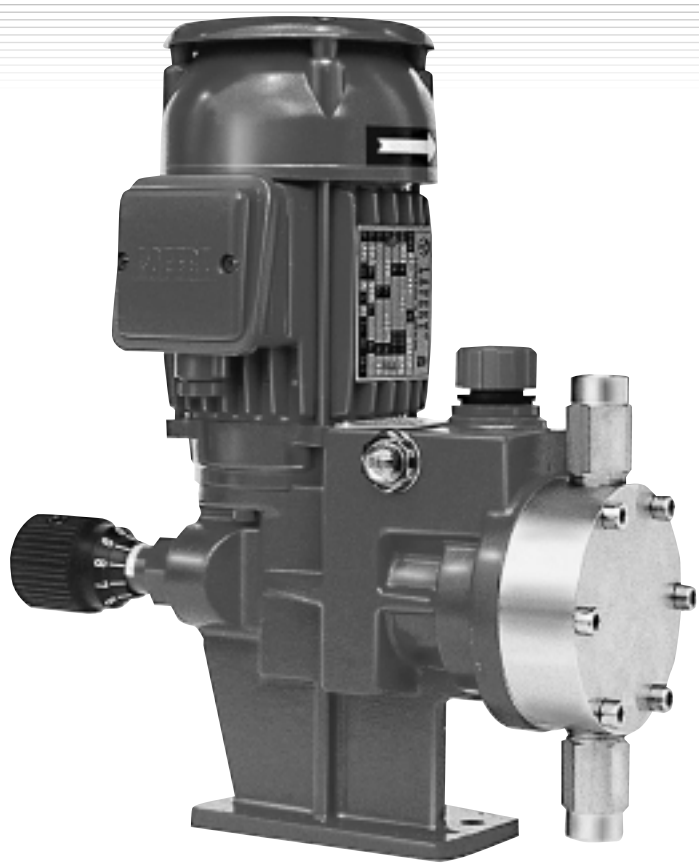


HYDRAULIC DIAPHRAGM METERING PUMPS

MECHANICALLY ACTUATED OIL REPLENISHING

SERIES
XR
XRN

ENGLISH



JOB N°						
PUMP TYPE						
SHEET						
ELECTRIC ACTUATOR TYPE						
OVERALL DRAWING		14				
	XR	14				
	XRN	15				
MECHANISM SECTIONAL DRAWING		16				
PUMPHEAD SECTIONAL DRAWING		18				
ENCLOSED						
ITEM						
SERIAL/SN°						



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CAUTION!



INFORMATION FOR CUSTOMERS

OBL s.r.l. welcome pumps despatched to our premises for servicing.

Basic suggestion for pump cleaning

MANDATORY REQUIREMENT




Pumps to be sent with cleanness certificate, so free from any chemical trace into liquid end and all wetted parts.

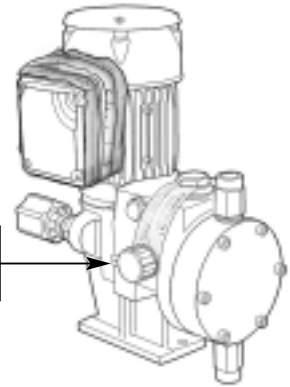
If not supplied, pump (s) will be rejected and sent back at customer's charges.

1 - Close terminal box cover and seal cable entry with PG plugs.

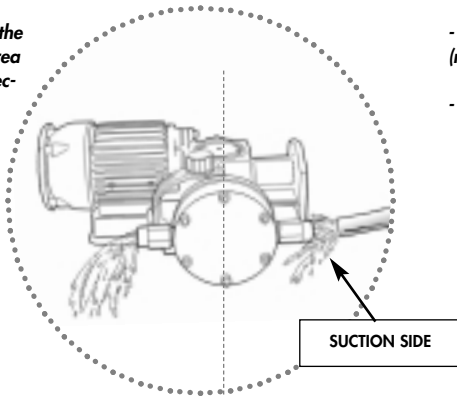
- If there are no PG plugs available then terminal box must be sealed with adhesive waterproof tape.

- Replace the temporary filling plug with the enclosed to the appropriate label (fig.15).

 Replace the temporary filling plug with the enclosed to the appropriate label (fig.15).

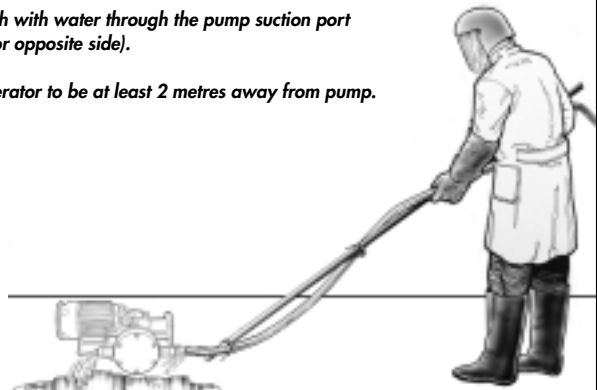


2 - Place the pump on the floor, in a suitable area for waste water collection, with the inlet and outlet ports horizontal.

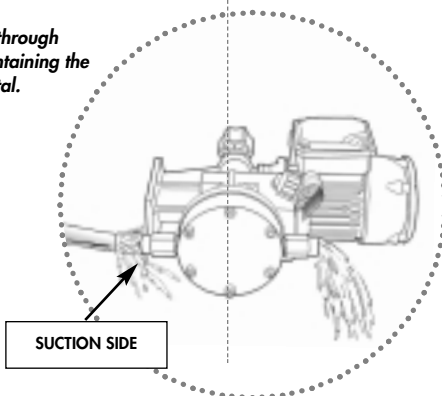


- Flush with water through the pump suction port (motor opposite side).

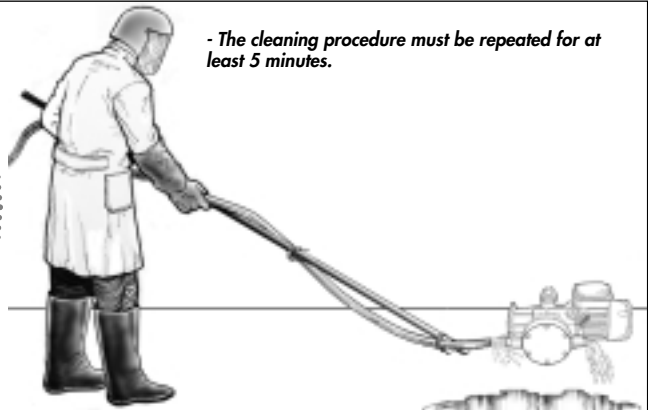
- Operator to be at least 2 metres away from pump.



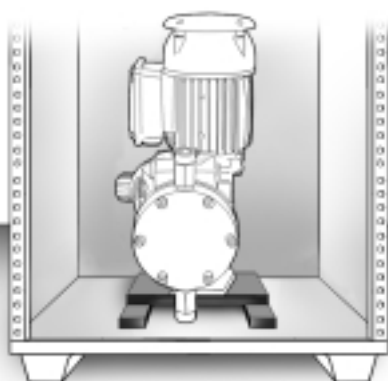
3 - Continue cleaning through discharge port, maintaining the connections horizontal.



- The cleaning procedure must be repeated for at least 5 minutes.



4 - Pump to be packed into palletised crate; pump to be nailed to the base in the vertical position.



Please be reminded to collect cleaning water in specific containers. Containers to be collected by authorised companies for the disposal of waste waters.

HYDRAULIC DIAPHRAGM METERING PUMPS

XR

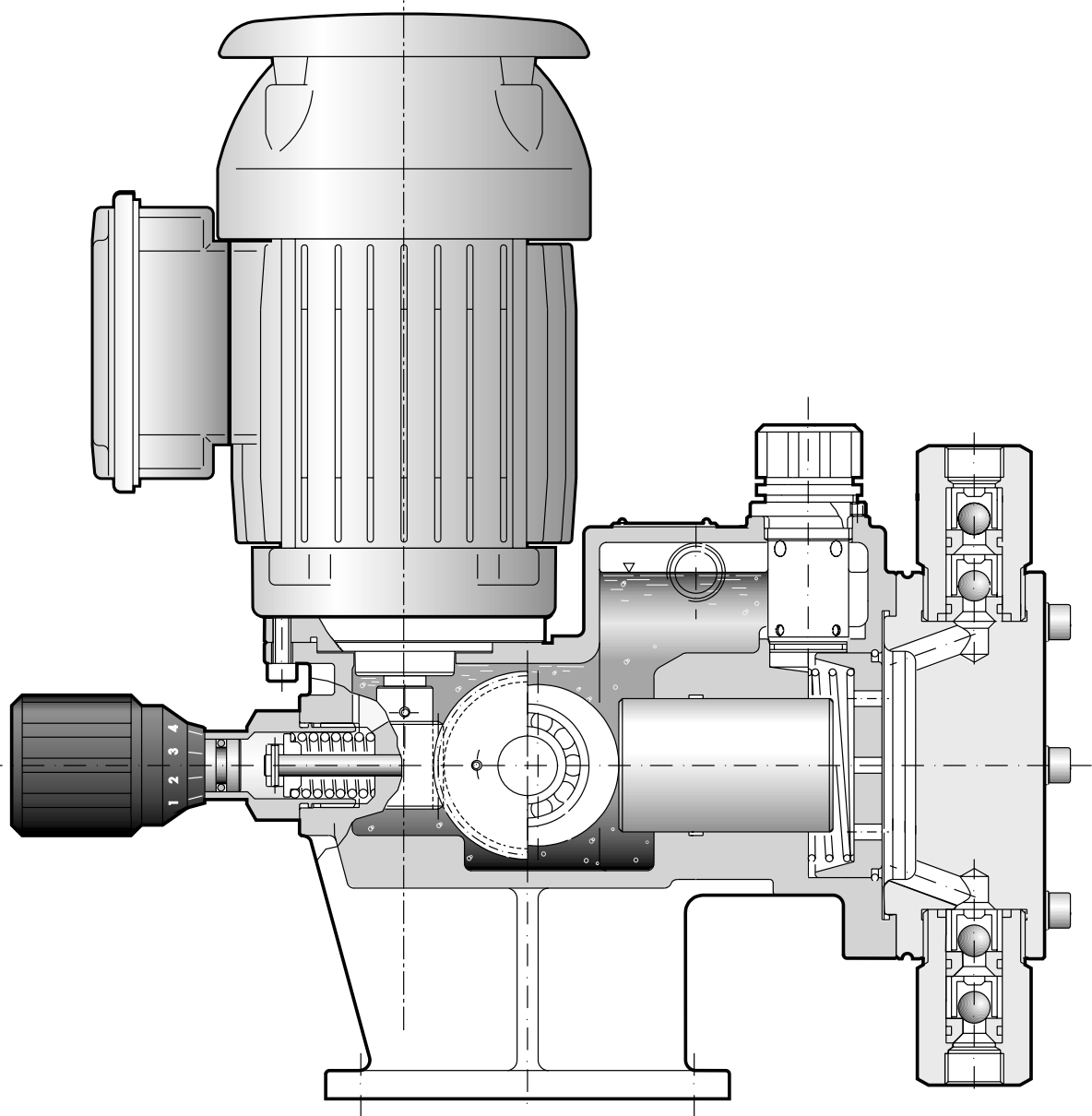


TYPE	STROKES/1'	MAX FLO W RATE l/h	Ø DIAPHRAGM	VALVE		MAX PRESSURE BAR			
				A	P	A		P	
						1PH	3PH	1PH	3PH
50 Hz									
XR2.15	55	0,6	71,8	CMXL 5	CCX 5	10	10	10	10
XR2.15	72	0,9	71,8	CMXL 5	CCX 5	10	10	10	10
XR2.15	85	1,2	71,8	CMXL 5	CCX 5	10	10	10	10
XR2.15	111	1,5	71,8	CMXL 5	CCX 5	10	10	10	10
XR2.15	145	2	71,8	CMXL 5	CCX 5	10	10	10	10
XR2.30	28	1,8	71,8	CMXL 5	CCX 5	20	20	10	10
XR2.30	36	2,5	71,8	CMXL 5	CCX 5	20	20	10	10
XR2.30	55	3,8	71,8	CMXL 5	CCX 5	20	20	10	10
XR2.30	72	5	71,8	CMXL 5	CCX 5	20	20	10	10
XR2.30	85	5,5	71,8	CMXL 5	CCX 5	20	20	10	10
XR2.30	111	7,5	71,8	CMXL 5	CCX 5	20	20	10	10
XR2.30	145	11	71,8	CMXL 5	CCX 5	20	20	10	10
XR6.30	55	10	71,8	CMX 7	VPX 7	16	20	10	10
XR6.30	72	14	71,8	CMX 7	VPX 7	16	20	10	10
XR6.30	85	20	71,8	CMX 7	VPX 7	16	20	10	10
XR6.30	111	23	71,8	CMX 7	VPX 7	16	20	10	10
XR6.30	145	30	71,8	CMX 7	VPX 7	16	20	10	10
XR6.38	72	26	87,8	CMX 7	VPX 7	10	15	10	10
XR6.38	85	32	87,8	CMX 7	VPX 7	10	15	10	10
XR6.38	111	42	87,8	CMX 7	VPX 7	10	15	10	10
XR6.38	145	54	87,8	CMX 7	VPX 7	10	15	10	10
XR6.38	170	65	87,8	CMX 7	VPX 7	10	15	10	10
XR6.48	72	42	87,8	CMX 7	VPX 7	7	10	7	10
XR6.48	85	50	87,8	CMX 7	VPX 7	7	10	7	10
XR6.48	111	66	87,8	CMX 7	VPX 7	5	8	5	8
XR6.48	145	87	87,8	CMX 7	VPX 7	5	8	5	8
XR6.48	170	105	87,8	CMX 7	VPX 7	5	8	5	8

