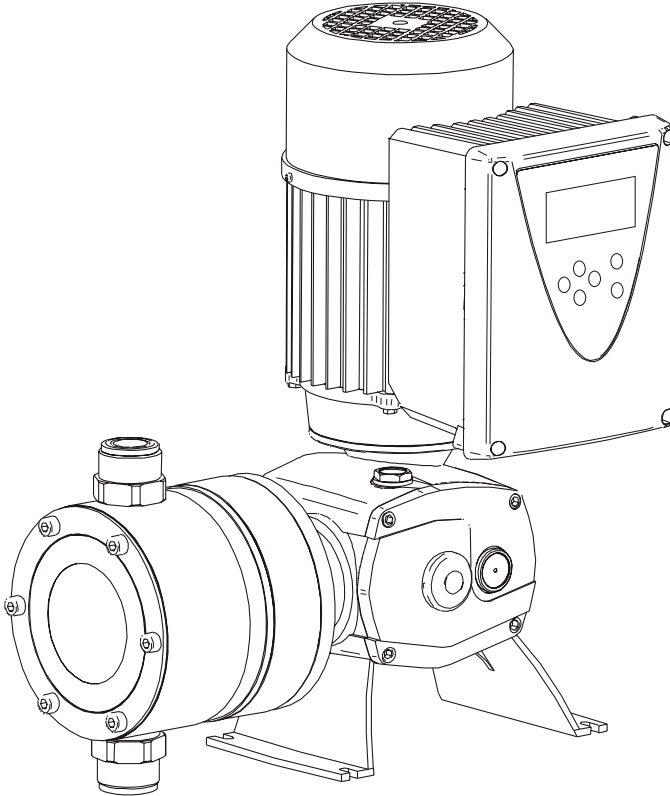




**ITC**  
DOSING PUMPS



 **DOSTEC AC**

ENGLISH

# CONTENTS

1. GENERAL DESCRIPTION	4
2. PACKING AND STORAGE	5
3. TECHNICAL SPECIFICATIONS	6
4. OPERATION	10
4.1 Operating modes	12
4.1.1. Manual mode	12
4.1.2. Proportional mode	12
4.1.3. Analogue mode	14
4.1.4. Batch mode	15
4.1.5. Special Functions	18
4.2 Configuration	18
4.2.1 Pump calibration	18
4.2.2 Dosing mode	19
4.2.3 Configuration	21
4.2.4. Inputs/outputs	25
4.3 Alarms	27
4.3.1 Level alarm 1	27
4.3.2 Level alarm 2	28
4.3.3 Flow fault alarm	28
4.3.4 Diaphragm leakage alarm	29
4.3.5 Overpressure alarm	29
4.4 Monitor	30
4.4.1 Real time	30
4.4.2 Counters	30
4.4.3 Info Unit	31
5. INSTALLATION	32
5.1. General	32
5.2. Block	33
5.3. Wiring	33

5.4. Hydraulic installation	36
5.4.1. Installation examples	36
5.4.2. Installation recommendations	37
5.5. Accessories	38
5.5.1. Diaphragm leakage detector	38
5.5.2. Flow detector	38
5.5.3. Pressure sensor	38
5.5.4. Pulse output isolator	39
5.5.5. Additional ventilation 115 / 230 V	39
6. START-UP AND REGULATION	39
7. MAINTENANCE	40
7.1. Parts List AC3 Piston	40
7.2. Parts List AC3 DIAPHRAGM	44
7.3. Parts List AC 1/2 Piston	48
7.4. Parts List AC 1/2 Diaphragm	52
7.5. Periodic Maintenance	58
7.6. Troubleshooting: Possible cause and solution	59
7.7. Wiring	61
CE DECLARATION OF CONFORMITY	63
WARRANTY	63



## **SAFETY INSTRUCTIONS**

To avoid personal injury risks and damage to the environment, and to ensure proper equipment operation, personnel responsible for installing, commissioning and maintaining the equipment must follow the instructions in this manual, with special attention to the detailed recommendations and warnings. The specific instructions for the use of the chemicals to be dosed must also 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 needs from 3 to 1200 l/h at a pressure of up to 20 bar. The choice of the correct head material between PP, PVDF and stainless steel allows the dosing of any commonly used chemical in the water treatment, chemical, food and agriculture industries.

## Operating modes

Manual: manual adjustment by keyboard of the flow rate to be dosed.

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

Proportional to flow rate: dosing proportional to a water flow rate.

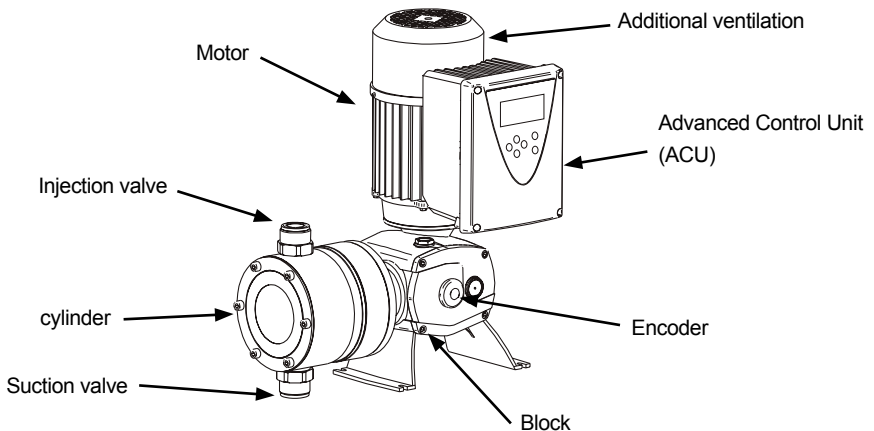
Proportional by pulses: stroke frequency, proportional to input pulses.

