FAAC ENGLISH

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CE DECLARATION OF CONFORMITY FOR MACHINES

(DIRECTIVE 98/37/EC)

Manufacturer: FAAC S.p.A.

Address: Via Benini, 1 - 40069 Zola Predosa BOLOGNA - ITALY

Declares that: Barrier mod. 620, mod. 640, mod. 642,

- is built to be integrated into a machine or to be assembled with other machinery to create a machine under the provisions of Directive 98/37/EEC and subsequent amendments 91/368 EEC, 93/44 EEC and 93/68 EEC;
- conforms to the essential safety requirements of the other following EEC directives:

  73/23/EEC and subsequent amendment 93/68/EEC.
  89/336/EEC and subsequent amendment 92/31/EEC and 93/68/EEC

  Furthermore, the manufacturer declares that the machinery must not be put into service until the machine into which it will be integrated or of which it will become a component has been identified and its conformity to the conditions of Directive 89/392/EEC and subsequent modifications assimilated in Italian National legislation under Presidential Decree No. 459 of 24 July 1996 has been declared.

Bologna, 01 June 2007

The Managing Director
A. Bassi

WARNINGS FOR THE INSTALLER

GENERAL SAFETY OBLIGATIONS

1) **ATTENTION! To ensure the safety of people, it is important that you read all the following instructions. Incorrect installation or incorrect use of the product could cause serious harm to people.**
2) Carefully read the instructions before beginning to install the product.
3) Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger.
4) Store these instructions for future reference.
5) This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition/operation of the product and/or be a source of danger.
6) FAAC declines all liability caused by improper use or use other than that for which the automated system was intended.
7) Do not install the equipment in an explosive atmosphere: the presence of inflammable gas or fumes is a serious danger to safety.
8) The mechanical parts must conform to the provisions of Standards EN 12604 and EN 12605.

   For non-EU countries, to obtain an adequate level of safety, the Standards mentioned above must be observed, in addition to national legal regulations.
9) FAAC is not responsible for failure to observe Good Technique in the construction of the closing elements to be motorised, or for any deformation that may occur during use.
10) The installation must conform to Standards EN 12453 and EN 12445.

    For non-EU countries, to obtain an adequate level of safety, the Standards mentioned above must be observed, in addition to national legal regulations.
11) Before attempting any job on the system, cut out electrical power.
12) The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3mm or greater. Use of a 6A thermal breaker with all-pole circuit break is recommended.
13) Make sure that a differential switch with threshold of 0.03 A is fitted upstream of the system.
14) Make sure that the earthing system is perfectly constructed, and connect metal parts of the means of the closure to it.
15) The automated system is supplied with an intrinsic anti-crushing safety device consisting of a torque control. Nevertheless, its tripping threshold must be checked as specified in the Standards indicated at point 10.
16) The safety devices (EN 12978 standard) protect any danger areas against **mechanical movement Risks**, such as crushing, dragging, and shearing.
17) Use of at least one indicator-light (e.g. FAACLIGHT) is recommended for every system, as well as a warning sign adequately secured to the frame structure, in addition to the devices mentioned at point "16".
18) FAAC declines all liability as concerns safety and efficient operation of the automated system, if system components not produced by FAAC are used.
19) For maintenance, strictly use original parts by FAAC.
20) Do not in any way modify the components of the automated system.
21) The installer shall supply all information concerning manual operation of the system in case of an emergency, and shall hand over to the user the warnings handbook supplied with the product.
22) Do not allow children or adults to stay near the product while it is operating.
23) Keep radiocontrols or other pulse generators away from children, to prevent the automated system from being activated involuntarily.
24) Transit is permitted only when the automated system is idle.
25) The user must not attempt any kind of repair or direct action whatever and contact qualified personnel only.
26) Maintenance: check at least every 6 months the efficiency of the system, particularly the efficiency of the safety devices (including, where foreseen, the operator thrust force) and of the release devices.
27) **Anything not expressly specified in these instructions is not permitted.**

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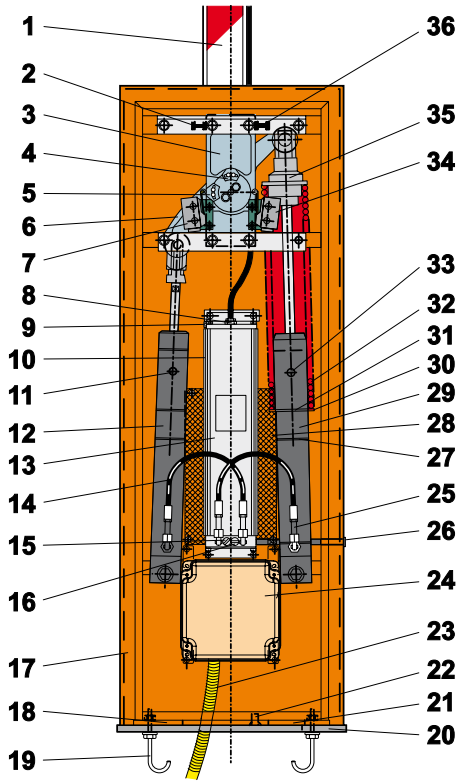
AUTOMATED SYSTEM 620 - 640 - 642

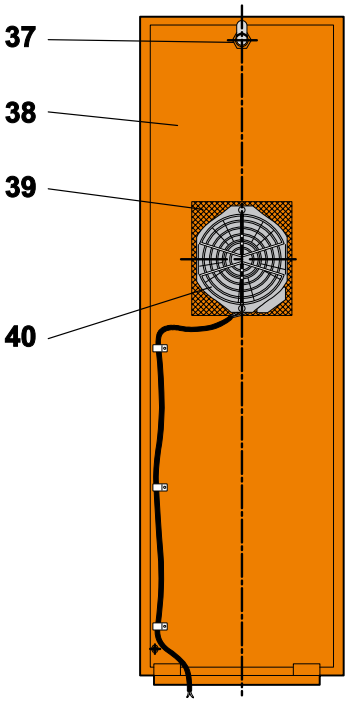
The automated system consists of a white beam in aluminium, with reflex reflectors and a steel upright. The operator is located inside the upright, and consists of a hydraulic control unit and two plunging pistons which, by means of a rocker, rotate the beam. The beam stays balanced thanks to a balancing spring assembled on one of the plunging pistons. The electronic control unit is also housed in the upright, inside a waterproof compartment.
The system is supplied with an adjustable anti-crushing safety device. It also includes a device stopping and locking the beam in any position, and a handy manual release for use in case of power cuts or faults.