XRN



TYPE	STROKES/1'	MAX FLO W RATE l/h	Ø DIAPHRAGM	VALVE		MAX PRESSURE BAR			
				A	P	A		P	
						1PH	3PH	1PH	3PH
50 Hz									
XRN2.30	28	1,8	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	36	2,5	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	55	3,8	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	72	5	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	85	5,5	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	111	7,5	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	145	11	71,8	CMXL 5	CCX 5	20	20	10	10
XRN6.30	55	10	71,8	CMX 7	VPX 7	16	20	10	10
XRN6.30	72	14	71,8	CMX 7	VPX 7	16	20	10	10
XRN6.30	85	20	71,8	CMX 7	VPX 7	16	20	10	10
XRN6.30	111	23	71,8	CMX 7	VPX 7	16	20	10	10
XRN6.30	145	30	71,8	CMX 7	VPX 7	16	20	10	10
XRN6.38	72	26	87,8	CMX 7	VPX 7	10	15	10	10
XRN6.38	85	32	87,8	CMX 7	VPX 7	10	15	10	10
XRN6.38	111	42	87,8	CMX 7	VPX 7	10	15	10	10
XRN6.38	145	54	87,8	CMX 7	VPX 7	10	15	10	10
XRN6.38	170	65	87,8	CMX 7	VPX 7	10	15	10	10
XRN6.48	72	42	87,8	CMX 7	VPX 7	7	10	7	10
XRN6.48	85	50	87,8	CMX 7	VPX 7	7	10	7	10
XRN6.48	111	66	87,8	CMX 7	VPX 7	5	8	5	8
XRN6.48	145	87	87,8	CMX 7	VPX 7	5	8	5	8
XRN6.48	170	105	87,8	CMX 7	VPX 7	5	8	5	8
60 Hz									
XRN2.30	33	2,5	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	43	3	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	51	3,5	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	67	4,5	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	87	6	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	103	7	71,8	CMXL 5	CCX 5	20	20	10	10
XRN2.30	133	10	71,8	CMXL 5	CCX 5	20	20	10	10
XRN6.30	51	10	71,8	CMX 7	VPX 7	16	20	10	10
XRN6.30	67	14	71,8	CMX 7	VPX 7	16	20	10	10
XRN6.30	87	20	71,8	CMX 7	VPX 7	16	20	10	10
XRN6.30	103	24	71,8	CMX 7	VPX 7	16	20	10	10
XRN6.30	133	30	71,8	CMX 7	VPX 7	16	20	10	10
XRN6.38	67	24	87,8	CMX 7	VPX 7	10	15	10	10
XRN6.38	87	33	87,8	CMX 7	VPX 7	10	15	10	10
XRN6.38	103	40	87,8	CMX 7	VPX 7	10	15	10	10
XRN6.38	133	50	87,8	CMX 7	VPX 7	10	15	10	10
XRN6.38	174	68	87,8	CMX 7	VPX 7	10	15	10	10
XRN6.48	67	38	87,8	CMX 7	VPX 7	7	10	7	10
XRN6.48	87	50	87,8	CMX 7	VPX 7	7	10	7	10
XRN6.48	103	62	87,8	CMX 7	VPX 7	5	8	5	8
XRN6.48	133	80	87,8	CMX 7	VPX 7	5	8	5	8
XRN6.48	174	105	87,8	CMX 7	VPX 7	5	8	5	8



↓ BUILT-IN RELIEF VALVE SETTING WORKING PRESSURE

BUILT-IN RELIEF VALVE STD SETTINGS	MAX PRESS. DI ESERCIZIO
5 bar	4 bar
7 bar	5,5 bar
8 bar	6,5 bar
10 bar	8,5 bar
15 bar	13 bar
17 bar	14,5 bar
20 bar	17 bar

↓ MATERIALS OF CONSTRUCTION

PARTS	A	P	P11	A32	P32
LIQUID END	AISI 316L	PVC	PVC	AISI 316L	PVC
VALVE GUIDE	PE	PE	PE	PE	PE
VALVE SEAT	AISI 316L	PVC	AISI 316L	INCOLOY 825	INCOLOY 825
VALVE	AISI 316L	PIREX	AISI 316L	HASTELLOY C-276	HASTELLOY C-276
VALVE SEAL	VITON (FPM)	VITON (FPM)	VITON (FPM)	VITON (FPM)	VITON (FPM)
VALVE HOUSING	AISI 316L	PVC	PVC	AISI 316L	PVC
DIAPHRAGM	TEFLON (PTFE)	TEFLON (PTFE)	TEFLON (PTFE)	TEFLON (PTFE)	TEFLON (PTFE)

↓ MODEL NUMBER

KEY TO SYMBOLS

PUMP TYPE
 PULLINGER STROKE: 2 - 6
 Ø PULLINGER: 30 - 38 - 48

XR XRN 2. 30 P 85 F Z MU G

P	PVC VERSION
A	AISI-316L VERSION
P11	AISI-316L VALVES&SEATS
P32	SEAT: INCOLOY 825-VALVES; HASTELLOY@C-276
G	CLOCK-TYPE ADJUSTMENT
MU	UNIFIED MOTOR
Z	4÷20 mA ELECTRIC ACTUATOR
W	3÷15 PSI PNEUMATIC ACTUATOR
F	ANSI FLANGED CONNECTIONS
FA	ATTACCHI FLANGIATI ANSI
N°	STROKES/m: 19 - 28 - 36 - 55 - 72 - 85 - 111 - 145 - 170

1.1 DESCRIPTION OF THE PUMP

• The OBL's metering pumps "XR - XRN" series are controlled-volume reciprocating pumps (fig. 1). The crank gear is activated by a r.p.m. constant electrical motor. Plunger strokes per minute are determined by an internal reduction gear made up of an endless screw worm wheel system, oil bath lubricated.

The crank gear is of eccentric type with spring return.

The thrust stage is determined by the direct contact of the eccentric against the plunger, by the motor power, whereas the suction stage is given by a spring which determines the return stroke of the plunger.

The capacity adjustment, from 0% to 100%, is obtained by changing the return stroke of the plunger, by means of a threaded spindle equipped with a micrometric scale knob (0÷10).

• The metering pump "XR-XRN" series, with spring return, hydraulic diaphragm pumphead, mechanically actuated replenishing, safety and air-bleed valve on the oil circuit is unique, and its main technical features, and advantages of utilisation can be summed up as follows:

1 - The diaphragm pump is suitable for metering several kind of products:

- Acids
- Bases
- Solvents with abrasive slurry
- Viscosity in the average (max. 2000 cps basic version)
- High viscosity (max. 20000 cps HV version)
- Food stuff

2 - The hydraulic system with mechanically actuated replenishing (or "intelligent diaphragm") prevents from incidental errors that may occur on the suction and delivery pipings.

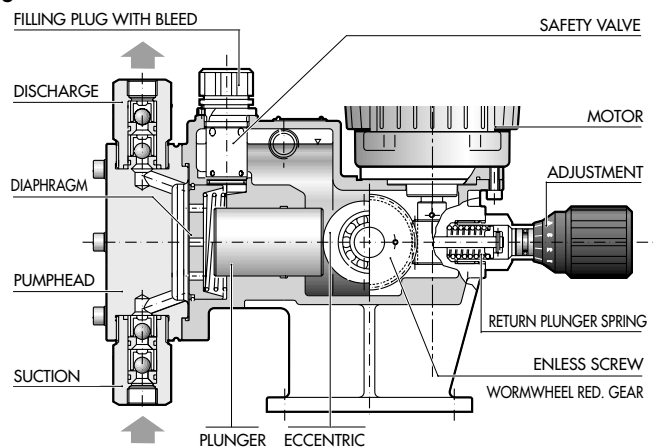
3 - High suction capacity and self-adapting to the NPSH a (10 ÷ 4 mt. max.), thanks to the hydraulic system with mechanically actuated replenishing and air bleed-valve.

4 - **Minimum maintenance:** The plunger is sealess and therefore no maintenance is required. The plunger, traslating and turning on a oil film, gives the initial volumetric efficiency even after 30.000 working hours. The diaphragm, protected by the safety valve and the mechanically actuated replenishing, has a self-handling max. deformation, and with no-solidifier or crystallizer products its life can be longer than 30.000 hours.

5 - **Easy to install:** Thanks to the safety valve on the oil circuit a 50% saving of installation is guaranteed. Other pumps have to consider the cost of a safety valve installed on the discharge piping, together with the relevant fittings, their assembling, handling and maintenance.

6 - **Safety conforming to the "CE" regulation:** The enbloc construction of the pump without external parts in movements, together with the internal safety valve, make the pump perfectly complying with the european safety regulations.

Fig. 1



1.2 FLOW RATE

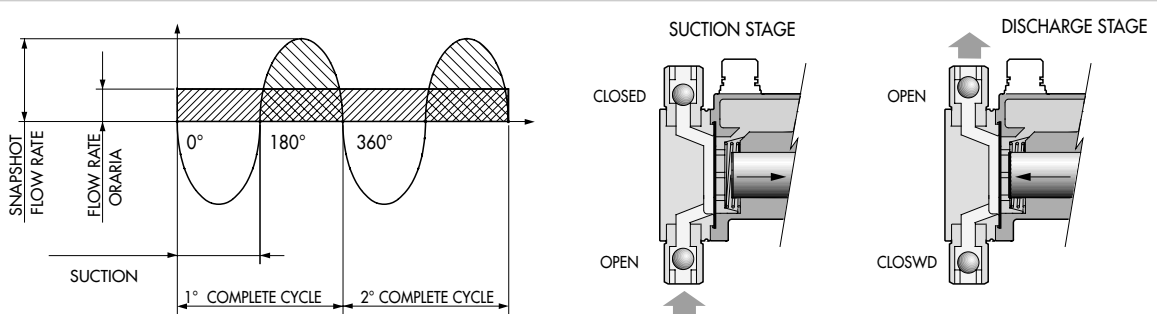
• The pumphead is of hydraulic diaphragm type, with mechanically actuated replenishing, safety and air bleed valve on the oil circuit.

The diaphragm is activated by a so called "integral" hydraulic system, because it interacts with the thrust system, through the plunger and the safety valve, in a single sump with common oil. The plunger tightness is given by a zero-clearance gap between plunger and cylinder, without wearing elements.

The diaphragm is independently held. Should the pumphead be dismantled, there would be not oil leakage. The maintenance is restricted to the valves cleaning and to the oil level check.

Because of its reciprocating motion, the pump generates a pulsating flow. The operating cycle is shown in fig 2.

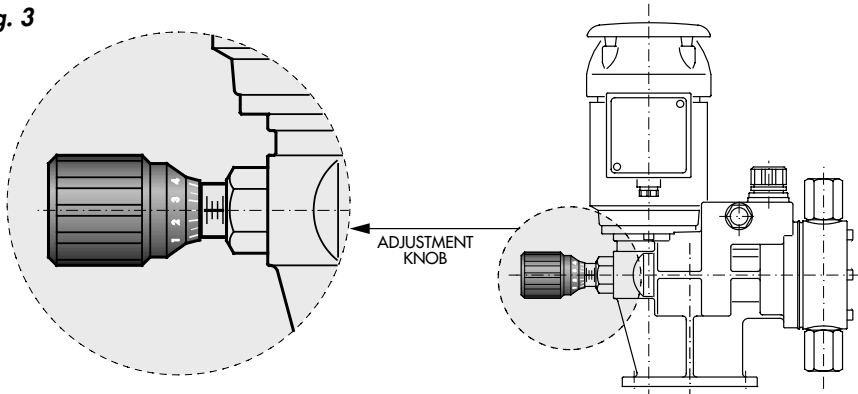
Fig. 2



1.3 MANUAL ADJUSTMENT

FLOW RATE MANUAL ADJUSTMENT WITH MOBILE GRADUATED KNOB AND FIXED NONIUS

Fig. 3



• In "XR-XRN" pumps, the adjustment of the flow rate is performed by means of a graduate knob and fixed vernier, in percentage from 0% to 100% of the max. rated capacity (fig. 3).

1.4 MOTOR CHARACTERISTICS ACCORDING TO THE PUMP SIZE

• The electrical motor can be supplied in two different, versions.

A MOTOR "BASIC" VERSION

Shaft and flange in this kind of motor are designed by OBL, therefore the pump cannot be supplied without motor because the endless screw is keyed directly on the motor shaft (fig. 4)

Fig. 4

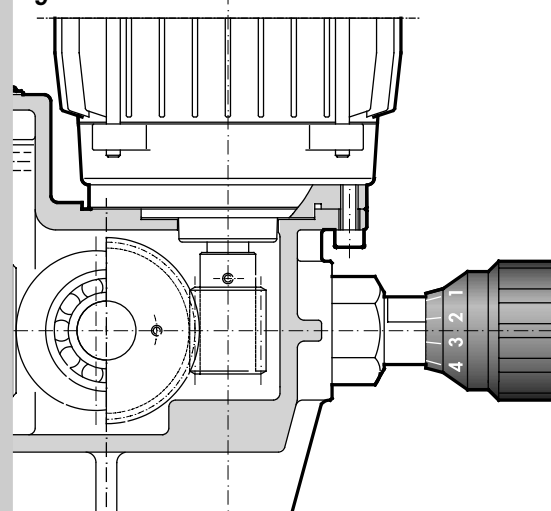


Table A

STANDARD MOTOR CHARACTERISTICS (SPECIAL)											
LAFERT						GAMAR					
XR						XRN					
PHASES	Kw	POLES	SIZE	VOLT	Hz	PHASES	Kw	POLES	SIZE	VOLT	Hz
THREEPH	0,09	4	56	230 - 400	50	THREEPH	0,18	4	63	230 - 400	50
										220 - 290	60
										380 - 500	60
										220-240	50
MONOPH	0,13	2	56	230	50	MONOPH	0,09	4	63	115	50
				110						230	60
										115	60

B MOTOR "UNEL-MEC" VERSION

In this version the endless screw is independently supported from the motor by two bearing balls (fig. 5).