Batch control by volume: dosing a given volume. Manual, remote or timed activation.

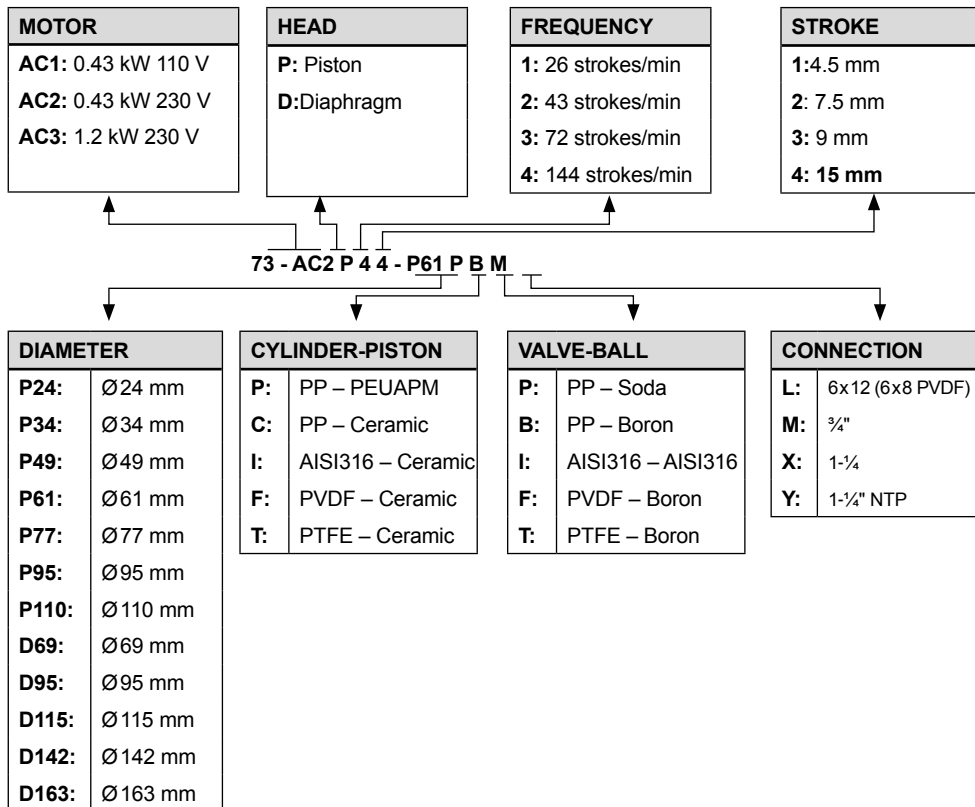
Batch control by time: dosing for a given time. Manual, remote or timed activation.

ModBus: Dosing control via ModBus RTU protocol.

It is made up as follows:



## Code formulation



## 2. PACKING AND STORAGE

The original packaging is designed to allow the equipment to be transported and stored without damage, provided this takes place in dry, ventilated spaces away from heat sources.

Included in the packaging are:

- DOSTEC-AC dosing pump
- Instruction manual
- Oil:                   AC1/2 250 cm<sup>3</sup>  
                              AC3 700 cm<sup>3</sup>

### 3. TECHNICAL SPECIFICATIONS

CODE	FLOW		PRESSURE		*Suction lift		Max. viscosity mPa	SS (Slow Suction)		
	l/h	GPH	bar	psi	m	ft		FLOW		Max. viscosity* mPa
							l/h	GPH	mPa	
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 (B)
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)
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	18.2	4.8	16	232	9	30	50	9.5	2.5	2000 (A)
73-AC2 73-AC1 D21-D69_L	10.9	2.9	16	232	9	30	50	5.7	1.5	2000 (A)
73-AC2 73-AC1 D11-D69_L	6.4	1.7	16	232	9	30	50	3.2	0.85	2000 (A)

20 bar models only with ceramic piston.

Models with \_L include a priming valve.

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

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

**VOLTAGE:** AC3: 230 V ± 10%  
AC2: 110 V ± 10%  
**POWER:** 0.43 kW (0.58 HP)  
1.2 kW (1.6 HP)

**PROTECTION:** IP-55

**MATERIALS:** Piston: P.E.U.A.P.M. / Ceramic / AISI316  
Diaphragm: P.T.F.E. Fibre-reinforced elastomer base  
Retention: FPM  
Cylinder: P.P. / PVDF / AISI316  
Valve (body): P.P. / PVDF / AISI316  
Valve (ball): Soda lime / Borosilicate / AISI316

