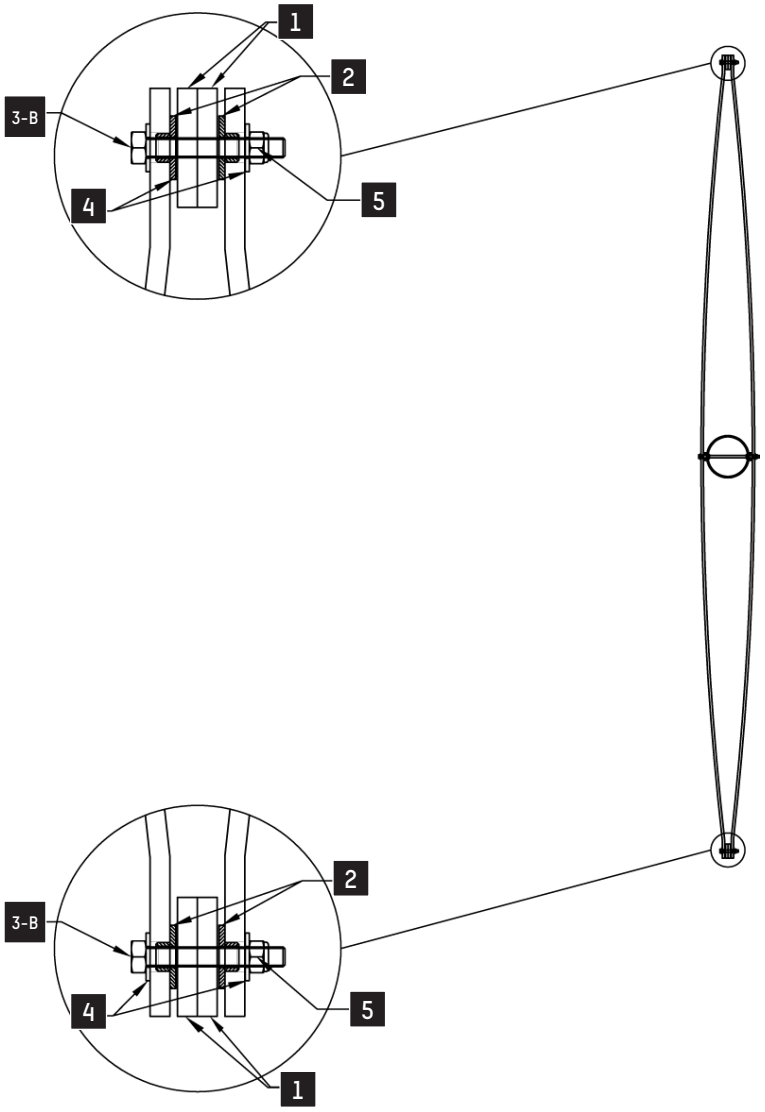


Fig. 23 - Assembly of the folding fence - Assembly of the upper and lower connection bars

ITEM	DESCRIPTION
1	Flat connection bar
2	Shoulder washer
3-B	HM5 x 35 stainless steel screw
4	MU5 stainless steel washer
5	HFR5 brake nut

Do not block the 3-B screws to allow the folding fence to bend without constraint.

5.8. ASSEMBLY OF THE ARM WITH A FIXED BAR FOR BL47

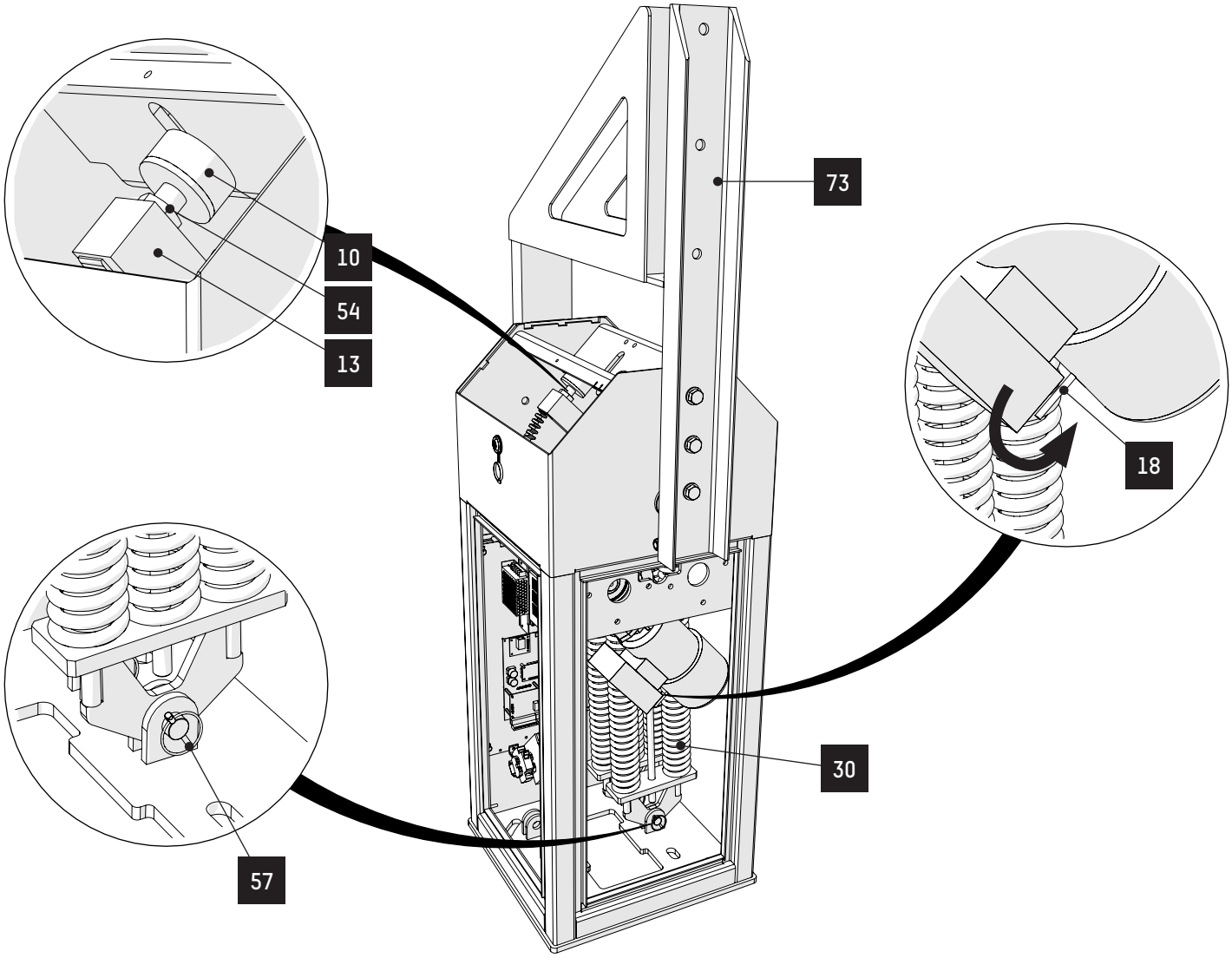


Fig. 24 - Assembly of the arm with a fixed bar for BL47 - Switching off of the spring(s)

ITEM	DESCRIPTION
10	Upper bumper
13	Hub
18	Brake release lever
30	Balancing spring
54	Nut
57	Pin
73	Arm bracket