Fig. 5

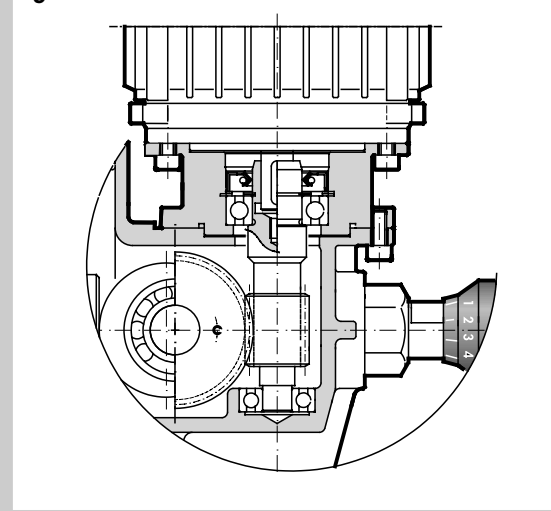


Table B

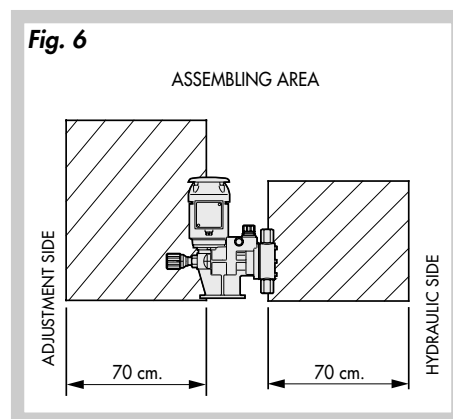
OPTIONAL MOTOR CHARACTERISTICS											
LAFERT						GAMAR					
XR						XRN					
PHASES	Kw	POLES	SIZE	VOLT	Hz	PHASES	Kw	POLES	SIZE	VOLT	Hz
THREEPH	0,18	4	63	230 - 400	50	THREEPH	0,18	4	63	230 - 400	50
										220 - 290	60
										380 - 500	60
										220-240	50
MONOPH	0,18	4	63	230	50	MONOPH	0,09	4	63	115	50
				110						230	60
										115	60

• This pump has a flange for UNEL - MEC motor driving end. It is therefore possible to supply the pumps without motor. Any motor make can be installed on the pump, on the condition that the following indications are followed: 0,18 kw 4 poles (1500 r.p.m.) three-phase or single-phase size 63 frame B14 UNEL - MEC.

2.1 INSTRUCTIONS FOR A PROPER INSTALLATION

- Provide with adequate clearance areas and safe access for operation and maintenance, in particular in front of the hydraulic side and of the adjustment knob (fig. 6).
- If the pump is installed outdoors, a shelter is recommended, specially when the pump is equipped with electric actuators or other delicate devices.
- PVC pump heads can work properly only at ambient temperature and metered liquid temperatures below 40°C.
- If necessary, provide suitable protection from sun rays and check the temperature of the metered liquid.

Fig. 6



2.2 SUCTION LINE

• A proper installation and sizing of the suction line are of particular importance for a correct operation of the pump, the following factors shall be taken into account:

A) Pipe inner diameter

The pipe internal diameter will be chosen according to the pump flow rate (see table C).

B) Length of the piping

The suction piping length should be as short as possible, while the height shall not exceed 1 m.

C) Arrangement of the suction line

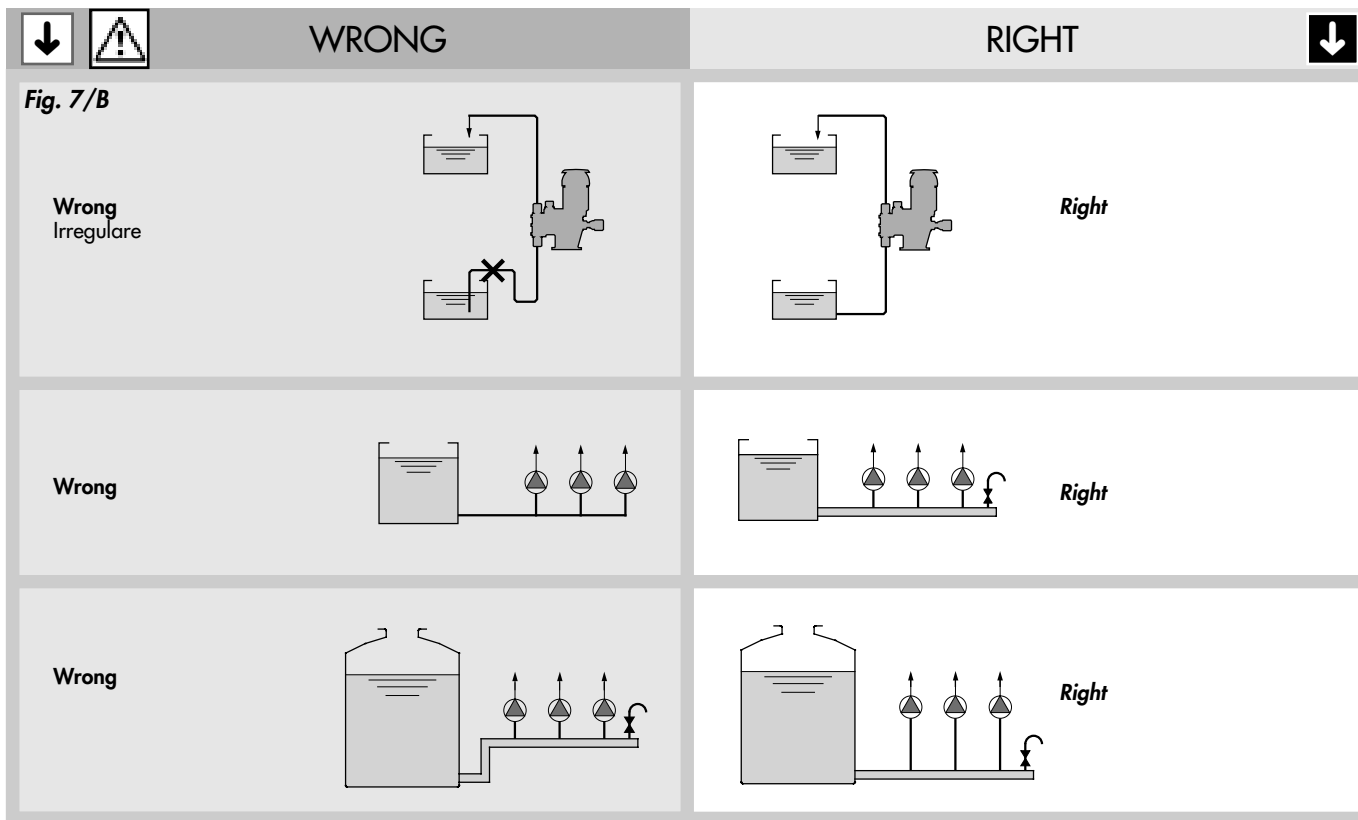
With regard to the arrangement of the suction line see Fig. 7/A and 7/B.

Table C

Relationship between flow rate and pipe size installation over hydrostatic head (valid for water)

Max flow rate L/h	Pipe size
0÷5	Ø 4
0÷15	Ø 6
0÷50	Ø 1/4"
0÷100	Ø 3/8"

WRONG	RIGHT
<p>Fig. 7/A</p> <p>Wrong Risk of clogging of pump valves</p>	<p style="text-align: right;">Right</p>
<p>Wrong In the highest point of the piping the fluid vein breaks</p>	<p style="text-align: right;">Right</p>
<p>Wrong Pipe size not in accordance with table C</p>	<p style="text-align: right;">Right Pipe size is in accordance with table C</p>



2.3 SUCTION SIDE FILTER

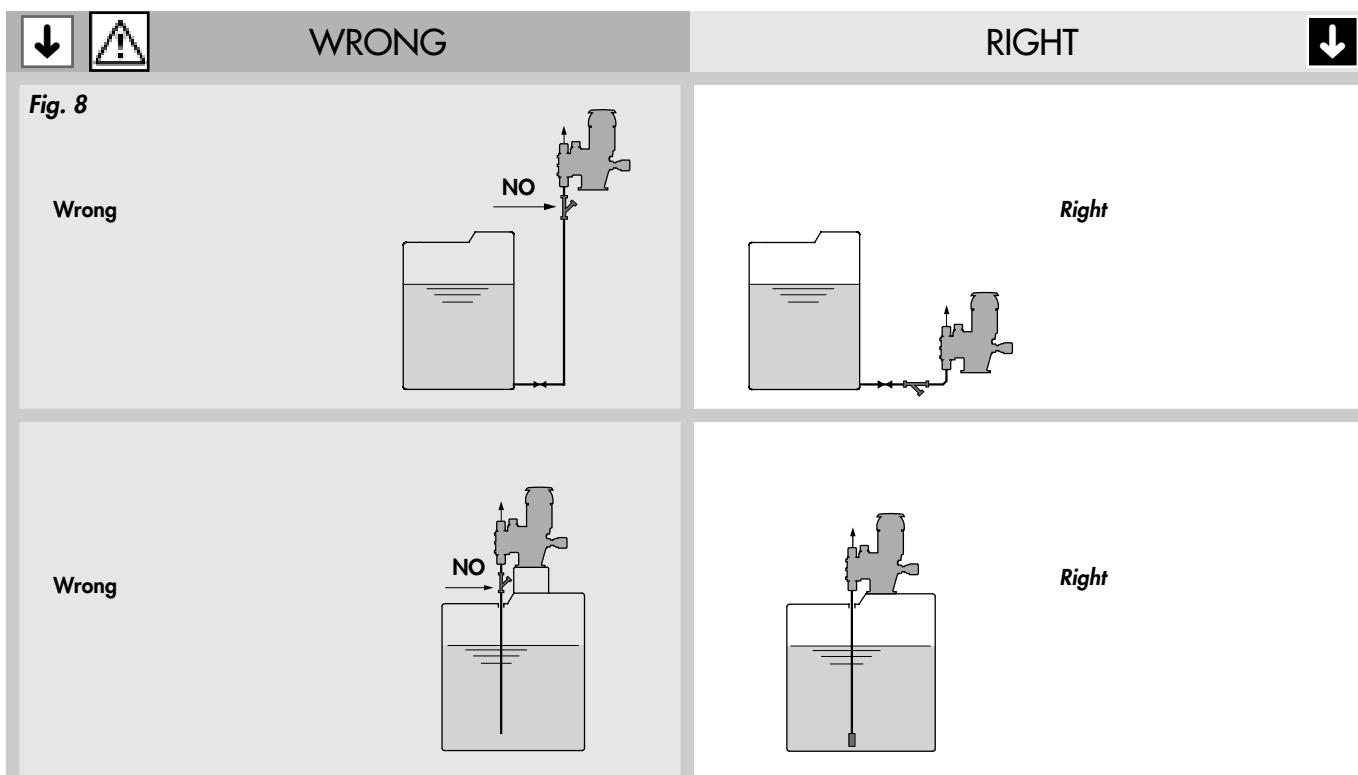
• The installation of a filter on the suction side is always recommended, particularly when the liquid to be metered contains suspended particles.

Caution: A small-sized filter will affect the metering performances. Use Y- filters with a size larger than the suction pipe diameter.

The characteristics of the filter net depend on the kind of liquid and pump flow rate. For liquids with viscosity not exceeding 200 cp see table D.

Max flow rate L/h	Mesch
1 ÷ 10	60
10 ÷ 50	50
50 ÷ 100	40

Examples of installation of the filter



2.4 SUCTION PIPING FOR VISCOUS LIQUIDS

• Specific technical information is required for the installation of pumps intended for metering viscous liquids.

- For this kind of application we recommend stainless steel pumpheads. Spring-loaded discharge valves are also recommended in the event of high-viscosity liquids.

- The suction piping must have an adequate diameter; as a rule, for high-viscosity liquids (2000 cps), select the size immediately above the diameter of the pump suction connections.

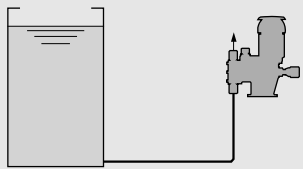
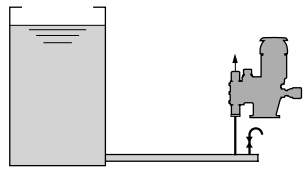
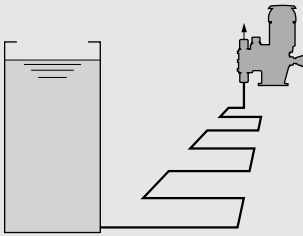
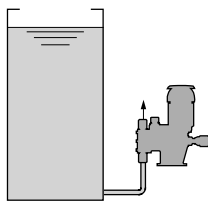
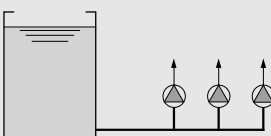
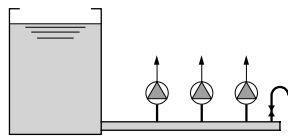
- In any case, when viscous liquids are to be metered choose for the pipe at least the same size as that of the pump connections.

Table E

S.P.M./1'	cp max execution "A"
85÷111	100
72÷85	300
55÷72	800
36÷55	1500
19÷36	2000

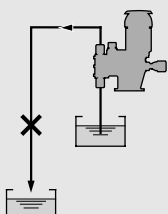
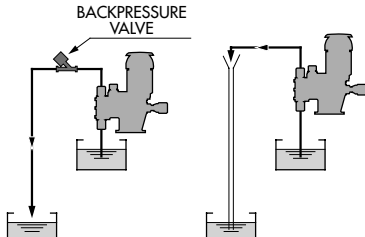
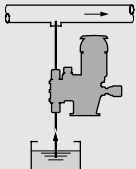
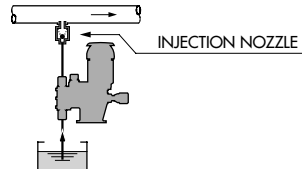
Relationship between strokes per minute "SPM" and viscosity of the liquid "cp" (Stainless steel pump head).

