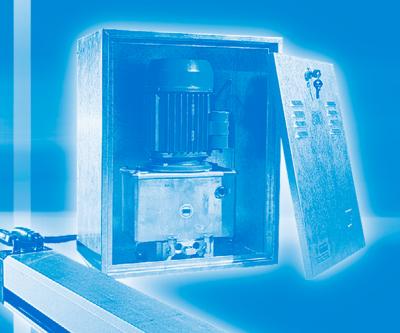
# TIEC 800 SPECIAL

- >FITTING INSTRUCTIONS
- >FOR DOUBLE SWINGING GATES



**INSTALLATION MANUAL** 

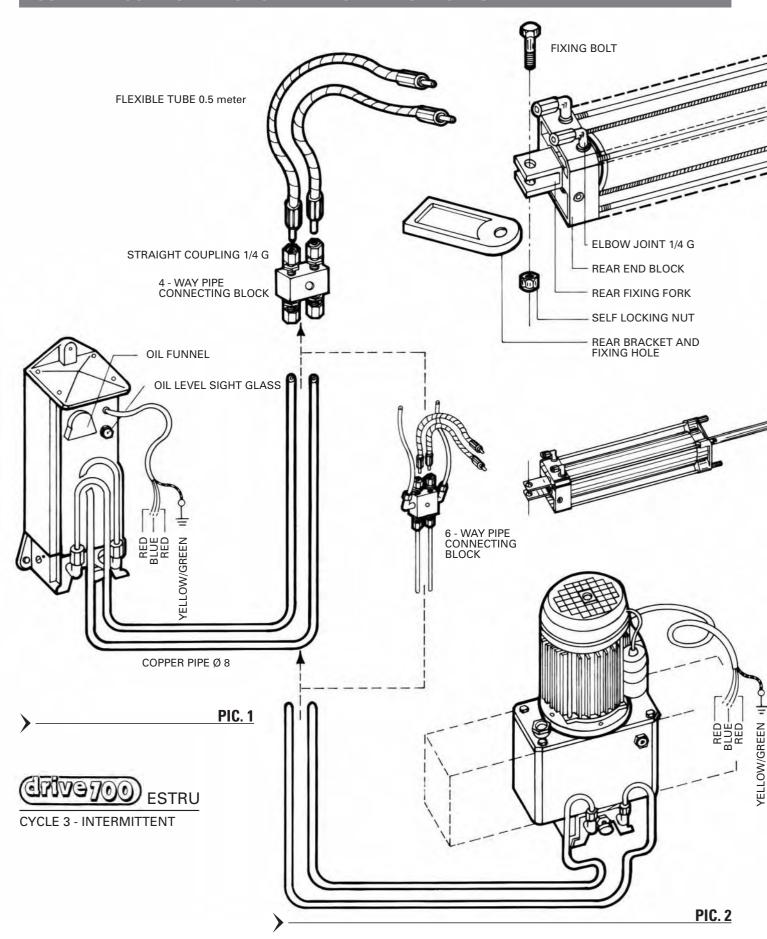


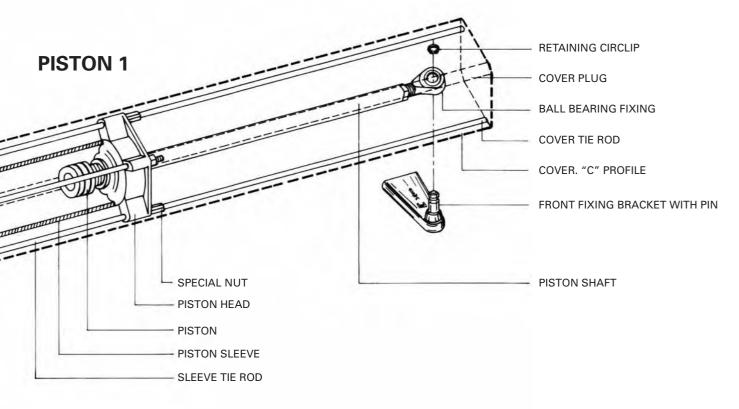
the gate opener

# **MEC** 800 SPECIAL

# **OIL-HYDRAULIC OPERATOR FOR SWINGING GATES. EXTERNAL APPLICATION.**

# ESSENTIAL COMPONENTS TO FIT THE OPERATOR TO A GATE LEAF

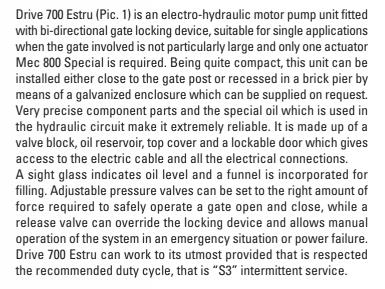




PIC. 3 - Oil-Hydraulic actuator. Assembly drawing

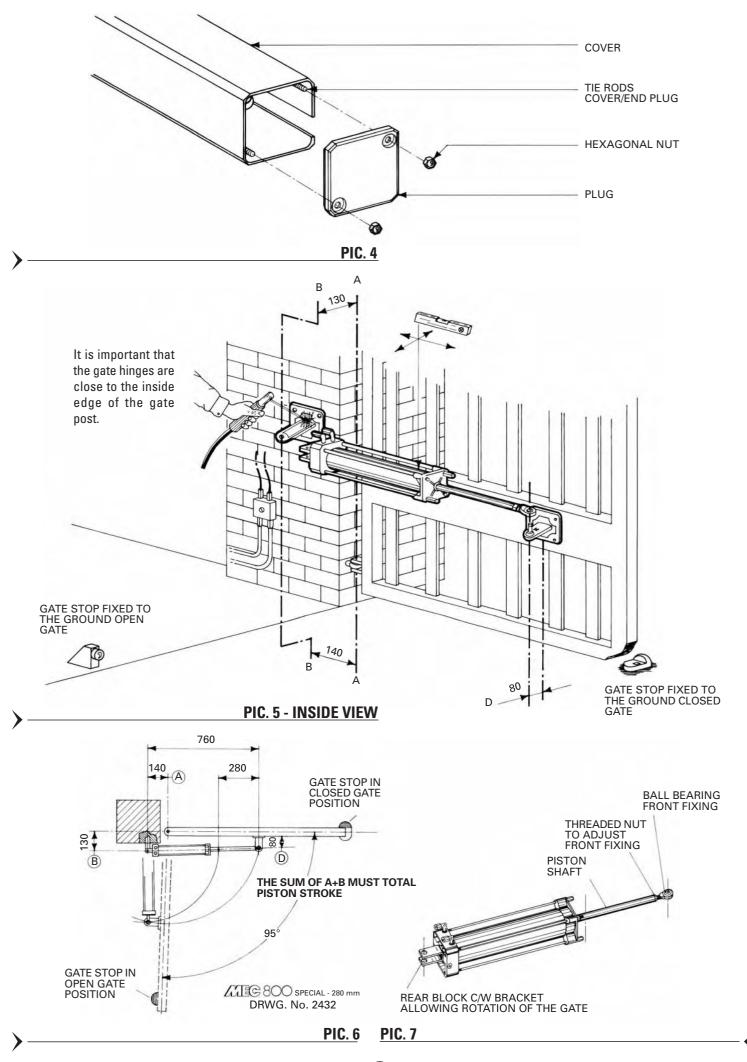


**PISTON 2** 



Mec 700/80 Ventil (Pic. 2) is a very strong motor pump unit. As the above described unit it is fitted with bi-directional gate locking device, but the motor is air cooled and the oil reservoir has a greater capacity. The adjustable pressure valves and the release valve are easy to reach for setting operations. The special oil ensures proper functioning within a considerably wide range of temperature from -20°C to +80°C. An enclosure is available on request to protect the unit from weather conditions or accidents. The enclosure is designed to provide enough ventilation and is fitted with a lockable door for security reasons. It can be fixed close to the gate post or recessed where a brick pier exists. The great advantage of this unit is the possibility of extra oil reservoir to operate two actuators Mec 800 Special per gate, with very large and heavy gates. Designed for heavy duty applications, S3 duty cycle, motor direction easy to reverse.





Instructions to follow to fit MEC 800 to a double swinging gate. It is recommended to respect all the steps described in this manual to achieve a perfectly working installation of the system.

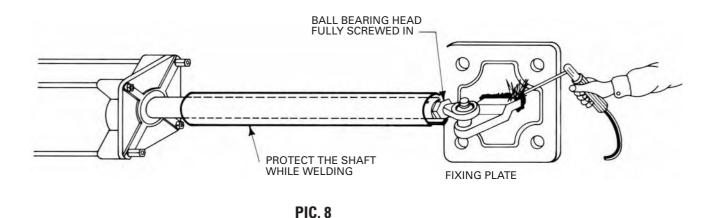
Before installing MEC 800 special it is important to check the structure of the gate and make sure that it is adequate to take the actuator, there must be no problems at all with the gate frame, which must be strong and robust to be electrically operated. It is recommended to strengthen and fix all the parts that look weak, or worn out, eliminate any friction of the gate against the gate post or pavement (check the hinges, the gate must be very smooth).