The 620 - 640 - 642 automated systems were designed and built to control vehicle access. Do not use for any other purpose.



1 Beam
2 Travel limit mechanical stop device
3 Drive transmission unit
4 Adjustable travel limit cam RH
5 Adjustable travel limit cam LH
6 Rocker
7 LH travel limit device
8 Oil filling plug
9 Breather screw
10 Cooling fins
11 Piston bleed screw LH
12 Plunging piston LH
13 Hydraulic control unit
14 Feeder pipe LH
15 CLOSING by-pass screw
16 OPENING by-pass screw
17 Upright
18 Hole for cables LH
19 Tie rod
20 Foundation plate
21 Hole for cables RH
22 Earth connector securing screw
23 Cable routing sheath
24 Electronic control board
25 Feeder pipe RH
26 Manual release
27 Spring support position length: 460 mm
28 Protective grid for air intakes
29 Plunging piston RH
30 Spring support position length: 400 mm
31 Balancing spring support
32 Balancing spring
33 Piston bleed screw RH
34 Travel limit device RH
35 Balancing adjustment ring-nut
36 Travel limit mechanical stop device

Fig. 1



37 Lock
38 Hatch
39 Protective grid for air intakes
40 Cooling fan
(sonly 620 rapid, 640 and 642)

Fig. 2

1. DESCRIPTION AND TECHNICAL SPECIFICATIONS

TAB. 1 Technical specifications (*)

BARRIER MODEL	620	640	642
Power supply (Vac / Hz)	230 {+6%/ -10%} / 50		
Absorbed power (W)	220		
Absorbed current (A)	1		
Type of oil	FAAC HP OIL		
Oil quantity (Lt)	~ 1.8		
Winding heat protection (°C)	120		
Anti-crushing system	standard by-pass valves		
Type of slow-down	Electronic		
Operating ambient temperature (°C)	-20 / +55		
Hood protective treatment	Cataphoresis		AISI 316 L stainless steel
Hood painting	Polyester RAL 2004		
Protection class	IP44		
Upright dimensions LxHxP (mm)	see Fig. 4 and 5		

(*) For more details about the selected barrier model, refer to chapter 12

TECHNICAL DETAILS OF 1400 rpm ELECTRIC MOTOR	
Power supply (Vac{+6%/ -10%}/Hz)	230 / 50
Absorbed power (W)	200
Absorbed current (A)	1

TECHNICAL DETAILS OF 2800 rpm ELECTRIC MOTOR	
Power supply (Vac{+6%/ -10%}/Hz)	230 / 50
Absorbed power (W)	200
Absorbed current (A)	1

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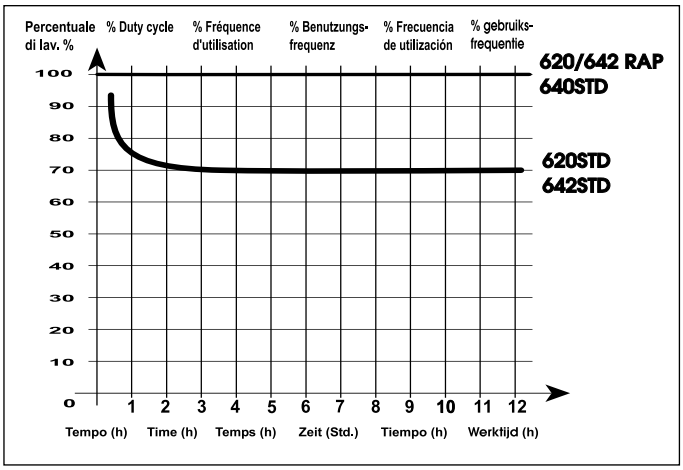
1.1 MAXIMUM USE CURVE

The curve makes it possible to establish maximum work time (T) according to use frequency (F).
E.g.: Operators 620 rapid, 640, 642 R/40 and 642/70 can operate non-stop at 100% use frequency as they are provided with a cooling fan. Models 620 standard and 642 std/40 can operate non-stop at 70% use frequency.
To ensure efficient operation, operate in the work range under the curve.

Use frequency graph



Important: The curve is obtained at a temperature of 24 °C. Exposure to the direct sun rays can reduce use frequency down to 20%

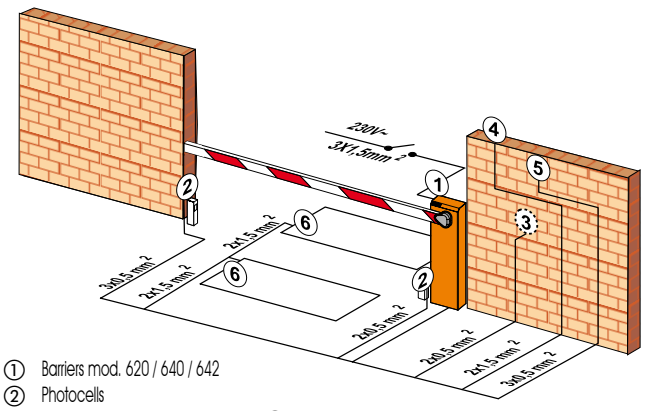
Calculation of use frequency

The percentage of effective work time (opening + closing) compared to total time of cycle (opening + closing + pause times).
Calculation formula:

$$\%F = \frac{Ta + Tc}{Ta + Tc + Tp + Ti} \text{ X } 100$$

where:
Ta = opening time
Tc = closing time
Tp = pause time
Ti = interval time between one complete cycle and another

2 ELECTRIC PREPARATIONS (standard system)



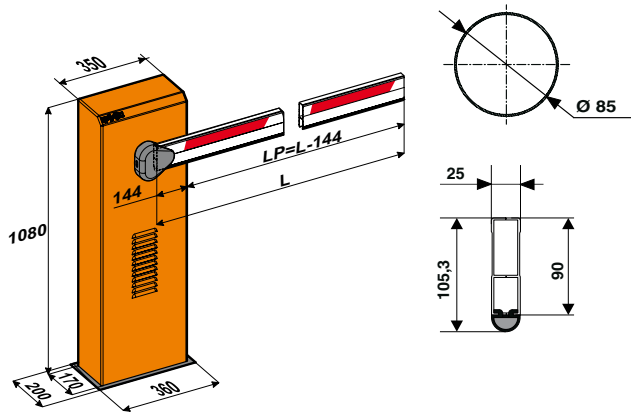
① Barriers mod. 620 / 640 / 642
② Photocells
③ Key push-button
④ Flashing light
⑤ Radio receiver
⑥ Magnetic loops

Fig. 3

Notes:
1) To lay cables, use adequate rigid and/or flexible tubes.
2) Always separate connection cables of low voltage accessories from those operating at 230v~. To prevent any interference whatever, use separate sheaths.