Examples of installation for viscous liquids

↓ ⚠	WRONG	RIGHT	↓
Fig. 9	Wrong 	Recommended 	
Wrong		Recommended 	
Wrong		Right 	

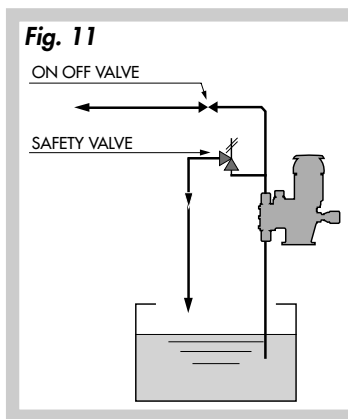
2.5 DISCHARGE LINE

• For the arrangement of the discharge piping see fig. 10.

↓ ⚠	WRONG	RIGHT	↓
Fig. 10	Wrong 	Right 	
Wrong		Right 	

2.6 SAFETY VALVE

- The safety valve installation is not necessary because it is already existing in the hydraulic system. Anyhow if foreseen read the following considerations:
 - The safety valve has to be installed immediately after the discharge connection, anyhow before the on-off valve.
 - The safety valve setting (opening pressure) must not exceed the pump max. pressure value.
 - The safety valve protects the pump from:
 - Excessive pressure (pressure higher than the rated value).
 - Operator mistakes (for ex., on-off valve closed on the discharge line when the pump is running).
 - Obstruction of the discharge piping (reduction in section clogging).

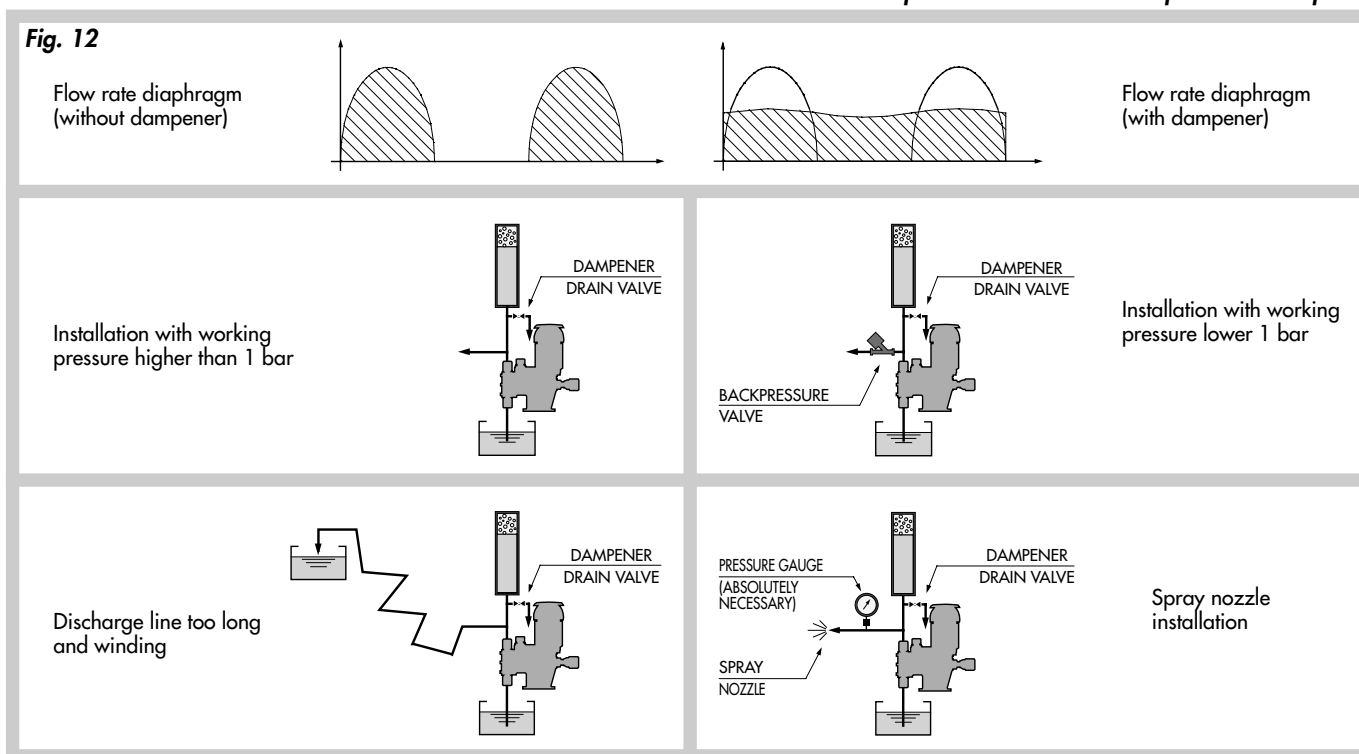


2.7 INSTALLATION OF THE PULSATION DAMPENER

- The pulsation dampener is decisive for a proper operation of the metering pumps. The installation of a pulsation dampener offers several advantages because this device:
 - Protects the metering pump against pressure peaks, thus increasing the working life of the pump.
 - Prevents vibrations all along the discharge line.
 - Makes the flow linear, useful for the process.

The pulsating flow, which is a negative characteristic of all metering pumps, can therefore be prevented by installing a pulsation dampener on the discharge line (fig. 12).

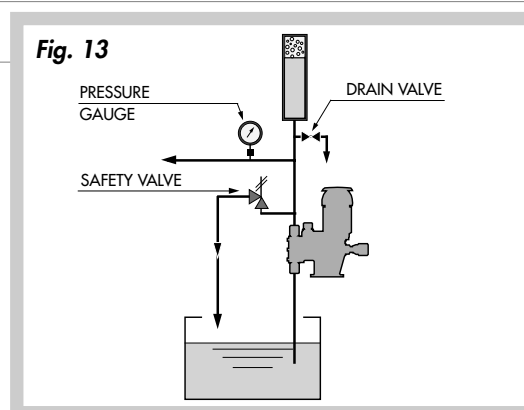
Examples of installation of the pulsation dampener



2.8 INSTALLATION OF THE PRESSURE GAUGE

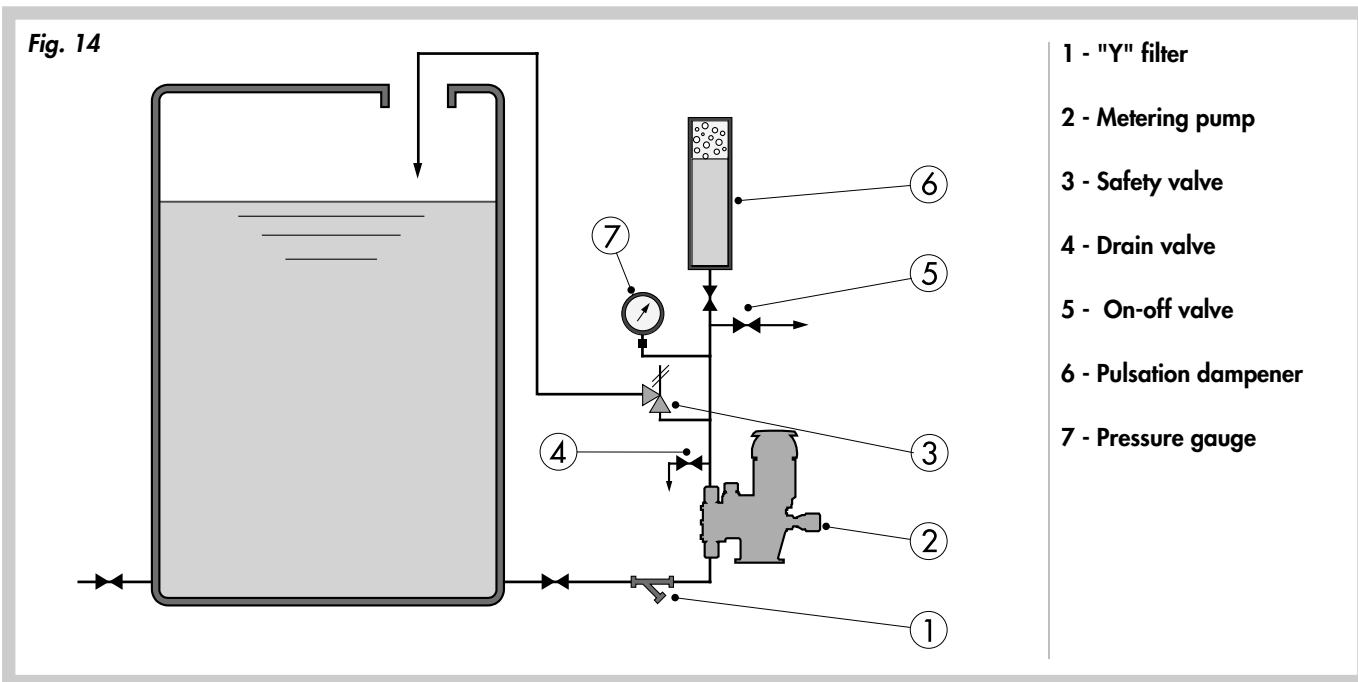
- In order to check if the metering pump operates correctly, it is essential to install a pressure gauge on the discharge line (fig. 13).

The pressure gauge shows the actual working pressure of the metering pump. This value must not exceed the max. allowed pressure of the pump.



2.9 STANDARD PLANT ARRANGEMENT

• Figure 14 shows the indications for a correct installation of the metering pumps.



3

STARTUP

3.1 BEFORE THE STARTUP

BEFORE THE STARTUP VERIFY THE FOLLOWING CONDITIONS:

- Make sure that the baseplate is made of steel, stable and even. Do not install the pump directly on a concrete foundation.
- Fix the pump to the baseplate using the specific anchor holes in the pump feet.
- Make sure that the pump valve axis is perfectly upright.
- Before connecting the piping to the pump, it is absolutely necessary to flush the pipelines with water, especially the suction line and relevant feed tank.



This preliminary flushing is often underestimated by the installer; if this operation is not properly carried out, the pump will become a collector of all foreign matters contained in the pipeline and tank, such as weld drops, gasket scraps, soil and other stuff.

- The pipelines must be independently supported, so as to prevent stresses on the pumphead. Therefore, besides the baseplate, the pump needs a supporting framework for both suction and discharge pipelines.
- It is recommended to fit a cross after the discharge flange. This fitting will facilitate the removal of the pump from the baseplate and can be used for the installation of pressure gauges, safety valves and dampeners.
- Make sure that the pipeline fittings and flanges are perfectly tight and in particular that no air enters the suction line, as this would hinder the priming of the pump.

3.2 STARTUP

THE STARTUP HAS TO BE DONE AS FOLLOWS:

- Replace the temporary filling plug with the one enclosed to the appropriate label (fig. 15). Due to transportation needs, the pump is supplied with a blind filling plug in order to avoid oil leakage.

Fig. 15





CAUTION! THE PUMP DOES NOT NEED OIL.

- Check the oil level through the oil window (fig. 16):

The pump is filled up with oil: **ESSO SPARTAN EP 68**

Since the pump is of integral hydraulic diaphragm type, where the diaphragm hydraulic system and the thrust mechanism have the oil in common, its filling up is done during the testing.

Eventually top up when the pump is running and adjusted to the 100 %: the oil quantity is correct when half-level of the oil window is reached; extra oil would be expelled through the bleed.

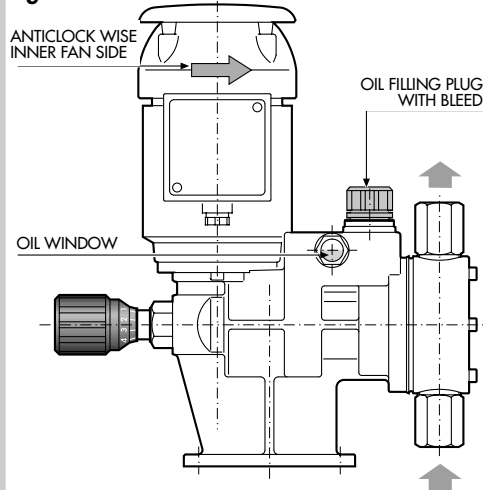
The pump works properly even when the oil is 15 mm lower than half-level of the oil window.

A lower level may cause air entry inside the diaphragm chamber with consequent fall of the flow rate.

The oil type must have a fairly high viscosity to lubricate the reduction gear, and suitably fluid for the needs of the hydraulic system.

- Use oil for gears with viscosity $5 \div 6$ °E at 50 °C (ISO index of viscosity 68).
- Check all electric connections and also the direction of rotation of the motor (shown by the arrow on motor body).
- Make sure that all on-off valves on the suction and discharge pipelines are open.
- Make sure that the liquid to be metered has not solidified or frozen inside the piping.
- Carry out the first startup with discharge pressure as low as possible and with adjustment knob set to 20%; keep these conditions about 3 ÷ 5 minutes. Increase gradually the flow rate up to the maximum value, then set the pump to the required working conditions (flow rate and pressure).
- During the first stage check the pump discharge pressure by means of the pressure gauge: the pressure value (max. oscillation of the pointer) must not exceed the max. pressure indicated on the pump rating plate.

