



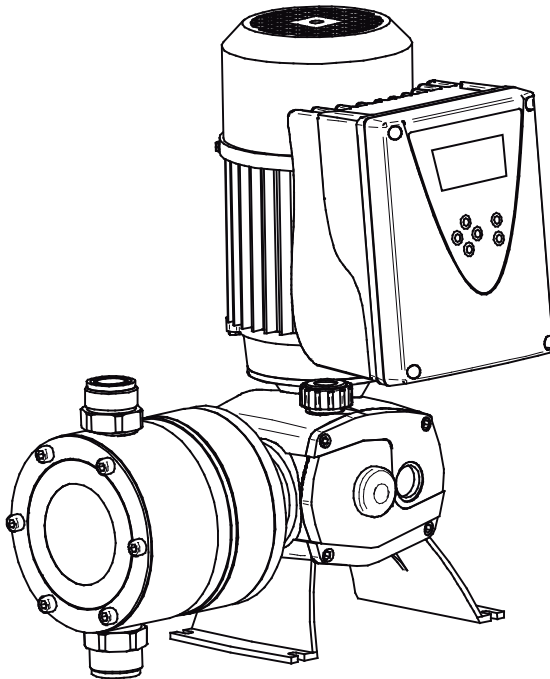
Management  
System  
ISO 9001:2015



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ID: 9105017955

# ITC

DOSING PUMPS



# DOSTEC-AC

ENGLISH

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## SAFETY RULES

To avoid personal or enviromental damages and to guarantee a proper operation of the equipment, the staff in charge of the installation, set up and maintenance of the equipment must follow the instructions of this manual, specially those recommendations and warnings explicitly detailed. In addition, specific instructions for the chemical products to be dosed should be followed.



## 1.- GENERAL DESCRIPTION

Dostec AC is a diaphragm or piston dosing pump with advanced control for an accurate and efficient automatic dosing.

This series allows many dosing possibilities depending on the chosen head. The flow range covers from 3 to 1200 l/h (317 gph) up to pressures of 20 bar (290 psi). The correct selection of head's materials, PP, PVDF or S.S., makes this pump suitable for the most chemicals products used in water treatment, chemical industry, food and beverage and agriculture.

### Operation modes

Manual: manual flow adjustment through the keyboard

Analogue: dosing flow proportional to a 0/4-20mA signal

Proportional to flow: proportional dosing to a water flow

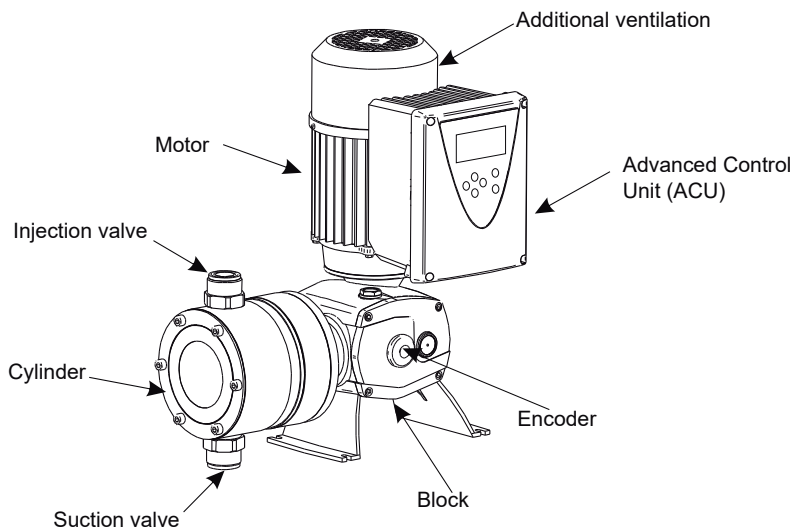
Proportional to pulses: stroke frequency proportional to input pulses

Batch control, by volume: Dosing a defined volume, after a manual, remote or time pre-set start.

Batch control, by time: Dosing for a defined time, after a manual, remote or time pre-set start.

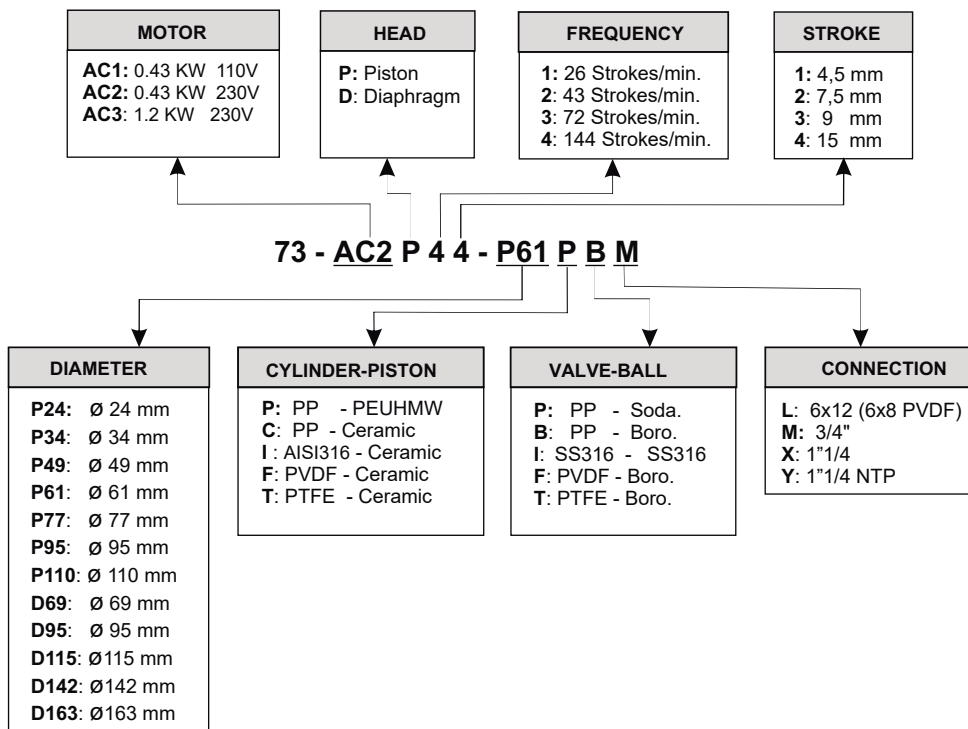
ModBUS: dosing control through ModBus RTU protocol

**It is made up as follows:**





## Code formulation



## 2.- PACKING AND STORAGE

The original packing is prepared so that carriage and storing of the product do not cause any damage to the product, as long as this is done far from heat sources and in dry, ventilated spaces.

The packing contains:

- DOSTEC-AC dosing pump
- Handbook
- Oil: AC1/2 250 m3  
AC3 700 m3



### 3.- TECHNICAL FEATURES

SS Mode (Slow Suction)

CODE	FLOW		PRESSURE		*Suction lift		Max. viscosity mPas	FLOW		*Max. viscosity mPas	
	l/h	GPH	bar	PSI	m	ft		l/h	GPH		
<b>Piston</b>											
73-AC3P44-P110_X	1200	317	5,5	80	5	16	20	600	159	500 (E)	
73-AC3P44-P95_X	900	238	7,5	109	8	26	50	450	120	1500 (E)	
73-AC3P44-P77_X	600	159	11	160	9	30	50	300	79	2000 (E)	
73-AC2 73-AC1	P44-P77_M	600	159	4,5	65	1,5	5	10	300	79	800 (C)
73-AC3P43-P77_X	400	106	12	174	9	30	50	200	53	2000 (E)	
73-AC2 73-AC1	P44-P61_M	360	95	7	102	5	16	20	180	47	1500 (C)
73-AC2 73-AC1	P44-P49_M	240	63,4	11	160	8	26	50	120	32	2000 (C)
73-AC2 73-AC1	P44-P34_M	120	31,7	15	217	9	30	50	60	16	2000 (C)
73-AC2 73-AC1	P44-P24_M	60	16	15	217	9	30	50	30	7,9	1500 (B)
73-AC2 73-AC1	P34-P24_L	30	7,9	20/15	217	9	30	20	15	3,9	2000 (A)
73-AC2 73-AC1	P33-P24_L	18	4,7	20/15	217	9	30	50	9	2,4	2000 (A)
73-AC2 73-AC1	P14-P24_L	10,5	2,7	20/15	217	9	30	50	5,2	1,4	2000 (A)
73-AC2 73-AC1	P13-P24_L	6	1,6	20/15	217	9	30	50	3	0,8	2000 (A)
73-AC2 73-AC1	P11-P24_L	3	0,8	20/15	217	9	30	50	1,5	0,4	2000 (A)
<b>Diaphragm</b>											
73-AC3D44-D163_X	1044	276	5	73	4	13	10	522	138	400 (E)	
73-AC3D43-D163_X	624	165	7	102	7	23	50	312	82,5	1300 (E)	
73-AC3D43-D142_X	498	132	10	145	8	26	50	249	66	2000 (E)	
73-AC3D42-D142_X	373	99	10	145	9	30	50	186,5	49	2000 (E)	
73-AC2 73-AC1	D43-D115_M	301	79	5	72	7	23	20	150,5	39,5	2000 (C)
73-AC2 73-AC1	D42-D115_M	251	66	5	72	8	26	50	125,5	33	2000 (C)
73-AC3D33-D142_X	249	66	10	145	9	30	50	124,5	33	2000 (E)	
73-AC2 73-AC1	D43-D95_M	173	45,6	8	116	8	26	50	86,5	22,8	2000 (C)
73-AC2 73-AC1	D42-D95_M	144	38	8	116	9	30	50	72	19	2000 (C)
73-AC2 73-AC1	D43-D69_M	83	22	10	145	4	13	50	41,5	11	400 (B)
73-AC2 73-AC1	D42-D69_M	68	18	10	145	8	26	50	34	9	1500(B)
73-AC2 73-AC1	D41-D69_L	38	9,6	15	217	9	30	10	19	4,8	2000 (A)
73-AC2 73-AC1	D31-D69_L	19	5	15	217	9	30	50	9,5	2,5	2000 (A)
73-AC2 73-AC1	D21-D69_L	11,4	3	15	217	9	30	50	5,7	1,5	2000 (A)
73-AC2 73-AC1	D11-D69_L	6,5	1,7	15	217	9	30	50	3,2	0,85	2000 (A)

20bars models only with ceramic piston.

Models with \_L include priming valve.

\*Suction lift when the dosing head and suction pipe are full. Tested with water at 20°C

\*\* Lift for viscous products: (A)= 60-P-AIMN-IIMC / (B)= 62-P-AIMN-IIMC / (C)= 62-P-AIXN-IIXC / (E)= 62-P-AIXN-IIXC



**ELECTRIC CURRENT:** As specified in the motor plate

**POWER:** 0.43 KW (0.58 Hp)  
1.2 KM (1.6 Hp)

**PROTECTION:** IP-55

**MATERIALS:** Piston PEUHMW / Ceramic / SS316  
Diaphragm P.T.F.E. Elastomer base reinforced with fiber  
Retention FPM  
Cylinder P.P. / PVDF / SS316  
Valve (body) P.P. / PVDF / SS316  
Valve (ball) Soda lime / Borosilicate / SS316

**AMBIENT TEMPERATURE:** 0...45°C

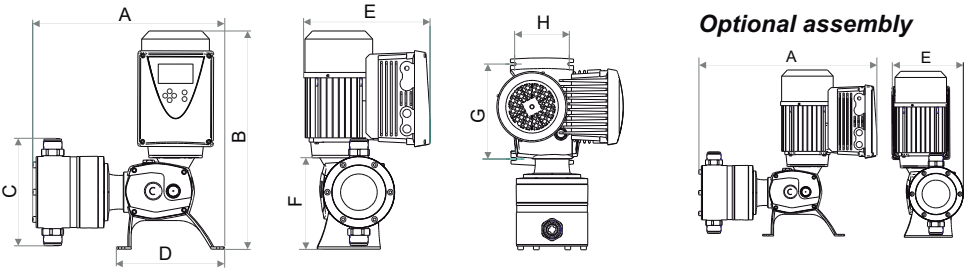
**MEDIA TEMPERATURE:** PP: 0...50°C  
PVDF: -10...50°C  
SS: -10...60°C

**RELATIVE HUMIDY MAX.:** 95% (without condensation)

**NOISE LEVEL dB(A):** minor than 70

**WEIGH:** AC3: 24 KG (53 lb)  
AC2/1: 13 Kg (29lb)

**DIMENSIONS**



Piston	Dimensions (mm)								mm
	A	B	C	D	E	F	G	H	
AC3	429	490	230	241	285	210	212	122	in
	16.8	19.3	9	9.5	11.2	8.2	8.3	4.8	
AC2 /1	306	400	154	180	270	150	155	90	in
	12	15.7	6	7	10.6	5,9	6.1	3,5	

Optional assembly	Dimensions (mm)		mm
	A	E	
AC3	525	205	in
	9.9	8.1	
AC2 /1	422	155	in
	16.6	6.1	

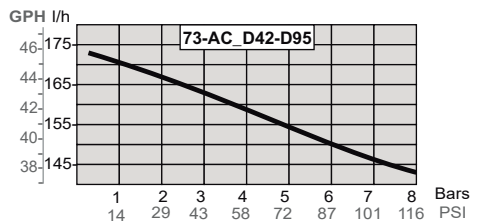
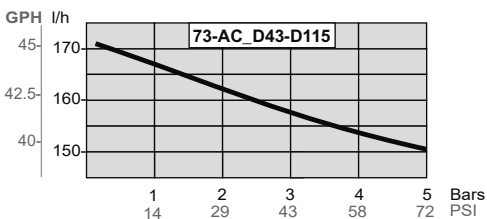
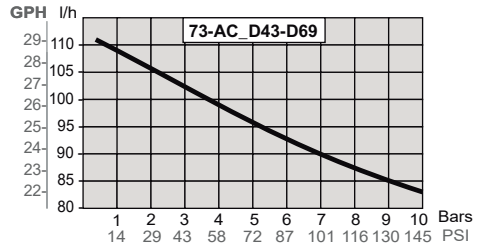
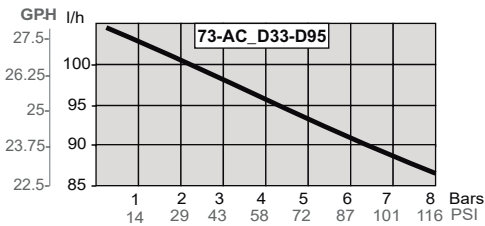
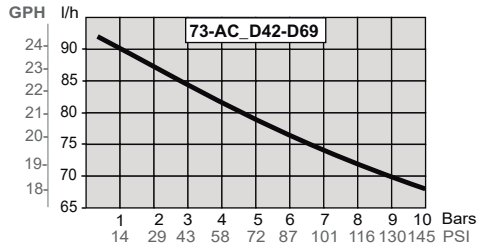
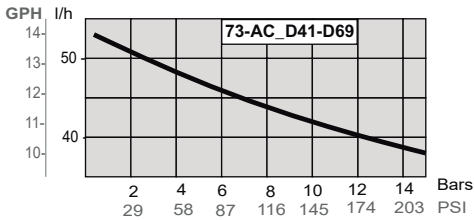
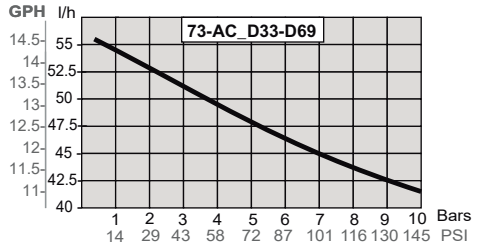
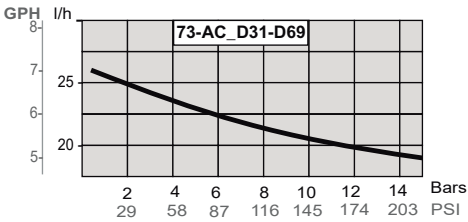
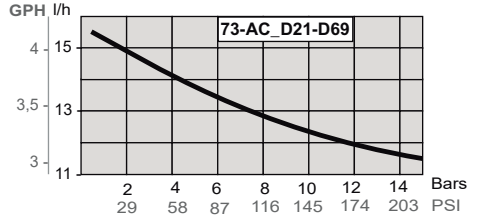
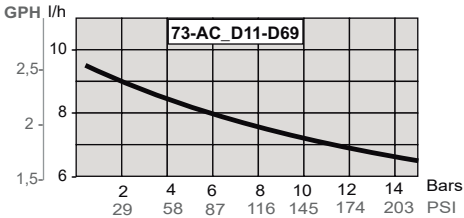
Diaphragm	Dimensions (mm)								mm		
	A	B	C	D	E	F	G	H			
	D163	395	490	270	241	285	210	212		122	in
		15.5	19.3	10.6	9.5	11.2	8.2	8.3		4.8	
	D142	394	490	250	241	285	210	212		122	in
		15.5	19.3	9.8	9.5	11.2	8.2	8.3		4.8	
D115	270	400	204	180	270	150	155	90	in		
	10.6	15.7	8	7	10.6	5,9	6.1	3,5			
D95	270	400	184	180	270	150	155	90	in		
	10.6	15.7	7.2	7	10.6	5,9	6.1	3,5			
D69	274	400	154	180	270	150	155	90	in		
	10.6	15.7	6	7	10.6	5,9	6.1	3,5			