**AMBIENT TEMPERATURE:** 0 to 45 °C

**MEDIA TEMPERATURE:** PP: 0 to 50 °C

PVDF: -10 to 50 °C

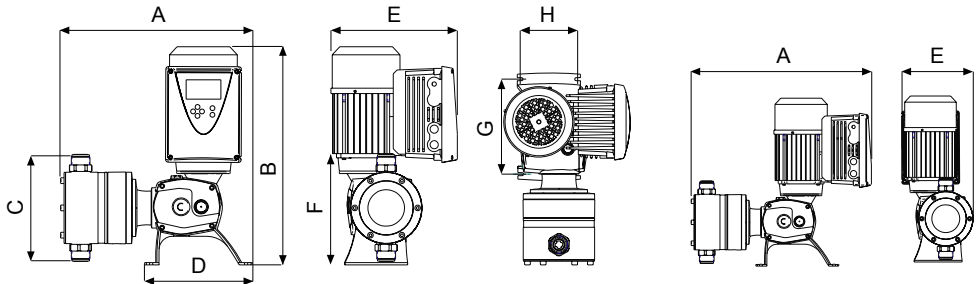
ST. STEEL -10 to 60 °C

**RELATIVE HUMIDITY MAX.:** 95% without condensation

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

**WEIGHT:** AC3: 24 kg (53 lb)  
AC2/1: 13 kg (29 lb)

## DIMENSIONS



Piston:	A	B	C	D	E	F	G	H	
AC3	429	490	230	241	285	210	212	122	mm
	16.8	19.3	9	9.5	11.2	8.2	8.3	4.8	in
AC2/1	306	400	154	180	270	150	155	90	mm
	12	15.7	6	7	10.6	5.9	6.1	3.5	in



Piston:	A	E	
AC3	525	205	mm
	9.9	8.1	in
AC2/1	422	155	mm
	16.6	6.1	in

Diaphragm	A	B	C	D	E	F	G	H	
D163	395	490	270	241	285	210	212	122	mm
	15.5	19.3	10.6	9.5	11.2	8.2	8.3	4.8	in
D142	394	490	250	241	285	210	212	122	mm
	15.5	19.3	9.8	9.5	11.2	8.2	8.3	4.8	in
D115	270	400	204	180	270	150	155	90	mm
	10.6	15.7	8	7	10.6	5.9	6.1	3.5	in
D95	270	400	184	180	270	150	155	90	mm
	10.6	15.7	7.2	7	10.6	5.9	6.1	3.5	in
D69	274	400	154	180	270	150	155	90	mm
	10.6	15.7	6	7	10.6	5.9	6.1	3.5	in



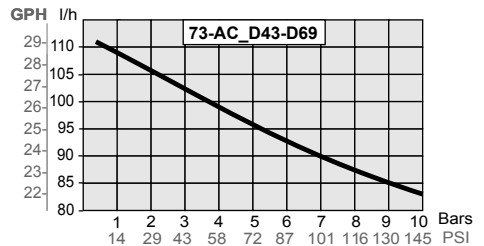
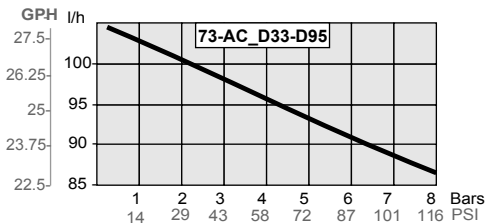
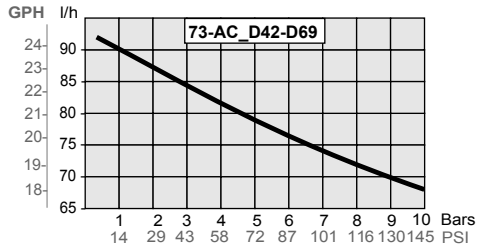
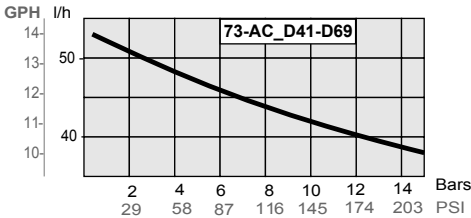
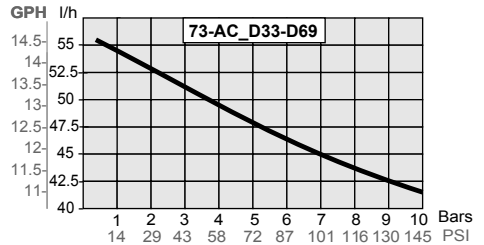
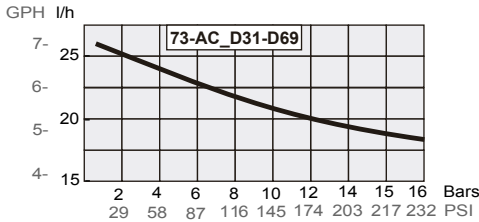
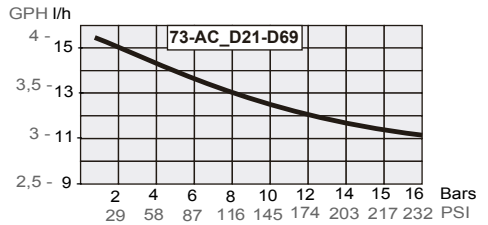
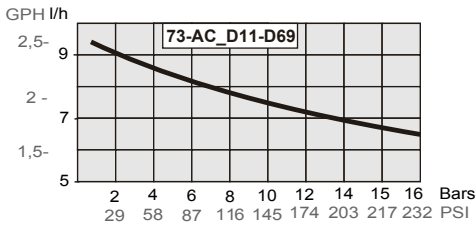
Piston:	A	E	
D163	490	225	mm
	19.3	8.8	in
D142	489	215	mm
	19.2	8.4	in
D115	386	180	mm
	15.1	6.7	in
D95	386	170	mm
	15.1	6.7	in
D69	390	155	mm
	15.3	6.1	in