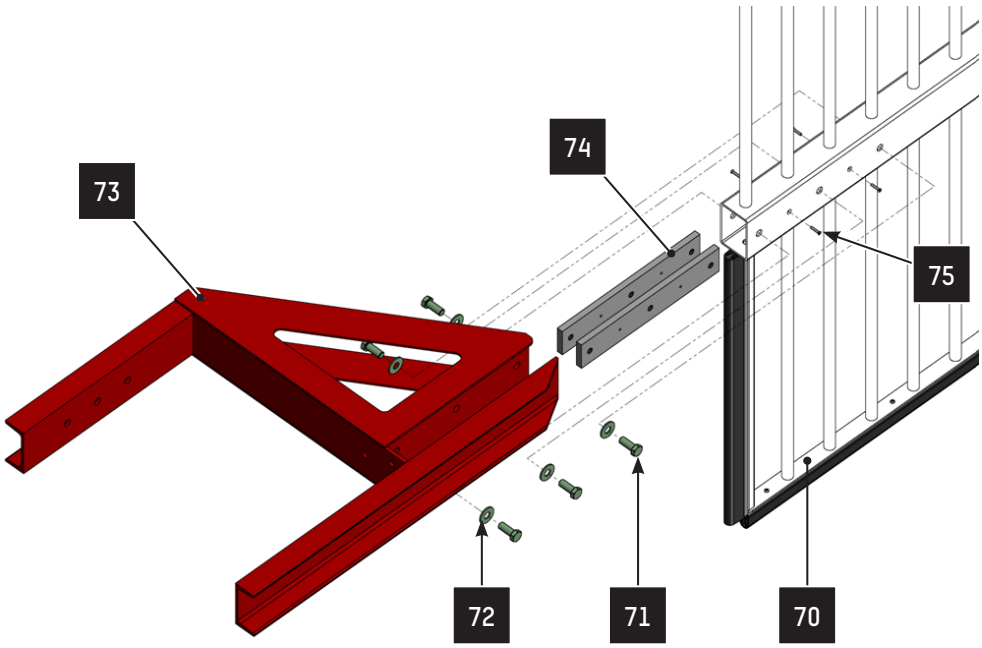


Fig. 25 - Assembly of the arm with a fixed bar for BL47 - Exploded view

ITEM	QTY.	DESCRIPTION	REF.
70	1	Arm 120x80	
71	6	H M16x40 stainless steel screw (Torque 190Nm)	
72	6	M 16 stainless steel flat washer	
73	1	Arm bracket	LIS0388
74	2	Arm clip 120x80	LIS0036
75	4	Rivet Ø4.8 x 24 aluminium steel countersunk heads	

All screws must be lubricated before assembly.

The nominal tightening torques are given in the figure caption.

WHEN REMOVING THE ARM ASSEMBLY, IT IS IMPERATIVE TO REMOVE THE LOWER FASTENING PIN OF THE SPRING ASSEMBLIES BEFOREHAND BY REMOVING THE PIN (57), IN ORDER TO RELEASE THE TENSION IN THE SPRINGS.

1. Switch the equipment off by triggering the circuit breaker (⇨ Item **19**, Fig. 2 - Location of the components, page 8).
2. Loosen the nut (**54**) and screw the upper bumper (**10**) into the hub (**13**) as far as it will go, so that the compression constraint on the springs (**30**), is removed, and then raise the bracket (**73**).
3. Remove the lower fixing pin from the spring assembly by removing the hinge pin (**57**).
4. Slowly lower the arm bracket. If the barrier does not have the "automatic lifting" option, the shaft can only be rotated by disengaging the motor brake (using the lever **18**).
5. Insert the arm (**70**) on the bracket (**73**) and tighten with the screws (**71**), washers (**72**) and clips (**74**).
6. Lift the arm, if necessary by disengaging the brake: lever (**18**).
7. Replace the lower fastening pin of the spring assembly and lock it using its pin (**57**).
8. Adjust the verticality of the arm by tightening or loosening the upper bumper (**10**), then tighten the lock nut (**54**).

5.9. ELECTRICAL CONNECTIONS

DO NOT CONNECT TO A FLOATING NETWORK OR TO A HIGH-IMPEDANCE EARTHED INDUSTRIAL DISTRIBUTION NETWORK.

HIGH LEAKAGE CURRENT.

BEFORE CONNECTING THE POWER SUPPLY, IT IS ESSENTIAL TO MAKE A GROUND CONNECTION (21) USING A CABLE WITH A MIN. CROSS SECTION OF 2.5 MM².

DO NOT CONNECT SEVERAL DEVICES ON THE SAME DIFFERENTIAL.

THE OPERATIONS MUST BE PERFORMED IN ACCORDANCE WITH THE SAFETY WARNINGS, CHAP. 3, PAGE 6.

CONNECTIONS MUST BE EXECUTED IN ACCORDANCE WITH THE WIRING DIAGRAMS INCLUDED INSIDE THE EQUIPMENT, AS THESE REPRESENT THE PRIMARY REFERENCE INSTRUCTIONS.

IN ORDER TO AVOID INTERFERENCES, THE POWER AND CONTROL CABLES MUST PASS THROUGH TWO DIFFERENT DUCTS AT LEAST 10CM APART.

THE ARM MUST BE MOUNTED BEFORE PROCEEDING WITH THE ELECTRICAL CONNECTIONS!

THE MAINS CABLE CANNOT BE ATTACHED TO OTHER CABLES COMING OUT OF THE COLUMN!

INSTEAD, IT MUST BE KEPT AS FAR AWAY FROM THEM AS POSSIBLE.

- Switch off the circuit breaker (⇨ Item **19**, Fig. 2 - Location of the components, page 8).
- Connect the power supply cables[1] to the terminal block (**23**), ensuring that the characteristics of the power supply meet the required specifications (⇨ Chap. 8. Technical specifications, page 43).
- The following must be provided at the feeder head:
  - Either a 10 A/300 mA differential circuit breaker (for five barriers maximum)
  - Or a 10 A/30 mA super-immune selective differential circuit breaker (for one barrier maximum).
- Connect the various controls and options according to the diagram provided and without following the power cable (**22**) that has been moved from the board for this purpose.
- Connect the earth wires to their terminals:
  - The cable between the column and the cover;
    (Check this connection each time the cover is closed)
  - The cable between the column and the doors;
    (Check this connection each time the door is closed)
- The cable between the terminal block (**21**) and the logic.
- Test the proper operation of the equipment: see Chap. 5.1.

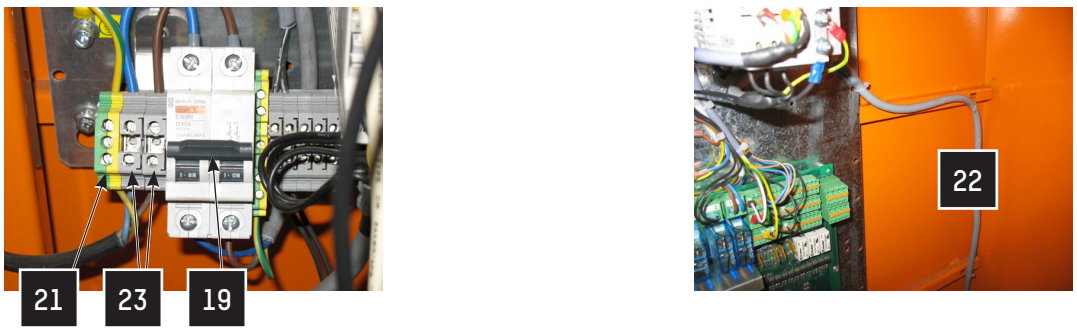


Fig. 26 - Connection - Terminal block and connecting cable

1 Recommended power cable = 3G 2.5mm²

6. ADJUSTMENTS

The factory settings protect the variable frequency drive and the gear motor from all malfunctions. The settings of the variable frequency drive should therefore never be modified.

ANY MODIFICATION TO THESE SETTINGS WITHOUT PRIOR EXPRESS PERMISSION FROM AUTOMATIC SYSTEMS IS YOUR FULL RESPONSIBILITY AND WILL AUTOMATICALLY VOID THE PRODUCT WARRANTY.

6.1. VARIABLE FREQUENCY DRIVE ATV12

The variable frequency drive used with the AS1620 control logic is a Schneider Altivar ATV12 connected in Modbus.

The only settings to be entered manually are the Modbus address (add = 1) and the baudrate (tbr = 38,400).

These settings can be accessed via the configuration menu:

Conf ⇨ Frl ⇨ Mdb

Conf ⇨ Full ⇨ COM ⇨ Add = 1

⇨ tbr = 38400

Switch the power supply at the circuit breaker off and then on again to take into account the modifications.

6.1.1. MAIN ERROR MESSAGES (ATV12)

In the event of a defect, the variable frequency drive can indicate the cause of the defect via codes. The most common defects are described below.

Fig. 27 - Altivar ATV12 variable frequency drive

After switching off the power supply, this code disappears and will no longer be visible when it is switched on again. It is therefore imperative to record this code before reinitializing the barrier.

CODES	DESCRIPTION
OHF	VFD temperature rise.
OLF	Motor overload.
ObF	Excessive braking.
SLFI	Modbus communication fault: check that the cable between the control logic and the variable frequency drive is correctly connected.
OPFI	Loss of one phase at the output of the variable frequency drive.