Optional assembly	Dimensions (mm)		mm
	A	E	
D163	490	225	in
	19.3	8.8	
D142	489	215	in
	19.2	8.4	
D115	386	180	in
	15.1	7.1	
D95	386	170	in
	15.1	6.7	
D69	390	155	in
	15.3	6.1	

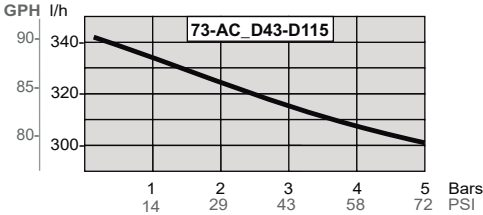
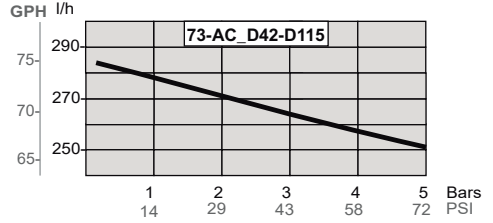
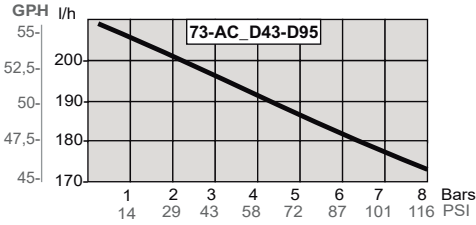


# FLOW-PRESSURE GRAPHICS

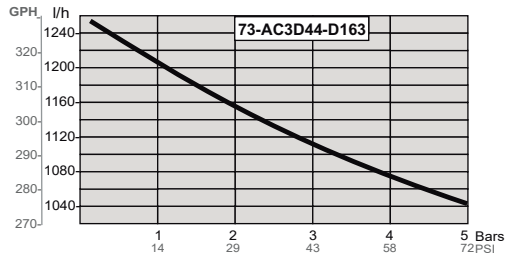
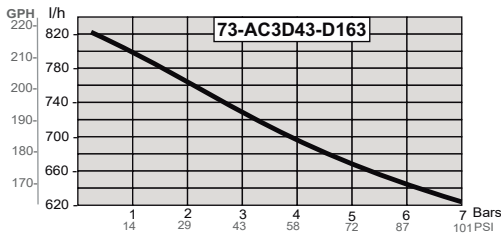
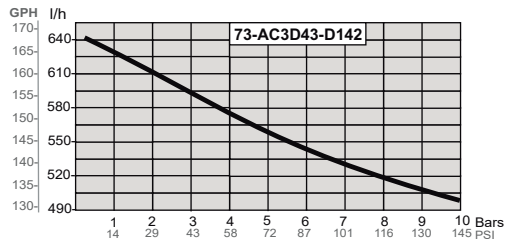
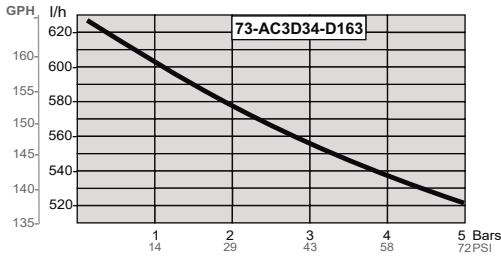
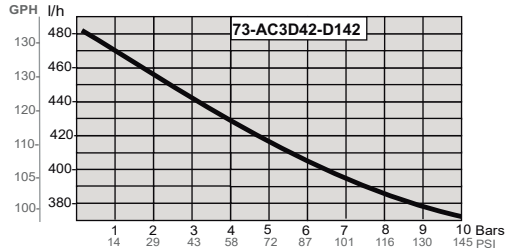
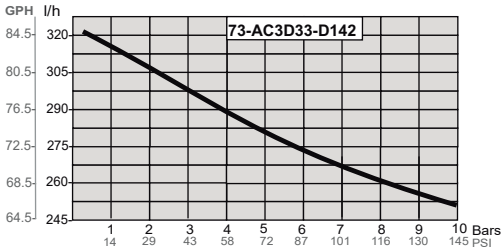
## DIAPHRAGM PUMP AC1-AC2







## DIAPHRAGM PUMP AC3





## Inputs and outputs

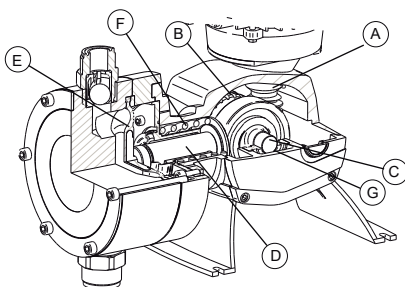
- Analogue input 0/4-20mA
- External pulse input
- Remote on/off input
- Level sensor input (pre-empty)
- Level sensor input (empty)
- Leakage detector input
- Flow detector input
- Pressure sensor input
- Serial port RS-485 ModBus
- 4-20mA output for register and monitoring
- Pulse output for register, monitoring and 2nd pump control
- Alarm output (relay)
- Level alarm output (relay)

## 4.- OPERATION

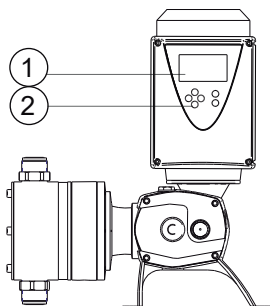
The rotational motion of the motor is transmitted by the gear box, that consists of two major components, the pinion (A) and the ring gear (B). The pinion and the ring gear are linked to an axis with an eccentric bearing (C) that pushes the shaft (D) which is throated to the diaphragm or the piston (E). The return movement is made by the spring (F).

A high resolution encoder (G) checks the instantaneous position and speed and allows the Advanced Control Unit to do a close loop adjustment for torque and rotation speed.

By changing the motor speed and according to the operation mode selected in the Advanced Control Unit, the dosing pump adjusts the flow to the required value within the range from 10 to 100% of the rated flow.



## SYSTEM DESCRIPTION



① LDC Screen

② Keyboard

ENT Confirm

ESC Exit without confirm

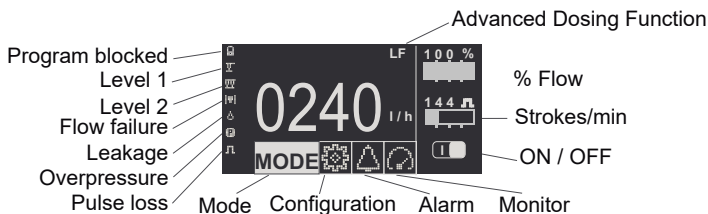
▲ ▼ Increase / reduce value

▶ Move left

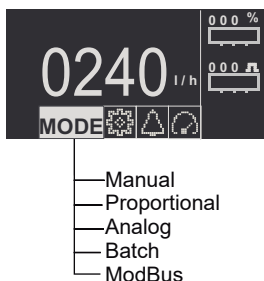
◀ Move right / Test max. speed



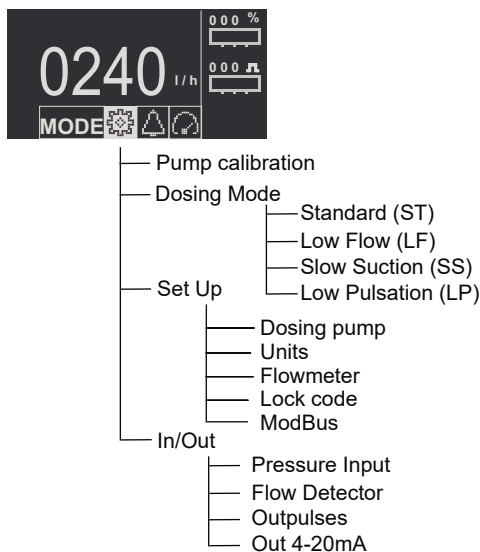
# LCD SCREEN DESCRIPTION



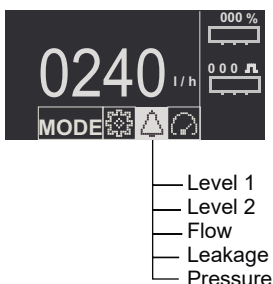
## 4.1 Operating Mode menu



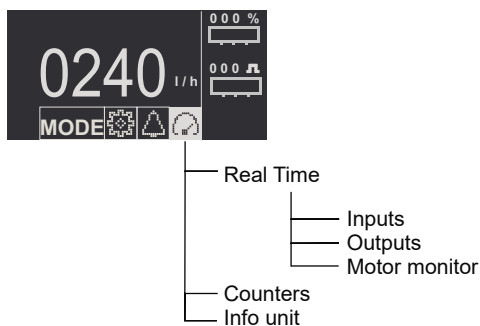
## 4.2 Configuration menu



## 4.3 Alarm menu



## 4.4 Monitor menu

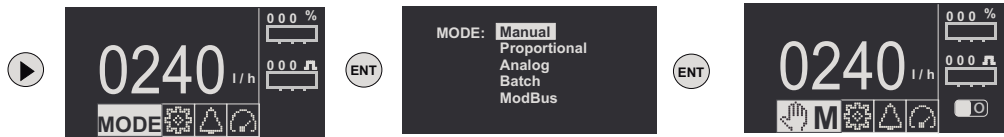




## 4.1 OPERATING MODES

### 4.1.1. Manual mode

This operation mode allows a manual regulation of dosing flow.

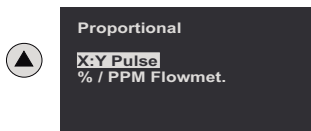
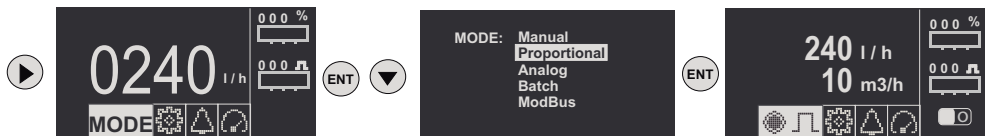


▲ ▼ Increases / reduces the flow  
 ENT Star / stop the pump

The pump starts only if the Remote Activation input is activated

### 4.1.2. Proportional mode

This operation mode allows a proportional dosing from a pulse input. Use X:Y mode to set relation between pulse input (X) and strokes of the pump (Y). Use the %/ ppm mode for a proportional dosing.

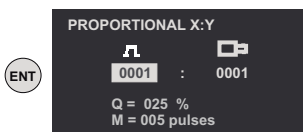


Proportional to input pulses from a  
 1. X:Y for low frequency pulses (0.005-30Hz)  
 2. %/ppm for high frequency flowmeters (1-300Hz)

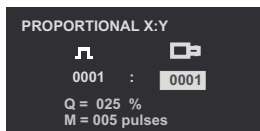
## Proportional mode settings

### 4.1.2.1 X:Y Pulse

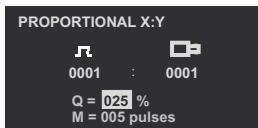
1. The pump turns Y strokes after receiving X pulses.  
 The stroke frequency can be set manually.



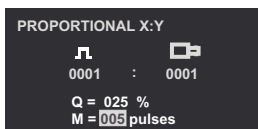
Select the number of input pulses  
 Change values with ▲ ▼ and confirm with ENT



Select the number of pump strokes  
Change values with ▲ ▼ and confirm with ENT



Select the pump speed in %  
Change values with ▲ ▼ and confirm with ENT  
For X: 1 configuration Q must be lower than 50%



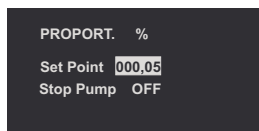
Select the maximum number of pulses in memory  
Change values with ▲ ▼ and confirm with ENT



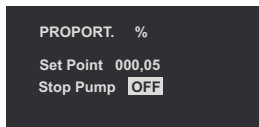
ENT Start / stop the pump  
The pump starts only if the Remote Activation input is activated

#### 4.1.2.2 % / PPM Flowmet

Introduce the proportionality set point (%/ppm) and the pump will adjust the stroke frequency according to the flow reading.



Value of proportionality in % or PPM  
Change values with ▲ ▼ and confirm with ENT



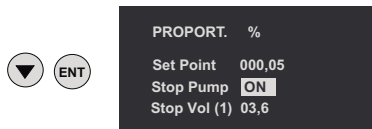
Select OFF if you want to do a proportional dosing without a volume limit.  
Change values with ▲ ▼ and confirm with ENT



Instant water flow value  
Press ENT to start / stop the pump. The pump starts only if the Remote Activation input is activated

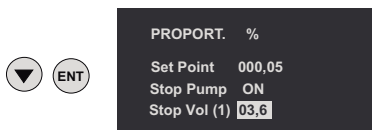
\* To configure the units (% / ppm) view Configuration / Units section

\* To configure the flowmeter view Configuration / Setup section



Select ON if you want to do a proportional dosing with a volume limit. The pump will stop when it reaches the maximum volumen to be dosed.

Change values with and confirm with



Set the desired maximum volume.

Change values with and confirm with

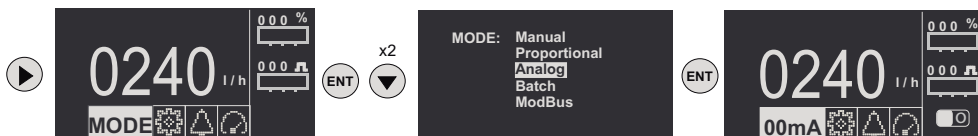


Volume to dose  
Volume dosed

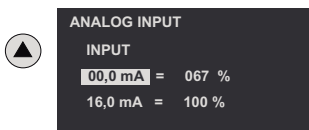
Press ENT to start / stop the pump. The pump starts only if the Remote Activation input is activated. The pump stops when the it reaches the maximum volume setted.

### 4.1.3. Analogue mode

This operation mode controls the stroke frequency according to an analogue input 0/4-20mA.

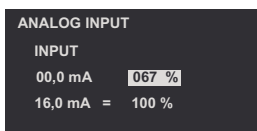


#### 4.1.3.1 Analogue mode settings



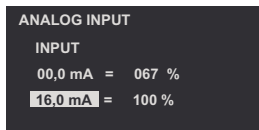
Select the mA Input for the first point

Change values with and confirm with



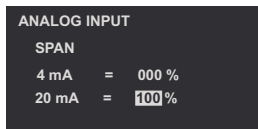
Select the flow in % for the first point in mA

Change values with and confirm with



Select the mA Input to second point

Change values with and confirm with



Select the flow in % for the second point in mA

Change values with and confirm with

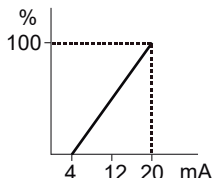


Start / stop the pump

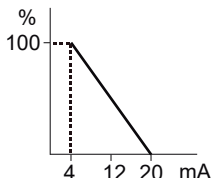
The pump starts only if the Remote Activation input is activated

### Examples:

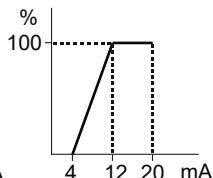
1: 4mA=0%  
20mA= 100%



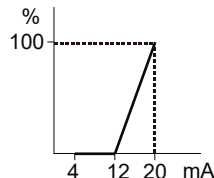
2: 4mA=100%  
20mA= 0%



3: 4mA=0%  
12mA= 100%



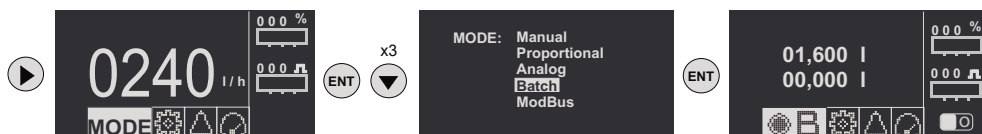
4: 12mA=0%  
20mA= 100%



Examples 3 and 4 can be combined in two pumps when both are driven with the same mA signal in order to start the second pump as a complementary flow.

### 4.1.4. Batch mode

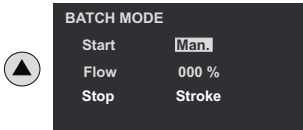
In this operation mode it is possible to start the pump for a defined number of strokes or for a defined time. The start signal can be set manually, externally or by means of a timer. The stroke frequency can be set manually in all these operation modes.