The actuator is mounted to the gate by specially designed plates, one to the gate and one to the gate post (Pic. 5). MEC 800 is very strong and powerful. The thrust power that it can develop is high and safe. The motor pump unit is fitted with adjustable pressure valves. It is entirely made of steel and pressure cast aluminium, the temperature range it can safely bear is -20°C +80°C (Pic. 7).

**Installation**: remove the anodized aluminium cover by unscrewing the two hexagonal nuts in the front cover plug (see pic. 4). Pull the cover horizontally and lay bare the cylinder, piston shaft and ball bearing front fixing. The fitting of the rear fixing plate to the gate post or brick pier can be either by welding, with the use of a square plate as in the picture, or by embedding. Anchor plates are to be used to secure the actuator plate into the concrete setting. Fixing geometry, ie. distances between hinge centre line of the gate and back fixing centre line of the actuator, are provided in pictures 5 and 6, on page 4, and pictures 21 to 23 on page 9. These are for long stroke braking actuators. Follow which applies.

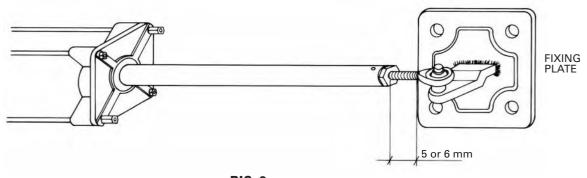
Make sure that the distances A and B are A = 140 mm and B = 130 mm respectively measured from the gate hinge centre line to back fixing centre line. This ensures smooth and even movements of the gate. Distance D is 80 mm from the centre line of the hole in the front fixing ball to the centre line of the gate plate (pic. 6). (Distances to be referred to only with MEC 800 actuators, 280 mm stroke).

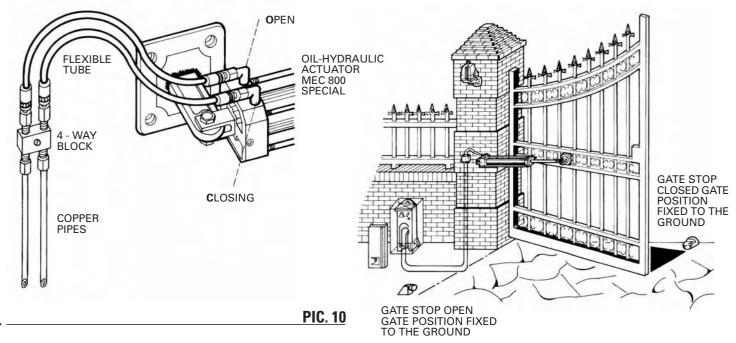
Before the square reinforcement plate is finally fixed to the gate, make some tests, the ball bearing head fully screwed in, allowing the piston to reach the very limit of the permitted stroke. Operate the gate manually to open and close. Try a second time with aluminium protection cover fitted. Once satisfied that the fixing distances are all right, remove the cover and weld the plate fully as shown in pictures 5 and 8.