6.2. VARIABLE FREQUENCY DRIVE J1000

The variable frequency drive used with the PLA1300 electronic logic is a YASKAWA J1000 connected via Modbus.

During normal operation, the "DRV" LED is lit. The variable frequency drive then displays the motor's operating frequency.

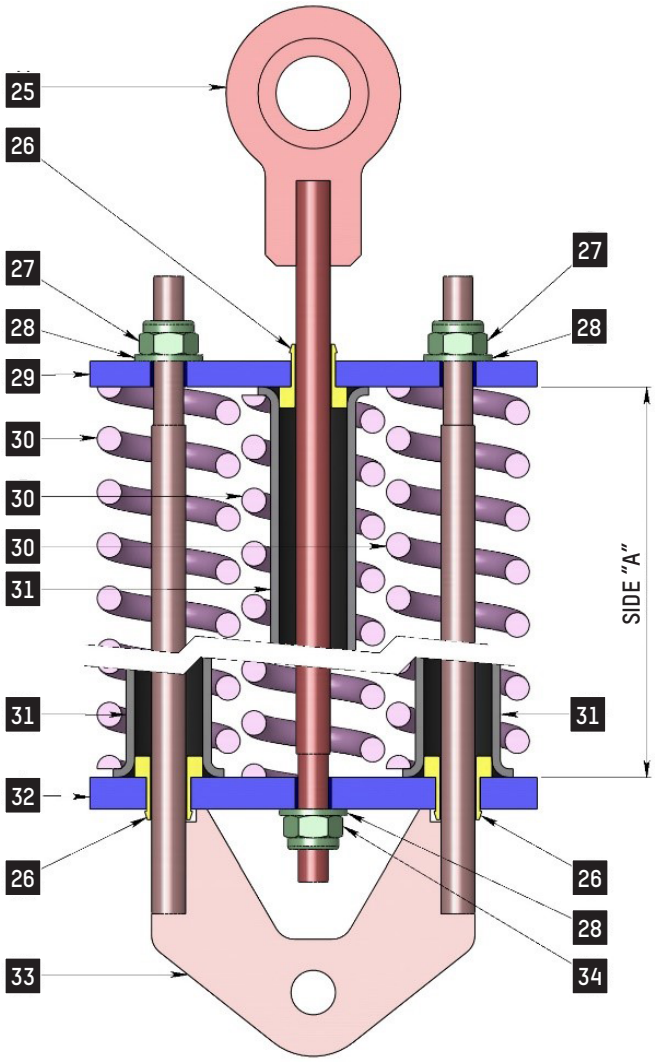
6.2.1. MAIN ERROR MESSAGES (J1000)

In the event of a fault, in addition to the blinking of the "ALM" LED, the VFD can indicate the origin of the defect via codes. The most common defects are described below. Please note: After switching off the power supply, this code disappears and will no longer be visible when it is switched on again. It is therefore imperative to record this code before reinitializing the barrier.

Fig. 28 - Variable frequency drive J1000

CODES	DESCRIPTION	
UV1	Insufficient supply voltage of the VFD (UV1), of faulty motor phase (UV2)	
UV2		
ov	Voltage of the SC bus has exceeded its maximum limit	
oH *(blinking)*	VFD temperature rise	
oL1	Motor overload	Check the balancing of the arm and perform operational tests to check if the VFD does not make any noise. The barrier may have been vandalised during closing or opening.
oL2	Variable frequency drive overload	
bb *(blinking)*	Check the wiring of the variable frequency drive at the inputs.	
oC	Short circuit or insulation fault at the VFD output (check motor windings and insulation).	
GF	Ground problem.	

6.3. ADJUSTING THE BALANCING SPRINGS



ITEM	DESCRIPTION
25	Central rod
26	Guide bushing
27	Nylstop M16 nut (steel)
28	M 15 flat washer (steel)
29	Upper flange plate
30	Compression spring
31	Guiding tube
32	Lower flange plate
33	Double rod
34	Nylstop M16 nut (steel)
40-A	H M20x140 NF EN 24014 screw (Steel Class 8.8) (376 Nm)
40-B	H M20x180 NF EN 24014 screw (Steel Class 8.8) (376 Nm)
41	Bearing stop
42	3304B bearing with two rows of balls
43	Steel spacer
44	H M16x100 screw (Steel Class 8.8) (193 Nm)
45	Nylon washer
46	M 16 flat washer *(steel)*
47	Eccentric for spring adjustment (x2 per barrier)
48	M 20 flat washer (steel)
49	H (or CHC) M20x80 NF EN 24014 screw (Steel Class 8.8) (376 Nm)
50	Nylstop M20 nut (steel)
51 = 10	Rubber bumper (x2 per barrier)
52	M20 stop (x2 if no "arm locking" option)
53	Nylstop M16 nut (steel)
54	Hm M20 screw (steel) (x2 per barrier)
55	Hub
56	Sector gear
57	Hinge pin Ø 4.5
58	Spring pin

Fig. 29 - Detail of a spring assembly

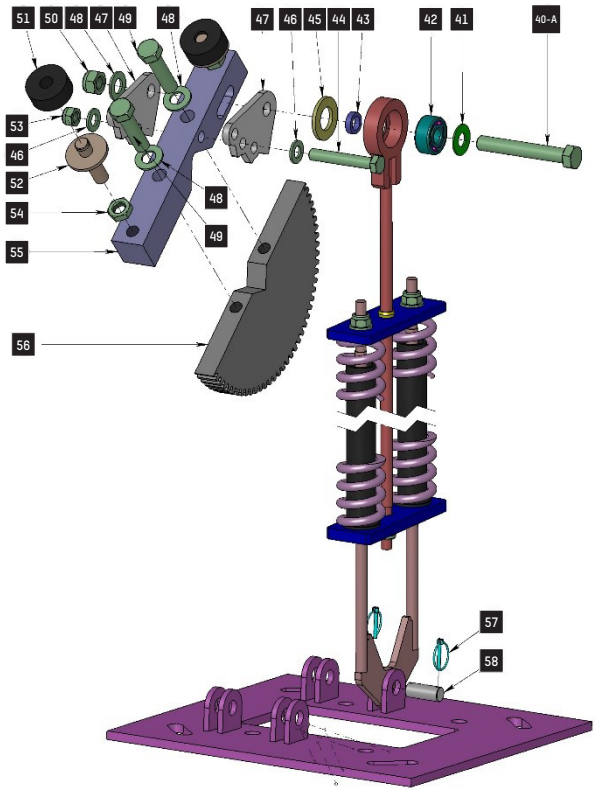


Fig. 30 - Mounting of a spring assembly (1 to 3 springs)

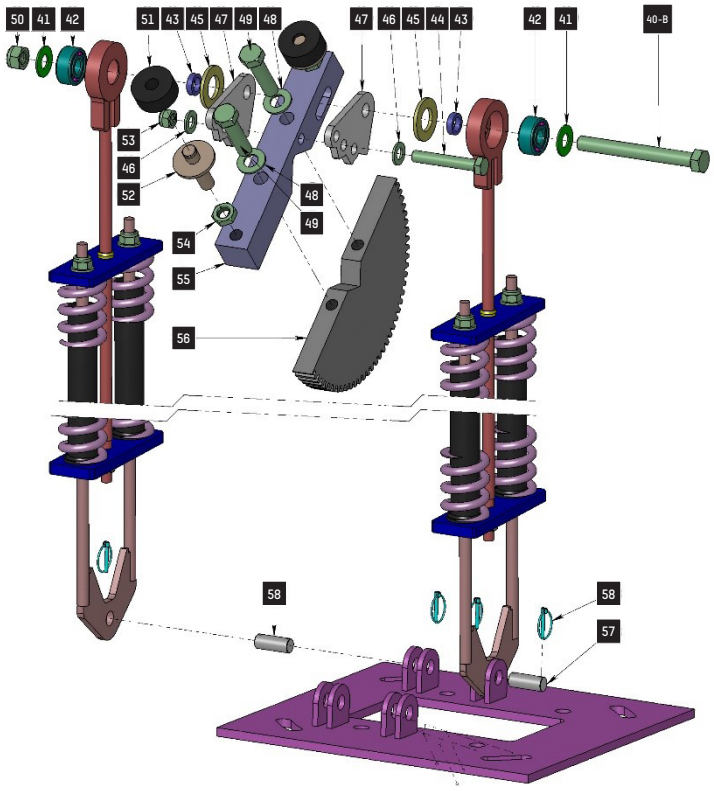


Fig. 31 - Mounting of a spring assembly (4 to 6 springs)

For operation without automatic lifting of the arm in case of power outage (SR models), the spring tension should be adjusted so that a minimal effort is required from the motor both for opening and closing the barrier:

Unlock the brake by operating the lever (**18**), lift the arm slightly and then release it: it must remain balanced.