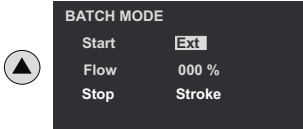


## Batch mode settings

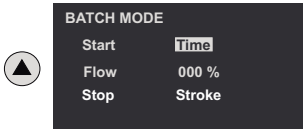
### 4.1.4.1 Select start mode



Manual: press to start the pump

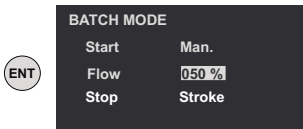


Ext.: start the pump through remote input



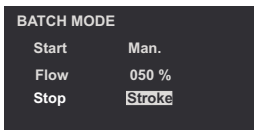
Time: start the pump through a timer by introducing a frequency (00:00:01 - 23:59:59)

### 4.1.4.2 Select stroke frequency in % (flow)

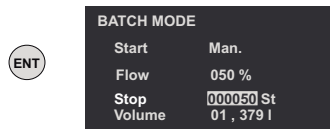


Change values with and confirm with

### 4.1.4.3 Select Stop mode



Stroke: set the number of strokes before stop



Change values with and confirm with





**BATCH MODE**




Start	Man.
Flow	050 %
Stop	<b>Time</b>

Time: set the runtime before stop







**BATCH MODE**

Start	Man.
Flow	050 %
Stop	00 : 00 : 10
Volume	333,33 l

Change values with   and confirm with 

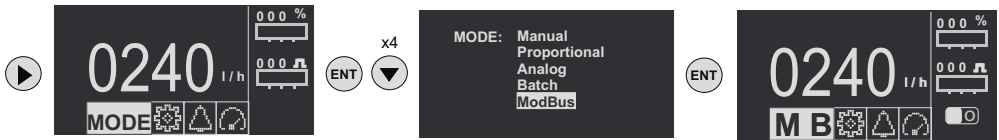
### Configuration modes view

Start : Stop :	Man. / Ext Strokes		<p>Volume to dose</p> <p>Volume counter</p>
Start : Stop :	Man. / Ext Time		<p>Dosing time</p> <p>Time counter</p>
Start : Stop :	Time Strokes		<p>Start time frequency</p> <p>Volume to dose</p> <p>Volume counter</p>
Start : Stop :	Man. / Ext Time		<p>Strt time frequency</p> <p>Dosing time</p> <p>Time counter</p>



### 4.1.5 ModBus mode

This operation mode allows the control of the pump through the serial port RS485 and Modbus RTU protocol.



- Bus: Rs485
- Communication through (half-duplex) L(H), H(B), and GND
- Baud rate: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Hardware handshaking: No
- Character Time out: 20 mSeg.
- Message Time out: 100 mSeg

*Important: if it is necessary to use a RS232/RS485 or other converters, make sure this converter doesn't produce an echo signal.*

Command		Address	Name	Value	
Read	04	00 00	Dosing Flow	Integer	
Read	04	00 01	ON/OFF state	0/1	
Read	04	00 02	Motor alarms:	5 Bits	---x xxxx
			Shortcircuit	0/1	---x xxxX
			Current	0/1	---x xxXx
			Temperature	0/1	---x xXxx
			Voltage	0/1	---x Xxxx
			Encoder	0/1	---X xxxxx
Read	04	00 03	Last motor alarm	5 Bits	---x xxxx
Read	04	00 04	Pump alarms:	5 Bits	---x xxxx
			Level 1	0/1	---x xxxX
			Level 2	0/1	---x xxXx
			Flow	0/1	---x xXxx
			Leakage	0/1	---x Xxxx
			Pressure	0/1	---X xxxxx
Read	04	00 05	Last pump alarm	5 Bits	---x xxxx
Write	06	00 00	Dosing flow set point	Integer	Integer
Write	06	00 01	Start / Stop	0/1	0/1

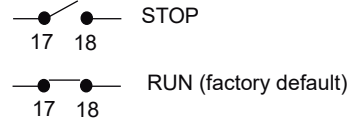
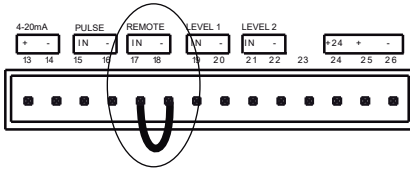
Example of reading ON/OFF state:

BYTE							
0	1	2	3	4	5	6	7
01	04	00	01	00	01	60	0A



### 4.1.5.1 Remote activation

An external remote control can be used to start and stop the pump by means of drycontact in pins 17-18.



When the contact is closed (RUN) it is possible to operate the pump manually through the ENT key. After stopping the pump manually through the keyboard, it is necessary to reset the Remote Input (open and close) to start again the pump through remotely.

### 4.1.5.2 Test priming function

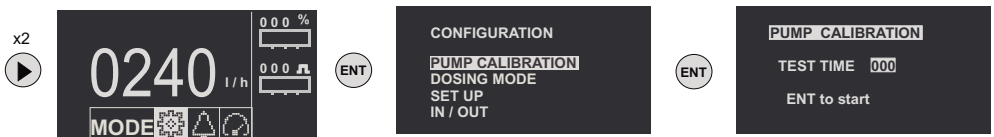
Pressing for 3 seconds in Manual mode, to start pump at maximum speed. The pump keeps running only when the is pressed.

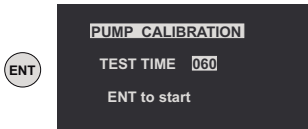
This function allows a quick test of the unit and it becomes an assistance for priming the pump.

## 4.2 CONFIGURATION

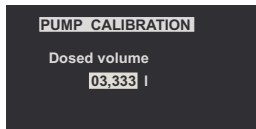
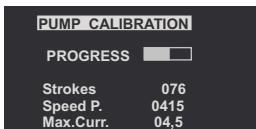
### 4.2.1 Pump Calibration

Pump Calibration allows a flow calibration under the working conditions by doing a suction test for an specified time (TEST TIME). Introduce the Test time longer than 60 seconds to perform a properly calibration. The pump starts automatically at maximum flow for the specified time. Measure suctioned volume once the pump stops, and introduce this value in the unit. This value allows the unit to recalibrate the dosing flow.

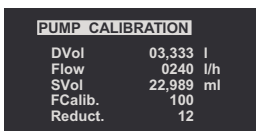




Change values with and confirm with



Introduce the value in the unit and confirm with



Press to finish the calibration process  
Dvol: dosed volume  
Flow: flow  
S.Vol: stroke volume  
F.calib: calibration factor  
Reduct: gearbox

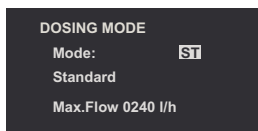
## 4.2.2 Dosing Mode

The Dosing Mode function allows you to select the different Advanced Dosing Functions. These functions can regulate the mechanism speed during the discharge or suction cycle of the pump to optimize the dosing and adapt it to the features of the process.



### 4.2.2.1 Standard

The Standard mode (ST) is the regular operating mode where the dosing pump has a symmetrical behavior during the suction and discharge of the product.



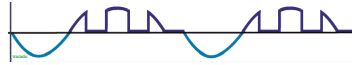
Change with and confirm with



### 4.2.2.2 Low Flow

The Low Flow mode (LF) allows to pause the dosing during the discharge cycle, extending the dosing time and therefore reducing the flow up to 1%. The other modes allow to reduce the flow up to 10%.

DOSING MODE  
Mode: **LF**  
Low Flow  
Min. Flow 2,40 l/h



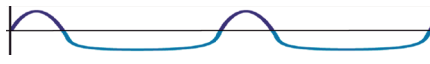
Change with ▲ ▼ and confirm with ENT

### 4.2.2.3 Slow Suction

The Slow Suction mode (SS) reduces the speed during the suction cycle to improve the precision in the dosing of viscous liquids since it reduces the risk of cavitation and incomplete fillind of the head.

The maximum flow is reduced to 50%.

DOSING MODE  
Mode: **SS**  
Slow Suction  
Max.Flow 120 l/h



Change with ▲ ▼ and confirm with ENT

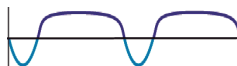
### 4.2.2.4 Low Pulsation

The Low Pulsation mode (LP) extends the time of the discharge cycle to minimize the effect of the pulsatile flow and reduce the overpressures caused in long discharges.

The maximum flow is reduced depending on the gearbox model (frequency).

Frequency	Max. flow reduced to
1	55%
2	55%
3	50%
4	35%

DOSING MODE  
Mode: **LP**  
Low Pulsation  
Max.Flow 84,0 l/h



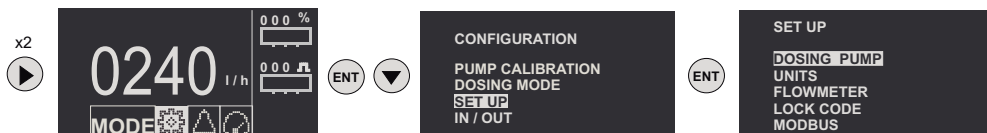
Change with ▲ ▼ and confirm with ENT



## 4.2.3 Set up

### 4.2.3.1 Dosing pump

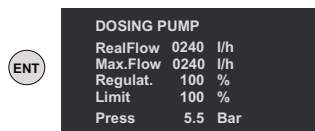
#### Technical features of the dosing pump



### Flow of the pump

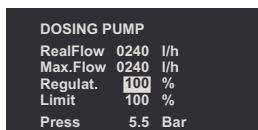
Real Flow is the flow due to the calibration test, if it has been done, and/or the flow due to the regulation.

Max Flow is the flow due to the limit and/or the Advanced Dosing Mode.



### Regulation

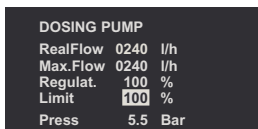
In case of stroke length regulation system available in this unit, and the regulator knob in a position different from 100%, this parameter must coincide with the regulation of the pump's knob.



Change values with ▲ ▼ and confirm with ENT

### Flow limit %

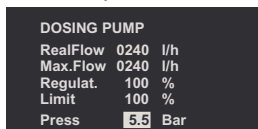
This is the maximum flow for the pump. This parameter allows the user to limit the maximum flow of the pump.



Change values with ▲ ▼ and confirm with ENT

### Maximum pressure

Maximum pressure for this unit

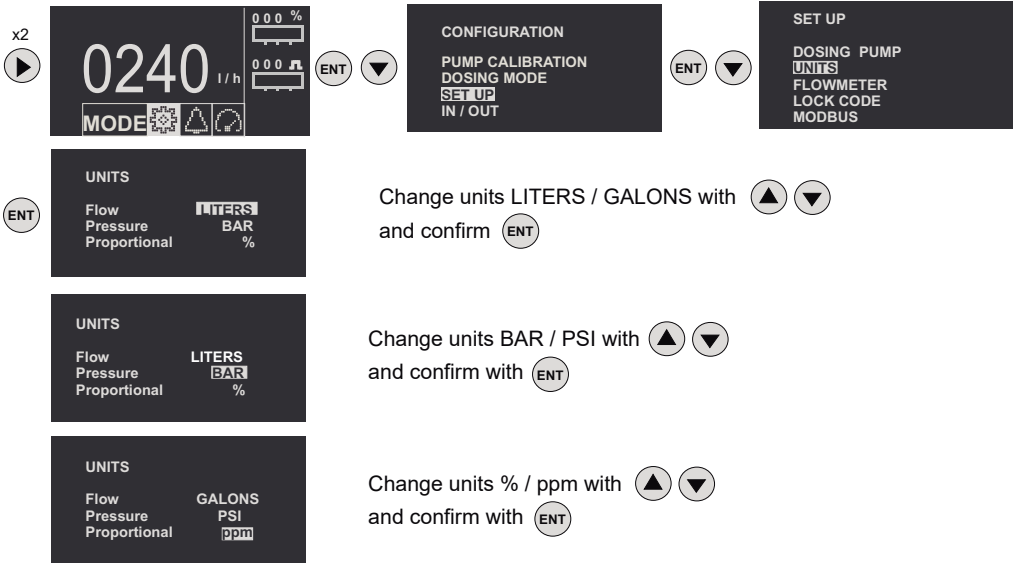


Change values with ▲ ▼ and confirm with ENT



### 4.2.3.2 Units

Select the units for flow, pressure and proportion



### 4.2.3.3 Flowmeter

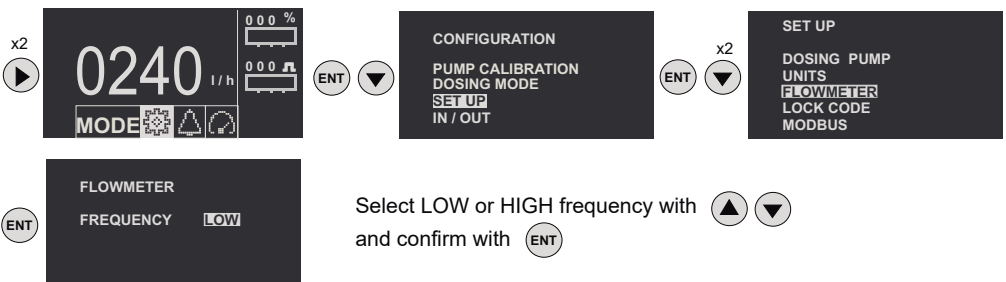
Introduce the constant of the flowmeter (volume/pulse or pulses/volume) for a correct reading of water flow. Select previously the type of flowmeter, low or high the frequency output.

**Low frequency:** watermeters with low frequency output (0.005Hz -30Hz).

Constant corresponds to volume/pulse (liters/puls ; gallons/pulse).

**High frequency:** flowmeters with high frequency outputs (1Hz-300Hz).

Constant K-factor corresponds to pulses/volume (pulses/litre ; pulses/galon).





FLOWMETER  
 FREQUENCY : LOW  
 K = 010.77 l / puls  
 TIME Q=0 : 005s

FLOWMETER  
 FREQUENCY : HIGH  
 K = 010.77 puls / l

Change values with ▲ ▼  
 and confirm with ENT

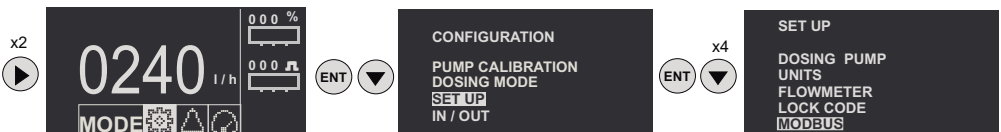
TIME Q=0, Time without receiving pulses necessary to identify as dlow zero.

#### 4.2.3.4 Lock code

Lock code to prevent changes in the units settings. When lock code is 0000 (factory default) the equipment is unlock.



#### 4.2.3.5 ModBus







ENT

MODBUS ADDRESS

Address: 001

Baudrate: 9600

Data Bits: 8

Parity: N

Stop Bits: 1

Change values with ▲ ▼ and confirm with ENT

ENT

MODBUS ADDRESS

Address: 001

Baudrate: 3600

Data Bits: 8

Parity: N

Stop Bits: 1

Change values with ▲ ▼ and confirm with ENT

ENT

MODBUS ADDRESS

Address: 001

Baudrate: 9600

Data Bits: 8

Parity: N

Stop Bits: 1

Change values with ▲ ▼ and confirm with ENT

ENT

MODBUS ADDRESS

Address: 001

Baudrate: 9600

Data Bits: 8

Parity: N

Stop Bits: 1

Change values with ▲ ▼ and confirm with ENT

## 4.2.4. IN /OUT

### 4.2.4.1 Pressure input

Calibration of the pressure transducer input 4-20mA.

x2

0240 l/h

MODE

000 %

000 ft

ENT

▼

CONFIGURATION

PUMP CALIBRATION

DOSING MODE

SET UP

N/OUT

ENT

INPUTS

PRESSURE

FLOW DETECTOR

OUTPUTS

PULSES

4-20mA

PRESSURE INPUT

4 mA 000.0 bar

20 mA 000.0 bar

Set the pressure value for 4mA

Change values with ▲ ▼ and confirm with ENT

PRESSURE INPUT

4 mA 000.0 bar

20 mA 020.0 bar

Set the pressure value for 20mA

Change values with ▲ ▼ and confirm with ENT

### 4.2.4.2 Flow detector

The flow detector is an accessory that allows to monitor the flow pulses.

x2

0240 l/h

MODE

000 %

000 ft

ENT

▼

CONFIGURATION

PUMP CALIBRATION

DOSING MODE

SET UP?

N/OUT

ENT

INPUTS

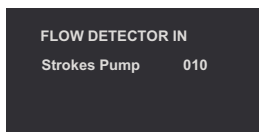
PRESSURE

FLOW DETECTOR

OUTPUTS

PULSES

4-20mA

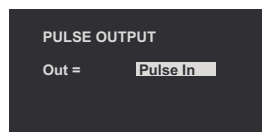
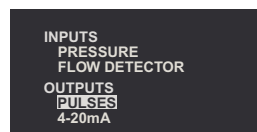
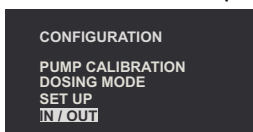
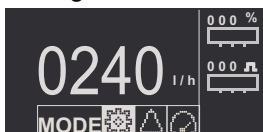


Set the number of cycles of the pump without detecting any pulse to activate the alarm.

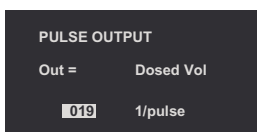
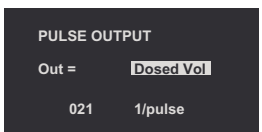
Change values with and confirm with

### 4.2.4.3 Pulse output

Configuration of the volume/pulse to monitor the pump flow



Set if the output pulse is the same as the input. With this option a second Dostec AC can be driven by the same flowmeter in proportional (%) mode.



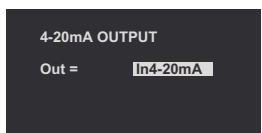
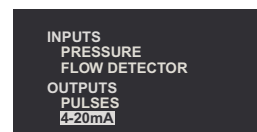
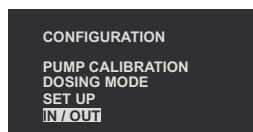
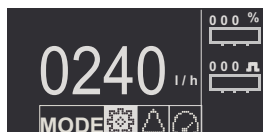
Set the volume of product dosed for each pulse.