**Inputs/outputs**

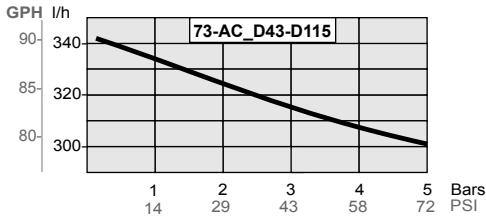
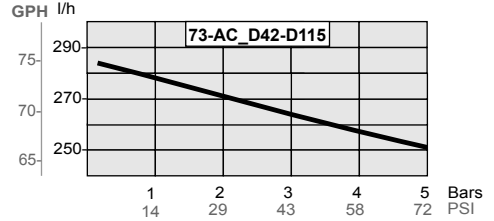
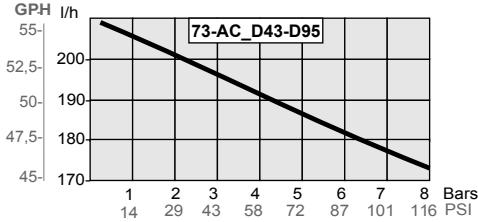
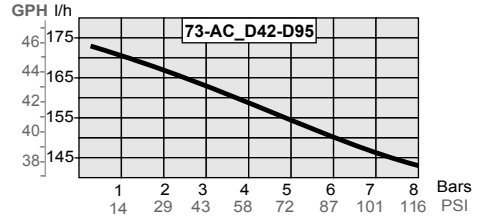
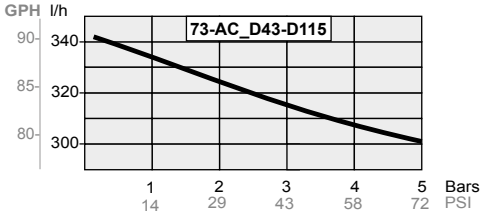
- Analogue input 0/4 -20 mA
- External pulse input
- Remote activation input (on/off)
- Level sensor input (pre-warning)
- Level sensor input (alarm)
- Leakage detector input
- Flow detector input
- Pressure sensor input
- RS-485 ModBus serial port
- 4-20 mA log and monitoring output
- Log output, monitoring and control of second pulse pump
- Alarm output (relay)
- Level alarm output (relay)

**FLOW AND PRESSURE GRAPHS**

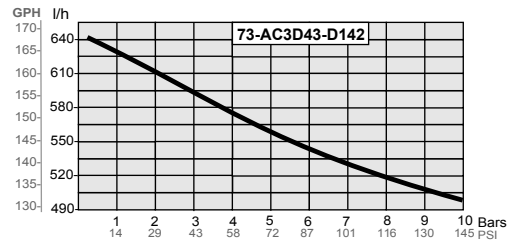
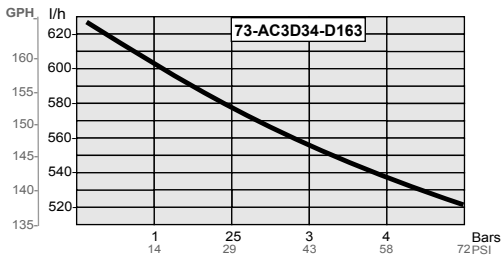
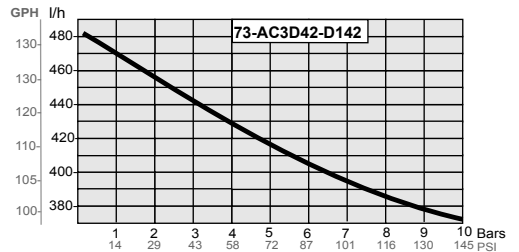
DIAPHRAGM PUMP AC1-AC2

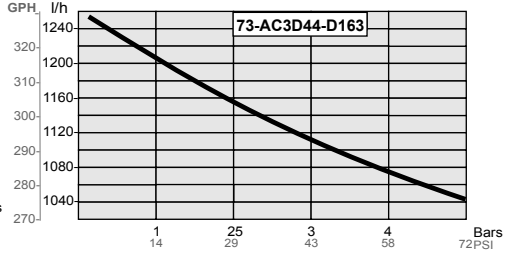
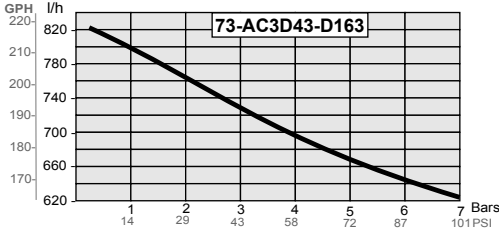






### DIAPHRAGM PUMP AC3



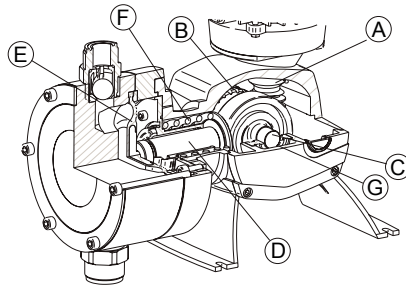


## 4. OPERATION

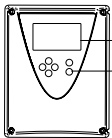
The rotational motion of the motor is transmitted by the reducer, which consists of two major components, the pinion (A) and the ring gear (B). The pinion and the ring gear are linked to a shaft with an eccentric bearing (C) that pushes the shaft (D) which is throated to the diaphragm or the piston (E).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