Repeat the operation for the arm's different angular positions.

- If the arm falls down, the spring compression must be increased.
- If the arm rises, the spring compression must be decreased.

For operation with automatic lifting (optional) of the arm in case of power outage, the springs should lift the arm up slowly and fully until it reaches its vertical position. Contact between the rubber bumper stop (**51**) and the frame should not be too violent to avoid rapid deterioration.

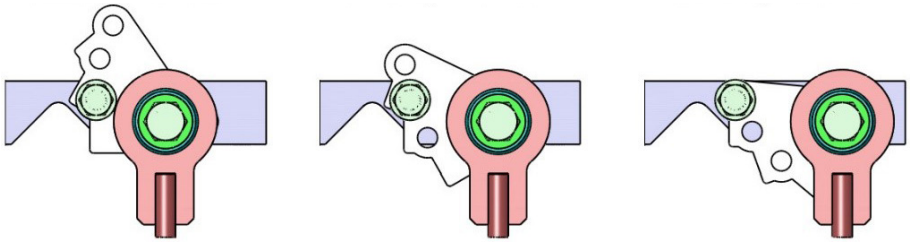
- If the arm does not rise completely, the spring compression must be increased.
- If the arm rises too abruptly, the spring compression should be decreased.

6.3.1. ADJUSTING THE SPRING COMPRESSION

1. Tighten or loosen the nuts (**27**) to increase or decrease, respectively, the spring compression.

> **THE PLATES (29) AND (32) MUST REMAIN PARALLEL AND THE DISTANCE BETWEEN THEM (SIDE A) MUST NOT BE LESS THAN 444 MM, OTHERWISE THE SPRINGS WILL BE DAMAGED.**

2. If this adjustment proves to be insufficient, change the assembly of the eccentrics (**47**):
   a. Bring the arm to its vertical position.
   b. Switch the equipment off by triggering the circuit breaker (**19**).
   c. Release the central spring rods (**40**) by loosening the nut a few turns (**50**).
   d. Completely remove the screw (**44**), taking care not to drop the flat washers (**46**) and the nut (**53**).
   e. Place the eccentrics (**47**) in the hub (**55**) according to the desired configuration:



A

min lever arm
=> min. compression

B

C

max. lever arm
=> max. compression

Fig. 32 - Eccentric positioning

f. Refit the screw (**44**), washers (**46**) and nut (**53**).

g. Tighten the screw (**50**).

3. If the adjustment is still insufficient, increase or decrease the number of springs.

6.4. TABLE OF PRINCIPAL SPRING ADJUSTMENTS

The following table provides an indication of spring adjustments for the different arm lengths.
For any other configuration or non-standard equipment, please contact our helpdesk.

USEFUL LENGTH (M)	BL40						BL41		BL43		BL44		BL46		BL47	
OPTIONS	Without lifting of the arm			With lifting of the arm			Without lifting of the arm	With lifting of the arm	Without lifting of the arm	With lifting of the arm	Without lifting of the arm	With lifting of the arm	Without lifting of the arm	With lifting of the arm	Without lifting of the arm	With lifting of the arm
	Bare arm	PVC netting	Aluminium netting	Bare arm	PVC net	Aluminium netting	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm	Bare arm
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-A-582	1-B-594	1-B-592	1-C-610	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-B-608	1-C-610	1-C-610	2-A-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	1-B-586	2-A 598	2-A-610	2-A-602	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 610	2-A 572	2-A-604	2-A-584	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-A-594	2-B-594	2-A-588	2-B-610	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	2-A-572	3-A-586	2-B-610	3-A-606	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	2-B-598	3-B-610	2-B-602	3-A-592	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-A-598	3-B-592	3-A-606	3-A-580	3-C-610	3-A-598	3-A-578					6-B-592	6-B-586		
7	2-B-594	3-A-578	4-B-606	3-A-588	3-B-606	4-B-602	3-A-584	3-B-600					6-C-610	6-C-610		
7.5	3-A-598	3-B-610	4-B-598	3-A-580	3-B-594	5-B-610	3-B-608	3-B-592								
8	3-A-594	3-B-600	4-B-586	3-B-610	3-C-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	6-B-590								

Fig. 33 - Spring adjustment table

READING THE TABLE

Column: barrier model with options.

Line: useful length of the arm (distance from the tip of the arm to the column, ⇨ Chap. 9. Dimensions, page 44).

Intersection: "X-Y-Z", where

X = number of useful springs

Y = position of the eccentric (⇨ Item 47, Chap. 6.3, page 32)

Z = compression of the springs, in mm

= distance between plates (**29**) and (**32**)

= rating A.

WHEN IN USE, WITH THE BARRIER CLOSED (ARM LOWERED), THE LENGTH OF THE COMPRESSED SPRINGS MUST NEVER BE LESS THAN 444 MM!

6.5. ADJUSTING THE INDUCTIVE POSITION SENSORS (PLA1300 LOGIC)

The position sensors are used to stop the opening and closing movement of the arm.

Each movement (opening and closing) is controlled by its own inductive sensor, of the on/off type.

The passage of the groove of the cam in front of the sensor results in the power being cut to the motor, the activation of the electromagnetic brake and the activation or release of the arm's optional locking system (depending on whether the lock is NO or NC).

The sensors are adjusted correctly if the motor stops exactly when the bumper (⇨ Item **10**, Chap. 4.1, page 8) comes into contact with the frame's reinforcing V-block (**21**), both during opening and closing.

To do so:

- Bring the arm to the lower (closed) position.
- Loosen the screw locking the cam in the horizontal position and slightly pivot the latter on the shaft until the LED on the sensor turns off (= detection of the cam's groove). Pivot the cam by a few additional degrees.
- Bring the arm to the upright position (open) and repeat the operation with the upper position cam.

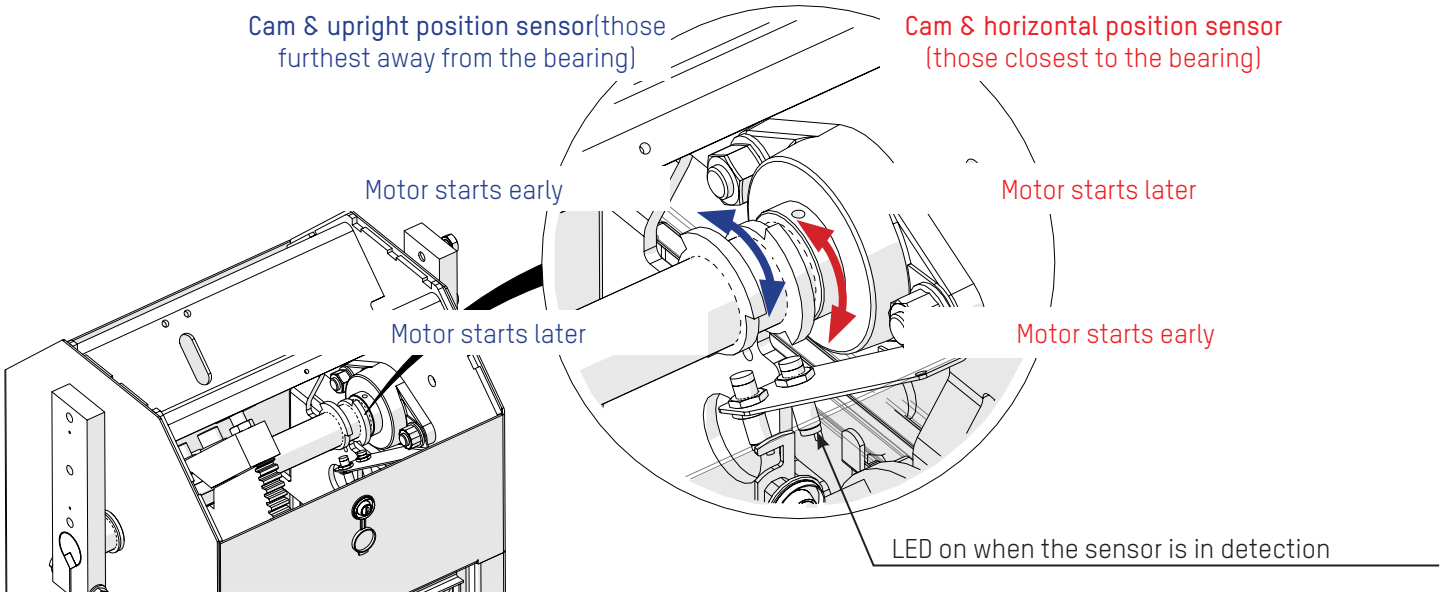


Fig. 34 - Adjusting the inductive position sensors

6.6. ADJUSTING THE ANALOGUE POSITION SENSOR (AS1620 LOGIC)

Like the inductive sensors, described in the previous paragraph, the analogue sensor makes it possible to manage the opening and closing movements of the arm.