Change values with and confirm with

With this option another device can receive the volume dosed. Check 5.5.4 for the connection.

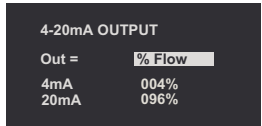
### 4.2.4.4 4-20mA output

4-20mA output to monitor.



Set if the 4-20mA Output is the same as 4-20mA Input, or manual config

Change values with and confirm with



Set the % flow where it will emit 20mA

Set the % flow where it will emit 20mA

Change values with and confirm with

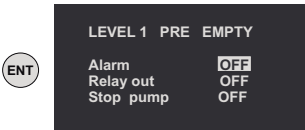
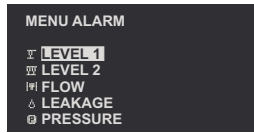


### 4.3 ALARMS

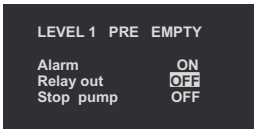
If there is an alarm, the appropriate icon will be blinking on the main screen. If the cause of the alarm stops, the icon will remain fixed on the screen. To clear the alarm icon is necessary to stop and start the pump by pressing the “ENT” key. The safety time is 5 seconds before activating any alarm.

#### 4.3.1 Level alarm 1

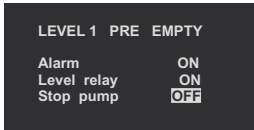
Level alarm for tank pre-empty. Automatic restart.



Enable or disable the pre-empty level alarm with and confirm with



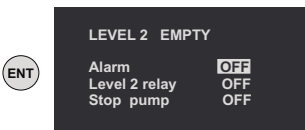
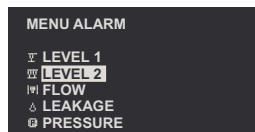
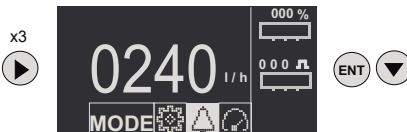
Switch on the Alarm Level relay when the alarm is on and confirm with



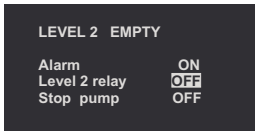
Stop the pump when the alarm is on and confirm with

#### 4.3.2 Level alarm 2

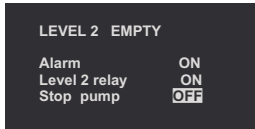
Level alarm for tank empty. Automatic restart.



Enable or disable the alarm with and confirm with



Switch on the Alarm Level relay when the alarm is on   
and confirm with

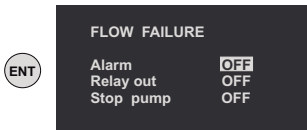
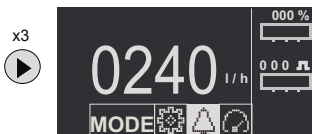


Stop the pump when the alarm is on   
and confirm with

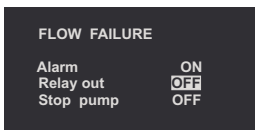
### 4.3.3 Flow failure alarm

Dosing flow detector alarm.

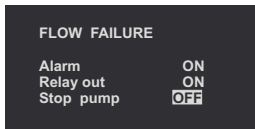
See section 4.2.4.2 (Configuration/Inputs/Flow Detector)



Enable or disable the alarm with   
and confirm with



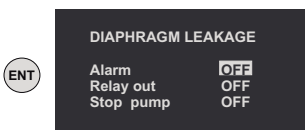
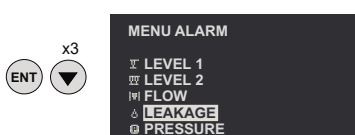
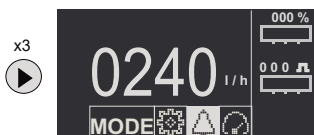
Switch on the Alarm Level relay when the alarm is on   
and confirm with



Stop the pump when the alarm is on   
and confirm with

### 4.3.4 Diaphragm leakage alarm

Alarm to detect a diaphragm leakage in electric conductive media (min. 0.05mS).



Enable or disable the alarm with   
and confirm with



DIAPHRAGM LEAKAGE

Alarm	ON
Relay out	OFF
Stop pump	OFF

Switch on the Alarm Level relay when the alarm is on and confirm with

DIAPHRAGM LEAKAGE

Alarm	ON
Relay out	ON
Stop pump	OFF

Stop the pump when the alarm is on and confirm with

### 4.3.5 Overpressure alarm

Alarm to detect overpressure. Automatic restart.

x3

x4

MENU ALARM

- LEVEL 1
- LEVEL 2
- FLOW
- LEAKAGE
- PRESSURE

OVER PRESSURE

Alarm	OFF
Relay out	OFF
Stop pump	OFF

Enable or disable the alarm with and confirm with

OVER PRESSURE

Alarm	ON
Relay out	OFF
Stop pump	OFF

Switch on the Alarm Level relay when the alarm is on and confirm with

OVER PRESSURE

Alarm	ON
Relay out	ON
Stop pump	OFF

Stop the pump when the alarm is on and confirm with

## 4.4 MONITOR

### 4.4.1 Real Time

Real time working parameters

x4

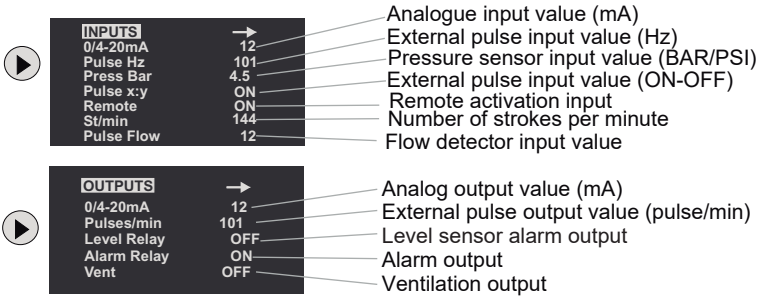
MONITOR

- REAL TIME
- COUNTERS
- INFO UNIT

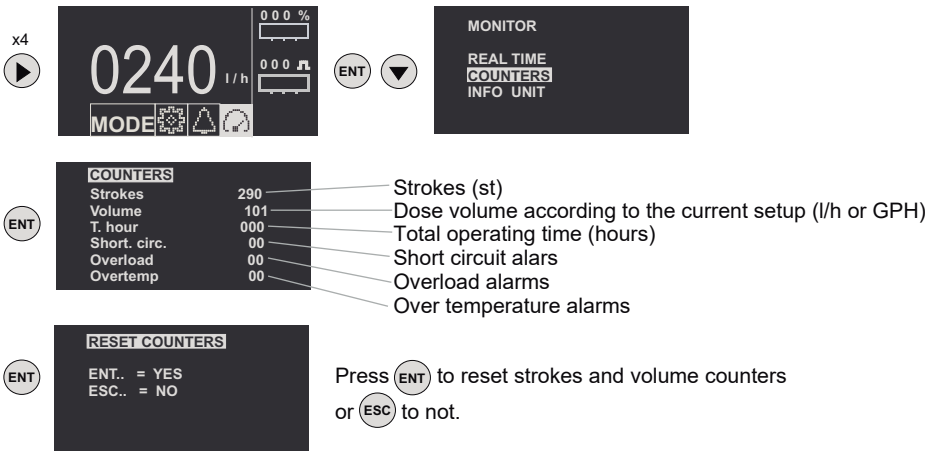
MOTOR MONITOR

Hz	000
Volt Out	000
Amp	000
Temp	030
Volt In	249

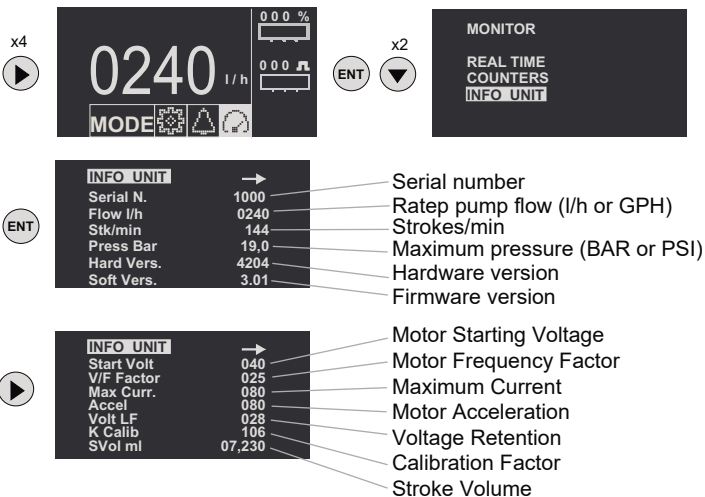
Frequency (Hz)  
 Motor voltage (V)  
 Consumption (Amp)  
 Temperature (°C)  
 Input voltage (V)



#### 4.4.2 Counters



#### 4.4.3 Info Unit





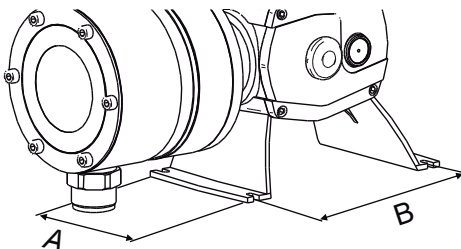
## 5.- INSTALLATION

### 5.1.- GENERALITIES

To install this pump it is advisable to choose places protected from water, away from heat sources and with air renewal.

Place the pump vertically over a totally rigid surface to achieve a proper lubrication of all inner elements. Anticipate which will be the room you will need to comfortably do the basic maintenance and install / uninstall the pump.

Fix the pump on the chosen flat surface by means of 4 screws.



	A	B	
AC3	90 3.5	155 6.1	mm in
AC2 /1	122 4.8	212 8.3	mm in

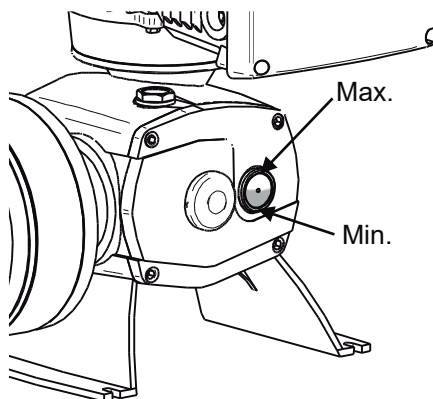
### 5.2.-BLOCK

Pull out the oil cap for transport , fill the pump with the SAE oil 80W90 being supplied (or similar oil), up to the level shown on the screen and put on the working cap (black with a hole).

Approximate oil contents 650 cm<sup>3</sup>

Oil list:

- CEPSA SAE80W90
- REPSOL EP 80W/90
- SHELL SPIRLAXHD OIL 80W/90
- ESSO GEAR OIL 80W/90
- AGIP ROTRA MP 80W-90
- MOBILUDE HD 80W-90
- BP ENERGEAR HT 80W-90
- CATROL HYPOYC
- GULF GEAR MP SAE 80W 90
- ELF TRANSGEAR HD 80W-90





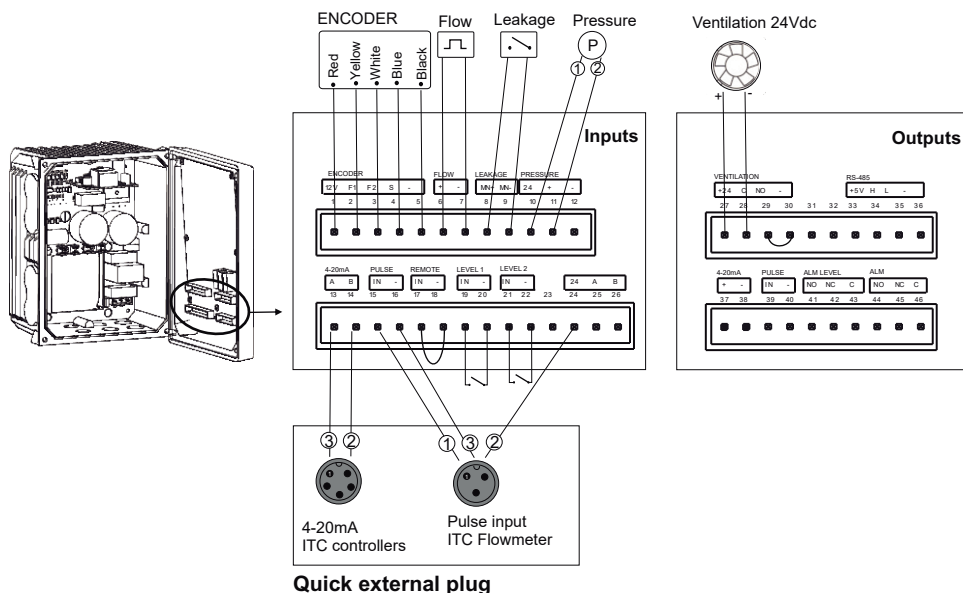
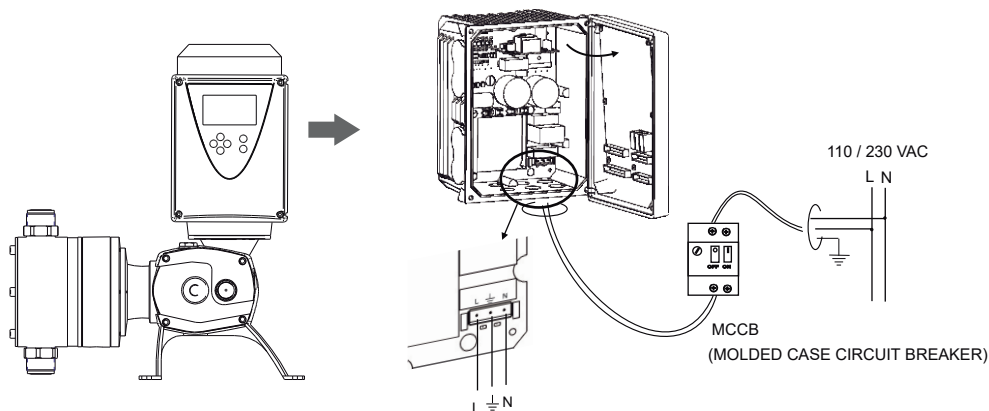
### 5.3.- ELECTRICAL CONNECTION



The electric protection of the motor must be installed and adjusted following its nominal intensity (overloaded switch disjuntor). (See wiring).

A disconnection dispositive must be installed in case of emergency.

The equipment must be protected to avoid unexpected sudden starts.







## WIRING

### Inputs

N	FUNCTION	DETAIL
1	Encoder	+12vdc
2	Encoder	F1
3	Encoder	F2
4	Encoder	S
5	Encoder	(-)
6	Flow detector	(+)
7	Flow detector	(-)
8	Leakage detector	(+)
9	Leakage detector	(-)
10	Pressure transmitter	+24v dc
11	Pressure transmitter	(+)
12	Pressure transmitter	(-)
13	Analogue mode input 4-20mA	(+)
14	Analogue mode input 4-20mA	(-)
15	Proportional mode pulse input	Pulse
16	Proportional mode pulse input	(-)
17	Remote activation / Batch mode	Dry contact
18	Remote activation / Batch mode	Dry contact
19	Level sensor 1	Dry contact
20	Level sensor 1	Dry contact
21	Level sensor 2	Dry contact
22	Level sensor 2	Dry contact

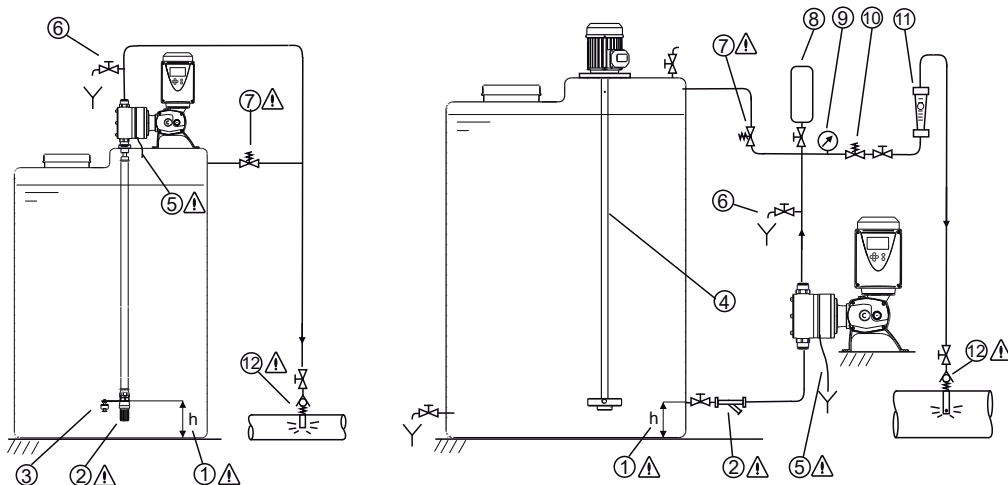
### Outputs

27	Additional ventilation	+24v dc
28	Additional ventilation	Relay Output Common
29	Additional ventilation	Relay Output NO
30	Additional ventilation	(-)
33	RS-485	+5Vdc
34	RS-485	H (B)
35	RS-485	L (A)
36	RS-485	(-)
37	Analog monitor output 4-20mA	(+) Not optically isolated
38	Analog monitor output 4-20mA	(-) Not optically isolated
39	Pulse monitor output	Signal. Not optically isolated
40	Pulse monitor output	(-) Not optically isolated
41	Level alarm output	NO
42	Level alarm output	NC
43	Level alarm output	Common (max.5Amp 250V <sup>AC</sup> )
44	Alarm output	NO
45	Alarm output	NC
46	Alarm output	Common (max.5Amp 250V <sup>AC</sup> )