3 BARRIER DIMENSIONS

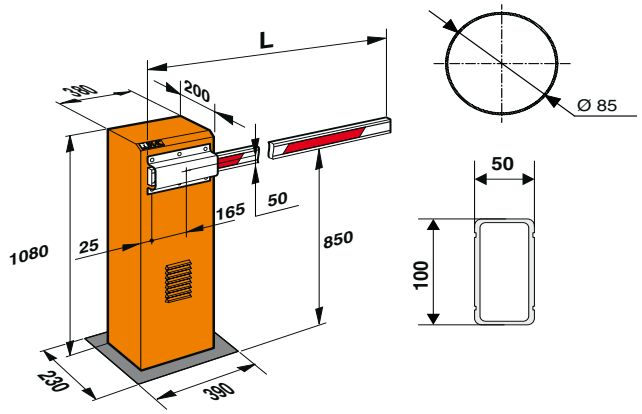
3.1 BARRIER 620



Dimensions are in mm.

Fig. 4

3.2 BARRIERS 640 - 642



Dimensions are in mm.

Fig. 5

4 INSTALLING THE AUTOMATED SYSTEM

4.1 PRELIMINARY CHECKS

To ensure safety and an efficiently operating automated system, make sure the following conditions are observed:

- When moving, the beam must not, on any account, meet any obstacles or overhead power cables.
- The soil must permit sufficient stability for the foundation plinth.
- There must be no pipes or electrical cables in the plinth excavation area.
- if the barrier body is exposed to passing vehicles, install, if possible, adequate means of protection against accidental impact.
- Check if an efficient earth socket is available for connecting the upright.

4.2 MASONRY FOR FOUNDATION PLINTH

WALL THE FOUNDATION PLATE TO ALLOW EASY ACCESS TO THE BARRIER HATCH.

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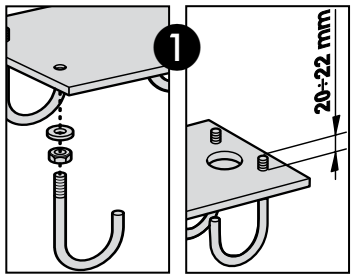
1) Assemble the foundation plate as in fig.6. ref. ①
2) Make a foundation plinth as shown in fig.4 ref.② (referred to clayey soil)
3) Wall the foundation plinth as shown in fig.6, ref.②, supplying one or more sheaths for routing electrical cables. Using a spirit level, check if the plate is perfectly level. Wait for the cement to set.



DIMENSION	620	640-642
A	360	390
B	290	320
C	200	230
D	94	124

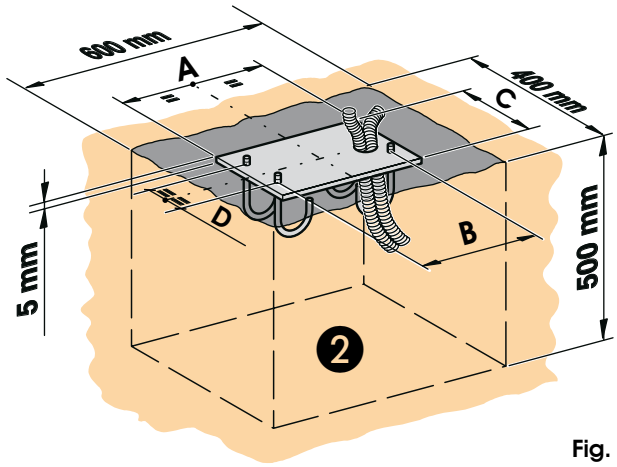


Fig. 6

4.3 MECHANICAL INSTALLATION

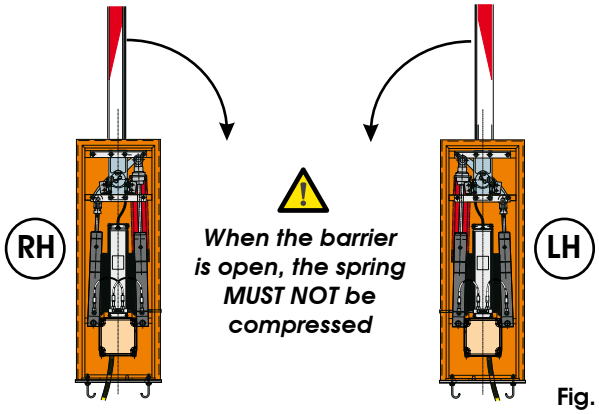


Fig. 7

1) Fasten the upright on the foundation plate using the four supplied nuts (fig.8) and checking the configuration of the barrier as in figure 7.
   Remember that the hatch of the upright should normally face the building.
2) Set the operator for manual operation as described in chapter 6.
3) Remove and store the breather screws as shown in Fig.9.
4) Assemble the beam, using the supplied screws, as shown in figures 10 or 11 (The rubber profile of the beam must face in closing direction).
5) Adjust the opening and closing travel limit mechanical stops as per fig.12 ①. and verify beam balancing following the instructions in paragraph 4.4.