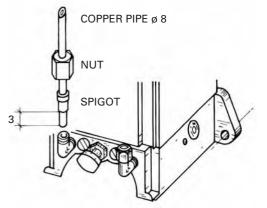


Fix the front fixing plates and swing the actuator on to it, the piston shaft must be all out and the thread of ball bearing head all in, ie. not visible on the outside. The gate fully closed against its ground stop. A spirit level will tell if the actuator is perfectly straight (Pic. 5 - 8).

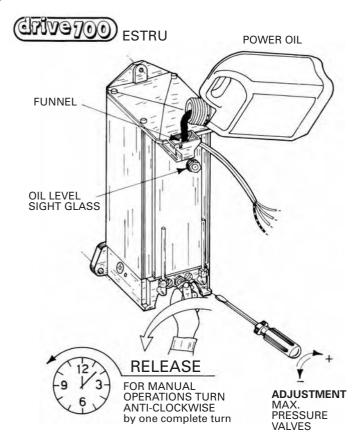
After completing the fixing operations of the plates, unscrew the ball bearing head 5 or 6 mm approximately and tighten the nut to lock it in the correct position. This ensures the correct position of the gate on the closed gate stop (Pic. 9)







**PIC. 12** 



**PIC. 11** 

Pipe layout. Before proceeding to the final fixing, lay the motor pump unit and the accessories (copper pipes, hoses, 4 -way block etc.) in the most suitable position to avoid any sharp bending of the copper pipes that connect the motor pump unit to the 4 - way block (Pic. 11). The flexible tubes are to be used to connect the pipe block to the actuator (Pic. 10). Keep a suitable distance to avoid rigidity of the hoses when the gates are opening. Do some manual test to prevent this from happening. Once satisfied that all distances are all right, insert the spigots, connect the pipes and hoses and carefully tigthen the nuts (Pic. 12). The above instructions apply only in cases where one actuator only is fitted to each gate leaf, along with one motor pump unit type Drive 700 Estru, depending on the gate weight, not suitable for very heavy duty applications (Pic. 11).

The motor pump is not pre-oiled for transport reasons. Oil is to be filled on the installation site through the funnel incorporated under the top cover of the unit; pull the funnel 2 cm outwards and rotate the cup upwards. Fill with oil up to the level of the sight glass (Pic. 13)

In events like power failure it is necessary to overide the hydraulic circuit for manual operation. Turn anti-clockwise the release knob that is fitted between the two pressure valves (Pic. 13)

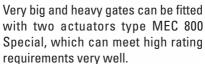
It is possible to adjust the amount of force required to open and close the gates by setting the two safety pressure valves with a screwdriver as shown in Pic. 13.

### TYPE OF POWER OIL: FADINI A 15 By AGIP

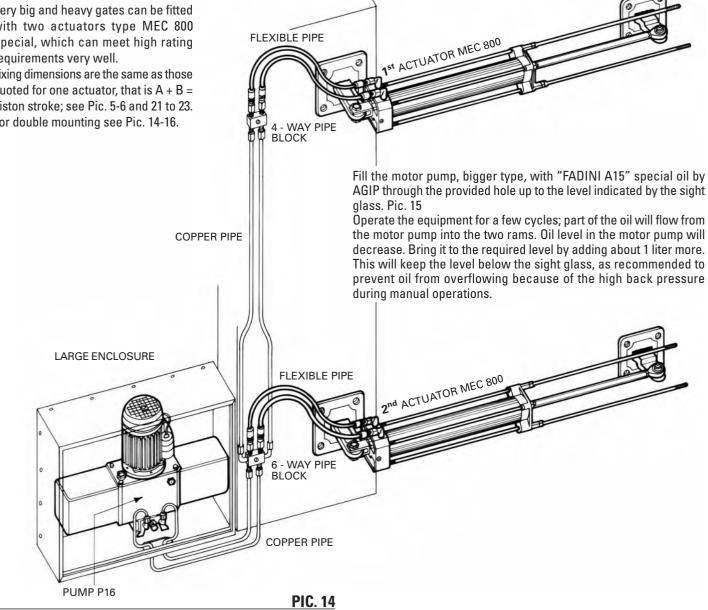
### **PLEASE NOTE:**

Valve A for open pressure must be driven 2 turns deeper than C close to get higher force and prevent the actuator from stopping during open cycle.

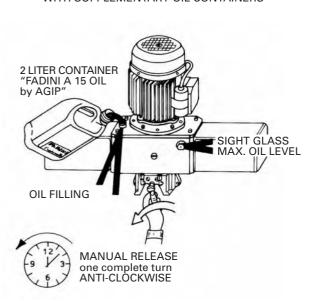
PIC. 13

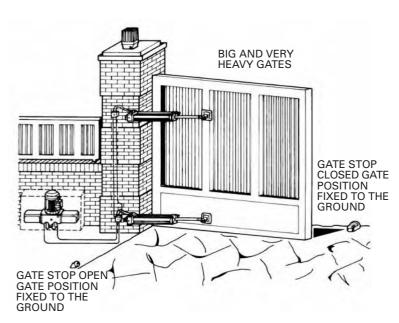


Fixing dimensions are the same as those quoted for one actuator, that is A + B =piston stroke; see Pic. 5-6 and 21 to 23. For double mounting see Pic. 14-16.