Fig. 16



3.3 POSSIBLE TROUBLES DURING STARTUP

FLOW RATE LOWER THAN EXPECTED

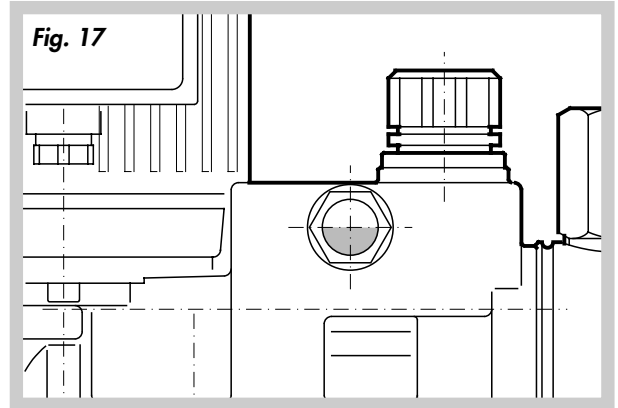
↓	CAUSES	↓	SOLUTIONS
	• Oil level in the gearbox is low:		Check (see Fig16).
	• Blind filling plug in order to avoid oil leakage:		Replace the temporary filling plug with the one enclosed to the appropriate label (see Fig.15).
	• Air trapped in the pumphead:		Keep shortly the flow rate to the max. Value.
	• Suction lift too high:		Reduce it.
	• Working pressure higher than the set pressure of the internal safety valve (rating plate):		Check with a pressure gauge.
	• Vapour pressure of the liquid too high:		Increase hydrostatic head on suction side.
	• Pumping temperatures too high:		Increase hydrostatic head on suction side.
	• Viscosity of the liquid too high:		Install a suction piping of larger diameter. Increase hydrostatic head on suction side.
	• Feed tank hermetically sealed and with no vent:		Make a vent in the tank upper part.
	• Suction piping clogged or valves shut:		Check.
	• Filter on suction side clogged:		Clean it.
	• Pump valves jammed because of dirt:		Strip the valves and clean them carefully.
	• Safety valve setting pressure too low:		Check.

FLOW RATE IRREGULAR OR HIGHER THAN EXPECTED

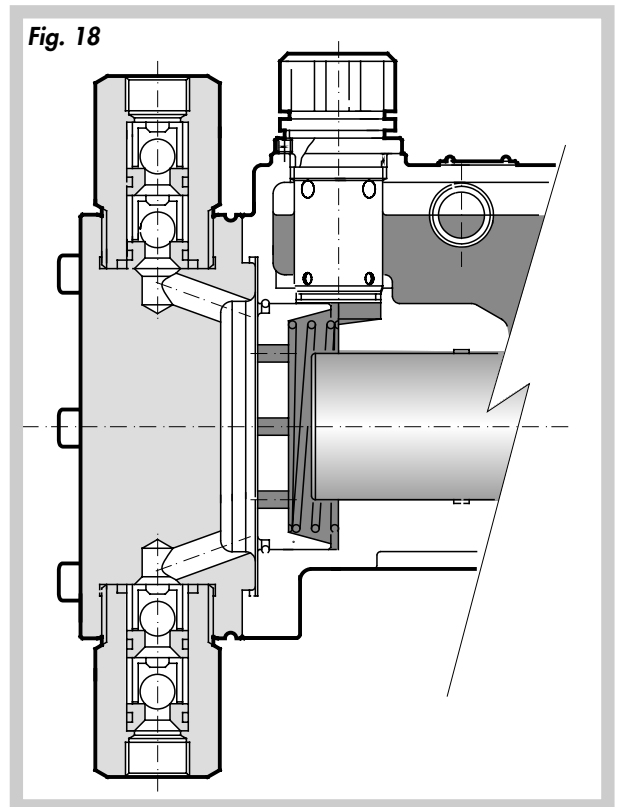
↓	CAUSES	↓	SOLUTIONS
	• The suction hydrostatic head exceeds the discharge pressure:		Increase the discharge pressure by means of a back pressure valve. (OBL, series 300).
	• Back pressure valve stuck in open position because of dirt or setting pressure too low:		Check.
	• Pump valves jammed in open position:		Check.

4.1 ROUTINE MAINTENANCE

- Check the oil level periodically (fig. 17).
- Change the oil every 50.000 operating hours.
- In case of lower or irregular flow rate, check the valve units as follows:



- Refer first to the pumphead section drawing.
- Pay attention to the arrangement of the valve components; each valve ball rests by gravity on its seat (Figure 18).
- Unscrew the suction and discharge valve units, one at a time. Check their components for soundness and cleanness. Clean carefully all valve components: seat, ball, guide, housing.



4.2 PREVENTIVE MAINTENANCE

- We suggest a series of essential details for the preventive maintenance of pumphead (table F).

Table F		
EXECUTION (HEAD BODY MATERIAL)		
DENOMINATION	POSITION	A AISI 316L - P PVC PIECES NO.
VALVE SEATS	5	8
VALVE GUIDES	6	4
BALL	15	8
VALVE SEAL	8	8
	9	2
DIAPHRAGM	32	1
O-RING	37	1

For the positions see head body sectional drawing on page 18/19.

4.3 DIAPHRAGM REPLACEMENT AND OIL FILLING UP

- The **XR/XRN** pump needs a limited maintenance. First of all the hydraulic system of integral type guarantees a very slow wear of the plunger (no seals), so no replacement is scheduled.

The diaphragm is of hydraulic type and therefore is not mechanically stressed; only cuts, due to solid fragments or crystallizer products, could reduce its long working life.

In order to make easier the maintenance, the diaphragm is held independently from the pumphead so as to make possible a quick check, without oil leakage and not even losing the hydraulic balance. As a matter of fact, removing the pumphead, by unscrewing the six fixing screws, it is possible to see the whole surface of the diaphragm (fig. 19).

- When the pump is running it is also possible to see the spherical deformation due to the plunger swept volume. It is highly recommended not removing the diaphragm unless is cut. A not concentric and shapeless deformation is considered to be a normal Teflon setting.

Should the diaphragm be replaced act as follows:

Free the diaphragm by removing the cut O-ring which works as circlip and seal (the cut of the O-ring is placed at the top part of the diameter, Figure 20).

- Before placing the new diaphragm, especially if the old one was broken, it is necessary to check whether the internal parts and the crank housing itself are corroded or damaged by the handled fluid.

Should the pump be corroded it is necessary a technical check at **OBL's** premises, in order to establish its reparability.

If not corroded but only contaminated, it is appropriate to disassemble the pump and wash it with degreasing and detergent liquids; It is not necessary to remove the plunger and the spring unit.


Do not disassemble the safety valve but wash it and blow it with compressed air.

To remove the safety valve, after having taken away the locking dowel, utilise the dowel hole and the opposite one to insert two screws and therefore create two pivots for the rotation (fig. 21).

- In order to replace the cut O-ring, oil it and press it, radial direction, with a bearing ball (fig 22).

To fill oil act as follows:

- Set adjustment to 0%.
- Pour oil until the level.

 **Every time the diaphragm is replaced the safety valve must be removed, the oil must be poured without valve. When the level is reached push with the thumbs against the diaphragm to release air;**

Reassemble safety valve and pumphead.

The pump is ready to work.

It is highly recommended topping up after 30 minutes of working with the adjustment set to 100%.

Fig. 19

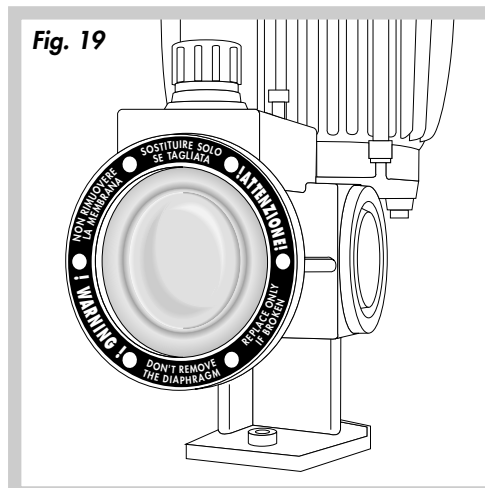


Fig. 20

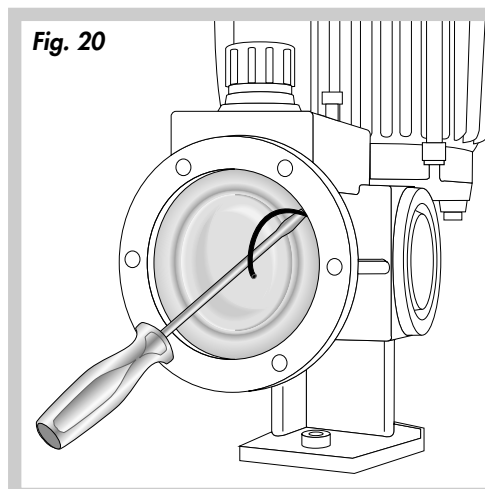


Fig. 21

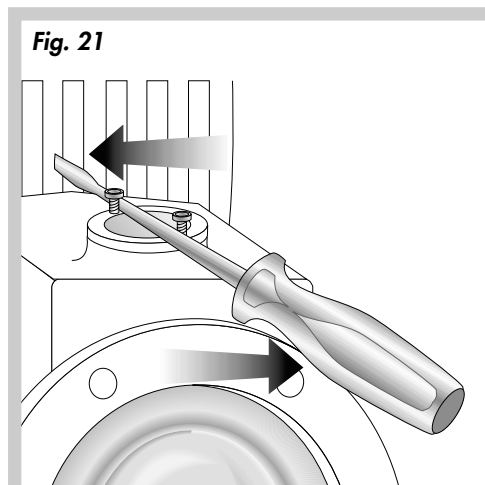
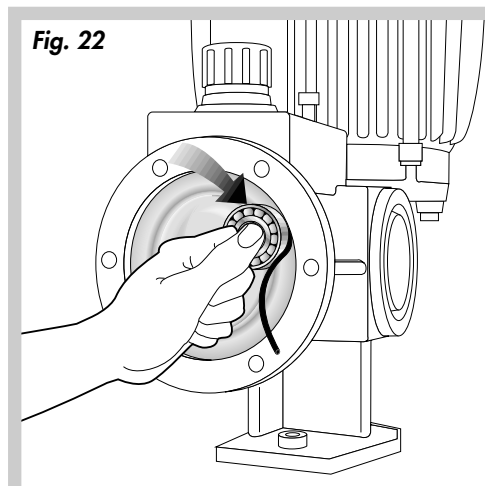


Fig. 22

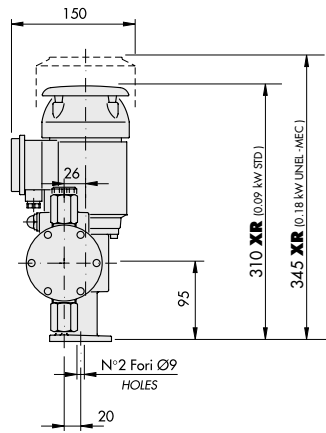


PUMP OVERALL DRAWINGS

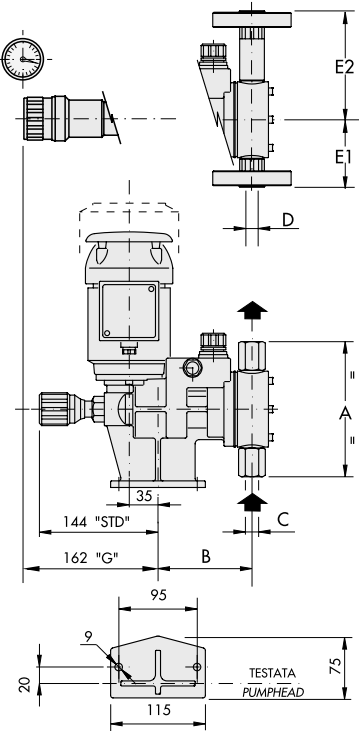
XR

Adjustment:
Positive reaction clock

Weight : Kg.15~
Eurovoltage motors
Stroke: 2/6 mm
Strokes/1':
19-28-36-42-55-72-85-111-145-170



POSITIVE REACTION CLOCK
ADJUSTMENT TYPE **G**

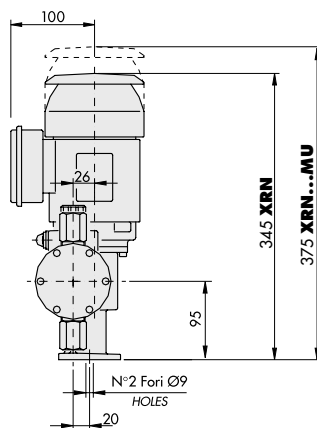


TYPE	AISI 316 L					PVC - PVDF - PTFE					"HV" (AISI 316L)					D	
	A	B	C g.f.	E1	E2	A	B	Cg.f.	E1	E2	A	B	Cg.f.	E1	E2	UNI	ANSI
XR2. 15	164	108	1/4" g.f. BSPF	82	132	171	121	1/4" g.f. BSPF	85.5	135.5	-	-	-	-	-	(AISI) UN15-FN40 (PVC) UN15-FN10 (PTFE) UN222/25	1/2" - 150 RF ANSI B16.5
XR2. 30	164	108	1/4" g.f. BSPF	82	132	171	121	1/4" g.f. BSPF	85.5	135.5	-	-	-	-	-		
XR6. 30	164	108	3/8" g.f. BSPF	82	132	171	121	3/8" g.f. BSPF	85.5	135.5	162	114	1/2" g.f. BSPF	83	132		
XR6. 38	184	121	3/8" g.f. BSPF	92	142	182	134	3/8" g.f. BSPF	91	141	172	125	1/2" g.f. BSPF	86	137		
XR6. 48	184	121	3/8" g.f. BSPF	92	142	182	134	3/8" g.f. BSPF	91	141	172	125	1/2" g.f. BSPF	88	137		

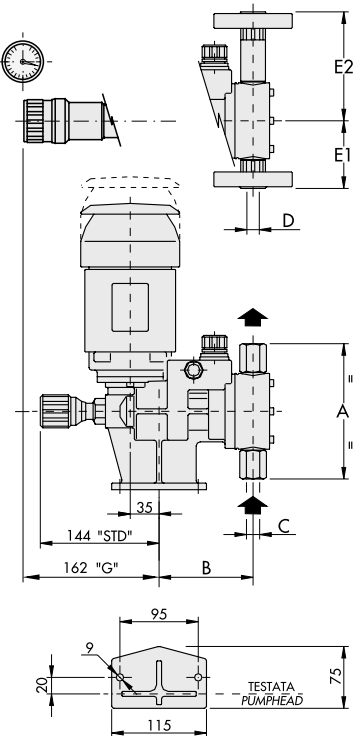
XRN

Adjustment:
Positive reaction clock

Weight : Kg.18~
Eurovoltage motors
Stroke: 2/6 mm
Strokes/1':
19-28-36-42-55-72-85-111-145-170