## 5.4.- HYDRAULIC INSTALLATION

### 5.4.1- Installation examples



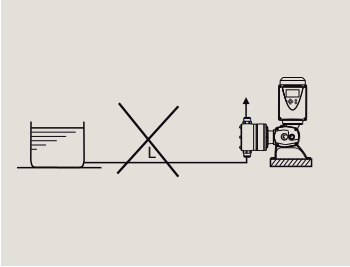
- ⚠️ ① Avoid suctioning the undiluted particles from the bottom of the tank.
- ⚠️ ② Filter. It is important to install a filter (150 micron) in the suction pipe.
- ③ Level sensor
- ④ Agitator
- ⚠️ ⑤ Make sure to collect any liquid leakage from the cylinder's vent/drain hole in a proper container.
- ⑥ Prime valve / drain valve
- ⚠️ ⑦ Safety relief valve. Install a safety valve in a derivation as near as possible from the pump, in order to protect it and the whole installation from possible over-pressures. This derivation must derive liquid to a safe place.
- ⑧ Pulsation dampener
- ⑨ Pressure gauge
- ⑩ Pressure regulating valve
- ⑪ Flowmeter
- ⚠️ ⑫ Injection check valve



## 5.4.2.- Recommendations for the correct installation

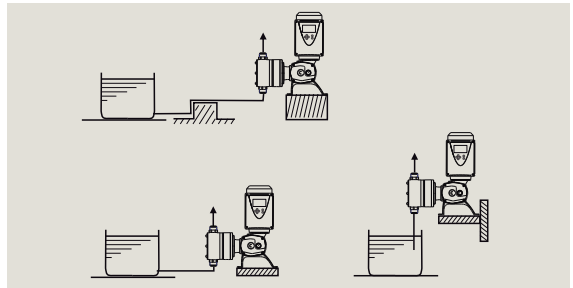
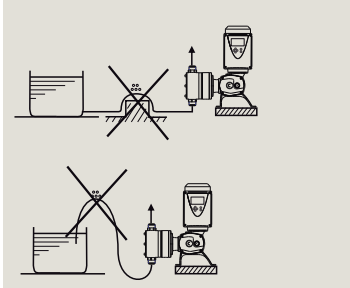
### SUCTION PIPE

⚠ Long suction pipe:  $L > 2\text{m}$  (6.5ft)



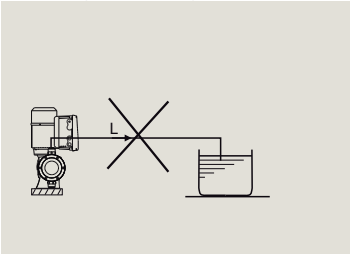
RECOMMENDED PIPE SIZE			
	Øint	$L \leq 2\text{ m}$	$L \leq 5\text{ m}$
AC1/2	6	50	25
	15	300	100
	20		200
	25		300
	30	800	500
AC3	40	1000	800
	50		850
	60		900
	70		1000
Q max (l/h)			

⚠ Air in suction pipe



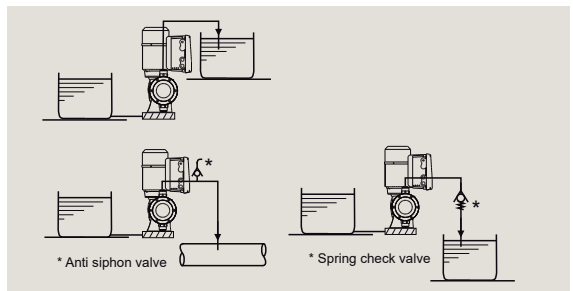
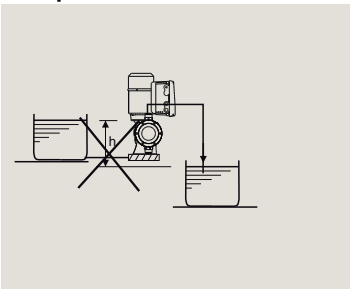
### DISCHARGE PIPE

⚠ Long discharge pipe:  $L > 5\text{m}$  (16 ft)



RECOMMENDED PIPE SIZE			
	Øint	$L \leq 2\text{ m}$	$L \leq 10\text{ m}$
AC1/2	6	80	10
	15	300	70
	20		100
	25		200
	30		300
AC3	30	1000	400
	40		600
	50		600
	60		1000
Q max (l/h)			

⚠ Siphon





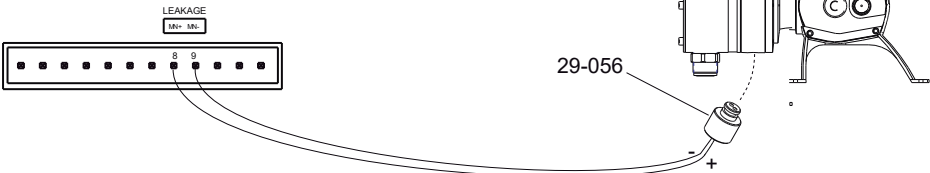
## 5.5.- ACCESSORIES

### 5.5.1- Diaphragm leakage detector

The diaphragm leakage detector is a conductivity sensor which is able to detect conductive liquids, with a minimum conductivity of 0.05mS. The pump must be provided with the specific diaphragm flange to hold the leakage detector.

Ø diaphragm	Standard flange
69	29-063-P
95	29-064-P
115	29-065-P
142	29-066-P
163	29-067-P

Fit the leakage detector Ref. 29-056 in the bottom hole of the diaphragm flange and connect it in pins 8 - 9, as shown in the drawing



### 5.5.2- Flow detector

The flow detector is a device, which monitors the pulsated delivered flow. The pulses are received and processed by the Advance Control Unit in order to detect dosing failures like not priming, cavitation or check valves problems. The unit compares the strokes of the pump with the pulses from the detector. When the pump does 40 strokes with no signal from the flow detector and alarm



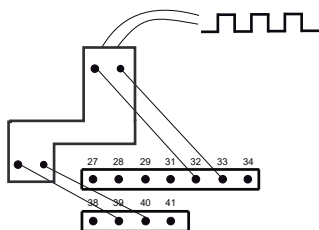
### 5.5.3- Pressure sensor

The pressure sensor protects the pump against overpressure when the pressure alarm is activated. Connect the pressure sensor 4-20mA 10Bar Ref. 18705 as shown in the drawing.



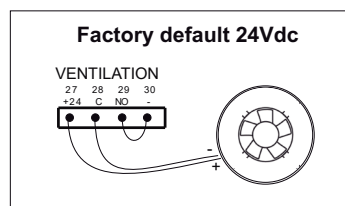
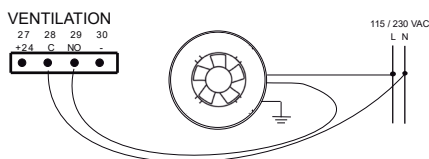


## 5.5.4- Pulse output isolator



The pulse output isolator allows to safely connect any dispositive to an pulse output. The pulse output is a drycontact. The pulse output isolator is not necessary when this output connects with a pulse input of another Dostec AC.

## 5.5.5- Additional ventilation 115 / 230V



## 6.- START UP AND REGULATION



**STAND:** Check that the pump is properly installed in its stand.



**OIL:** Take off re-filling lid and fill the pump with the provided oil: SAE 80 W 90 or equivalent.  
Check the oil level shown on the oil peep hole

Lubricants list:

CEPSA SAE 80W 90

REPSOL EP 80W/90

SHELL SPIRLAX HD OIL 80W/90

ESSO GEAR OIL 80W/90

AGIP ROTRA MP 80W-90

MOBILUDE HD 80W-90

BP ENERGEAR HT 80W-90

CASTROL HYPOYC

GULF GEAR MP SAE 80W 90

ELF TRANSGEAR HD 80W-90

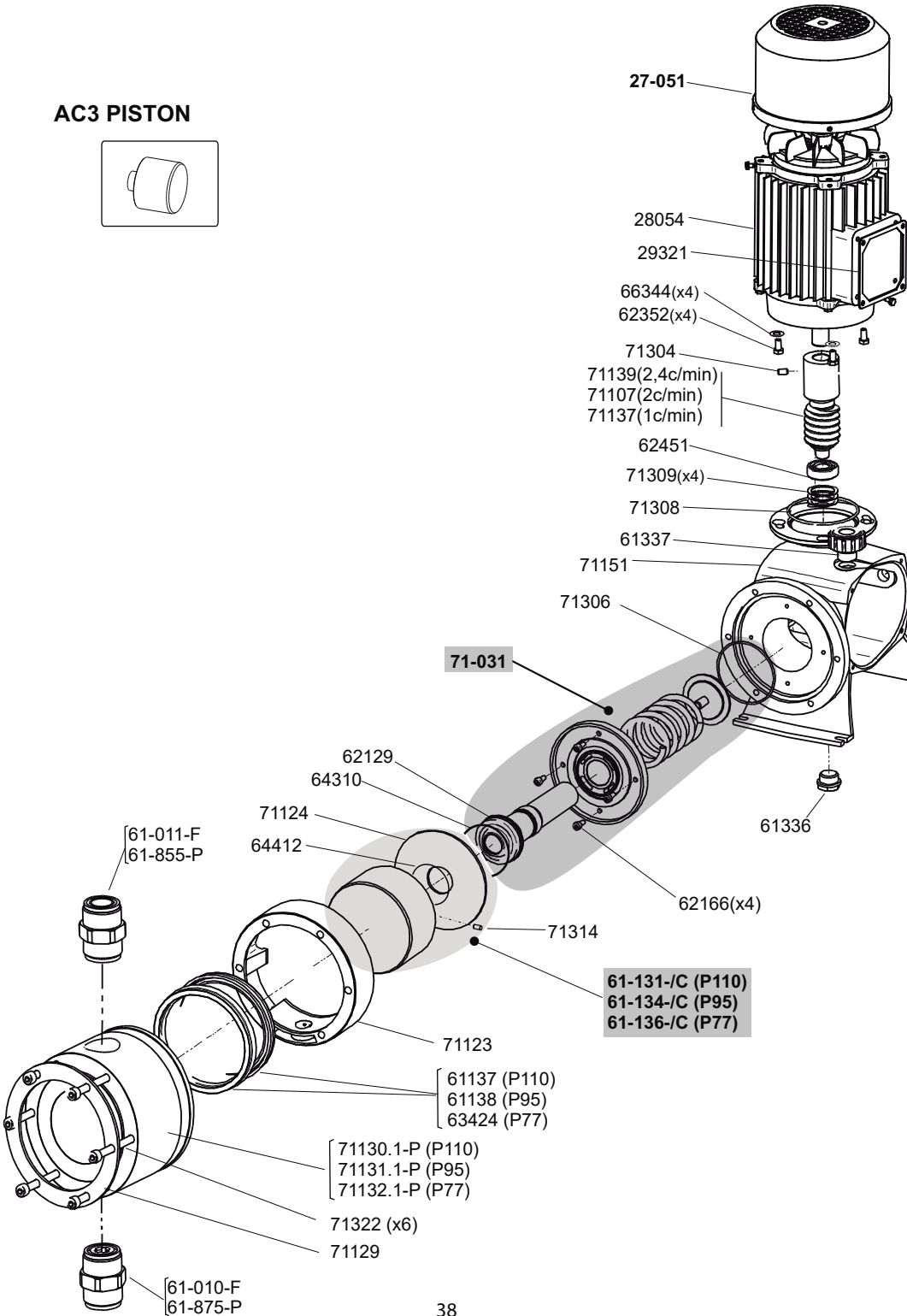
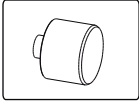


**CHECKING THE HYDRAULIC CIRCUIT:** Check that all valves are opened and that escapes from priming valves derive the liquid to a proper receptacle.



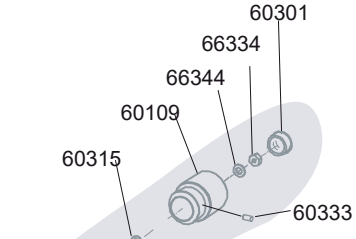
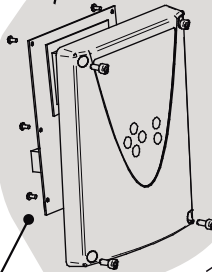
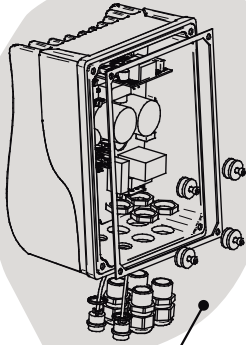
**CHECKING OF PUMP:** Check visually/auditorilly the proper working of the pump.

# AC3 PISTON





**29061 (AC2)**



60301

66334

66344

60109

60315

60333

**71-030 (c15-7,5)**

**71-029 (c10-5)**

71111(c15-7,7)

71112(c10-5)

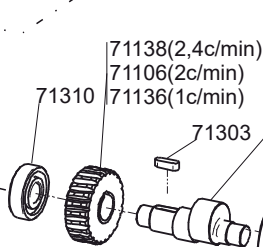
60314

60110(c15-7,7)

71127(c10-5)

29-036

29-035



71138(2,4c/min)

71106(2c/min)

71136(1c/min)

71310

71303

71184(15mm)

71187(10mm)

71188(7,5mm)

71189(5mm)

71310

71307

71311

71186

60156

71185.1

71313(x4)

62166(x4)

60300

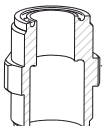
60304(x3)

29-059.1

65466

29-057.1

**61-885-P**  
**61-011-F/I**  
**61-882-P (NPT)**



61801-P/F/I  
61807-P (NPT)



61802-P/F/I



61301

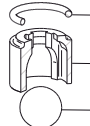


61803-P/F/I



61808(FPM)

**61-875-P**  
**61-010-F/I**  
**61-872-P (NPT)**



61808(FPM)

61802-P/F/I

61302 (Vidrio)  
61353 (Boro.)



61803-P/F/I



61808(FPM)



61801-P/F/I  
61807-P(NPT)



## LIST OF PARTS AC3 (Piston)

CODE	DESCRIPTION	UNITS
28054	Electric motor 1,2Kw 6P 110/190 3ph 80/100 B14	1
29321	Seal motor T80 Maraz	1
29620	Control board AC	1
29622	Power board 230V AC	1
33429	Screw M4x20 Din 912 a-2	4
38301	Screw M3x8 Din7985 A2	7
60109	Regulator knob Dostec	1
60110	Regulator guide p1,5mm Dostec	1
60156	Magnet for encoder d6x2.5	1
60300	Oil peep hole	1
60301	Regulator knob plug	1
60304	Screw M4x8 Din 912 A4	4
60314	O-ring 17x3,5 NBR	1
60315	O-ring 6,5x2 NBR	1
60333	Screw M4x8 DIN 913 A-2	1
61-131/-C	Piston 1000 l/h D110 lock EF	1
61-134/-C	Piston 750 l/h D95 lock EF	1
61-136/-C	Piston 500 l/h D77 lock EF	1
61137	Seal 1000 l/h FPM	2
61138	Seal 750 l/h FPM	2
61336	Drain plug ½	1
61337	Filler plug ½"	1
62129	Bellow FPM	1
62166	Screw M6x16 Din 912 A2	8
62352	Screw M6x12 Din 933 A2	4
62451	Bearing 6202 zz	1
63424	Seal 78x87x6 FPM 500 l/h	2
64310	O-ring 55,5x3,5 NBR	1
65466	O-ring 20x2 NBR	1
64412	O-ring 44x2 FPM	1
66334	Nut M6 Din 934 A2	1
66344	Washer D6 Din 125 A2	5
70304	Screw M5x20 Din 912 I	4
71106	Ring gear 2 stroke D50	1
71107	Pinion 2 stroke D50	1
71111	Regulation rod p1,5mm D50	1
71112	Regulation rod p1 mm D50	1
71123	Cylinder spacer D50	1
71124	Protection disc D50	1
71127	Regulation guide p 1mm D50	1
71129	Ring plate for piston cylinder	1
71130.1-P	Cylinder 1000 l/h s ring plate PP	1
71131.1-P	Cylinder 750 l/h s ring plate PP	1
71132.1-P	Cylinder 500 l/h s ring plate PP	1
71136	Ring gear 1 stroke D50	1
71137	Pinion 1 stroke D50	1
71138	Ring gear 2,4 stroke D50	1
71139	Pinion 2,4strokes D50	1