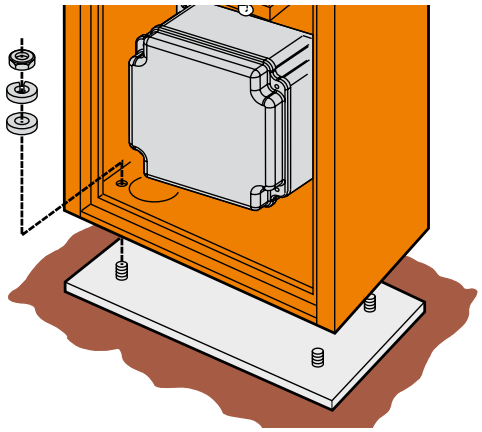


Fig. 8

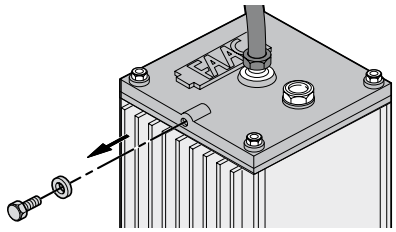


Fig. 9

4.3.1 BARRIER 620

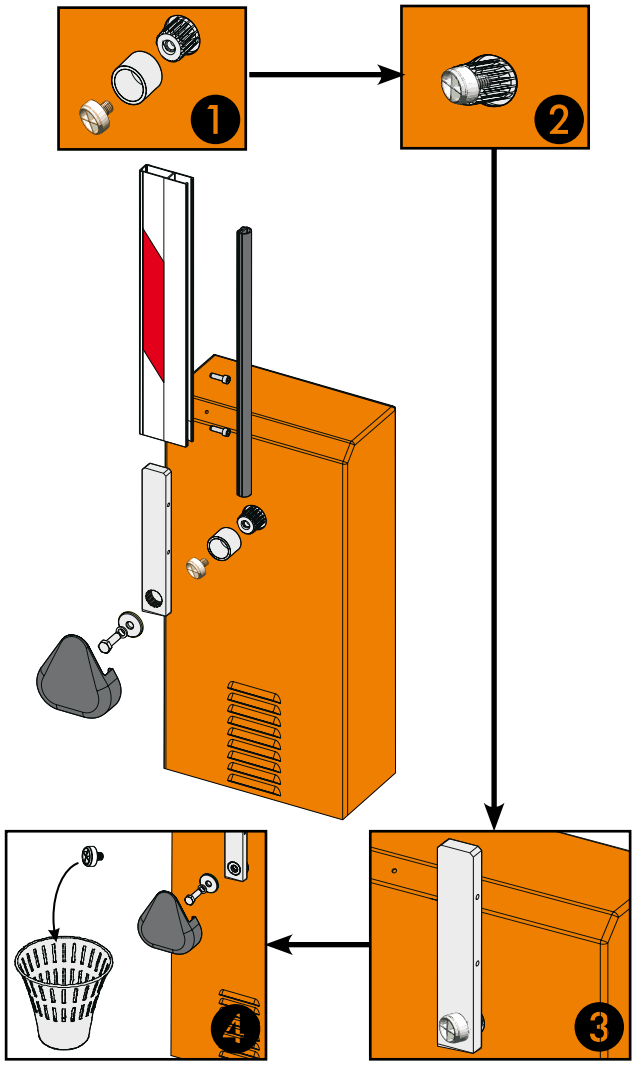


Fig. 10

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4.3.1 BARRIER 640 - 642

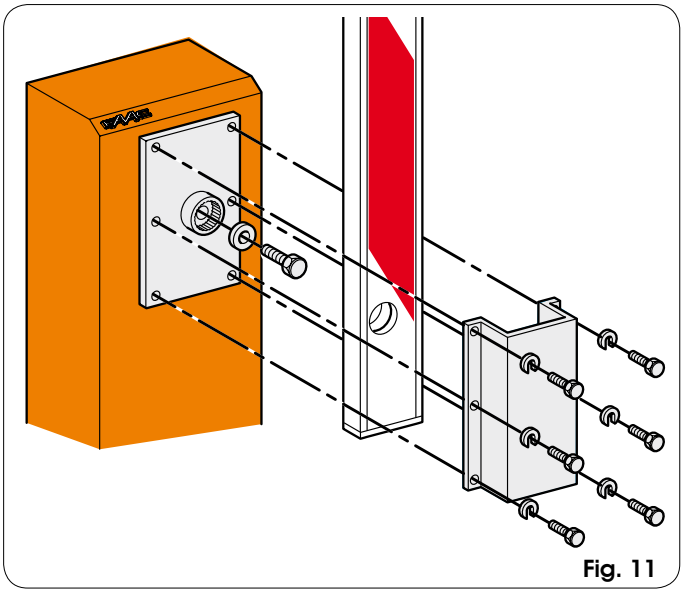

Fig. 11

4.4 ADJUSTING THE BALANCING SPRING.

IMPORTANT: The barrier is supplied already balanced for the exact length of the beam indicated in the order.
(The barrier is balanced when the beam stays idle in the 45° position)

For any fine tuning of barrier balancing, proceed as follows:

1) Make sure that the operator is released: see chapter 6.
2) If the barrier tends to close, turn the spring pre-loading ring-nut (Fig.12 ref.②) clockwise, if it tends to open, turn it anti-clockwise.

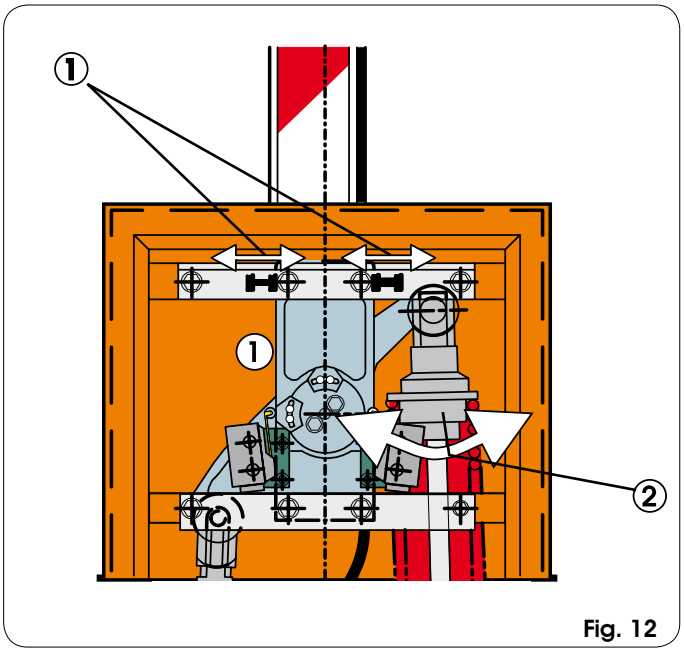

Fig. 12

5 START-UP

5.1 CONNECTION TO CONTROL BOARD

IMPORTANT: Before attempting any work on the control board (connections, maintenance, etc), always turn off power.

For the electrical connections, refer to the dedicated instructions of the control board.

Observing the indications in fig.3, install the raceways and make the electrical connections from the electronic appliance to the selected accessories.
Always separate power cables from control and safety cables (push-button receiver, photocells, etc.).

5.2 ADJUSTING THE TRANSMITTED TORQUE

To set the hydraulic system for controlling transmitted torque, turn the two by-pass screws (Fig. 13).
The red screw controls closing movement torque.
The green screw controls opening movement torque.
To increase torque, turn the screws clockwise.
To reduce torque, turn the screws anti-clockwise.