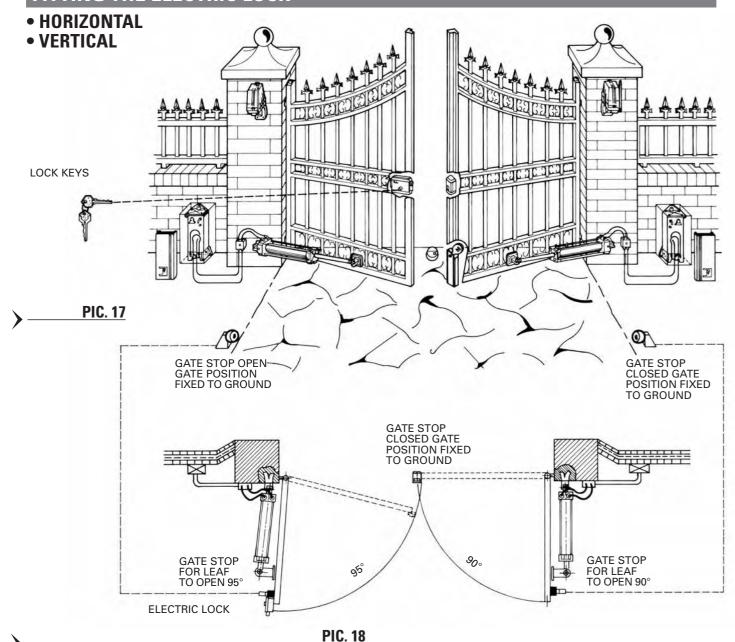
# € 700/80 VENTIL WITH SUPPLEMENTARY OIL CONTAINERS

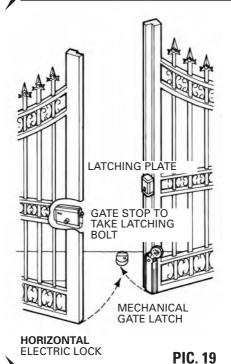




- Internal view: **PIC. 15 PIC. 16** special application with two actuators MEC 800

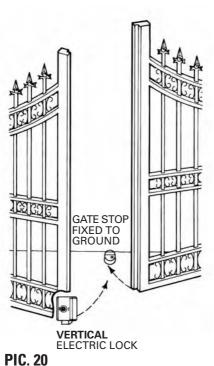
# FITTING THE ELECTRIC LOCK

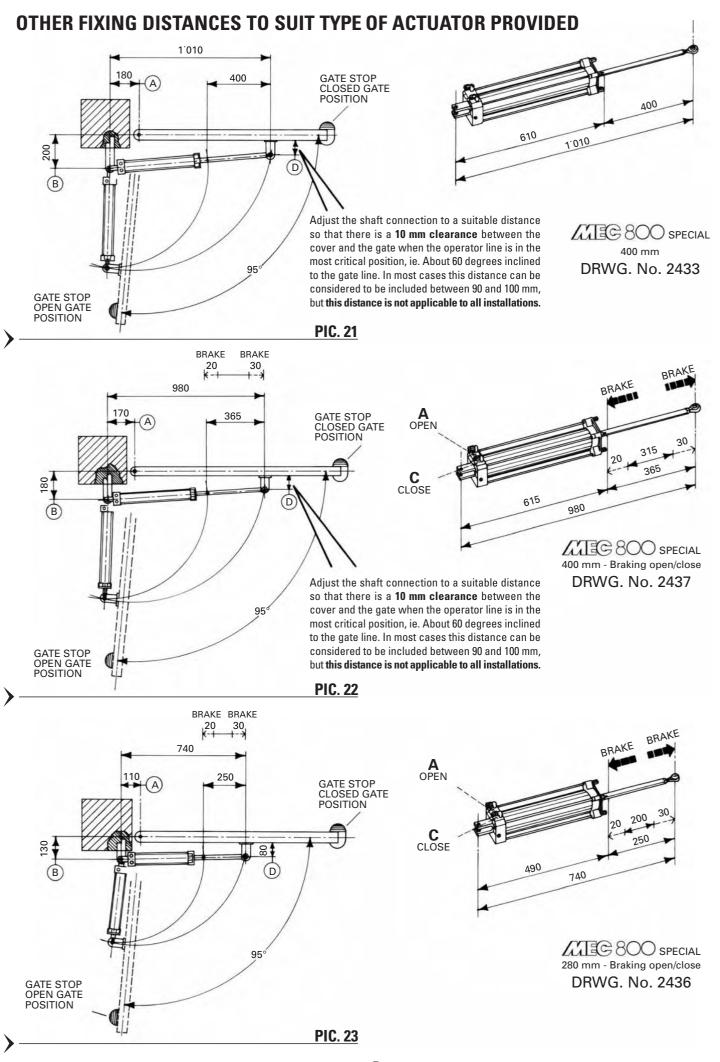




WITH MEC 800 SPECIAL MOUNTED WITH THE NON LOCKING TYPE MOTOR PUMP AN ELECTRIC LOCK IS REQUIRED

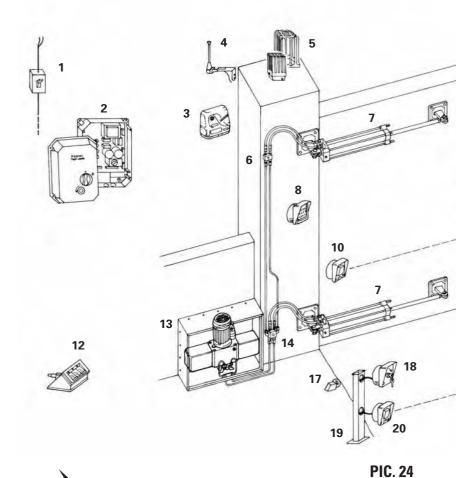
One leaf gates. The electric lock is fitted to the gate horizontally; the catching plate is to be fixed to the brick pier or post. Two leaf gates. With double swinging gates, the electric lock can be fitted either horizontally or vertically. If mounted horizontally refer to pictures 17 and 19; please note the gate stop on the closed gate position. It has a special design to stop the gates and take the bolt of the mechanical latching device to secure the gates in the closed position. If mounted vertically, picture 20 refers. The gate stop to take the gates and the bolt of the lock. The gate leaf that is fitted with the electric lock must be operated with a 5 degree angle displacement to ensure that both leafs can complete their respective travels independently and prevent jamming on reaching the closed gate stop. It is very important that each gate leaf is fitted with gate stops in the fully open positions at the end of the permitted piston stroke. Pic. 18