POSITIVE REACTION CLOCK
ADJUSTMENT TYPE **G**



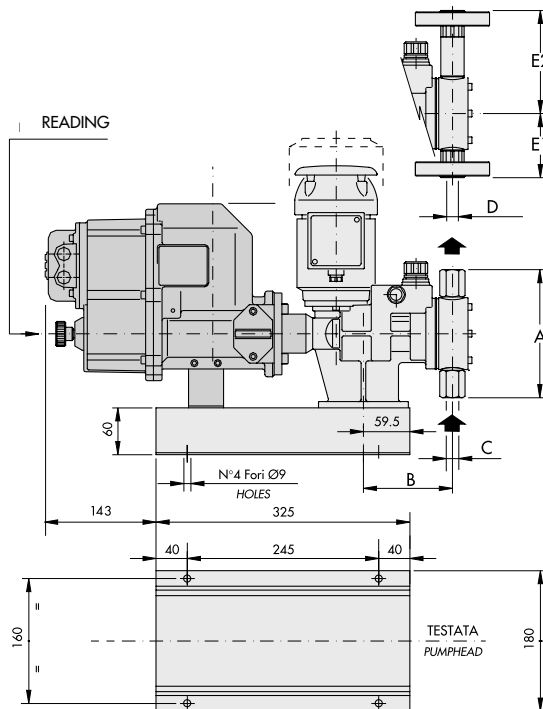
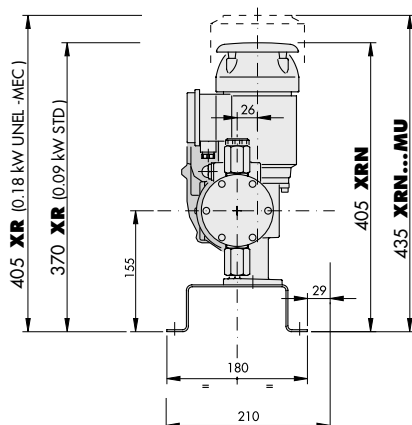
TYPE	AISI 316 L					PVC - PVDF - PTFE					"HV" (AISI 316L)					D	
	A	B	C g.f.	E1	E2	A	B	Cg.f.	E1	E2	A	B	Cg.f.	E1	E2	UNI	ANSI
XRN2. 30	164	108	1/4" g.f. BSPF	82	132	171	121	1/4" g.f. BSPF	85.5	135.5	-	-	-	-	-	(AISI) UN15-FN40 (PVC) UN15-FN10 (PTFE) UN222/25	1/2" - 150 RF ANSI B16.5
XRN6. 30	164	108	3/8" g.f. BSPF	82	132	171	121	3/8" g.f. BSPF	85.5	135.5	162	114	1/2" g.f. BSPF	83	132		
XRN6. 38	184	121	3/8" g.f. BSPF	92	142	182	134	3/8" g.f. BSPF	91	141	172	125	1/2" g.f. BSPF	86	137		
XRN6. 48	184	121	3/8" g.f. BSPF	92	142	182	134	3/8" g.f. BSPF	91	141	172	125	1/2" g.f. BSPF	88	137		

PUMP WITH ELECTRIC ADJUSTMENT OVERALL DRAWINGS

XR XRN Z-ZN

Electric adjustment :
Pilot signal 42±0 mA

Weight : Kg.30~
Eurovoltage motors
Stroke: 2/6 mm
Strokes/1' : 19-28-36-42-55-72-
85-111-145-170

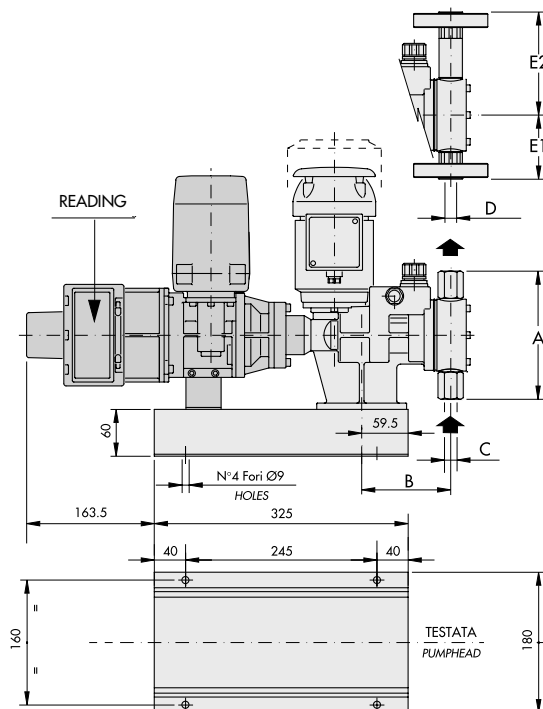
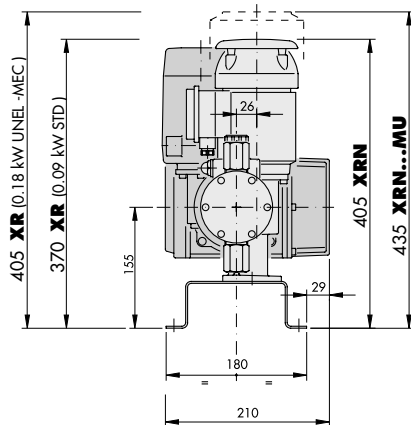


TYPE	AISI 316 L					PVC - PVDF - PTFE					"HV" (AISI 316L)					D	
	A	B	C g.f.	E1	E2	A	B	C g.f.	E1	E2	A	B	C g.f.	E1	E2	UNI	ANSI
XR2. 15	164	108	1/4" g.f. BSPF	82	132	171	121	1/4" g.f. BSPF	85.5	135.5	-	-	-	-	-	AISI 015-FM40 (PVC) 015-FM10 UNI 2223/23	1/2" - 150 RF ANSI B16.5
XR2-XRN2.30	164	108	1/4" g.f. BSPF	82	132	171	121	1/4" g.f. BSPF	85.5	135.5	-	-	-	-	-		
XR6-XRN6.30	164	108	3/8" g.f. BSPF	82	132	171	121	3/8" g.f. BSPF	85.5	135.5	162	114	1/2" g.f. BSPF	83	132		
XR6-XRN6.38	184	121	3/8" g.f. BSPF	92	142	182	134	3/8" g.f. BSPF	91	141	172	125	1/2" g.f. BSPF	86	137		
XR6-XRN6.48	184	121	3/8" g.f. BSPF	92	142	182	134	3/8" g.f. BSPF	91	141	172	125	1/2" g.f. BSPF	88	137		

XR XRN Z9

Electric adjustment :
Pilot signal 42±0 mA

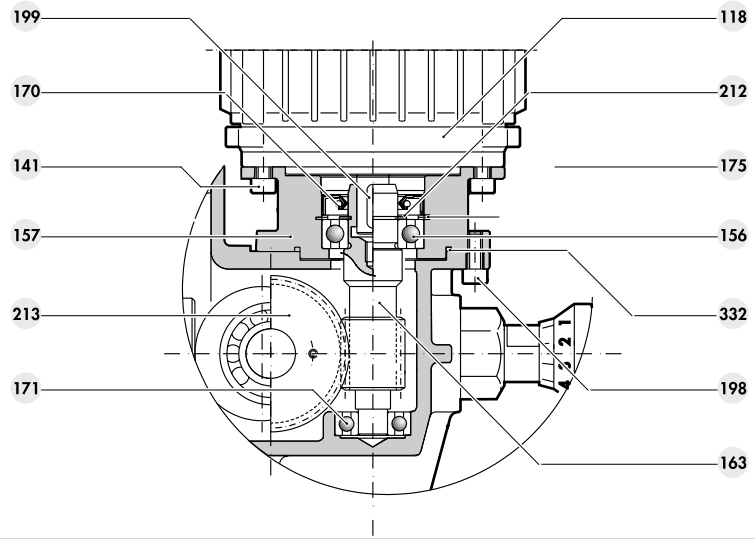
Weight : Kg.30~
Eurovoltage motors
Stroke: 2/6 mm
Strokes/1' : 19-28-36-42-55-
72-85-111-145-170



TYPE	AISI 316 L					PVC - PVDF - PTFE					"HV" (AISI 316L)					D	
	A	B	C g.f.	E1	E2	A	B	C g.f.	E1	E2	A	B	C g.f.	E1	E2	UNI	ANSI
XR2. 15	164	108	1/4" g.f. BSPF	82	132	171	121	1/4" g.f. BSPF	85.5	135.5	-	-	-	-	-	AISI 015-FM40 (PVC) 015-FM10 UNI 2223/23	1/2" - 150 RF ANSI B16.5
XR2-XRN2.30	164	108	1/4" g.f. BSPF	82	132	171	121	1/4" g.f. BSPF	85.5	135.5	-	-	-	-	-		
XR6-XRN6.30	164	108	3/8" g.f. BSPF	82	132	171	121	3/8" g.f. BSPF	85.5	135.5	162	114	1/2" g.f. BSPF	83	132		
XR6-XRN6.38	184	121	3/8" g.f. BSPF	92	142	182	134	3/8" g.f. BSPF	91	141	172	125	1/2" g.f. BSPF	86	137		
XR6-XRN6.48	184	121	3/8" g.f. BSPF	92	142	182	134	3/8" g.f. BSPF	91	141	172	125	1/2" g.f. BSPF	88	137		