Due to its design, this type of sensor allows a much finer management of the arm movements, allowing precise accelerations and decelerations. It also makes it possible to know the exact position of the arm at all times.

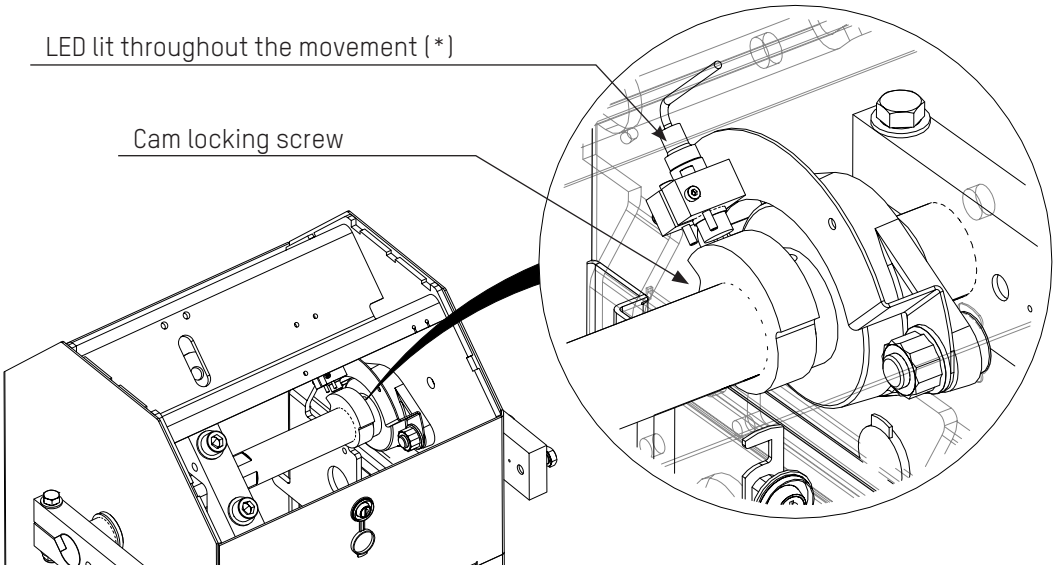


Fig. 35 - Adjusting the analogue position sensor

By convention, the cam is closest to the sensor when the arm is in horizontal position.

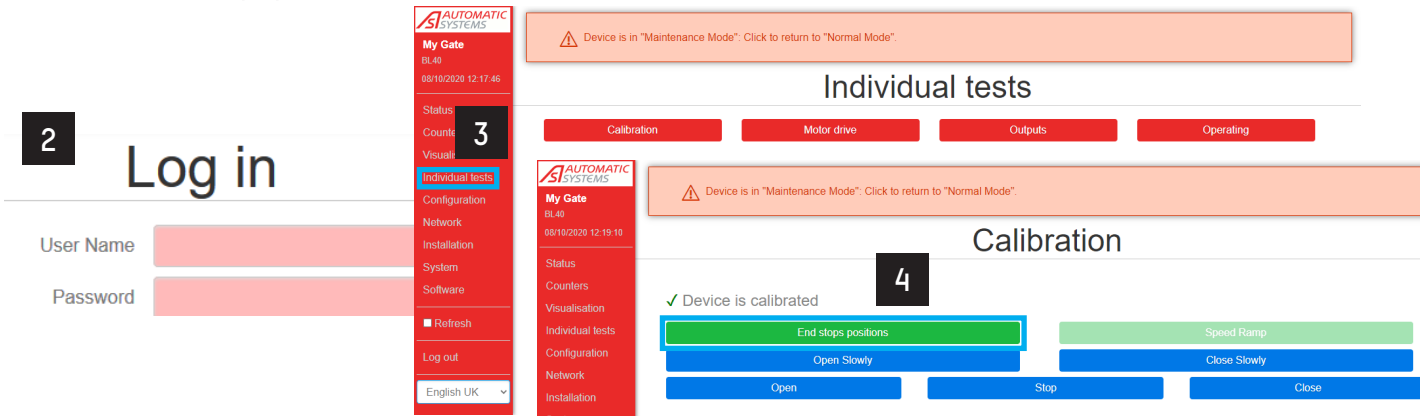
(*) If the LED flashes, it is no longer in relation to the cam.

6.7. CALIBRATING THE MOVEMENT

Once the position sensor(s) have been adjusted, it is necessary to calibrate the movement.

To do so, it is necessary:

1. To connect to the equipment via the service interface;
2. To login, to access the menus for technicians/installers;
3. Activate the '**Individual tests**' menu;
4. Click on '**End stops positions**' to start the calibration.



7. USE

THE BARRIER MUST BE USED IN COMPLIANCE WITH THE SAFETY INSTRUCTIONS (⇨ CHAP. 3. SAFETY WARNING, PAGE 6).

NEVER OPERATE THE BARRIER WITHOUT END STOPS (⇨ ITEM 10, CHAP. 4.1. LOCATION OF THE COMPONENTS, PAGE 8), OR WITHOUT AN ARM.

7.1. FIRST STARTUP

1. Before startup, review the procedures described in chapters 5 and 6
2. Engage the circuit breaker (⇨ Item **19**, Chap. 4.1, page 8).
3. Depending on the control logic model, initialisation of the control logic can take around ten seconds. After initialisation, the barrier is ready for operation.

For details on the operation of the control logic, refer to the appropriate technical manual.

4. Carry out some electrical opening and closing tests by pressing "**OK**" on the logic or by means of the available command mode (push button box, transmitter/receiver, etc.).
   Check that the arm is correctly positioned in the open (vertical) and closed positions. Refer to the corresponding adjustment where necessary (⇨ Ch. 5 and 6).
5. If the motor is running in reverse (the arm goes down when an open command is given), trip the circuit breaker (**19**) and reverse two phase cables connecting the motor to the frequency inverter.
   (= reversing a white cable and a black cable in the illustration below):

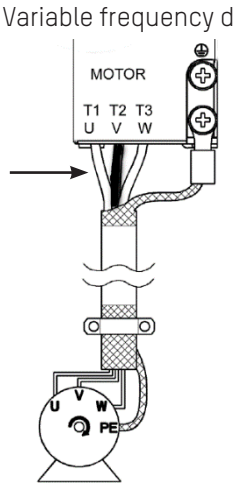


Fig. 36 - Motor connection - Inverted direction of rotation

6. Check that all the possible options and safety devices are operating properly.
7. Proceed to maintenance (⇨ Chap. 7.5).

7.2. DAILY STARTUP

Follow steps **2**, **4**, **6** of chapter 7.1.

7.3. TURNING OFF THE POWER

Trip the circuit breaker (⇨ Item **19**, Chap. 4.1, page 8).