## EQUIPMENT DESCRIPTION

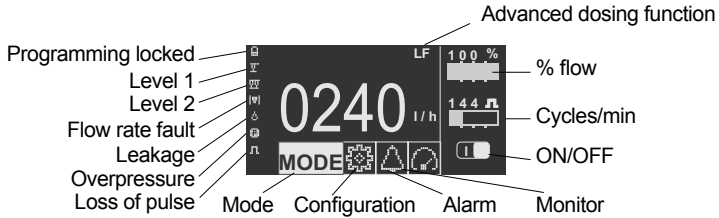


LCD screen  
Keyboard

ENT Confirm  
ESC Exit without confirming

▲ ▼ Increase/decrease value  
▶ Scroll left  
◀ Scroll right

## LCD DISPLAY DESCRIPTION



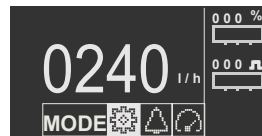
## Menus

### 4.1 Operating modes



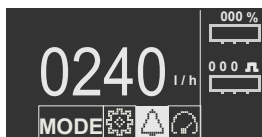
- Manual
- Proportional
- Analogue
- Batch

### 4.2 Configuration



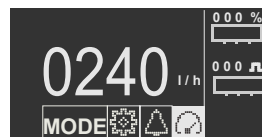
- Pump calibration
- Dosing Mode
  - Standard (ST)
  - Low Flow (LF)
  - Slow Suction (SS)
  - Low Pulsation (LP)
- Set Up
  - Dosing pump
  - Units
  - Flowmeter
  - Lock code
  - ModBus
- In/Out
  - Pressure Input
  - Flow detector
  - Pulse output
  - 4-20 mA out
- Maintenance
  - Valves
  - Diaphragm
  - Bellows

### 4.3 Alarms



- Level 1
- Level 2
- Flow rate
- Leakage
- Pressure

### 4.4 Monitor

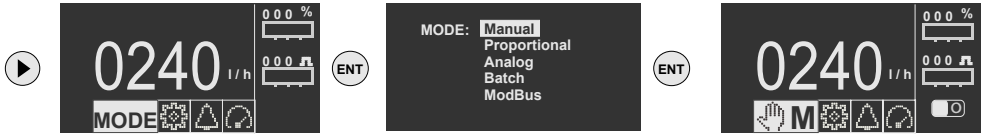


- Real time
  - Inputs
  - Outputs
  - Monitor motor
- Counters
- Info Unit

## 4.1 OPERATING MODES

### 4.1.1. Manual mode

This mode allows manual adjustment of the dosing flow rate.

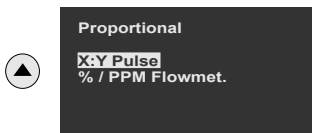
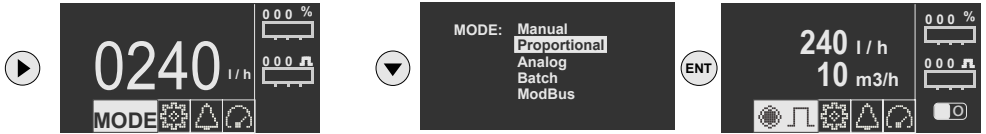


▲ ▼ Increase/decrease flow  
 (ENT) Start/stop the pump

The pump will start if the Remote Activation input is activated.

### 4.1.2. Proportional mode

This mode allows dosing to be proportional to a pulsed input. Use X:Y mode to establish a ratio of input pulses (X) to pump cycles (Y). Use the %/ppm mode for proportional dosing.

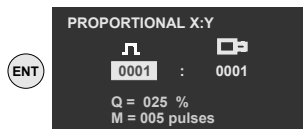


Proportional to a pulse input from a flowmeter  
 1. X:Y for low frequency pulses (0.005-30 Hz)  
 2. %/ppm for high frequency flow meters (1-300 Hz)

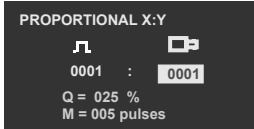
Proportional mode settings

#### 4.1.2.1 X:Y pulses

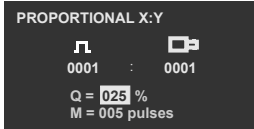
The pump will cycle Y times after receiving X input pulses. The pump speed can be adjusted manually.



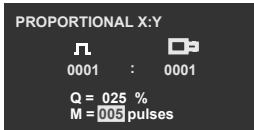
Select the number of input pulses  
 Change by pressing ▲ ▼ and confirm by pressing (ENT)



Select the number of pump cycles  
Change by pressing and confirm by pressing



Select pump speed in %  
Change by pressing and confirm by pressing   
For Y=1 Q must be set at less than 50%



Select the maximum number of pulses in memory  
Change by pressing and confirm by pressing



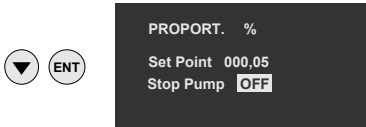
Start/stop the pump  
The pump will start if the Remote Activation input is activated.

#### 4.1.2.2 %/ppm Flowmeter

By entering a proportion value (%/ppm) and with a pulse input from a flowmeter, the pump will regulate its speed to dose the flow according to the desired proportion.