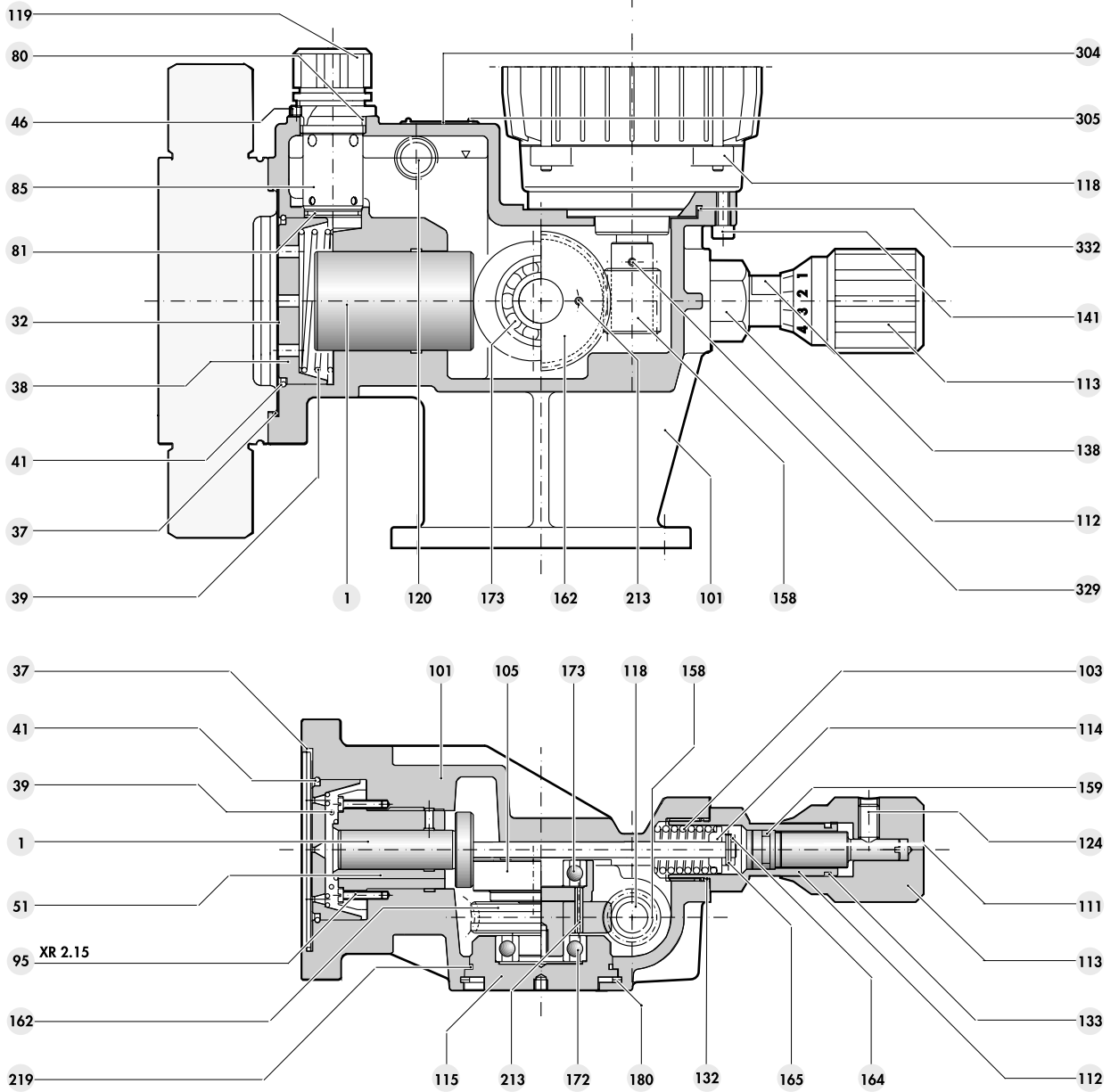
UNEL-MEC MOTOR

MU



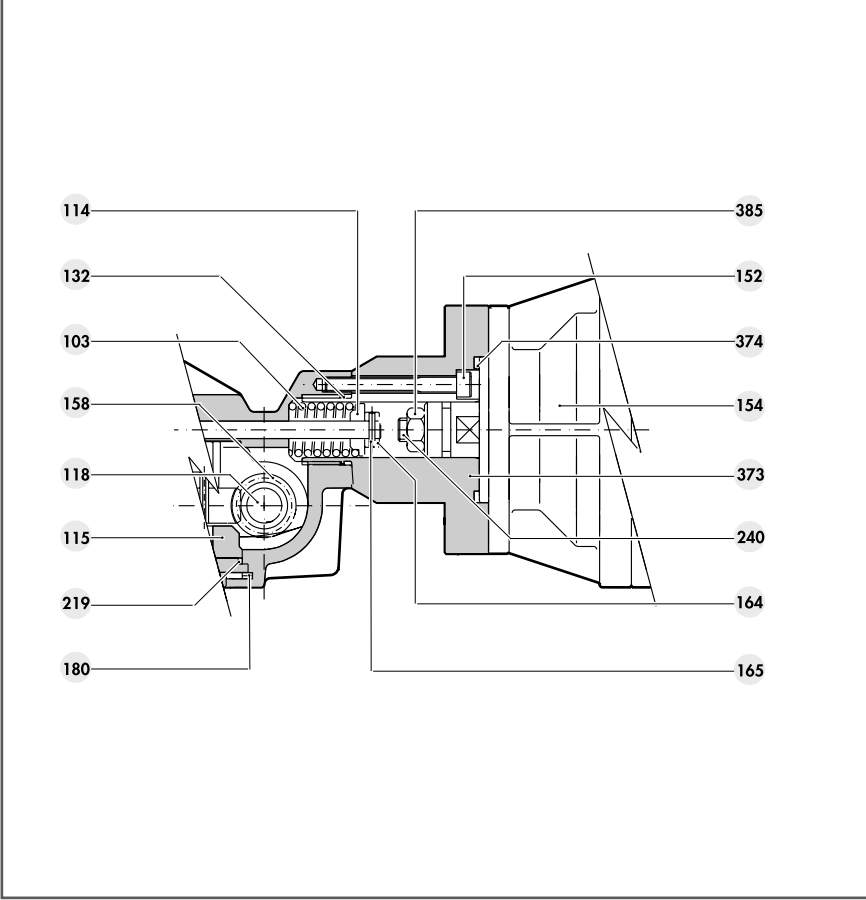
STANDARD MOTOR

STD



SECTIONAL DRAWING

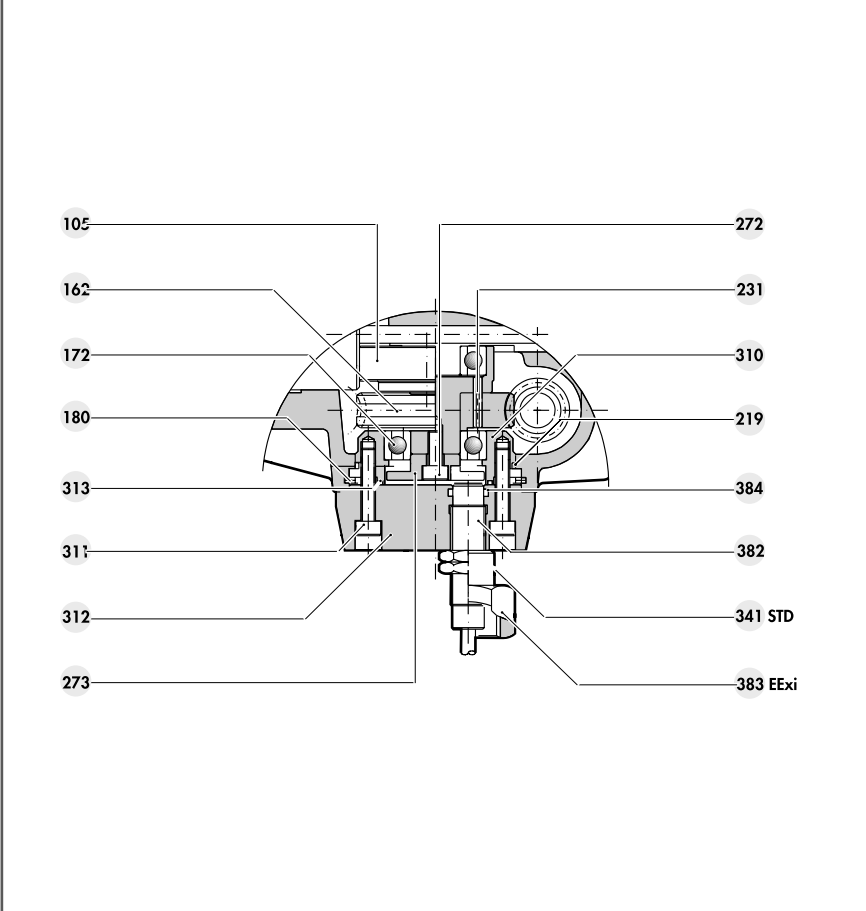
ADJUSTMENT TYPE **Z9** **W**



POS. MECHANISM COMPONENTS

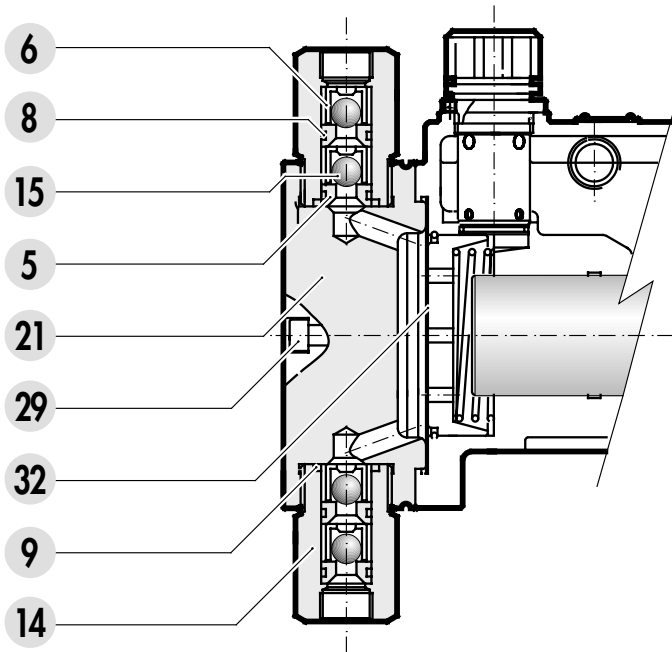
1	PLUNGER
32	DIAPHRAGM
37	DIAPHRAGM O-RING
38	REPLENISHING DISC
39	SPRING REPLENISHING DISC
41	CIRCLIP REPLENISHING DISC
46	SAF. VALVE LOCK DOWEL
51	PLUNGER LINER
80	SAFETY VALVE UPP. O-RING
85	SAFETY VALVE
95	LINER LOCKING SCREW
101	CRANK HOUSING
103	PLUNGER SPRING RETURN
105	ECCENTRIC SHAFT
111	ADJUSTMENT SPINDLE
112	SETTING KNOB GUIDE
113	SETTING KNOB
114	SPRING GUIDE
115	LATERAL COVER
118	MOTOR
119	OIL FILLING PLUG
120	OIL LEVEL PLUG
124	KNOB LOCKING DOWEL
132	KNOB GUIDE O-RING
133	SETTING KNOB O-RING
138	ADHESIVE VERNIER
141	MOTOR LOCKING SCREW
152	SUPPORT LOCKING SCREW
154	ACTUATOR
155	WATCH LOCKING DOWEL
156	UPPER BALL BEARING
157	UNEL-MEC MOTOR FLANGE
158	WORM SCREW
159	ADJUST.SPINDLE O-RING
160	POSITIVE REACTION WATCH
162	WORM WHEEL
163	SHAFT WITH WORM SCREW
164	WASHER
165	ELASTIC PIN
170	"SM" PACKING
171	LOWER BALL BEARING
172	WORM WHEEL BALL BEARING
173	ECCENTRIC BALL BEARING
175	UPP. BALL BEARING SEEGER
180	LATERAL COVER SEEGER
198	FLANGE LOCK. SCREW
199	MOTOR KEY
212	WORM SCREW SHAFT SEEGER
213	WORM WHEEL PIN
219	LATERAL COVER O-RING
221	WATCH ADJUSTMENT SUPPORT
240	SPACER
272	PROSSIMITY DISC SCREW
273	PROSSIMITY DISC
304	DATA PLATE
305	DATA PLATE RIVET
310	PROSSIMITY BUSH
311	PROSSIMITY FLANGE SREW
312	PROSSIMITY FLANGE
313	PROSSIMITY FLANGE O-RING
329	WORM SCREW PIN
332	MOTOR O-RING
341	PROSSIMITY LOCKING NUT
373	AUTOMATIC ADJUSTMENT SUPPORT
374	SUPPORT O-RING
382	PROSSIMITY SWITCH
383	PROSSIMITY HOUSING
384	PROSSIMITY O-RING
385	ADJUSTMENT NUT

PROXIMITY SWITCH **PR**



18^A

↓ PUMP HEAD WITH THREADED CONNECTIONS



POS.	DESCRIPTION
5	VALVE SEAT
6	VALVE GUIDE
8	O-RING
9	O-RING
14	VALVE HOUSING
15	BALL VALVE
21	HEAD BODY
29	HEAD LOCK. SCREW
32	DIAPHRAGM

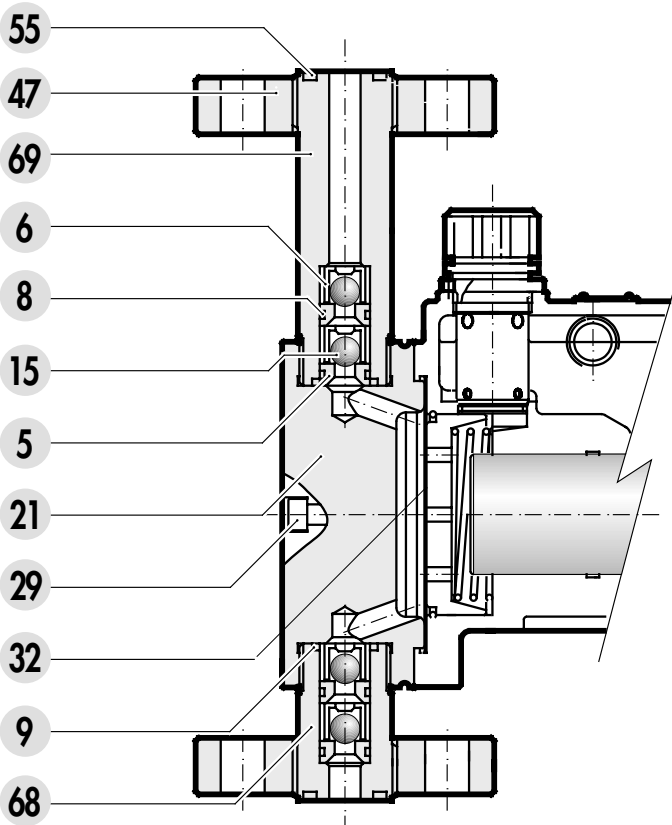
PUMP HEAD MATERIALS MODEL

MODEL	MATERIALS
P	PVC
S	PVDF
T	PTFE

FOR MECHANISM SEE PAG. 16/17

18^B

↓ PUMP HEAD WITH FLANGED CONNECTIONS



POS.	DESCRIPTION
5	VALVE SEAT
6	VALVE GUIDE
8	O-RING
9	O-RING
15	BALL VALVE
21	HEAD BODY
29	HEAD LOCK. SCREW
32	DIAPHRAGM
47	FLANGE
55	O-RING
68	LOWER HOUSING VALVES
69	UPPER HOUSING VALVES

PUMP HEAD MATERIALS MODEL

MODEL	MATERIALS
P	PVC
S	PVDF
T	PTFE

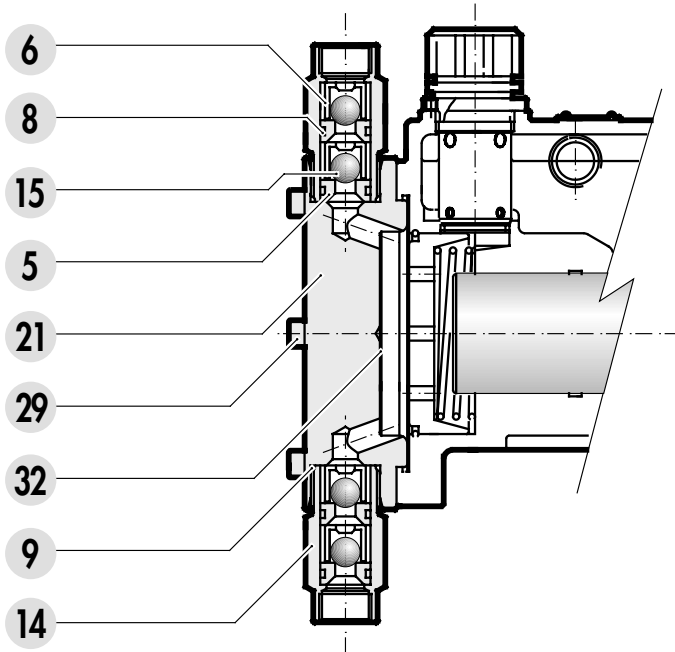
FLANGED CONNECTIONS

MODEL	SERIES
F	UNI
FA	ANSI

FOR MECHANISM SEE PAG. 16/17

19^A

↓ PUMP HEAD WITH THREADED CONNECTIONS



POS.	DESCRIPTION
5	VALVE SEAT
6	VALVE GUIDE
8	O-RING
9	O-RING
14	VALVE HOUSING
15	BALL VALVE
21	HEAD BODY
29	HEAD LOCK. SCREW
32	DIAPHRAGM