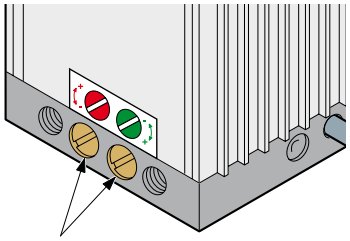

Fig. 13

5.3 ADJUSTING THE TRAVEL LIMIT SLOW DOWN

For beams with a length of over 4 m, we advise you not to set too brief a slow down.

1) Adjust the cams of the travel limit device as shown in Fig.14 ref. ① by loosing the two Allen screws. To increase the slow down angle, take the cam close to the relevant travel limit device. To reduce the slow down angle, take the cam away from the relevant travel limit device.
2) Set the slow down time of the control unit by adjusting the dedicated parameters.
3) Relock the system (see chap.6) and run a few operational tests to verify correct registration of the travel limit devices, of spring balancing, and of the adjustment of transmitted force.

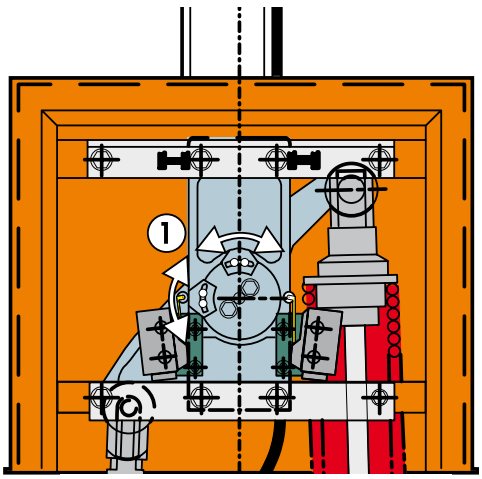

Fig. 14

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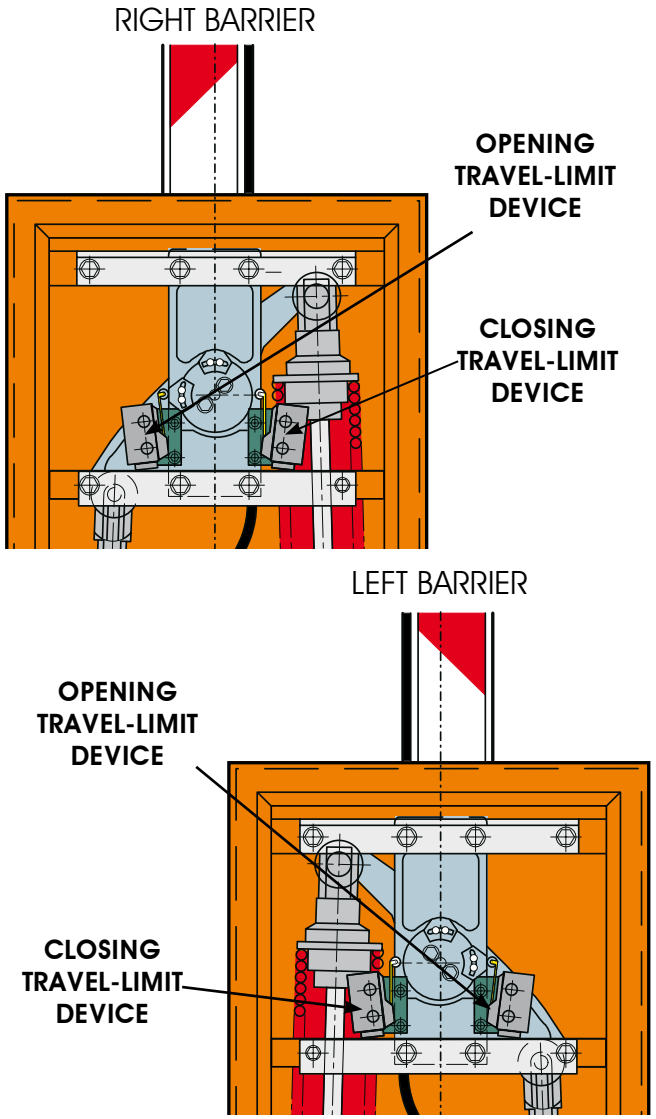

Fig. 15

5.4 AUTOMATED SYSTEM TEST

After installation, apply the danger sticker on the top of the upright. Check operating efficiency of the automated system and all accessories connected to it.

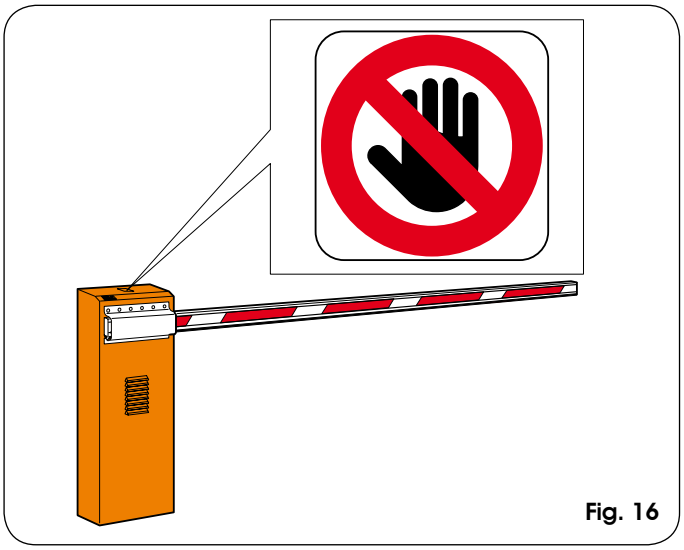

Fig. 16

Hand over the "User manual" to the customer, as well as the documentation required by current laws, and illustrate the correct operation of the barrier, pointing out the potential danger zones.

6 MANUAL MODE OPERATION

If the barrier has to be moved manually due to a power cut or fault of the automated system, operate the release device with the supplied key.
The supplied release key can be triangular (Fig. 17 ref.①) or customised (Fig. 17 ref.② optional).
- Insert the release key in the lock and turn it **anti-clockwise** through one complete rev. as shown in Fig. 17.
- Open or close the barrier manually.

7 RESTORING NORMAL OPERATION MODE

To prevent an involuntary pulse from activating the gate during the manoeuvre, cut power to the system before activating the locking system.

<u>triangular release key (standard):</u>
- turn the key **clockwise** until it stops and remove it (Fig. 17 ref. ①)

<u>customised release key (optional):</u>
- turn the key **clockwise** until the point where it can be removed. (fig. 17 ref. ②).