7.4. MANUAL OPENING OF THE ARM

The procedure to be followed to lift the arm manually differs depending on the installed options, as summarised in the following table:

BL CONFIGURATION		PROCEDURE
Without lifting of the arm	Without lock	• Cut the power (circuit breaker (⇨ Item **19**, Chap. 4.1, page 8) on OFF), • Operate the release lever (⇨ Item **18**, Chap. 4.1, page 8) and lift the arm manually.
	With NO lock	• Cut the power (circuit breaker (⇨ Unit **19**, Chap. 4.1, page 8) on OFF), • Operate the release lever (⇨ Item **18**, Chap. 4.1, page 8) and lift the arm manually.
	With lock NC	• Cut the power (circuit breaker (⇨ Item **19**, Chap. 4.1, page 8) on OFF), • Open the cover, • Spread the clips (**83**) to manually unlock the locking pin (**84**) (⇨ Chap. 4.3, page 11), • Manually operate the release lever (⇨ Item **18**, Chap. 4.1, page 8) and lift the arm manually.
With automatic lifting of the arm	Without lock	• Cut the power (circuit breaker (⇨ Item **19**, Chap. 4.1, page 8) on OFF).
	With lock NO	• Cut the power (circuit breaker (⇨ Item **19**, Chap. 4.1, page 8) on OFF).
	With lock NC	• Cut the power (circuit breaker (⇨ Item **19**, Chap. 4.1, page 8) on OFF), • Open the cover, • Spread the clips (**83**) to manually unlock the locking pin (**84**) (⇨ Chap. 4.3, page 11), • Manually operate the release lever (⇨ Item **18**, Chap. 4.1, page 8) and lift the arm manually.

7.5. MAINTENANCE

Items referred to in this chapter refer to the illustrations in chapter 4.1

NEVER OPERATE THE BARRIER WITHOUT THE BUMPERS, (⇨ ITEM 10, CHAP. 4.1, PAGE 8), EVEN MANUALLY!

Maintenance operations must be carried out in compliance with the safety warnings listed in chapter Chap. 3, page 6

Unlock and remove the lateral and front doors (**3**) without damaging the ground wire that connects them to the column. Cut the circuit breaker (**19**).

Remove the cover (**1**) without damaging the ground wire that connects it to the column.

- AFTER THE FIRST 1,000 OPERATIONS
  - Check the adjustment of the position sensor(s) (⇨ Chap. 6.5, page 36).
- EVERY SIX MONTHS
  - Visually inspect the position of the arm: check whether the arm is properly horizontal and vertical and that it does not bounce. Otherwise, check whether the position sensors (**7**) are properly adjusted and whether the rubber bumpers (**10**) are damaged.
  - Check the adjustments described in Chapter 4.
  - Clean the outside of the housing and the arm using a soft cloth impregnated with a mild detergent.
  - For very sunny countries, it is advisable to treat the exterior of the body with a glossing product.
  - Cleaning of components and/or optional features in stainless steel to avoid deposition of metal particles (**Automatic Systems** can provide a suitable product under product reference 0/6031/000).

The frequency of maintenance must be adapted to the conditions of use, especially in an oxidising atmosphere: seaside, industrial environment, etc.

- Perform an audio check of the rotation of the bearings.

- Brake disengagement test: operate the lever (18) and raise the arm by hand (models without automatic lifting option).
- Test the automatic lifting of the arm by cutting the power (models with automatic lifting option).

• EVERY YEAR

- Check that the fastenings are tightened properly (torque): bearings, gear motor, hub, sensors, spring assembly, fastening of the arm, fastening to the ground, etc.
- Check the condition of the electrical connections.
- Lubrication, using an anti-corrosive multi-purpose grease:
  - Of the gears (**11** + **15**),
  - Of the upper bearing(s) of the spring assembly (**42**),
  - Of the spring guide rods (**25** + **33**),
  - Of the lower part (in contact with the plate) of the clips (**83**) of the arm's locking system (⇨ Chap. 4.3, page 11)

The bearings (**4**) and the gear motor (**9**) are lubricated for their entire service life. Simply check their sealing (absence of leaks).

• EVERY 2 YEARS

- Check the footing for absence of leaks.
- Check the inside of the barrier for cleanliness.

7.6. TROUBLESHOOTING

SYMPTOM	CAUSE	APPROPRIATE SOLUTIONS
The barrier remains open	An opening command is sent continuously.	Check that the open command is a pulse and not a continuous command or an active command "locked in open position".
	A security is active	• Check LD4. • Adjust the programming if the security is not present.
	The (optional) loop sensor remains engaged.	Check the sensor's sensitivity adjustment and reset the loop sensor to zero. If the sensitivity setting is too high, it can cause the barrier to be locked in the open position.
		View the status of the LEDs on the sensor to check if it and/or the loop are in good condition.
	The (optional) cell is signalling a presence	Check photocell alignment.
		Ensure photocells are not dirty.
The barrier stays locked or gets stuck while moving	Variable frequency drive is defective.	See the list of defects regarding the variable frequency drive. (Technical manual or training material)
	The end position sensor provides incorrect information (⇨ Chap. 6.5, page 36)	In the horizontal position: ensure that the horizontal position sensor is the only one in the cam's groove and that it is operational and connected correctly.
		In the upright position: ensure that the upright position sensor is the only one in the cam's groove and that it is operational and connected correctly.
		Check the LED of the analogue sensor: if it is flashing, the sensor has lost contact with the cam ⇨ adjust the position of the cam. (⇨ Chap. 6.6, page 37).
The barrier gets stuck and the control logic LEDs are off	Power supply	• Check the electrical power supply at the general power supply box. • Check the current voltage at the entry of the cable to the main circuit breaker. (⇨ Item **19**, Chap. 4.1. Location of the components, page 8), and ensure that it is properly engaged (circuit breaker on "ON"). • Check the connection of the controls against the electrical diagram and the correct torque of all the electrical cables and re-tighten if necessary. • Check the output of the 24Vdc power supply and the associated LED. • Check that the power supply indicator on AS1620 LD1 green is on. • Check that LD5 and LD24 are flashing. If not, programme the processor(s).

SYMPTOM	CAUSE	APPROPRIATE SOLUTIONS
The barrier stays locked, but the display of the control logic is lit.	Short-circuit on the external communication terminal block	• In the input and output area, check whether the green LEDs (inputs) and the orange LEDs (outputs) correspond to the expected statuses. • On the OLED display, in the "Control" menu, display the cause of the non-movement. • On a PC, display the "View" page: - Cause of non-movement - Barrier position - Blue background = active inputs • Switch off the power supply and disconnect the inputs/outputs if necessary. • Check and adjust the NO/NC settings.
The barrier takes a long time to close after a vehicle has passed	The closing after passage timer is set for too long	• Check the values of the timers. • View on: - OLED screen (Menu=>Settings=>Timers) - Web interface (Menu=>Configuration=>Timers)
The barrier opens by itself.	The opening loop (optional) is too sensitive.	• Adjust the sensitivity and/or frequency of the opening sensor. A sensitivity setting that is too high or an improper frequency may cause unwanted openings.
	The access control system sends unwanted commands.	• Check it.
The barrier rises and closes immediately afterwards.	The barrier is not stable and during opening the cell signal (optional) is no longer aligned.	• Properly secure the barrier to the ground.
The arm bounces in the upright and/or horizontal position	The rubber bumpers inside the barrier are too tight.	• Adjust the position sensor(s) (⇨ Chap. 6.5, page 36). • Adjust the brake delay and motor settings. • Install more rigid bumpers .
The motor makes a noise, but the barrier does not move.	The power supply circuit of the brake is out of order.	• Check the wiring of the brake on the connector of the variable frequency drive or the AS1620 logic.
		• Check the NO/NC configuration on the brake control: physical connection on the VFD or software configuration on AS1620 outputs. To do this, the type of BL4x must be known: AVR/SR respectively for barriers with/without automatic lifting of the arm in case of power outage. AVR = NO, SR = NC
		• Open the motor terminal board and check that the voltage-sinking diode bridge is in good condition. Input voltage: 240 VAC – Output voltage: 110 VDC.
		• Measure at the input of the diode bridge whether it is powered during movement for SR models and whether it is powered at standstill for AVR models.
The mains power disconnects when the barrier is switched on	An incorrect leakage breaker is being used.	• Use a **300 mA** leakage breaker for up to 5 barriers and for cases requiring a 30mA system, use a SI (super immunised) type circuit breaker for each barrier. • For IT networks with insulated, earthed neutral and non-standard configurations, consult your technical support.
The upright and horizontal positions are reversed	Wiring error	• Check the wiring of the position sensor(s) and the NO/NC settings.
		• Reverse a phase on the motor.

7.7. PROLONGED STOP/DISPOSAL/DESTRUCTION

If the equipment is not going to be used for a long period, it is recommended to:

- Store it in the same conditions as before the installation (⇨ Chap. 5.1, page 12).
- Leave it connected to the main supply. As the motor is permanently energized, a certain temperature is maintained inside the bodywork, which reduces the problems of condensation and prevents the oil of the speed-reduction gear from solidifying, which would mean not being able to reproduce the performance of the barrier during the first operations following a long shutdown.