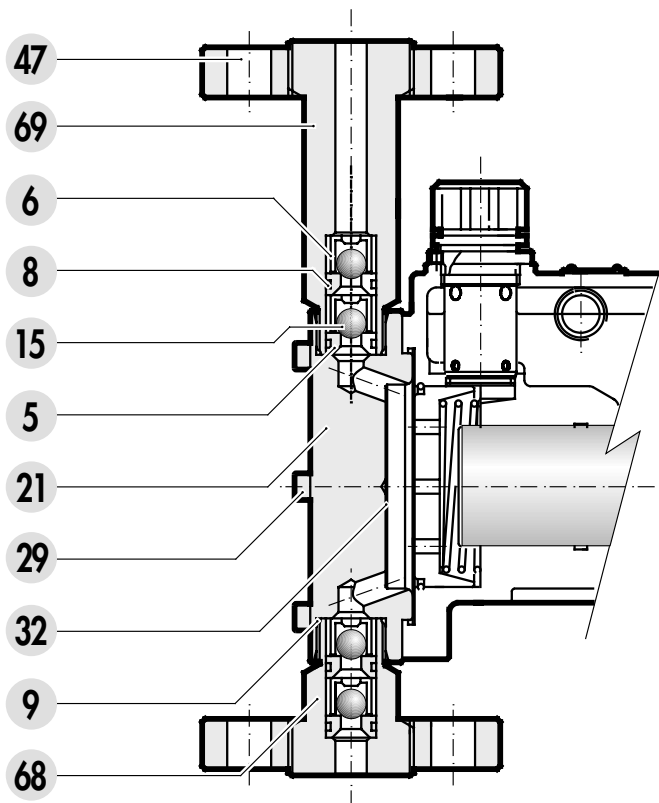
PUMP HEAD MATERIALS MODEL

MODEL	POS.	DENOMINATION	MATERIAL
A	5	VALVE SEAT	AISI 316L
	15	VALVE	AISI 316L
	21	HEAD BODY	AISI 316L
A32	5	VALVE SEAT	INCOLOY 825
	15	VALVE	HASTELLOY C-276
	21	HEAD BODY	AISI 316L

FOR MECHANISM SEE PAG. 16/17

19^B

↓ PUMP HEAD WITH FLANGED CONNECTIONS



POS.	DESCRIPTION
5	VALVE SEAT
6	VALVE GUIDE
8	O-RING
9	O-RING
15	BALL VALVE
21	HEAD BODY
29	HEAD LOCK. SCREW
32	DIAPHRAGM
47	FLANGE
68	LOWER HOUSING VALVES
69	UPPER HOUSING VALVES

PUMP HEAD MATERIALS MODEL

MODEL	POS.	DENOMINATION	MATERIAL
A	5	VALVE SEAT	AISI 316L
	15	VALVE	AISI 316L
	21	HEAD BODY	AISI 316L
A32	5	VALVE SEAT	INCOLOY 825
	15	VALVE	HASTELLOY C-276
	21	HEAD BODY	AISI 316L

FLANGED CONNECTIONS MODEL

MODEL	SERIES
F	UNI
FA	ANSI

FOR MECHANISM SEE PAG. 16/17

METERING PUMPS



MACHINE DIRECTIVE

EUROPEAN COMMUNITY DIRECTIVE 98/37/CE AND SUBSEQUENT MODIFICATIONS

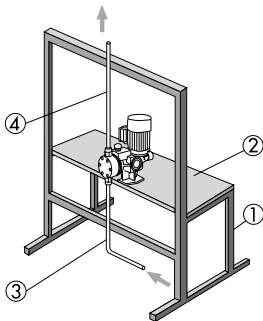
GENERAL SAFETY NORMS

Please read and save these instructions.

INSTRUCTIONS ABOUT THE RESIDUAL RISKS ELIMINATION AND THE SAFETY AT WORK

1 - INSTALLATION

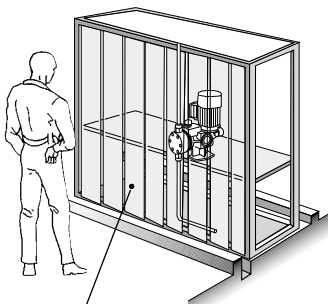
- The pump has to be installed on a basement ①.



- The basement has to be made of electric welded steel and fit for the pump dimensions, with leveled face ②.
- The pump has to be strongly fastened to the basement by clamping screws.
- The basement has to have a frame to support the suction ③ and discharge ④ pipelines and possible accessories (pulsation dampeners, pressure gauges, valves) and not vibrate while the pump is working.

2 - OPERATOR PROTECTION

Protection against accidental leakages of aggressive pressurized fluids.

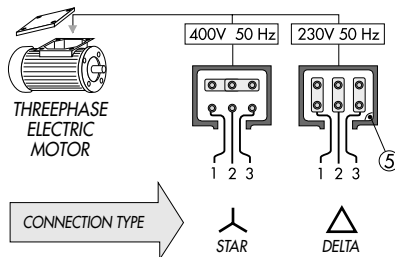


TRANSPARENT FLEXIBLE PANELS
PLASTIC MADE (TRANSPARENT PVC)

3 - ELECTRICAL CONNECTIONS

- For a proper connection of the electrical motor follow the illustrated instructions.

TERMINAL BOX DISPOSAL ACCORDING TO THE LINE VOLTAGE



- Protect the motor by installing a magneto-thermic device, fit to the power input values of the motor, knowing that the motor, at start, absorbs at least four times the motor nominal power.

- Earth the terminal of the motor casing, using a cable with at least 6 mm² section ⑤.

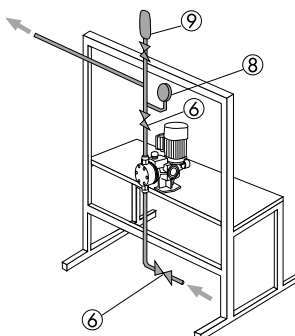
- Check the direction of rotation of the motor (see the arrow on the motor body); if the direction of rotation is not in accordance with the arrow, interchange two wires: 1 on 2, 2 on 1.

WARNING:

Start the motor only when the terminal box is closed

4 - SETTING INTO OPERATION

- Check the oil level.
- Open all the on-off valves both along the discharge and suction pipeline ⑥.



- Check the pressure gauge installation ⑧ (essential to check the pump status).
- Check the pulsation dampener ⑨ (indispensable for flowrates above 200 L/h).
- Start the pump with adjustment set to 20 % increase gradually the flowrate (acting on the adjustment knob) and find the relevant pressure on the pressure gauge.

WARNING:

The working pressure must not exceed the rating plate value it makes the pump break.

- Check during the first three working hours the pump body temperature (max 50°C) as well as the motor temperature (max 80°C).

5 - ROUTINE MAINTENANCE

- Check periodically the oil-level through the oil-windows located on the pump body. First three months, once a month afterwards, once every four months.
- Check periodically (once every four months) the pump status:
 - Pump body temperature (max 50°C).
 - Motor external body (max 85°C).
 - Working pressure (must not exceed the rating plate value).
 - Noise (within normal conditions must not exceed 85 dbA).

6 - PREVENTIVE MAINTENANCE

- In order to avoid damages due to diaphragm breaking it is advisable to replace the diaphragm according to the pump use as shown in the table.

WORKING STATUS	PRESSURE % COMPARED TO THE MAX PRESSURE	REPLACEMENT ADVISABLE EVERY
CONTINUOUS 24/24	100%	20.000 HOURS
	50%	30.000 HOURS
BATCHING 12/24	100%	40.000 HOURS
	50%	50.000 HOURS

- For disassembly and re-assembling see instructions at page 13.

METERING PUMPS



CE CONFORMITY DECLARATION

OBL s.r.l. 20090 Segrate - MILANO - Via Kennedy, 12 - Tel. +39 02 269191 - Fax +39 2 2133893 - E mail: info@obl.it

Modello/Model/Modele/Modell/Modelo/Modelo/Model/Model/Typ/Model/Malli/Μοντέλο

**HYDRAULIC DIAPHRAGM
METERING PUMPS**

**SERIES
XR/XRN**

I DICHIARAZIONE DI CONFORMITA' CE

Noi, **OBL**, s.r.l., **MILANO ITALIA**, dichiariamo sotto la nostra unica responsabilità che il prodotto cui questa dichiarazione si riferisce, è conforme alle seguenti Direttive e successive modifiche:

- Direttiva Macchine 98/37/CE
- Direttiva Bassa Tensione 73/23/CE
- Direttiva Compatibilità Elettromagnetica 89/336/CE

GB CE CONFORMITY DECLARATION

We, **OBL**, s.r.l., **MILANO ITALY**, declare under our sole responsibility that the product relevant to this declaration complies with the following directive and subsequent modifications:

- Machinery Directive 98/37/EEC
- Low Voltage Directive 73/23/EEC
- Electromagnetic Compatibility Directive 89/336/EEC

F DECLARATION DE CONFORMITE CE

Nous, **OBL**, s.r.l., **MILAN ITALIE**, déclarons sous notre seule responsabilité que le produit auquel cette déclaration se rapporte, est conforme au suivantes directives et successives modifications:

- Directive Machines 98/37/CEE
- Directive Basse Tension 73/23/CEE
- Directive Compatibilité Electromagnétique 89/336/CEE

D EU-KONFORMITÄTSEKTLÄRUNG

Wir **OBL** s.r.l. **MILANO ITALIEN**, erklären unter unserer Verantwortung, dass unser Produkt, auf das sich diese Erklärung bezieht, den folgenden EU-Richtlinien und deren Änderungen entspricht:

- Maschinenrichtlinie 98/37/EWG
- Richtlinie über die Niederspannung 73/23/EWG
- Normen über die Elektromagnetische Verträglichkeit 89/336/EWG.

E DECLARACIÓN DE CONFORMIDAD CE

La firma suscrita, **OBL** s.r.l., de **Milán, Italia**, declara bajo su propia responsabilidad que el producto al que se refiere esta declaración, cumple con las siguientes directivas y sucesivas modificaciones:

- Directiva de máquinas 98/37/CEE
- Directiva de baja tensión 73/23 CEE
- Directiva de compatibilidad electromagnética 89/336 CEE

P DECLARAÇÃO DE CONFORMIDADE CE

Nós, **OBL** s.r.l., **MILÃO ITÁLIA**, declaramos sob nossa inteira responsabilidade que o produto ao qual se refere esta declaração se encontra de acordo com as seguintes directivas e sucessivas modificações:

- Directivas máquinas 98/37/EEC
- Directivas Baixa Tensão 73/23/EEC
- Directivas Compatibilidade Electromagnética 89/336/EEC

NL EG-VERKLARING VAN OVEREENKOMST

Wij, **OBL** s.r.l., **MILAAAN ITALIË**, verklaren voor onze uitsluitende verantwoordelijkheid dat het product waarop deze verklaring betrekking heeft, in overeenstemming is met de volgende richtlijnen en navolgende wijzigingen:

- Machinerichtlijn 98/37/EEG
- Laagspanningsrichtlijn 73/23/EEG
- Richtlijn Bestendigheid tegen Elektromagnetische Storingen 89/336/EEG

DK CE OVERENSSTEMMELSE ERKLÆRING

Vi, **OBL** srl, **MILANO ITALIEN**, erklærer os ansvarlige for at produktet, som denne Erklæring henviser til, stemmer overens med følgende direktiver og påfølgende modificeringer:

- Maskindirektiv 98/37/EEC
- Lavspændingsdirektiv 73/23/EEC
- Direktif for Elektromagnetisk Forenelighed 89/336/EEC

S EG ÖVERENSSTÄMMELSEFÖRKLARING

Vi, **OBL** s.r.l., **MILANO, ITALIEN**, förklarar under eget ansvar, att produkten, till vilken denna förklaring hänför sig, överensstämmer med följande normer och deras respektive ändringar:

- Norm för Maskiner 98/37/EEC
- Norm för Lågspänning 73/23/EEC
- Norm för Elektromagnetiks Förenlighet 89/336/EEC

N CE-OVERENSSTEMMELSESERKLÆRING

Vi, **OBL** s.r.l., **MILANO, ITALIA**, erklærer under eget ansvar at produktet som omfattes av denne erklæringen er i overensstemmelse med følgende direktiver og senere endringer:

- Maskindirektivet 98/37/EU
- Lavspenningsdirektivet 73/23/EU
- Direktivet vedr. elektromagnetisk kompatibilitet 89/336/EU.

FIN YHDENMUKAISUUSTODISTUS

OBL s.r.l., **MILANO ITALIA**, vakuuttaa omalla vastuullaan, että tässä todistuksessa mainittu tuote vastaa seuraavien direktiivien ja niihin tehtyjen muutosten vaatimuksia:

- EU- laitedirektiivi 98/37
- EU- pienjännitedirektiivi 73/23
- EU- direktiivi 89/336 joka käsittelee sähkömagneettista yhteensopivuutta

GR ΔΗΛΩΣΗ ΕΥΜΜΟΡΦΩΣΗΣ CE

Η υπογεγραμμένη εταιρεία **OBL**, s.r.l., **MILANO-ITALIA**, δηλώνει υπευθυνα ότι το εν λόγω προϊόν είναι κατασκευασμένο σύμφωνα με τις παρακάτω Οδηγίες και τις τροποποιήσεις αυτών:

- Οδηγία περί Μηχανών 98/37/EOK
- Οδηγία περί Χαμηλής 73/23/EOK
- Οδηγία περί Ηλεκτομαγνητικής Συμβατότητας 89/336/EOK

Nome e posizione del dichiarante / Name and charge of issuer / Nom et fonction de l'émetteur / Name und position des erstellers / Nombre y cargo del expedidor / Nome e cargo do emissor / Naam en functie van de uitgever / Udsteder, navn og stilling / Udsteders navn og stilling / Utfærdarens namn och befattning / Ilmoituksen antajan nimi ja asema / Ονομα και θέση εκδότη

Benito LEONETTI
Responsible of the "TECHNICAL MANAGER"

Firma del dichiarante / Signature of issuer / Signature de l'émetteur / Unterschrift des erstellers / Firma del expedidor / Assinatura do emissor / Handtekening van de uitgever / Udsteder, underskrift / Usteders signatur / Utfærdarens namnteckning / Ilmoituksen antajan allekirjoitus / Υπογραφή εκδότη



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