71129	Ring plate for piston cylinder D160	1
71151	Block D50 Ac3	1
71184	Eccentric shaft 15 encoder Ac3	1
71185.1	Block lid D50 encoder	1
71186	Magnet for encoder base D50	1
71187	Eccentric shaft 10 encoder Ac3	1
71188	Eccentric shaft 7,5 encoder Ac3	1
71189	Eccentric shaft 5 encoder Ac3	1
71303	Wedging piece Din 6885-a (8x7x25)	1
71304	Screw M6x10 Din 913 8.8	1
71306	O-ring 70 x 2,5 NBR	1
71307	O-ring 125x2,5 NBR	1
71308	O-ring 77 x 2 NBR	1
71309	Elastic washer Din137-b (34x26x0,4)	3
71310	Bearing 6304zz ( 20x52x15 )	2
71311	Bearing 6308zz (40x90x23)	1
71313	washer M6 Nord-lock	4
71314	Screw M5x12 DIN914 A2	1
71322	Tornillo M8x150 DIN912 A2	6

#### ASSEMBLIES

27-051	Additional ventilation 24v D50/ EF low presure	1
29-035	Control PCB with cover DOSTEC AC	1
29-037	Power PCB with box AC2	1
29-057.1	PCB, base and cover encoder DOSTEC AC	1
29-059.1	Encoder with cover AC3 (dostec50)	1
29061	Advance Control AC2/3 230Vac	1
71-029	Regulator p 1mm D50 assembly	1
71-030	Regulator p 1,5 mm D50 assembly	1
71-031	Rod slider D50-P assembly	1

#### VALVES

61-010-P/F/I	Suction check valve 1 1/4	1
61-011-P/F/I	Discharge check valve 1 1/4	1
61-875-P/	Suction check valve 1 1/4 PP Borosilicate	1
61-885-P	Discharge check valve 1 1/4 PP Borosilicate	1

#### MAINTENANCE KIT (valves+seals+bellow)

71-071-P	Maintenance kit Dostec-50 P77 PP	1
71-072-P	Maintenance kit Dostec-50 P95 PP	1
71-073-P	Maintenance kit Dostec-50 P110 PP	1

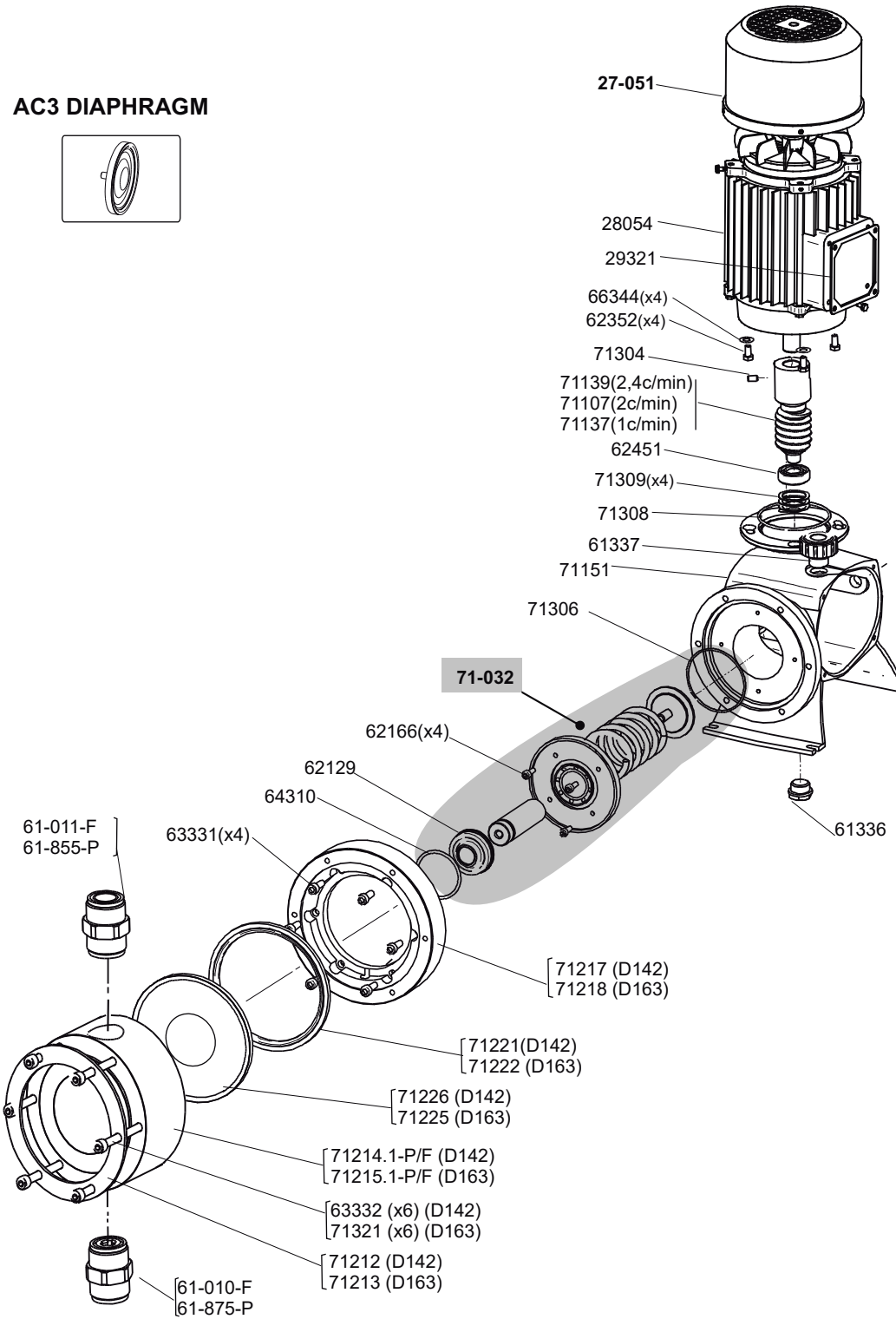
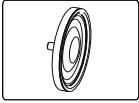
Materials code: -P= Polypropylene

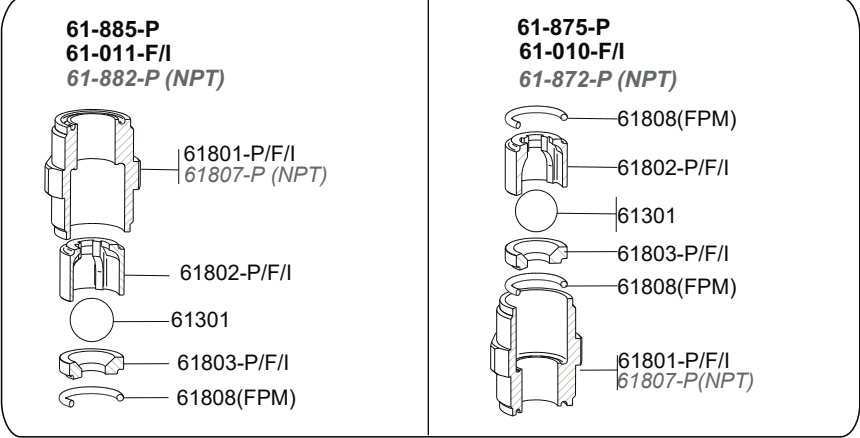
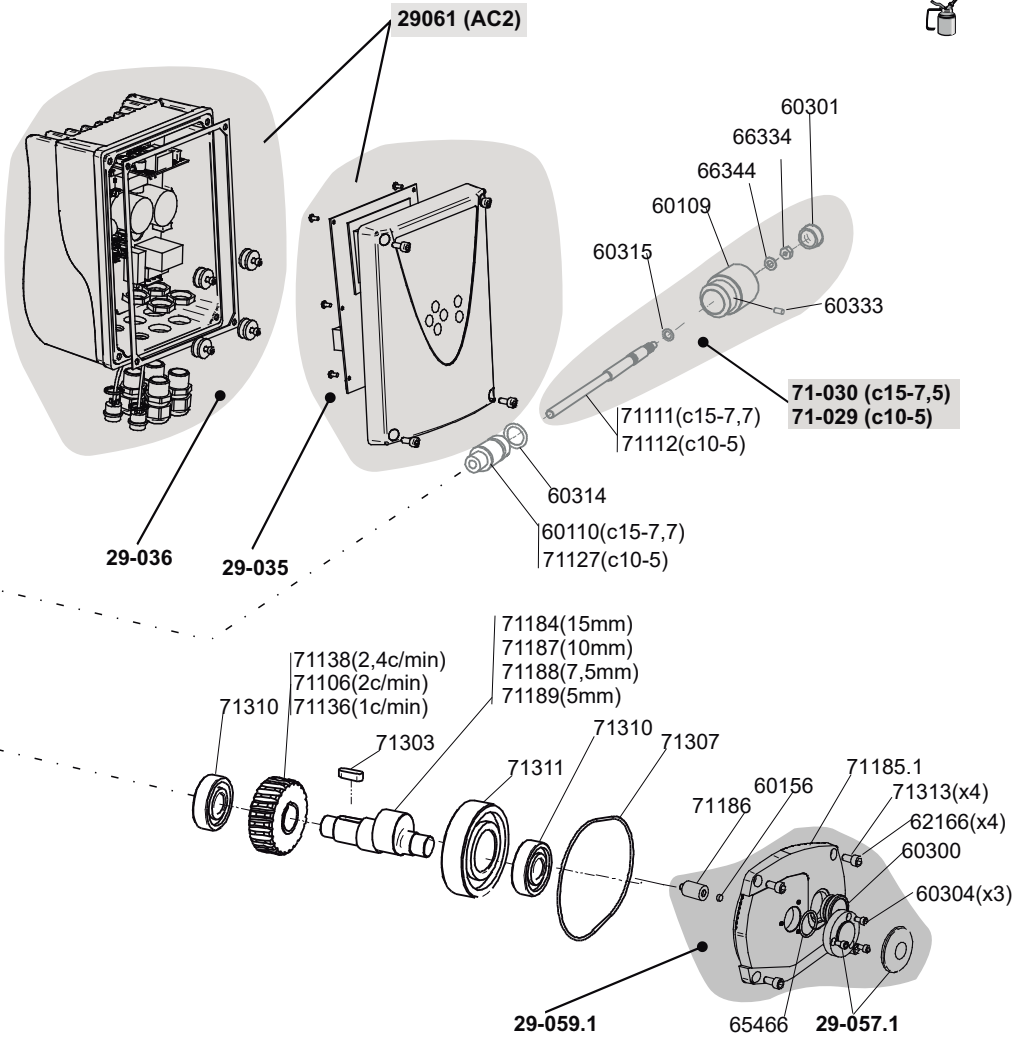
-F= PVDF

-I= SS 316

-C= ceramic

# AC3 DIAPHRAGM







## LIST OF PARTS AC3 (Diaphragm)

CODE	DESCRIPTION	UNITS
28054	Electric motor 1,2Kw 6P 110/190 3ph 80/100 B14	1
29321	Seal motor T80 Maraz	1
60109	Regulator knob Dostec	1
60110	Regulator guide p1,5mm Dostec	1
60156	Magnet for encoder d6x2.5	1
60300	Oil peep hole	1
60301	Regulator knob plug	1
60304	Screw M4x8 Din 912 A4	4
60314	O-ring 17x3,5 NBR	1
60315	O-ring 6,5x2 NBR	1
60333	Screw M4x8 DIN 913 A-2	1
61336	Drain plug 1/2	1
61337	Filler plug 1/2"	1
62129	Bellow FPM	1
62166	Screw M6x16 Din 912 A2	8
62352	Screw M6x12 Din 933 A2	4
62451	Bearing 6202 zz	1
63331	Screw M8x20 Din 912 A2	6
63332	Screw M8x90 Din 912 A2	6
64310	O-ring 55,5x3,5 NBR	1
65466	O-ring 20x2 NBR	1
66334	Nut M6 Din 934 A2	1
66344	Washer D6 Din 125 A2	5
71106	Ring gear 2 stroke D50	1
71107	Pinion 2 stroke D50	1
71111	Regulation rod p1,5mm D50	1
71112	Regulation rod p1 mm D50	1
71127	Regulation guide p 1mm D50	1
71136	Ring gear 1 stroke D50	1
71137	Pinion 1 stroke D50	1
71138	Ring gear 2,4 stroke D50	1
71184	Eccentric shaft 15 encoder Ac3	1
71185.1	Block lid D50 encoder	1
71186	Magnet for encoder base D50	1
71187	Eccentric shaft 10 encoder Ac3	1
71188	Eccentric shaft 7,5 encoder Ac3	1
71189	Eccentric shaft 5 encoder Ac3	1
71139	Pinion 2,4strokes D50	1
71212	Ring plate for diaphragm cylinder D142	1
71213	Ring plate for diaphragm cylinder D163	1



71214.1-P/F	Cylinder diaphragm ring plate D142	1
71215.1-P/F	Cylinder diaphragm ring plate D163	1
71217	Diaphragm flange D142	1
71218	Diaphragm flange D163	1
71221	Base membrana D142	1
71222	Base membrana D163	1
71225	Diaphragm D163	1
71226	Diaphragm D142	1
71303	Wedging piece Din 6885-a (8x7x25)	1
71304	Screw M6x10 Din 913 8.8	1
71306	O-ring 70 x 2,5 NBR	1
71307	O-ring 125x2,5 NBR	1
71308	O-ring 77 x 2 NBR	1
71309	Elastic washer Din137-b (34x26x0,4)	3
71310	Bearing 6304zz ( 20x52x15 )	2
71311	Bearing 6308zz (40x90x23)	1
71313	washer M6 Nord-lock	4
71321	Screw M8x100 Din 912 A2	6

## ASSEMBLIES

27-051	Additional ventilation 24v D50/ EF low presure	1
29-035	Control PCB with cover DOSTEC AC	1
29-037	Power PCB with box AC2	1
29-057.1	PCB, base and cover encoder DOSTEC AC	1
29-059.1	Encoder with cover AC3 (dostec50)	1
29061	Advance Control AC2/3 230Vac	1
71-029	Regulator p 1mm D50 assembly	1
71-030	Regulator p 1,5 mm D50 assembly	1
71-032	Rod slider D50-D assembly	1

## VALVES

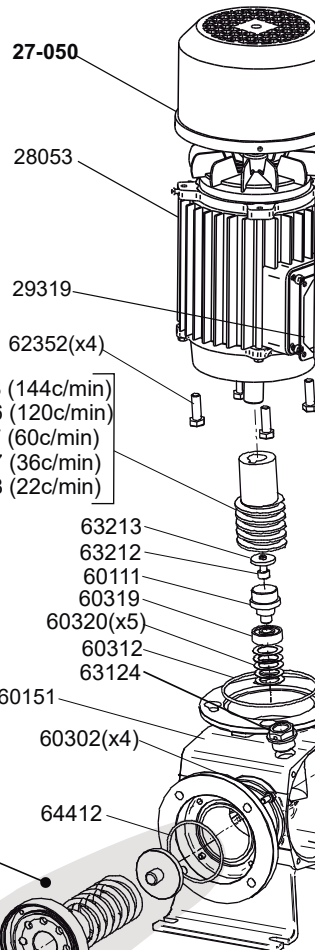
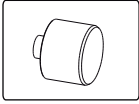
61-010-F	Suction check valve 1 1/4 PVDF	1
61-011-F	Discharge check valve 1 1/4 PVDF	1
61-875-P	Suction check valve 1 1/4 PP Borosilicate	1
61-885-P	Discharge check valve 1 1/4 PP Borosilicate	1

## MAINTENACE KIT (valves+diaphragm+bellow)

71-075-P	Maintenance kit Dostec-50 D142 PP
71-076-P	Maintenance kit Dostec-50 D163 PP

Materials code: -P= Polypropylene  
-F= PVDF  
-I= SS 316

# AC1/2 PISTON

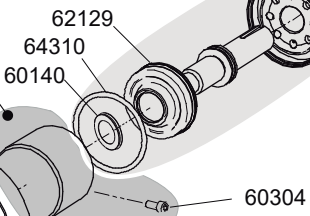


- P.E. / Ceramic  
62-132 / 62-143 (D24)  
62-133 / 62-144 (D34)  
60-125 / 62-145 (D49)  
60-126 / 62-146 (D61)  
60-127 (D77)

- 60-014**  
**60-023(500L)**

- 60-859-P (6x12)  
62-857-P (3/4)