Proportionality value in % or ppm  
Change by pressing and confirm by pressing

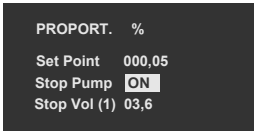


Select OFF to perform proportional dosing with no volume limit.  
Change by pressing and confirm by pressing



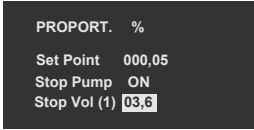
Instantaneous water flow rate.  
Pressing will cause the ON/OFF indicator to toggle to ON and the pump will start if the Remote Activation input is activated

- \* For the configuration of units (%/ppm) see Units in the Configuration section
- \* For flowmeter configuration. See the Configuration/Setup section



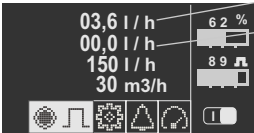
Select ON to perform proportional dosing with a volume limit.  
The pump will stop when it reaches the ENT maximum volume to be dosed.

Change by pressing and confirm by pressing



Set the desired maximum volume.

Change by pressing and confirm by pressing

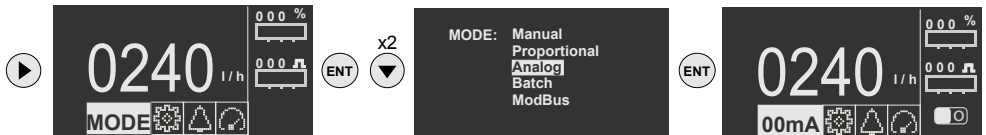


Volume to be dosed  
volume dosed

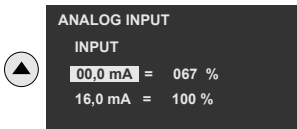
Pressing will cause the ON/OFF indicator to toggle to ON and the pump will start if the Remote Activation input is activated.  
The pump will stop when it reaches the maximum volume set.

### 4.1.3. Analogue mode

This mode allows dosing proportional to an analogue 0/4-20 mA input.

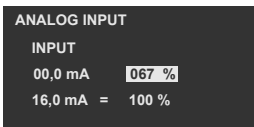


#### 4.1.3.1 Analogue mode settings



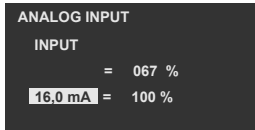
Select mA input for the first point

Change by pressing and confirm by pressing

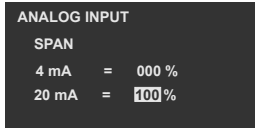


Select the flow in % for the first point in mA

Change by pressing and confirm by pressing



Select mA output for the second point  
Change by pressing and confirm by pressing



Select the flow rate in % for the second point in mA  
Change by pressing and confirm by pressing



Start/stop the pump  
The pump will start if the Remote Activation input is activated

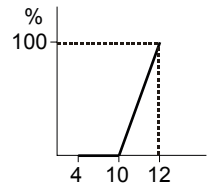
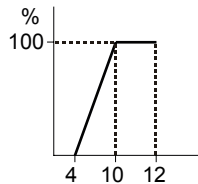
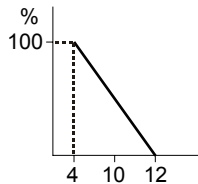
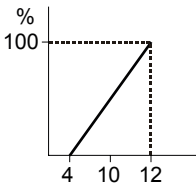
Examples:

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

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

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

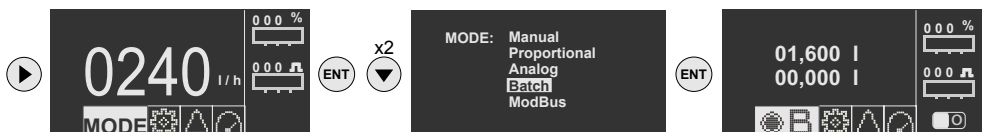
4: 12 mA = 0 %  
20 mA = 100 %



Examples 3 and 4 can be combined into two pumps when both are controlled with the same mA signal to start a second pump as supplementary flow.


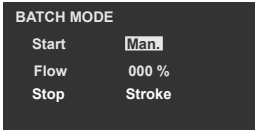

#### 4.1.4. Batch mode


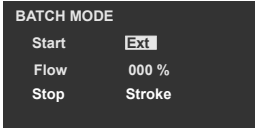
This mode allows batch dosing. Various activation options may be chosen (manual, external, time), and an end of the work cycle defined by number of cycles/volume or by time. In any of the operating modes, the speed of the pump can be defined in %.


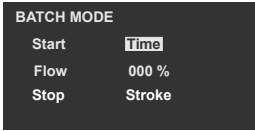


Batch dosing mode settings


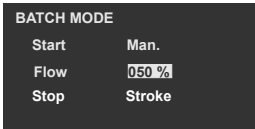



4.1.4.1 Select start-up mode

  Manual: start the pump by pressing 

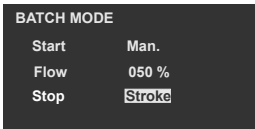
  Ext.: start the pump via remote input


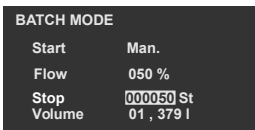



  Time: start the pump via a timer by entering a frequency (00:00:01 - 23:59:59)

4.1.4.2 Select stroke frequency in % (flow)

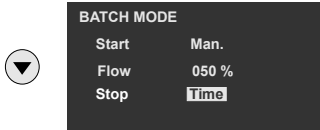
  Change by pressing   and confirm by pressing 

4.1.4.3 Select stop mode

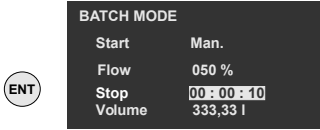
 Stroke: select the number of cycles before stopping