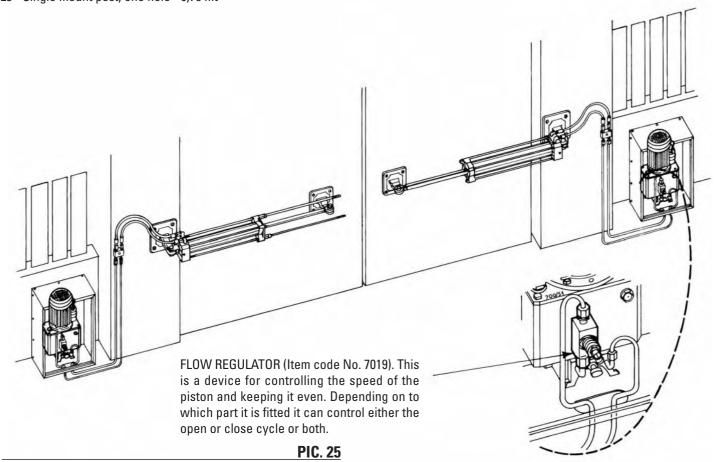


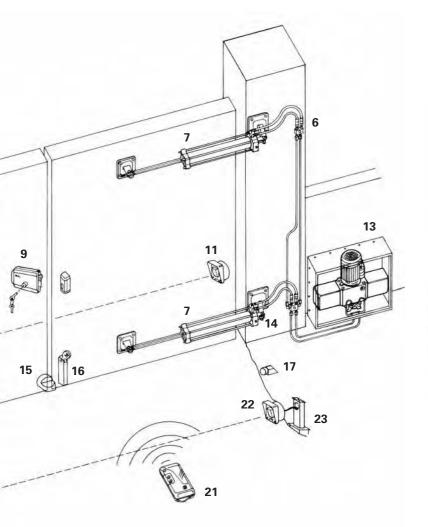


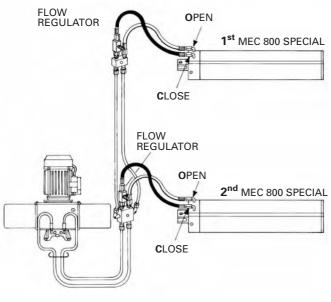
# **GENERAL DIAGRAM OF THE SYSTEM COMPLETE WITH ACCESSORIES**

- 1 230 V/240 V 50 Hz/60 Hz line switch
- 2 Control panel Elpro 13 CEI
- 3 Radio receiver Astro 40 Aut
- 4 Aerial Astro 40 Aut
- 5 Flashing light Lapi 2 with protection cage
- 6 4 way pipe connecting block
- 7 Oil-hydraulic actutor MEC 800 Special
- 8 Digital keypad Edi 60 outside the gate
- 9 Electric lock
- 10 Photocell receiver Difo 33 outside the gate
- 11 Photocell light projector Difo 33 outside the gate
- 12 Push buttons Pulin 3 "indoor" commanding unit table mount
- 13 Oil-hydraulic motor pump MEC 700/80 Ventil enlarged oil capacity
- 14 6 way pipe connecting block
- 15 Gate stop close position
- 16 Gate mechanical latch
- 17 Gate stop open position
- 18 Keyswitch Sech 15 inside the gate
- 19 Double mount post, two holes 1,20 mt
- 20 Photocell light projector Difo 33 inside the gate
- 21 Hand held transmitter Astro 40 Aut
- 22 Photocell receiver Difo 33 inside the gate
- 23 Single mount post, one hole 0,75 mt









Picture 26 refers to a double mount type installation to note how the flow regulators have been fitted to control the two actuators. In this specific case, the purpose is to slow down one gate leaf to ensure that it reaches the closed gate position after the other one.

**PIC. 26** 

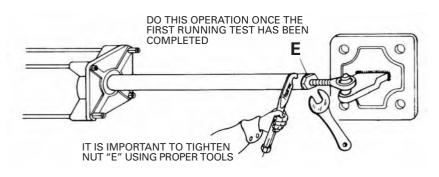
There may be cases where the gates are peculiar and are mounted in the middle of the pillar, post or brick pier; or the gate surface line is aligned with the post horizontal line, or again where the hinges are particular either in the shape or fixing, mounting distances are always to be referred to the centre line of the gate vertical axis of rotation.

At this stage the electrical connections to the electronic control box can be started. Follow the diagram in Pic. 28. Once the connections have been made, do the first switching test to make sure that the leaf delay time, the logic functions, and the motor run time are as required after setting DIP-SWITCH B No. 3 to automatic. If set to semiautomatic one pulse opens the gates, a second pulse is needed to close the gates.

### ALL THE EQUIPMENT MUST BE PROPERLY EARTHED

If a non locking motor pump has been fitted, in events like power failure it is necessary to release the electric lock first by means of the provided key as shown in Pic. 13 - 15 and push the gates open by hand applying an even and progressively increasing force.