> If the equipment has been stored turned off, it is important to warm it up before turning 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 switching on the equipment.

- Execute a new break-in of 3,000 obstacle opening and closing manoeuvres before start-up.

When the equipment is taken out of service, dispose of the various components in the appropriate manner (metal parts, electronic components, etc.) according to the regulations in effect.

8. TECHNICAL SPECIFICATIONS

Electrical power supply	230V~ (± 10%) / 50Hz
Nominal power consumed at rest	44 W
Nominal power consumed in movement	450 W
Ambient operating temperature	-20°C to +50°C.
Average relative humidity	95%, without condensation
Maximum wind speed (without disrupting operation)	120km/h
Protection index	IP44
Net weight (without arm)	220 kg (BL40)
	230 kg (BL41)
	250 kg (BL43)
	250 kg (BL44)
	250 kg (BL46)
	250 kg (BL47)

9. DIMENSIONS

9.1. BL 40

(Arm on the left or on the right)

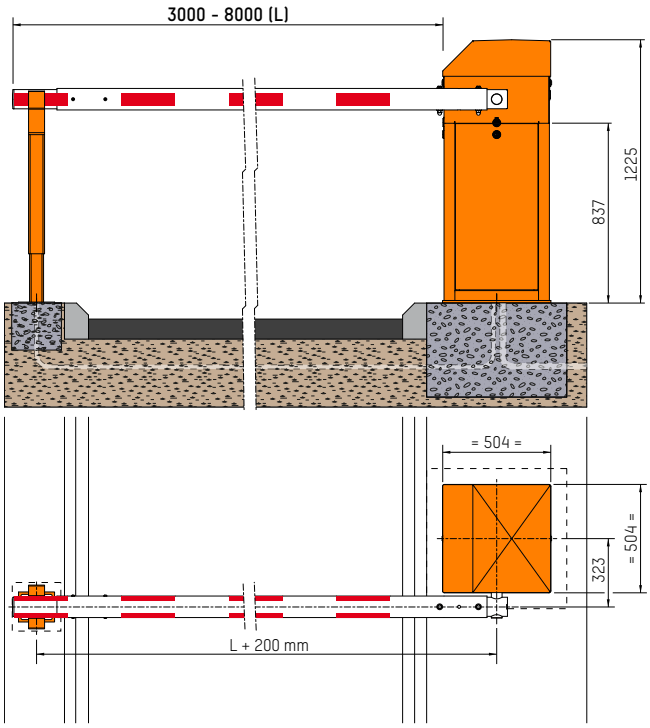


Fig. 37 - Dimensions BL 40

9.2. BL 41

(Central arm)

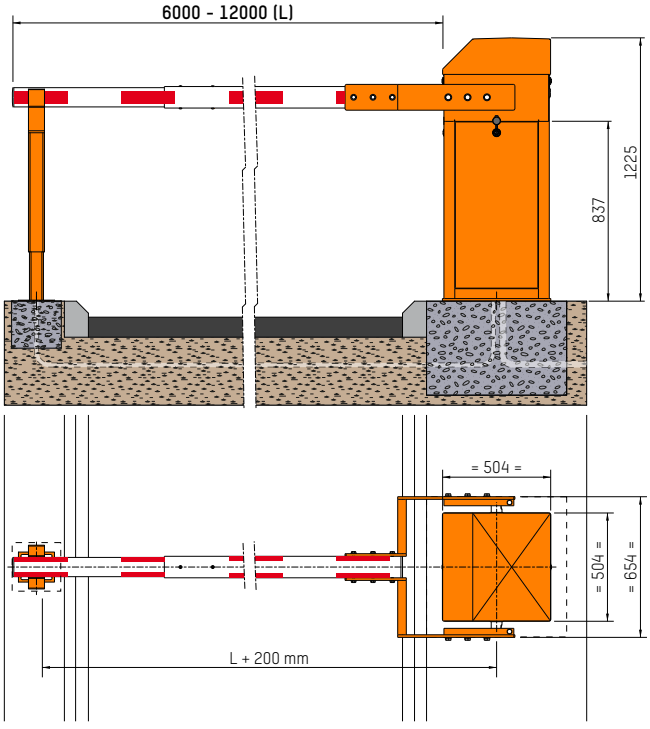


Fig. 38 - Dimensions BL 41

9.3. BL 43

(Central arm)

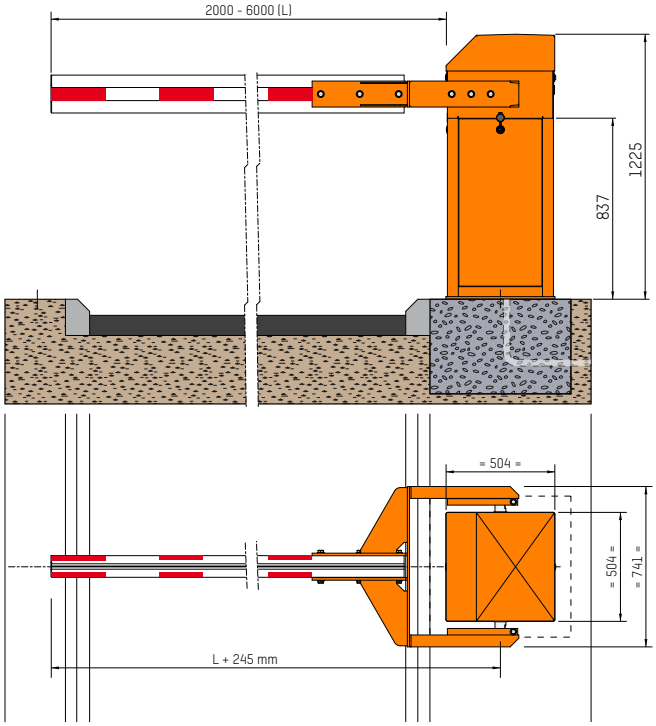


Fig. 39 - Dimensions BL 43

9.4. BL 44

(Central arm)

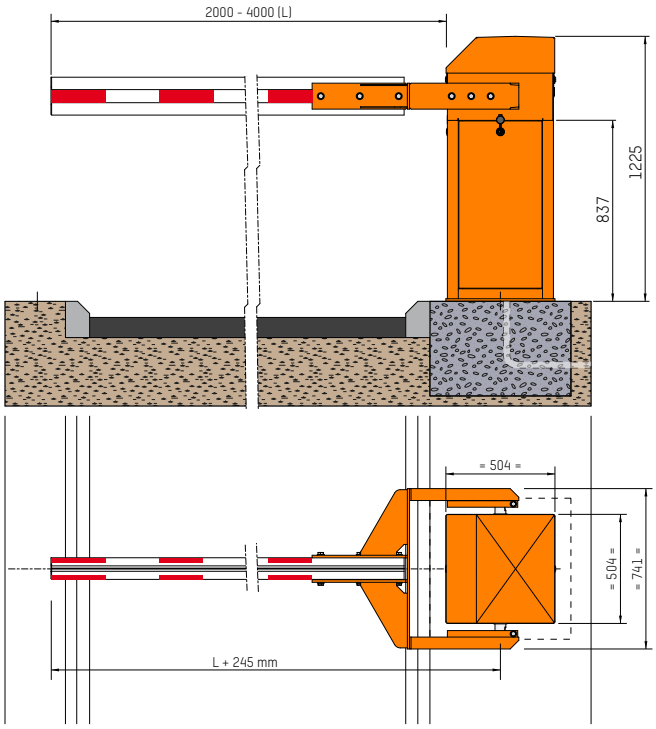


Fig. 40 - Dimensions BL 44

9.5. BL 46

(Arm on the left or on the right)

In the open position, the folding fence protrudes 10mm from the column (free passage (L) reduced by 10mm).