62300

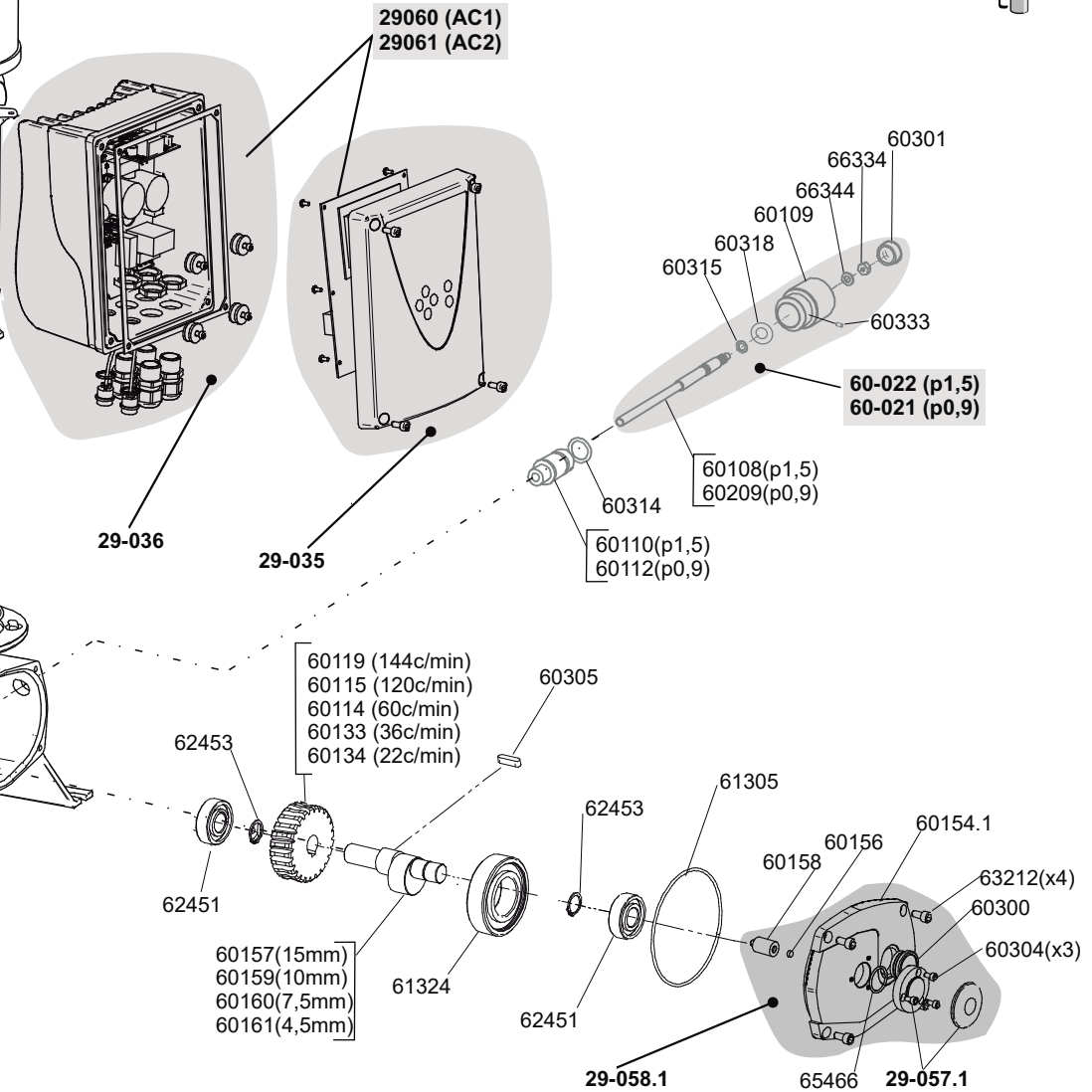


- 62119  
63351(P77)

- 63420 (P24)  
63421 (P34)  
63422 (P49)  
63423 (P61)  
63424 (P77)

- 60-858-P (6x12)  
62-856-P (3/4)

- 62120.1-P/ F/ I (P24)  
62121.1-P/ F/ I (P34)  
62122.1-P/ F/ I (P49)  
62123.1-P/ F/ I (P61)  
63350 (P77)





## LIST OF PARTS AC1/2 (Piston)

Code	Description	Units
28053	Motor 230Kw AC1/2	1
29118	Motor adapter for inverter 0,5Hp 110V	1
29319	Seal motor Marax T71	1
60108	Regulation rod 15 Dostec	1
60109	Regulator knob Dostec	1
60110	Regulator guide p1,5mm Dostec	1
60111	Pinion bumper Dostec	1
60112	Dostec guide regulator p0,9mm	1
60114	Ring gear 1 strokes/s D40	1
60115	Ring gear 2 strokes/s D40	1
60116	Pinion 2 strokes/s D40-MF	1
60117	Pinion 2 strokes/s D40-MF	1
60118	Pinion 2.4 strokes/s D40-MF	1
60119	Ring gear 2,4 strokes/s D40	1
60-125	Piston 200 l - s M20 lock	1
60-126	Piston 300 l - s M20 lock	1
60-127	Piston 500 l M20	1
60133	Ring gear 0.6 stroke/s D40	1
60134	Ring gear 0.3 stroke/s D40	1
60137	Pinion 0.6 stroke/s D40	1
60138	Pinion 0.3 stroke/s D40	1
60140	Rod protective D40	1
60151	Block D40 AC1/2	1
60154.1	Block lid encoder AC1-2	1
60156	Magnet for encoder d6x2.5	1
60157	Eccentric shaft 15 encoder AC1-2	1
60158	Encoder's magnet base AC1-2	1
60159	Eccentric shaft 9 encoder AC1-2	1
60160	Eccentric shaft 7,5 encoder AC1-2	1
60161	Eccentric shaft 4,5 encoder AC1-2	1
60209	Diaphragm regulation rod Dostec	1
60300	Oil peep hole	1
60301	Regulator knob plug	1
60302	Screw M4x8 Din 933 A2	4
60304	Screw M4x8 Din 912 A4	4
60305	Wedging piece Din 6885-a 5x5x20	1
60312	O-ring 68x1,5 NBR	1
64412	O-ring 44x2 NBR	1
60314	O-ring 17x3,5 NBR	1
60315	O-ring 6,5x2 NBR	1
60318	Washer D8 Din 125 A2	1
60319	Bearing 608-zz (8x22x7)	1
60320	Elastic washer din137-b(21x10.5x1)	5
60333	Screw M4x8 DIN 913 A-2	1
61305	O-ring 88x2,5 NBR	1
61324	Bearing 6206zz (30x62x16) EF	1
62119	Cylinder spacer D40/MF	1
62120.1-P/F/I	Cylinder 50 l/h - s 3/4'	1
62121.-P/F/I	Cylinder 100 l/h - s 3/4'	1
62122.1-P/F/I	Cylinder 200 l/h - s 3/4'	1
62123.1--P/F/I	Cylinder 300 l/h - s 3/4'	1
62129	Bellow FPM	1
62-132	Piston 50 l/h - s M20 lock	1
62-133	Piston 100 l/h - s M20 lock	1





62-143	Piston 50 l/h - s M20 lock ceramic	1
62-144	Piston 100 l/h - s M20 lock ceramic	1
62-145	Piston 200 l/h - s M20 lock ceramic	1
62-146	Piston 300 l/h - s M20 lockceramic	1
62300	O-ring 19x3 FPM	2
62352	Screw M6x12 Din 933 A2	4
62451	Bearing 6202 zz	2
62453	Retaining ring 15 Din 471	2
63124	filler plug	1
63125	3/8" drain plug	1
63212	Screw M5x12 Din 912 A2	5
63213	Washer 18x5x2,5 F5	1
63332	Screw M8x90 Din 912 A2	4
63350	Cylinder 500 l/h	1
63351	500l electro flange	1
63420	Seal 25x34x6 FPM 50 l/h	2
63421	Seal 35x45x6 FPM 100 l/h	2
63422	Seal 50x60x6 FPM 200 l/h	2
63423	Seal 60x68x6 FPM 300 l/h	2
63424	Seal 78x87x6 FPM 500 l/h	2
64310	O-ring 55,5x3,5 NBR	1
65466	O-ring 20x2 NBR	1
66334	Nut M6 Din 934 A2	1
66344	Washer D6 Din 125 A2	1

#### ASSEMBLIES

27-050	Additional ventilation 24vdc IP56 DOSTEC AC1-2	1
29-035	Control PCB with cover DOSTEC AC	1
29-036	Power PCB with box AC1/3	1
29-057.1	PCB, base and cover encoder DOSTEC AC	1
29-058.1	Encoder with cover AC1-2 (dostec40)	1
29060	Advance Control AC1 110Vac	1
29061	Advance Control AC2/3 230Vac	1
60-014	Rod slider D40-P assembly	1
60-021	Regulator p 0,9 mm D40 assembly	1
60-022	Regulator p 1,5 mm D40 assembly	1
60-023	Rod slider D40-P 500 l/h assembly	1

#### VALVES

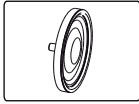
60-858-P	Suction check valve 6X12 3/4 PP Borosilicate	1
60-859-P	Discharge check valve 6X12 3/4 Borosilicate	1
62-856-P	Suction check valve 3/4 Borosilicate	1
62-857-P	Discharge check valve 3/4 Borosilicate	1
63-803-I	Suction check valve 3/4 s.s.	1
63-804-I	Discharge check valve 3/4 s.s.	1
60-814.1-P/F/I	Priming valve 3/4 max. 50 l/h	1
60-840-P/F/I	Priming valve 3/4 max. 500 l/h	1

#### MAINTENANCE KIT

60-071-P	Maintenance kit Dostec-40 P24 PP
60-072-P	Maintenance kit Dostec-40 P34 PP
60-073-P	Maintenance kit Dostec-40 P49 PP
60-074-P	Maintenance kit Dostec-40 P61 PP
60-075-P	Maintenance kit Dostec-40 P77 PP

Materials code:    -P= Polypropylene  
                          -F= PVDF  
                          -I= SS 316

# AC1/2 DIAPHRAGM



27-050

27-051

28054

29307 (x4)

29118

29318

62352(x4)

60118 (144c/min)

60116 (120c/min)

60117 (60c/min)

60137 (36c/min)

60138 (22c/min)

63213

63212

60111

60319

60320(x5)

63124

60312

60151

60302(x4)

60313

60-015

62129

64310

63125

67104.2-P/F (D69)

67104-I (D69)

62-859-P (6x12)  
62-857-P (3/4)

62300

67100 (D69)

67105.2-P/F (D69)

67105.1-I (D69)

60202(D95)

60201 (D115)

67117 (D95)

67121 (D115)

60-858-P (6x12)

62-856-P (3/4)

67302

67301

67116 (D95)

67123 (D115)

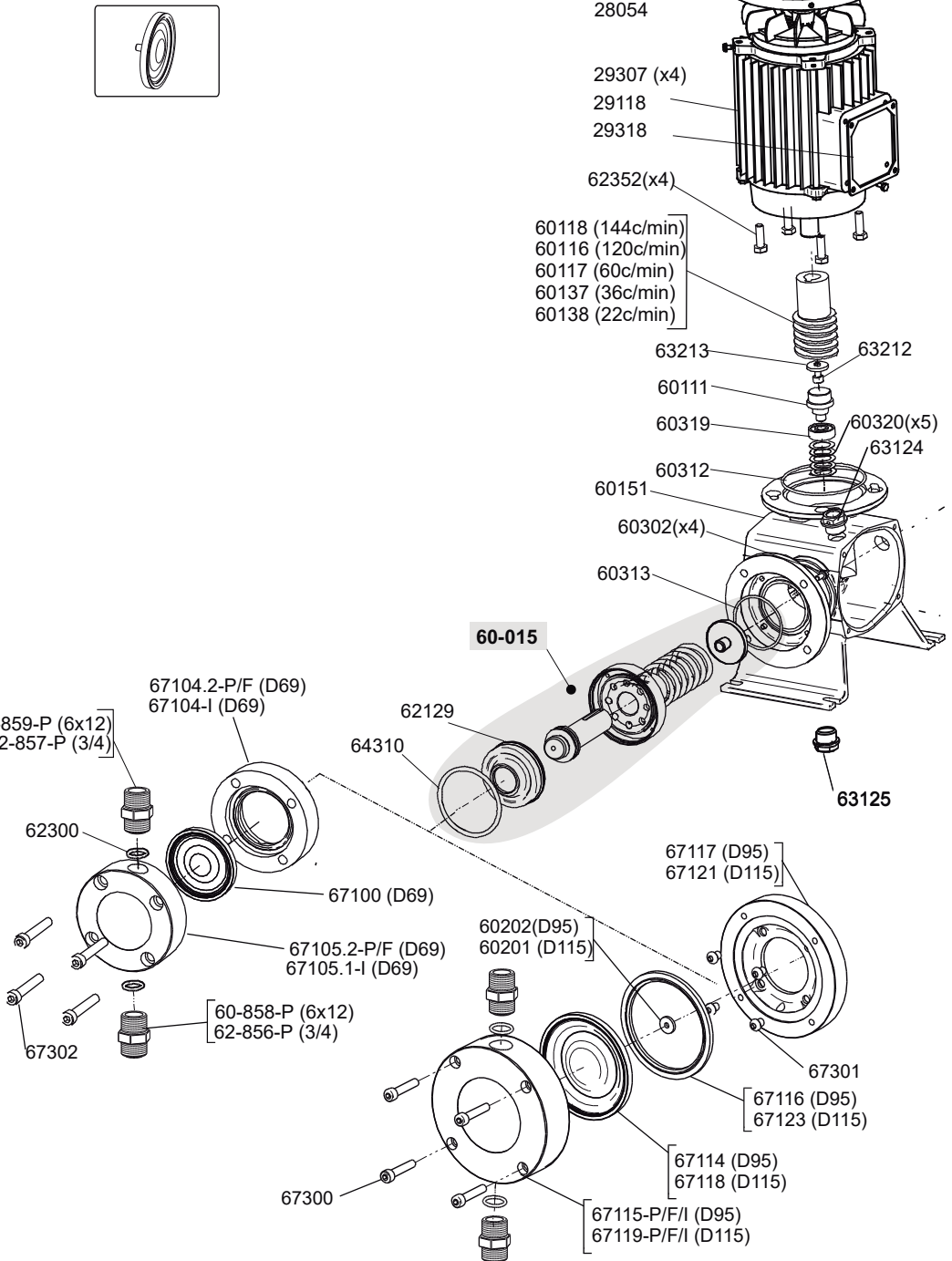
67300

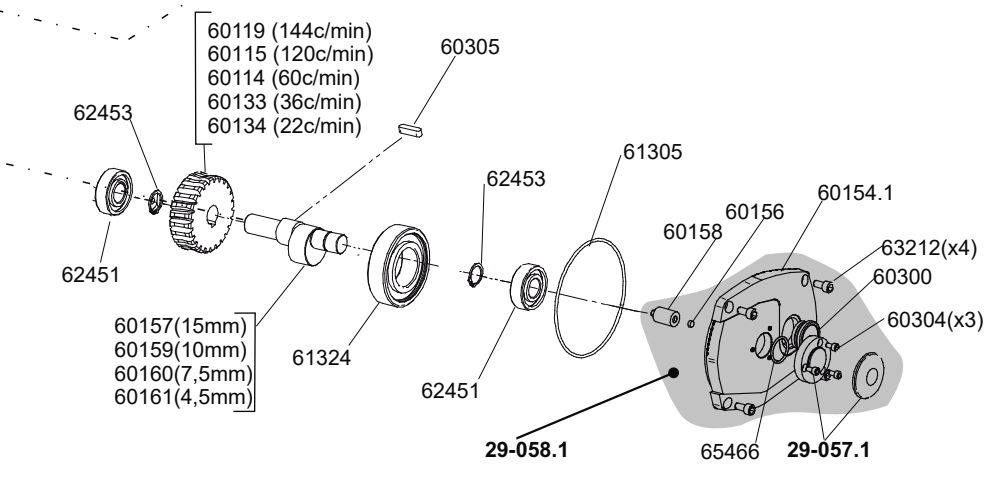
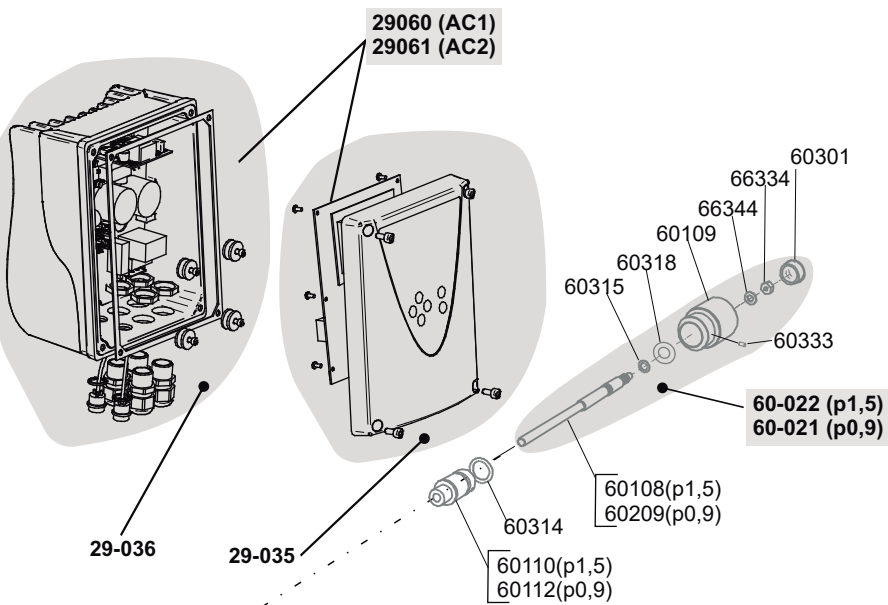
67114 (D95)

67118 (D115)

67115-P/F/I (D95)

67119-P/F/I (D115)