### Beyond 50 m distance the section of the mains cable must be 2.5 mm<sup>2</sup>

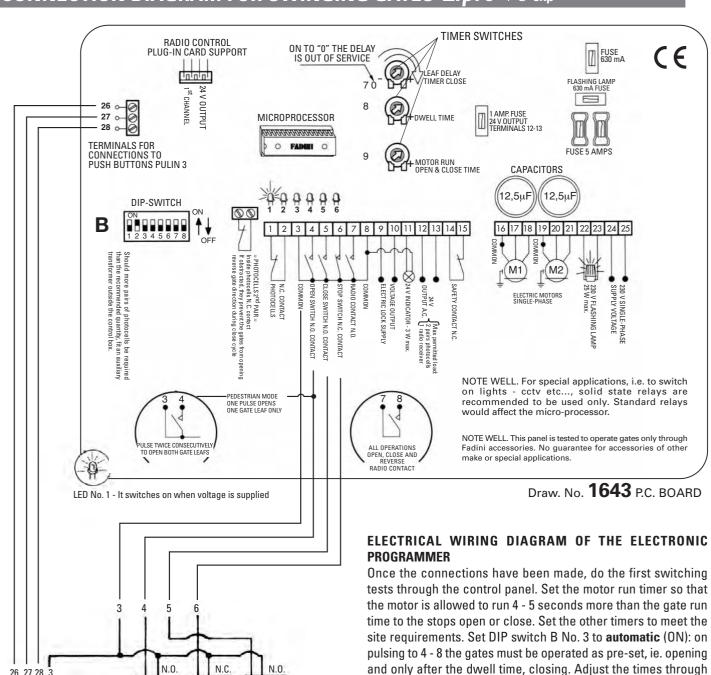


### IDENTIFICATION PLATE



This notice to warn people that they are in proximity of an automated area, therefore the plate must be fitted to the gate in a well visible place.

# CONNECTION DIAGRAM FOR SWINGING GATES Elpro 1 3 exp



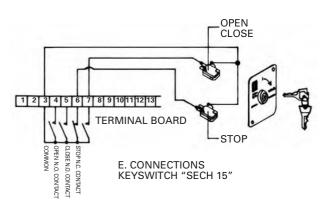
and only after the dwell time, closing. Adjust the times through the respective timers. (See No. 7, 8 and 9 draw. No. 1643). With DIP switch "B" No. 3 to semiautomatic (OFF) one pulse opens the gates, a second pulse to 5 - 8 is needed to close the gates.

Any one pulse to 7 - 8 will open, close or reverse the gates independently from the operation being performed.

It is recommended to carefully read the instructions in the control box to have all the functions performed correctly.

### The 6 LED on the P.C. board indicate the following:

- Led No. 1 It switches on when voltage is supplied.
- Led No. 2 Photocells. Normally on. It switches off when the photocells are obstructed.
- Led No. 3 Open It switches on when the respective switch is activated.
- Led No. 4 Close It switches on when the respective switch is
- Led No. 5 Stop Normally on. It switches off when the respective switch is activated.
- Led No. 6 Radio It switches on whenever a pulse is given either from remote control, keyswitch or push buttons.



STOP

CLOSE

0000

句

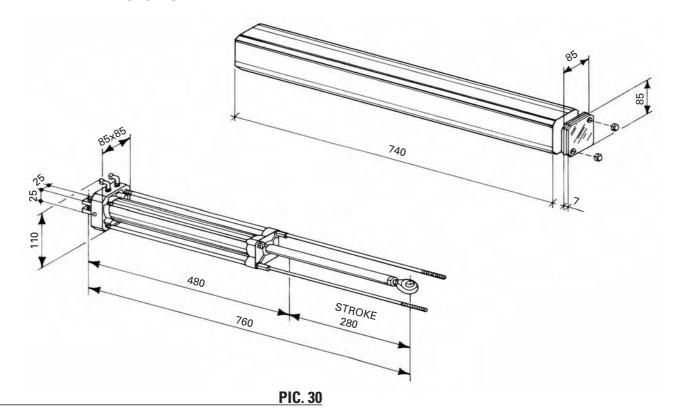
CONNECTION TO THE "PULIN 3" PUSH BUTTONS WITH STATUS INDICATION LEDS

Ū

**PIC. 28** 

# OIL-HYDRAULIC ACTUATOR LINEAR DISIGN ZIEG 800 SPECIAL

# **OVERALL DIMENSIONS**

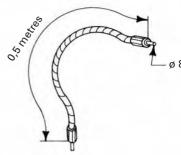


### **TECHNICAL SPECIFICATIONS**

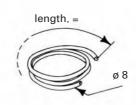
### Oil-hydraulic actuator

Shaft excursion speed	28s
Piston stroke	280 mm
Piston diametre	50 mm
Shaft diametre	22 mm
Max. thrust power. Open	390 Kg
Max. Pulling power. Close	490 Kg
Weight	5,5 Kg
Dimensions (length x width x height)	840x85x110 mn

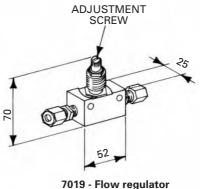
Dimensions (length x width x height) ......840x85x110 mm



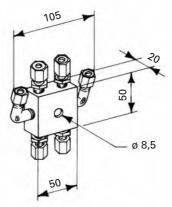
7018 - Flexible tube 0,5 mt



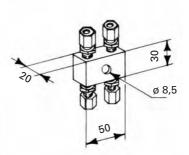
707 - Flexible tube ø 8, mt 4, Kg 1



7019 - Flow regulator with joints



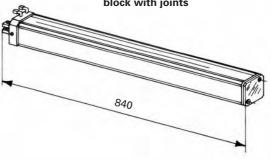
7038 - 6 - way pipe connecting block with joints