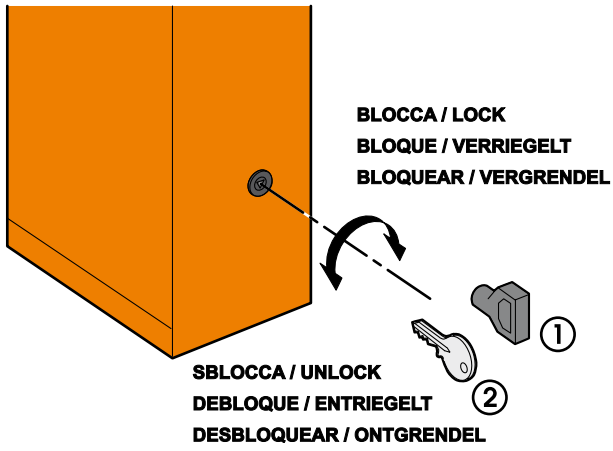

Fig. 17

8 MAINTENANCE

Whenever doing 6-monthly maintenance, always check correct settings of the by-pass screws, system balancing, and efficiency of safety devices.

8.1 TOPPING UP OIL

Periodically check the quantity of oil inside the tank.
An annual check is sufficient for low to medium use frequency; for heavier duty, check every 6 months.
The level must not drop below the notch of the control stick (Fig.18 ref. ①) .
To top-up, unscrew the filling plug (fig.18) and pour in oil up to correct level.
Use FAAC HP OIL and no other.

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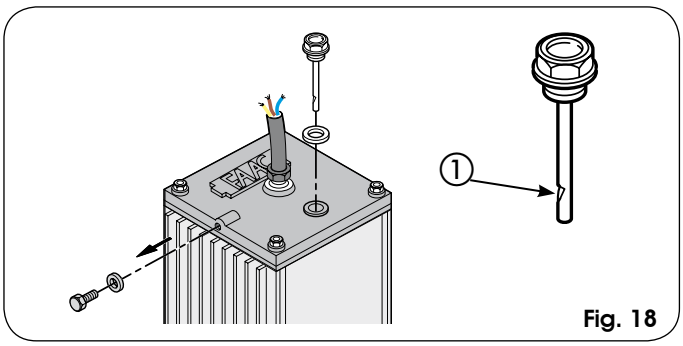

Fig. 18

8.2 BLEEDING OPERATION

If beam movement is incorrect, air must be bled from the hydraulic system.
Procedure:

1) Make sure that the bleed screw was eliminated (Fig.9)
2) Activate the beam electrically:
   - during opening, slightly loosen and re-screw the bleed screw of the piston with the balancing spring (Fig.1 ref. 33)
   - during closure, slightly loosen and re-screw the bleed screw of the piston without the balancing spring (Fig.1 ref.11).
3) If necessary, repeat the operation several times, until you obtain correct beam movement.

9 REPAIRS

For any repairs, contact FAAC's authorised Repair Centres.

10 CHANGING THE RH (LH) VERSION OF THE BARRIER INTO THE LH (RH) VERSION

Procedure for converting an RH (LH) version barrier into an LH (RH) version:

1. Release the barrier as shown in Chap.6.
2. Position the beam in opening position and remove it from the pocket as shown in Fig. 10 or Flg.11.
3. Re-lock the barrier as shown in Chap.7.
4. Screw the bleed screw on the control unit (Flg.9).
5. Fully loosen the spring adjustment ring-nut (Fig.19 ref.④).
6. Detach the feed pipes (Fig.19 ref.③ and ⑥) from the two pistons and plug the unions.
7. Remove the two pistons (Fig. 19 ref. ② and ⑤) from the upper and lower fittings and reverse their position, taking the rocker (Fig.18 ref. ①). against the opening travel limit mechanical stop.
8. Remove the pinion pocket and re-install it to set the barrier at opening as in figure 19.
9. Fit the feed pipes as shown in Fig. 19, according to the configuration of the barrier (RH or LH).
10. Reverse the travel limit connectors on the control unit.
11. Remove the bleed screw (Fig.9) and carry out the air bleed operations as indicated in paragraph 8.2.
12. Check the balance of the spring as indicated in paragraph 4.4.