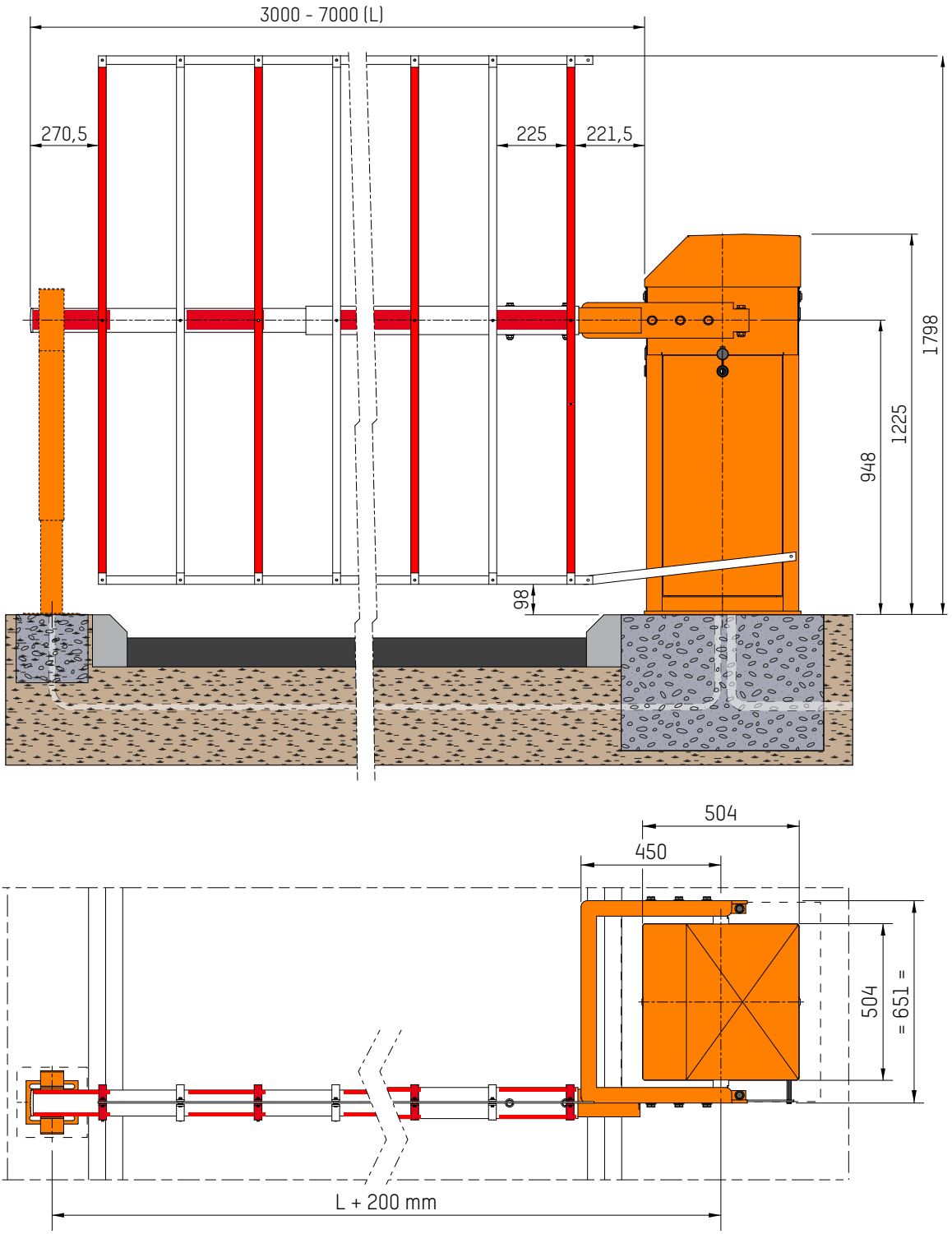


Fig. 41 - Dimensions BL 46

9.6. BL 47

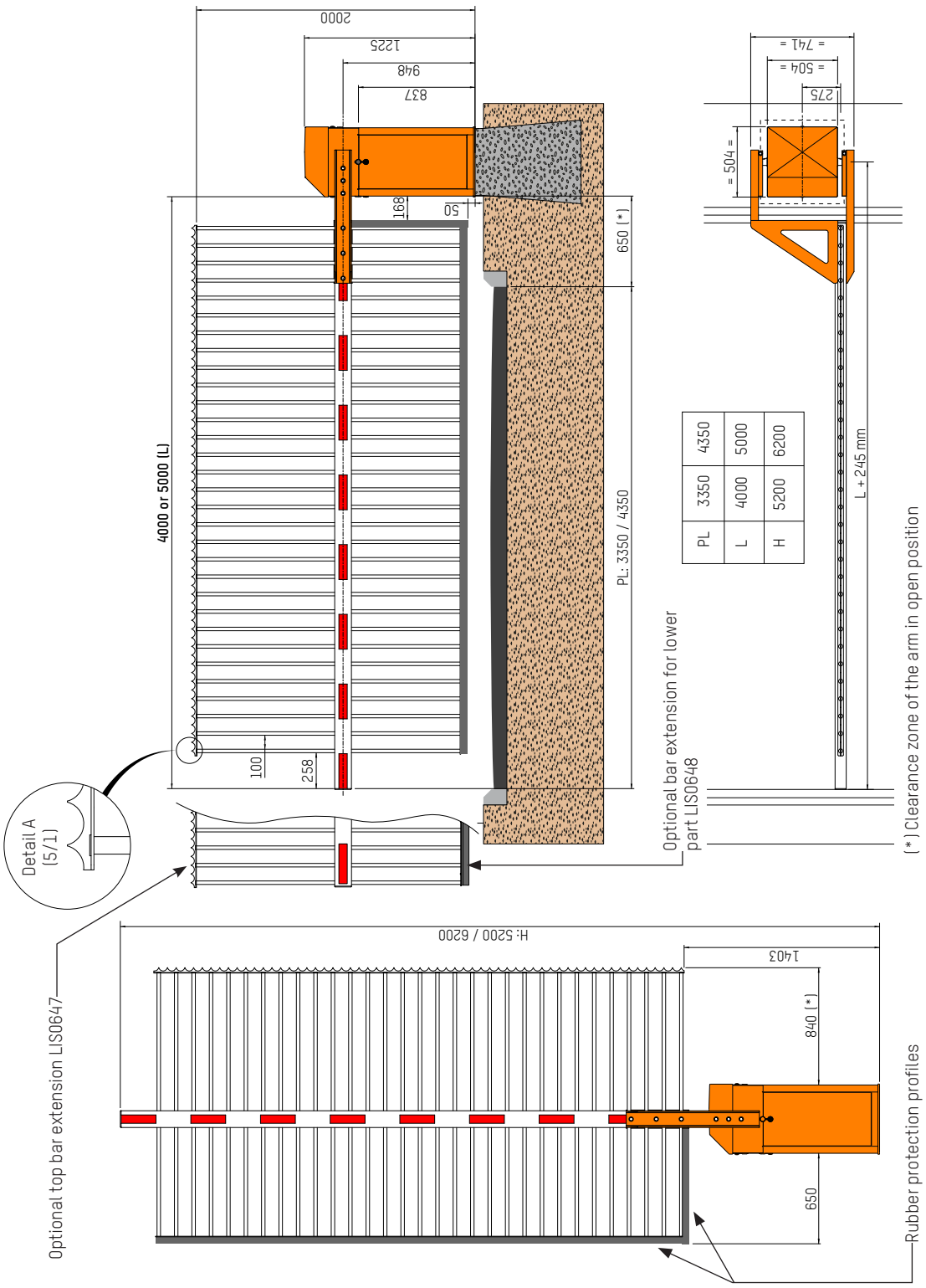


Fig. 42 - Dimensions BL 47

A 5m long arm with a total length of 5m allows a free passage of 4m.

A 4m long arm with a total length of 4m allows a free passage of 3m.

10. CERTIFICATE OF CONFORMITY

AUTOMATIC SYSTEMS

EC declaration of conformity

ISO 9001 Quality Managment

We, undersigned,

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

Herewith declare that the following machine

Electrical rising barrier

BL 40
BL 41
BL 43
BL 44
BL 45
BL 46
BL 47

is 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 (Restriction of Hazardous Substances) 2011/65/EU.
- EN 12100:2010: Safety of machinery – General principles for design - Risk assessment and risk reduction (ISO 12100:2010).
- IEC 60204-1 / A1 : 2016: Safety of machinery - Electrical equipment of machines - Part 1: General requirements.
- EN 61000-6-3 / A1 : 2011: Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments.
- IEC 61000-6-2 : 2016: Electromagnetic compatibility (EMC). Generic standards. Immunity standard for industrial environments.

Made in PERSAN,
Date: 2020.12.16
Name: Roland MONET
Function: Operations Director France

Fig. 43 - CE Declaration

11. ANNEXE(S)

- Control logic handbook;
- Wiring diagram(s).

NOTES

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