## LIST OF PARTS AC1/2 (Diaphragm)

Code	Description	Units
28053	Motor 230Kw AC1/2	1
29118	Motor adapter for inverter 0,5Hp 110V	1
29129	Advanced Control case	1
29131	Advanced Control lid	1
29132	Case seal DOSTEC AC	1
29202	Lexan Dostec AC	1
29307	Screw M4x15 Din 7991	4
29312	O-ring 32x2 FPM	1
29315	Screw M3x12 Din7985 ss	5
29318	Seal motor inverter 83x83	1
29620	Control board AC	1
29621	Power board 110V AC	1
29622	Power board 230V AC	1
33429	Screw M4x20 Din 912 a-2	4
38301	Screw M3x8 Din7985 A2	7
60104	Eccentric shaft 15	1
60108	Regulation rod 15 Dostec	1
60109	Regulator knob Dostec	1
60110	Regulator guide p1,5mm Dostec	1
60111	Pinion bumper Dostec	1
60112	Dostec guide regulator p0,9mm	1
60114	Ring gear 1 strokes/s D40	1
60115	Ring gear 2 strokes/s D40	1
60116	Pinion 2 strokes/s D40-MF	1
60117	Pinion 2 strokes/s D40-MF	1
60118	Pinion 2.4 strokes/s D40-MF	1
60119	Ring gear 2,4 strokes/s D40	1
60133	Ring gear 0.6 stroke/s D40	1
60134	Ring gear 0.3 stroke/s D40	1
60137	Pinion 0.6 stroke/s D40	1
60138	Pinion 0.3 stroke/s D40	1
60151	Block D40 AC1/2	1
60154	Block lid encoder AC1-2	1
60156	Magnet for encoder d6x2.5	1
60157	Eccentric shaft 15 encoder AC1-2	1
60158	Encoder's magnet base AC1-2	1
60159	Eccentric shaft 9 encoder AC1-2	1
60160	Eccentric shaft 7,5 encoder AC1-2	1
60161	Eccentric shaft 4,5 encoder AC1-2	1
60201	Washer spacer diaphragm D115 (black) D40	1
60202	Washer spacer diaphragm D95 (red) D40	1
60209	Diaphragm regulation rod Dostec	1
60300	Oil peep hole	1
60301	Regulator knob plug	1
60302	Screw M4x8 Din 933 A2	4
60304	Screw M4x8 Din 912 A4	4
60305	Wedging piece Din 6885-a 5x5x20	1
60312	O-ring 68x1,5 NBR	1
64412	O-ring 44x2 NBR	1
60314	O-ring 17x3,5 NBR	1
60315	O-ring 6,5x2 NBR	1
60318	Washer D8 Din 125 A2	1
60319	Bearing 608-zz (8x22x7)	1
60320	Elastic washer din137-b(21x10.5x1)	5
60333	Screw M4x8 DIN 913 A-2	1
61305	O-ring 88x2,5 NBR	1



61324	Bearing 6206zz (30x62x16) EF	1
62119	Cylinder spacer D40/MF	1
62129	Bellow FPM	1
62300	O-ring 19x3 FPM	2
62352	Screw M6x12 Din 933 A2	4
62451	Bearing 6202 zz	2
62453	Retaining ring 15 Din 471	2
63124	filler plug	1
63125	3/8" drain plug	1
63212	Screw M5x12 Din 912 A2	5
63213	Washer 18x5x2,5 F5	1
64310	O-ring 55,5x3,5 NBR	1
66334	Nut M6 Din 934 A2	1
66344	Washer D6 Din 125 A2	1
67100	Diaphragm D69	1
67104-I	Diaphragm base D69 Inox	1
67104.2-P/F	Diaphragm base D69	1
67105.1-I	Diaphragm cylinder D69 3/4" Inox	1
67105.2-P/F	Diaphragm cylinder D69 3/4"	1
67114	Diaphragm D95	1
67115-P/F/I	Diaphragm cylinder D95	1
67116	Diaphragm base D95	1
67117	Diaphragm flange D95	1
67117-I	Diaphragm flange D95 s.s.	1
67118	Diaphragm D115	1
67119-P/F/I	Diaphragm cylinder D115	1
67121	Diaphragm flange 115	1
67121-I	Diaphragm flange D115 s.s.	1
67123	Diaphragm base 115	1
67300	Screw M8x40 Din 912 A2	4
67301	Screw M8x10 iso 7380 A2	4
67302	Screw M8x60 Din 912 A2	4
70304	Screw M5x20 Din 912 I	4

#### ASSEMBLIES

27-050	Additional ventilation 24vdc IP56 DOSTEC AC1-2	1
29-057	PCB and base encoder DOSTEC AC	1
29-058	Encoder AC1-2 (dostec40)	1
29060	Advance Control AC1 110Vac	1
29061	Advance Control AC2/3 230Vac	1
60-015	Rod slider D40-D assembly	1
60-021	Regulator p 0,9 mm D40 assembly	1
60-022	Regulator p 1,5 mm D40 assembly	1

#### VALVES

60-808.1-F/I	Suction check valve hose 6X12 3/4	
60-809.1-F/I	Discharge check valve hose 6X12 3/4	
60-858-P	Suction check valve 6x12 3/4 PP Borosilicate	
60-859-P	Discharge check valve 6X12 3/4 PP Borosilicate	
62-806-F	Suction check valve 3/4 PVDF	
62-807-F	Discharge check valve 3/4 PVDF	
62-856-P	Suction check valve 3/4 PP Borosilicate	
62-857-P	Discharge check valve 3/4 PP Borosilicate	
63-803-I	Suction check valve 3/4 s.s.	
63-804-I	Discharge check valve 3/4 s.s.	
60-814.1-P/F/I	Priming valve 3/4 max. 50 l/h	
60-840-P/F/I	Priming valve 3/4 max. 500 l/h	

#### MAINTENANCE KIT

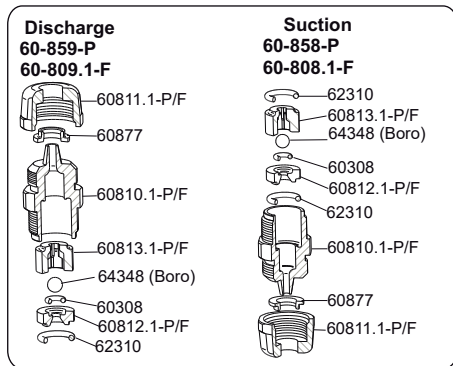
60-080-P	Maintenance kit Dostec-40 D69 6X12 PP
60-081-P	Maintenance kit Dostec-40 D69 3/4 PP
60-082-P	Maintenance kit Dostec-40 D95 PP
60-083-P	Maintenance kit Dostec-40 D115 PP

Materials code:  
-P= Polypropylene  
-F= PVDF  
-I= SS 316

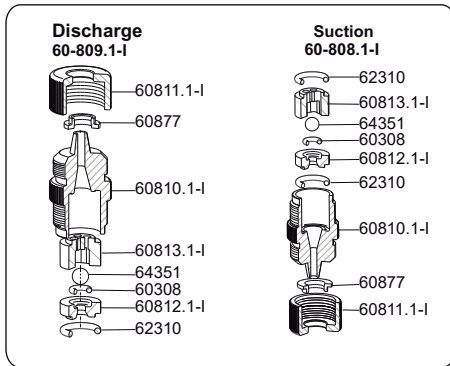


## VALVES 6X12 (60 l/h max.)

PP / PVDF

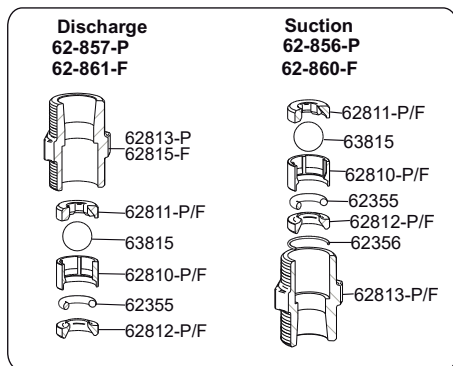


AISI 316

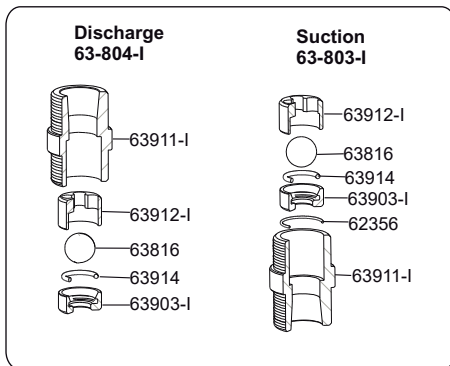


## VALVES 3/4 (500 l/h max.)

PP / PVDF

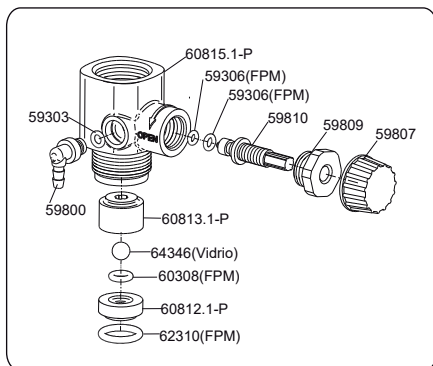


AISI 316

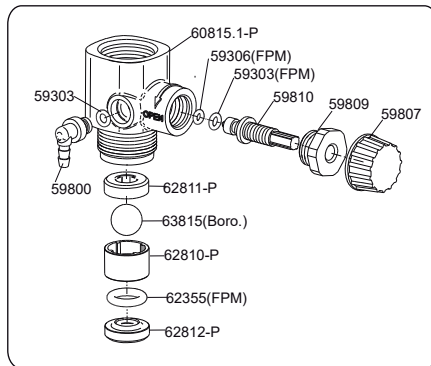


## PRIMING VALVES

60-840-P (60l/h máx.)



60-814.1-P (500l/h max.)





## MAINTENANCE



*Ensure the following points before any maintenance operation:*

*The pump is stopped and disconnected from the electric supply.*

*There is no pressure neither inside the head nor in the discharge pipe. It is advisable to empty the head before opening it.*

*The staff in charge of the maintenance will use the adequate protection equipment in order to manipulate the dosed liquid.*

### *PERIODICAL MAINTENANCE:*

Change the oil after the first 500 hours. Next changes will be every 2000 hours (minimum once a year).

Check the piston every 3 months or 1000 hours.

Check the seals every 3 months or 1000 hours.

Check the diaphragm every 3 months or 1000 hours.

Check the bellows every 3 months or 1000 hours.

Check the suction filter once a month.

Check the valves every 3 months or 1000 hours.

It is advisable to clean periodically the injector, letting clean water flow through it (we can make it coincide with the emptying of the tank), to eliminate precipitated rests that can remain in the inner part of the cylinder or in suction / discharge pipes.

***If we are using highly corrosive liquids it is advisable to double the frequency of checkings.***

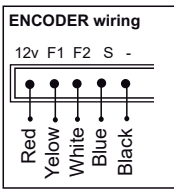
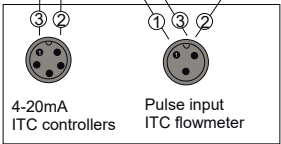
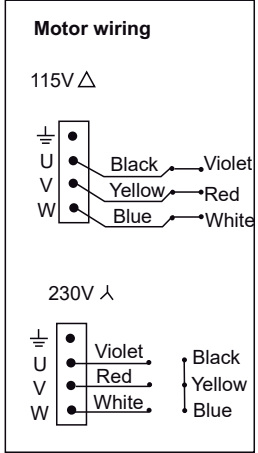
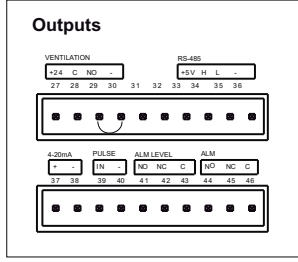
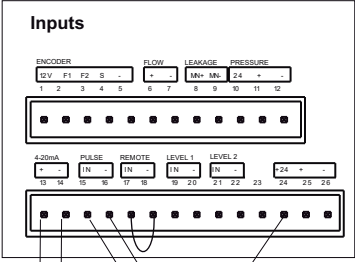
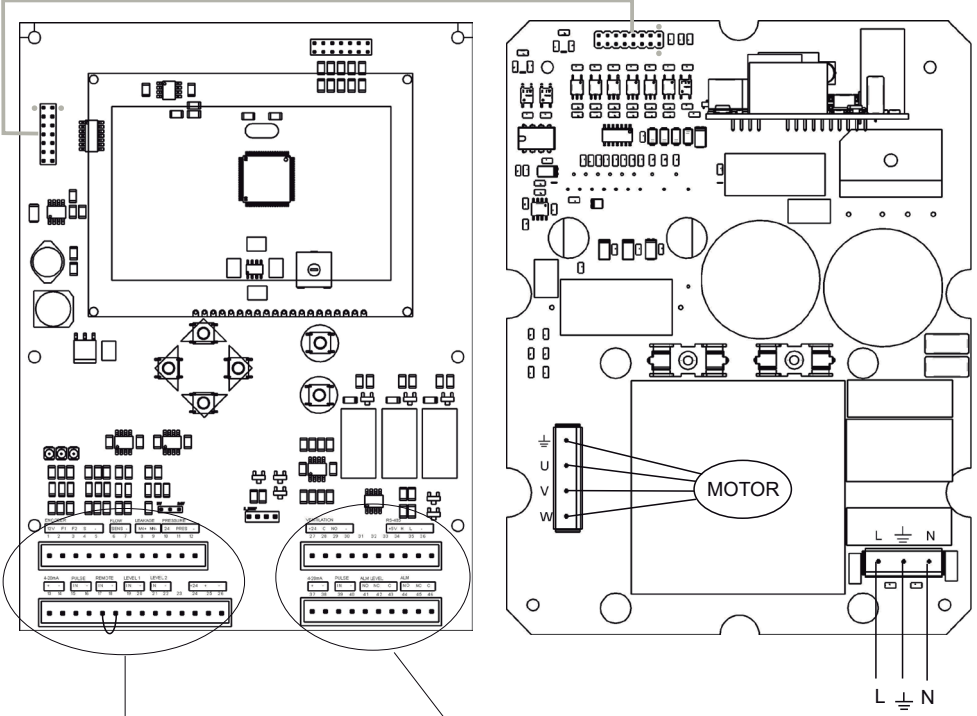


<b>PROBLEM</b>	<b>CAUSE</b>	<b>SOLUTION</b>
DISPLAY IS OFF	THERE IS NO VOLTAGE MCCB is shut down	- Check with a voltmeter incoming voltage - Check there is no shortcircuit in the power supply
AL-1 ALARM OVERVOLTAGE  SHORTCIRCUIT  PHASE FAILURE	INPUT VOLTAGE TOO HIGH  INTERNAL SHORTCIRCUIT  MOTOR PHASE FAILURE	- Check with a voltmeter incoming voltage - Contact ITC Technical Service  - Check the wiring between motor and electronic card
AL-2 TEMPERATURE ALARM	ADDITIONAL VENTILATION IS STOPPED	- Check the wiring of the additional ventilation, and test it connecting it directly to a power supply
AL-3 OVERLOAD ALARM	PUMPS IS WORKING UNDER OVERPRESSURE CONDITIONS  DISCHARGE PIPE TOO LONG	- Check the pressure in line is lower than the maximum pressure of the unit  - Shorter the discharge pipe - Increase the pipe diameter
MOTOR RUNS BUT PUMP DOES NOT INJECT OR INJECTION IS INFERIOR THAN NOMINAL ONE	PUMP HAS NOT BEEN PRIMED  SUCTION / DISCHARGE VALVES ARE DIRTY OR DAMAGED  SUCTION FILTER IS DIRTY  AIR COMES INTO SUCTION PIPE  CAVITATION IN SUCTION	- Prime the pump injecting at zero pressure - Clean or change valves  - Clean filter - Check sealing in connection points  - Increase suction pipe diameter - Reduce suction pipe length - Reduce speed through an inverter - Use a less viscous liquid
LEAKAGE THROUGH INFERIOR CYLINDER HOLE	DAMAGED DIAPHRAGM  DAMAGED PISTON  DAMAGE SEALS	- Change diaphragm  - Change piston - Change seals
OIL LEAKAGE THROUGH INFERIOR CYLINDER HOLE	DAMAGED BELLOW	- Change bellows





# ELECTRICAL WIRING



# EC CONFORMITY DECLARATION



I.T.C S.L.  
Vallès, 26  
Polígono Industrial Can Bernades-Subirà  
08130 Santa Perpètua de Mogoda

Declares that all models **DOSTEC AC** products, identified by a serial number and year of manufacture, strictly fulfill 2006/042/CE, low voltages directives D2014/35/UE, and electromagnetic compatibility directivess D2014/30/UE, as long as installation, use and maintenance are carried out following the prevailing regulation and following the instructions contained in the handbook.

Antón Planas  
Manager

# WARRANTY



*I.T.C. S.L. Warrants the product specified in this document for a period of 1 year from the purchase date. This warranty obligation is limited to the free replacement of the damaged parts due to any material or manufacture defect. This warranty does not include periodic maintenance and damage resulting from misuse.*

*The equipment must be sent to **I.T.C. S.L.** Service Center with prepaid transport charges, and will be sent back with transport charges for customer's account.*

*The warranty document with sales date and shop stamp, or an invoice copy must be sent with the equipment.*

MODEL

\_\_\_\_\_

Sales date and shop stamp

SERIAL #

\_\_\_\_\_

\_\_\_\_\_



Original manual

Ed:19/07/19 EN

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C/ Vallès, 26 Pol. Ind. Can Bernades - Subirà  
P.O. Box 60  
08130 Santa Perpètua de Mogoda  
BARCELONA

Tel. 93 544 30 40  
e-mail: [itc@itc.es](mailto:itc@itc.es)

Fax 93 544 31 61  
[www.itc-dosing-pumps.com](http://www.itc-dosing-pumps.com)