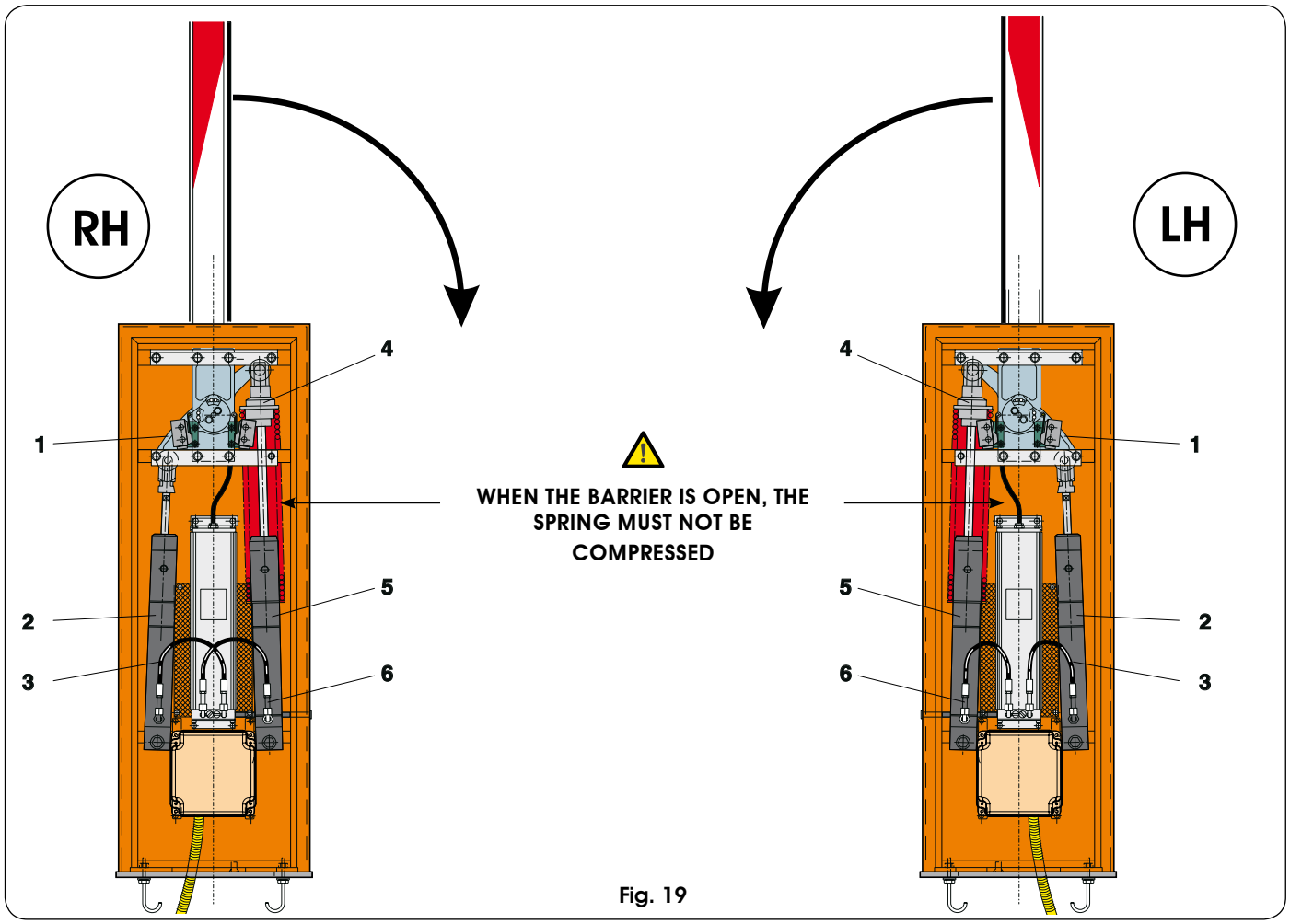

Fig. 19

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11 AVAILABLE ACCESSORIES

ANTI-VANDAL VALVE (Fig. 20a)

It protects the hydraulic system if the beam is forced.

AUTOMATIC EMERGENCY RELEASE (Fig. 20b)

During a power cut, the automatic emergency release allows you to manually lift the beam without accessing the release lever of the hydraulic control unit. A hydraulic system guarantees that the beam is stopped in opening position.

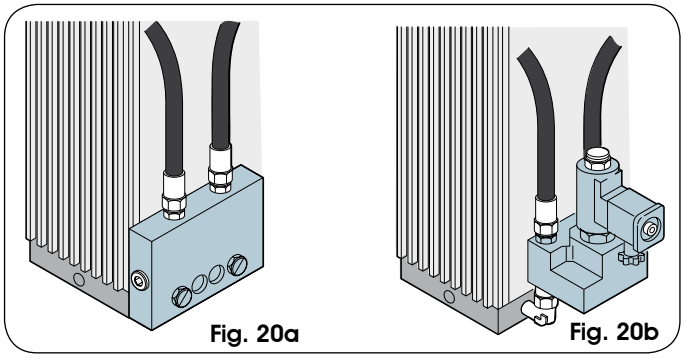

Fig. 20a Fig. 20b

SKIRT KIT

The skirt kit increases visibility of the beam.
It is available in lengths 2m and 3m.
IMPORTANT: If a skirt kit is installed, the balancing spring must be adapted if possible.

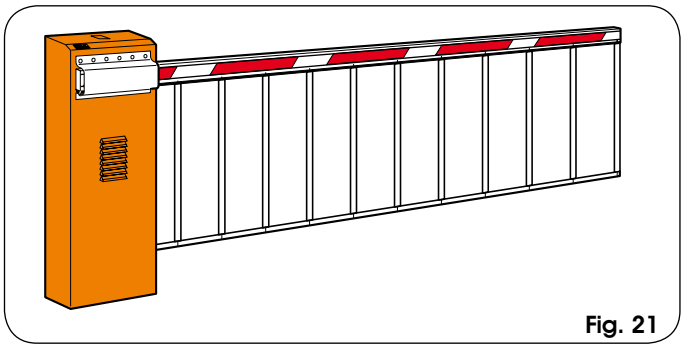

Fig. 21

ARTICULATION KIT (mod. 620 only)

The articulation kit makes it possible to articulate the rigid beam to a maximum ceiling height of 3.2 m.
IMPORTANT: If the articulated kit is installed, the balancing spring must be adapted if possible.

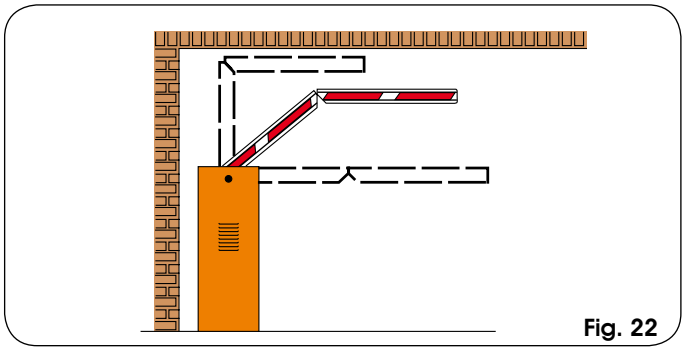

Fig. 22

END FOOT

The end foot allows the beam to rest when closed and thus prevents the profile bending downward.
IMPORTANT: If a foot is installed, the balancing spring must be adapted if possible.

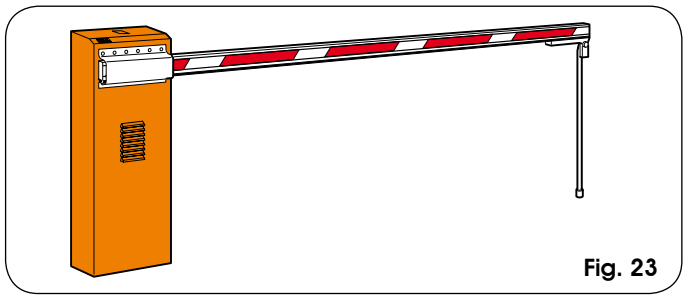

Fig. 23

FORK SUPPORT

The fork has two functions:
- it prevents the beam, when closed, from bending and splitting if its end is stressed by extraneous forces.
- it allows the beam to rest when closed and thus prevents the profile bending downward

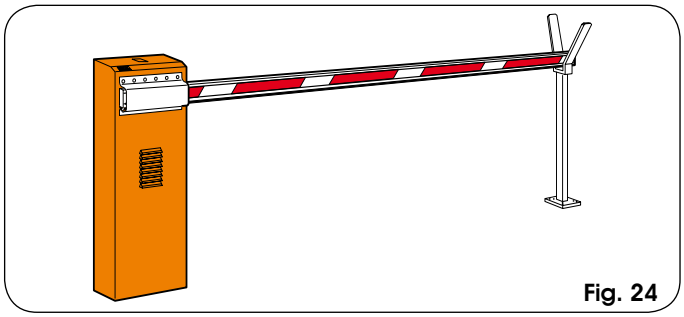

Fig. 24

To position the fork support foundation plate, refer to fig.23 where:
P1 = barrier foundation plate
P2 = fork support foundation plate
L = beam length (in mm)
A = Distance between foundation plates

NB.: Dimensions are in mm.