7013 - 4 - way pipe connecting bock with joints

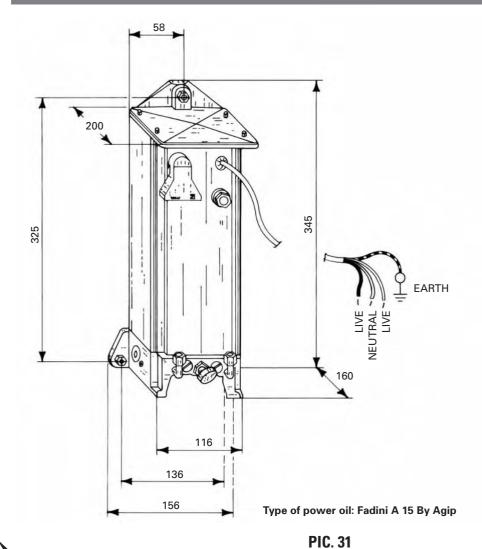


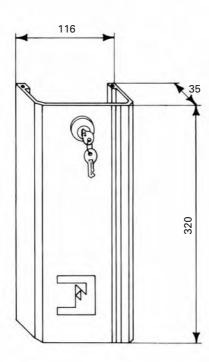
DRWG. No. 1108



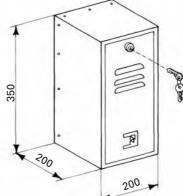
OIL-HYDRAULIC ACTUATOR COMPLETE WITH COVER

# OIL-HYDRAULIC MOTOR PUMP (1979-700) ESTRU





LOCKABLE COVER



7070 - Enclosure for DRIVE 700 ESTRU galvanized, with lock.

# **TECHNICAL SPECIFICATIONS**

Electric motor	
Power output	0,24 KW (0,33 HP)
Supply voltage	230 V
Frequency	50 Hz
Absorbed current	2 A
Absorbed power	400 W
Capacitor	12,5 μF
Motor rotation speed	1 <sup>-</sup> 350 r.p.m.
Intermittent service	S3

### Oil-hydraulic pump

	00
Pump flow rate P6	
Mean working pressure	2MPa (20 bars)
Max. pressure	4MPa (40 bars)
Working temperature	20°C +80°C
Oil type	
Oil reservoir capacity	
Weight of the assembly	
IP protection standards	•

Duty cicle 28 sec. opening - 30 sec. stop - 28 sec. closing
Time of one complete cycle ......86s
Complete cycles - Opening - Stop - Closing .......No. 41/hour
No. of cycles per year 8 hours' service a day......No. 122'000

Drive 700 Estru is a motor pump unit, very compact to meet the most various space requirements. Voltage rating, frequency and number of revolutions of the electric motor can vary to meet the customer's requirements. The motor generates and transmits a rotary motion to the lobe pump, which displaces oil in the hydraulic circuit under constant pressure. The pump is designed as a most efficient unit which guarantees a perfect and silent performance of the system. Oil can reverse inside the circuit without any problem.

The valve block is fitted with adjustable pressure valves that can be set to the gate weight so that a sufficient amount of power is transmitted to the actuator to safely open and close the gates. In the valve block are also fitted the release valve for manual operation in case of power failure, fittings for piping the system and fixing parts. The design, construction and component parts are such to guarantee this motor pump as a totally sealed unit, fully protected from water, dust and accidents.



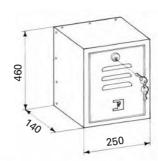


### OIL-HYDRAULIC MOTOR PUMP ATTEC 700/80 VENTIL

1'350 r.p.m.

Electric motor	SINGLE-PHASE	
Power output		
Supply voltage	. 230 V	230/400 V
Frequecy	.50 Hz	50 Hz
Absorbed current	. 2,4 A	2,1/1,2 A
Absorbed power	.510 W	575 W
Capacitor	. 20 μF	

7016 - Enclosure to suit the oil-hydraulic motor pump MEC 700/80 VENTIL



### Oil-hydraulic pump

Motor rotation speed ...... 1'350 r.p.m.

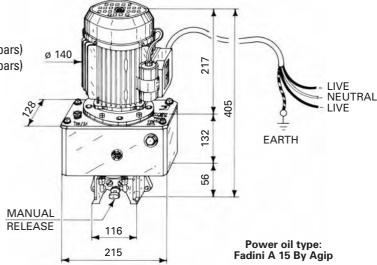
Intermittent service ......S3

Pump designation	P3	P6	P12
Flow rate	0,85 <b>ℓ</b> /min.	1,60 <i>e</i> /min.	3,10 <i>d</i> /min.
Mean working pressure	1MPa (10 bars)	2MPa (20 bars)	2MPa (20 b
Max. working pressure	3MPa (30 bars)	4MPa (40 bars)	4MPa (40 ba
Working temperature	20°C +80°C		
Oil type	OIL FADINI A 1	5 by Agip	
Oil reservoir capacity	2 dm³		
Motor pump static weight	10 Kg		
IP protection standards	IP 54		
Duty cycle 28 sec. opening - Time of one complete cycle Complete cycles - Opening - No. of cycles per year 8 hou	Stop - Closing		86 s N. 41/hour
No. of cycles per year 8 hou	rs' service a da	y	N. 122 <sup>°</sup> 000

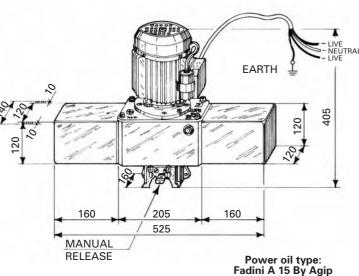
# Motor pump whit supplementary oil containers

Pump designation	P16	
Pump flow rate	3,90 <i>e</i> /min.	
Mean working pressure	2MPa (20 bars)	
Max. pump pressure	4MPa (40 bars)	
Working temperature	-20°C +80°C	
Power oil type		
Motor pump static weight		
IP protection standards		
Oil capacity		
Empty supplement capacity		
- , , ,		