  Change by pressing   and confirm by pressing 



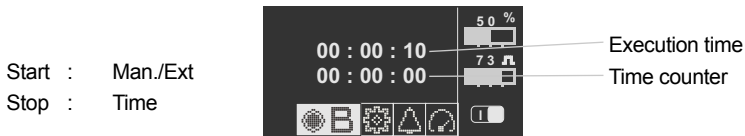
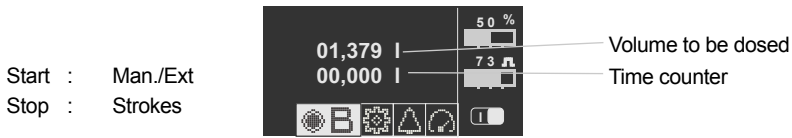


Time: set cycle execution time before stopping



Change by pressing and confirm by pressing

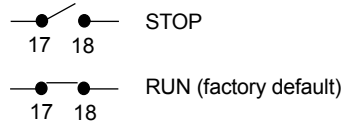
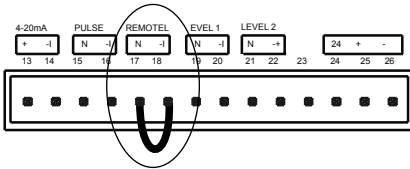
### Viewing the different configuration modes



### 4.1.5. Special Functions

#### 4.1.5.1 Remote activation

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



When the contact is closed (RUN) the pump may be run manually via the ENT key. After stopping the pump manually via the keypad, it is necessary to reset the Remote Input (open and close) to start the pump again remotely.

#### 4.1.5.2 Priming function test

By pressing for 3 seconds in manual mode, to start the pump at maximum speed. The pump will continue to run only when is pressed.

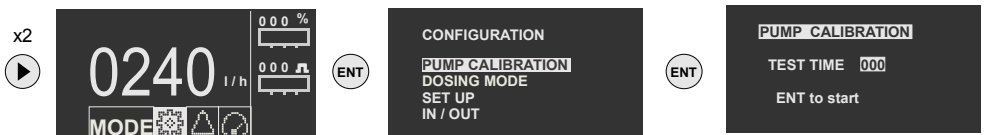
This feature allows a quick test of the unit and is an aid in priming the pump.

## 4.2 CONFIGURATION

### 4.2.1 Pump calibration

The pump calibration function allows the pump flow to be calibrated in real working conditions via a product suction test of a given duration. For a correct calibration, a test duration of at least 60 seconds must be entered. The pump will start automatically at maximum flow for the specified time.




Once the test is finished, the suction volume must be entered. With this result the equipment will recalculate the dosing flow.




**PUMP CALIBRATION**

TEST TIME 060

ENT to start

Change by pressing   and confirm by pressing 

**PUMP CALIBRATION**




PROGRESS 

Strokes 076  
Speed P. 0415  
Max.Curr. 04,5

**PUMP CALIBRATION**


Dosed volume

03,333 l

Enter the value in the unit   and confirm by pressing 

**PUMP CALIBRATION**

DVol 03,333 l  
Flow 0240 l/h  
SVol 22,989 ml  
FCalib. 100  
Reduct. 12




Press  to finish the calibration process


Dvol: volume dosed  
Flow: flow rate  
S.Vol: volume per cycle  
F.calib: calibration factor  
Reduct: Reducer



## 4.2.2 Dosing mode

The Dosing Mode function allows the various Advanced Dosing Functions to be selected. These functions can regulate the mechanism speed during the suction or discharge cycles of the pump to optimize the dosing and adapt it to the characteristics of the process.

0240 l/h

MODE   

000 %  
000 

**CONFIGURATION**

**PUMP CALIBRATION**

**DOSING MODE**

SET UP

IN / OUT

### 4.2.2.1 Standard

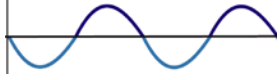
The Standard mode (ST) is the normal operating mode whereby the dosing pump displays symmetrical behaviour during the suction and discharge of the product.




**DOSING MODE**

Mode: **ST**

Standard

Max.Flow 0240 l/h

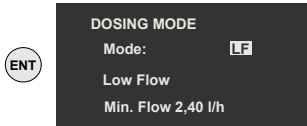


Change by pressing   and confirm by pressing 

4.2.2.2 Low flow

The Low Flow mode (LF) allows dosing to be paused during the discharge cycle, extending the dosing time and therefore reducing the flow to as little as 1%.

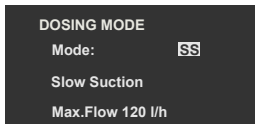
The other modes allow the flow to be reduced to as little as 10%.



Change by pressing ▲ ▼ and confirm by pressing ENT

4.2.2.3 Slow suction

The Slow Suction mode (SS) reduces the speed during the suction cycle in order to improve precision in the dosing of viscous liquids, since it reduces the risk of cavitation and incomplete filling of the head. The maximum flow is reduced by 50%.



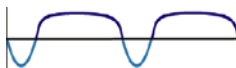
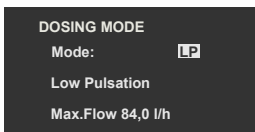
Change by pressing ▲ ▼ and confirm by pressing ENT

4.2.2.4 Low Pulsation / Low Pulsation

Low Pulsation mode (LP) lengthens the impulse cycle time in order to minimize the effect of pulsating flow and reduce overpressures caused by long pulses.