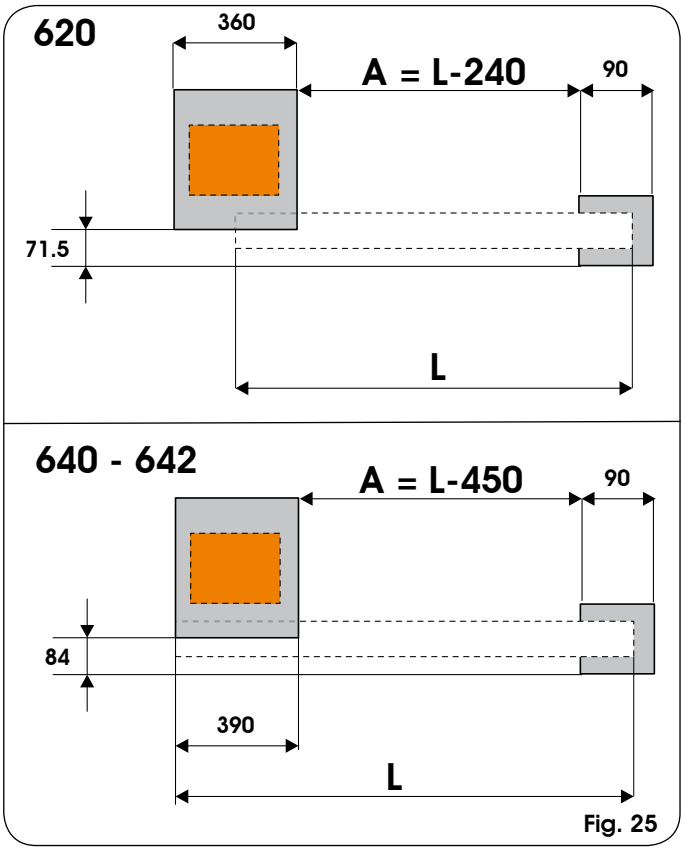

Fig. 25

Barrier model	Beam profile	Beam length (mm)	Pump flow-rate (l/min)	R.P.M.	Use frequency (%)	Indicative time of opening (sec)	Max. torque (Nm)
620 STD	620 RECTANGULAR STANDARD	1315 / 2555	1	1400	70	3,5	150
		2565 / 4815	0,75	1400	70	4,5	200
	620 RECT. + SKIRT	1815 / 2805	1	1400	70	3,5	150
		2815 / 4815	0,75	1400	70	4,5	200
	620 ROUND	1500 / 3240	1	1400	70	3,5	150
		3250 / 5000	0,75	1400	70	4,5	200
	620 ROUND PIVOTING.	1500 / 2740	1	1400	70	3,5	150
		2750 / 3000	0,75	1400	70	4,5	200
620 STD ARTICULATED	620 RECT. ARTICULATED A(*)=815/1314 mm.	1315 / 1815	1	1400	70	3,5	150
		1825 / 3815	0,75	1400	70	4,5	200
	620 RECT. ARTICULATED A(*)=1315/1814 mm.	1825 / 3815	0,75	1400	70	4,5	200
	620 RECT. ARTICULATED A(*)=1815/2075 mm.	1825 / 2815	0,75	1400	70	4,5	200
620 R	620 RECTANGULAR STANDARD	1315 / 2555	2	2800	100	2	80
		2565 / 3815	1,5	1400	100	3	100
	620 ROUND	1500 / 3240	2	2800	100	2	80
		3250 / 4000	1,5	1400	100	3	100
	620 ROUND PIVOTING.	1500 / 2740	2	2800	100	2	80
		2750 / 3000	1,5	1400	100	3	100
620 R ARTICULATED	620 RECT. ARTICULATED A(*)=815/1314 mm.	1315 / 2815	2	2800	100	2	80
	620 RECT. ARTICULATED A(*)=1315/1814 mm.	1825 / 2815	2	2800	100	2	80
	620 RECT. ARTICULATED A(*)=1815/2075 mm.	1825 / 2815	2	2800	100	2	80

Barrier model	Beam profile	Beam length (mm)	Pump flow-rate (l/min)	R.P.M.	Use frequency (%)	Indicative time of opening (sec)	Max. torque (Nm)
640	640 RECTANGULAR	3750 / 4240	2	2800	100	4	210
		4250 / 5240	1,5	1400	100	5.5	250
		5250 / 6740	1	1400	100	8	340
		6750 / 7000	1	1400	100	8	340
	640 RECT. + SKIRT	3750 / 4740	1	1400	100	8	340
		4750 / 5240	1	1400	100	8	340
		5250 / 5740	1	1400	100	8	340
		5750 / 7000	0,75	1400	100	8	470
642 STD/40	620 RECTANGULAR	1315 / 2555	1	1400	70	3.5	150
		2565 / 3815	0,75	1400	70	4.5	200
	620 RECT. + SKIRT	1815 / 2805	1	1400	70	3.5	150
		2815 / 3815	0,75	1400	70	4,5	200
	620 ROUND	1500 / 3240	1	1400	70	3.5	150
		3250 / 4000	0,75	1400	70	4,5	200
	620 ROUND PIVOTING	1500 / 2740	1	1400	70	3.5	150
		2750 / 3000	0,75	1400	70	4.5	200
642 R/40	620 RECTANGULAR	1315 / 2555	2	2800	100	2	90
		2565 / 3815	1,5	1400	100	3	110
	620 ROUND	1500 / 3240	2	2800	100	2	90
		3250 / 4000	1,5	1400	100	3	110
	620 ROUND PIVOTING	1500 / 2240	1,5	1400	100	3	110
		2250 / 3000	2	2800	100	2	90
642/70	640 RECT.	3750 / 4240	2	2800	100	4	210
		4250 / 5240	1,5	1400	100	5.5	250
		5250 / 7000	1	1400	100	8	340
	640 RECT. + SKIRT	3750 / 5740	1	1400	100	8	340
		5750 / 7000	0,75	1400	100	8	470

ENGLISH