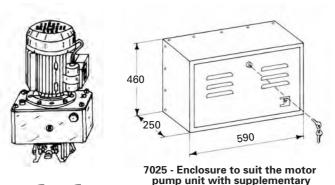
MEC 700/80 Ventil is an oil-hydraulic motor pump fitted with the new "lobe" pump; this unit is capable of very quiet operations and can assure constant oil pressure at 40 bars, heavy duty. The air-cooled electric motor, 1 350 r.p.m., is designed to maintain the power at the required constant rate for heavy duty, right-hand/left-hand operations without variation in oil pressure rating. The motor and the pump are coupled together by means of an elastic joint that is fitted between the two rotation shafts. It provides an ideal shock mount to absorb the kickbacks of the electric motor when rotation is reversed in order to pressurize oil in the opposite direction either to the right or left of the hydraulic circuit. The valve block provides a fixing base to the whole assembly, ie. the motor and pump, and incorporates two safety pressure valves and a locking device in the shape of a cylindrical shuttle. The purpose of this device is to provide a hydraulic lock in the oil circuit both in the open and close directions. Between the two pressure valves is the manual release device. When the electric motor is switched off (stopped) the hydraulic circuit can be released so that the unit is set for manual operations. The valve block is also available in the option without locking device. The motor pump unit is set to either locking or non locking during assembling phase. There are three different types of lobe pumps, depending on the specific component parts that make up the pump assembly. The flow rate, ie. the amount of fluid that each pump can displace under pressure, can be varied to meet the application requirements.



**PIC. 32** 



PIC. 33



oil containers.





1 FA	DINI.	_	700 27 (a - Fau 33)834
MOTOR	2 PHASE		
W	400	HP	0,33
VOLT	230	A	2
Rev/min.	1350	Hz	50
Nm	1,7	μF	12,5
Protection	Ştandards I	P 673	
Working	oressure max	c. 3 MP	a (30 Bars
OIL FADI	NI A15 BY A	GIP	16
MADE IN	ITALY		66

Data sticker

700/80 VENTIL
OIL-HYDRAULIC MOTOR PUMP

<b>□</b> FA	DIM.	VE	700/80 NTIL 0122 ra - Fax 331054
MOTOR	2 PHASE	1	
W	510	HP	0,5
VOLT	230	A	2,4
Rev/min.	1350	Hz	50
Nm	2,6	μF	20
Protection	Ştandards	IP 54	
Working	pressure max	k. 3 M	Pa (30 Bars
OIL FADIN	NI A15 BY A	GIP	11
MADE IN	ITALY		16

Data sticker electric motor

### **WARNINGS**

- Perform a Risk Analysis befor every installation and resolve risks through the use of safety devices in compliance with EN 12445 and EN 12453 safety standards
- Follow the istructions provided
- Check that the information on the electric motor plate conforms to the distribution network
- Dispose of all cardboard, nylon, polystyrene and other packaging with specialized waste disposal firms
- If removing the actuator, do not cut the electric wires, but disconnect them from the terminal box by loosening the screws inside the iunction box
- Disconnect the mains switch before opening the electrical wire junction box cover
- The whole automation should be earthed with the yellow/green wire - CUSTOMER GUARANTEE CERTIFICATE ON CUSTOMER'S REQUEST
- We recommend reading the "warning" regulations, suggestions and observations in this booklet very carefully.

Meccanica Fadini recommends the control panel **ELPRO 13 CEI** for installations in conformity to the existing safety standards. The electronic programmer "ELPRO 13" incorporates and can provide all the functions which are required by the most demanding applications with swinging gates. In addition to the features of a conventional control box type Elpro 9 (drwg. 1310), the following requirements can be provided: "stroke reversing pulse", pedestrian mode, stop in any gate position by holding down the remote control button. Among the added features and improvements of "ELPRO 13", in conformity to the European safety standards, there is the mains rotary switch: it is fitted to the box cover and switches off the mains voltage whenever the cover is removed.



**Elpro** • 1 3 cei MAINS SWITCH



**EUROPEAN MARK CERTIFYING CONFORMITY TO** THE ESSENTIAL REQUIREMENTS OF THE STANDARDS 98/37/EC

- DECLARATION OF CONFORMITY
- GENERAL WARNINGS
- EN 12453, EN 12445 STANDARDS
- CEI EN 60204-1 STANDARDS
- WARRANTY CERTIFICATE ON THE CUSTOMER'S REQUEST

The "CE" mark certifies that the operator conforms to the essential requirements of the European Directive art. 10 CEE 73/23, in relation to the manufacturer's declaration for the supplied items, in compliance whit the body of the regulations ISO 9000 = UNI EN 29000. Automation in conformity to EN 12453, EN 12445 safety standards.



AUTOMATIC GATE MANUFACTURERS

### **INSPECTIONS AND MAINTENANCE**

In order to ensure optimal system performance over time and so as to comply with current safety standards, it is necessary to follow the correct maintenance and monitoring procedures for the entire automation, electronic devices and wiring:

- Oil-hydraulic automation: maintenance inspection around every 6 months
- Electronic devices and safety systems: maintenance inspection monthly

### **IMPORTANT WARNING NOTES**

- It is recommended to keep to the instructions here outlined -check the specifications on the motor sticker with your mains supply.
- Dispose properly of the packaging materials such as cardboard, nylon, polystyrene etc. through specializing companies.
- Switch off the mains power switch before removing the cover of the motor pump enclosure.
- All the system must be earthed by using the yellow/green wire, marked by its specific symbol. - It is recommended to read the regulations, suggestions and remarks quoted in the booklet "Warnings".
- Before removing the ram, make the oil flow back to the reservoir in the motor pump unit through the release system; should the motor pump be removed, too for service or maintenance, plug the pipe joints to prevent oil from coming out during transport.

The growth of MECCANICA FADINI has always been based on the development of guaranteed products thanks to our "TOTAL QUALITY CONTROL" system which ensures constant quality standards, updated knowledge of the European Standards and compliance whit their requirements, in view of an ever increasing process of improvement.



Made in Italy



Distributor's box

The manufacturers reserve the right to change the products without any previous notice