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

Frequency	Max. Flow Reduced to
1	55%
2	55%
3	50%
4	35%

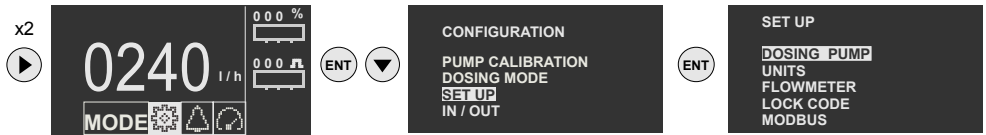


Change by pressing ▲ ▼ and confirm by pressing ENT

## 4.2.3 Configuration

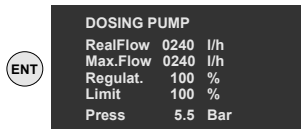
### 4.2.3.1 Dosing pump

Technical characteristics of the pump



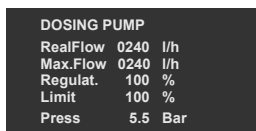
### Pump flow rate

Real Flow is the flow due to the calibration test, if carried out, and/or the flow due to the regulation.  
Max. Flow is the resulting flow according to the limit and/or selected dosing profile.



### Regulation

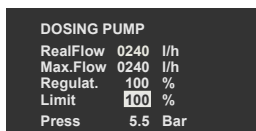
In case of stroke length regulation system available in this unit, and the regulator knob in a position different from 100%, this parameter must coincide with the regulation of the pump's knob.



Change by pressing and confirm by pressing

### Limited flow %

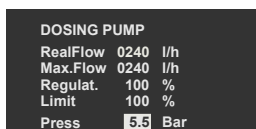
This is the maximum limited flow of the pump. It limits the pump flow so that it does not exceed the entered value under any circumstances.



Change by pressing and confirm by pressing

### Maximum pressure

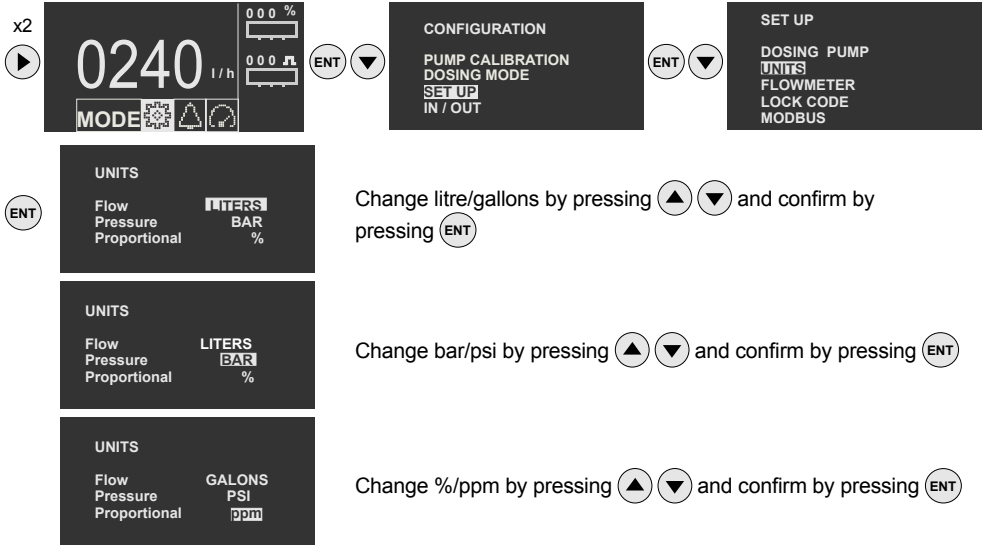
Dosing pump maximum working pressure



Change by pressing and confirm by pressing

### 4.2.3.2 Units

Select flow, pressure and proportionality units

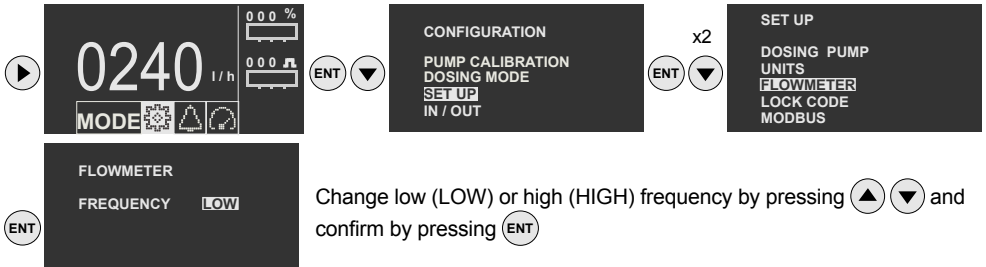


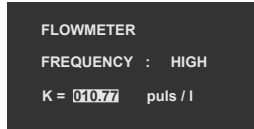
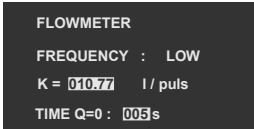
### 4.2.3.3 Flowmeter

For a correct water flow reading, the flowmeter constant (volume/pulse or pulses/volume) must be entered. First select the type of flowmeter for low or high frequency.

**Low frequency:** for water meters with low frequency outputs (0.005 Hz to 30 Hz). The constant corresponds to volume/pulse (litres/pulse ; gallons/pulse).

**High frequency:** for flowmeters with high frequency output (1 Hz to 300 Hz). The K-factor corresponds to pulses/volume (pulses/litre ; pulses/gallon).



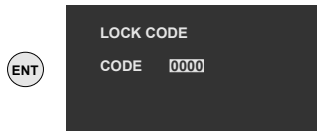
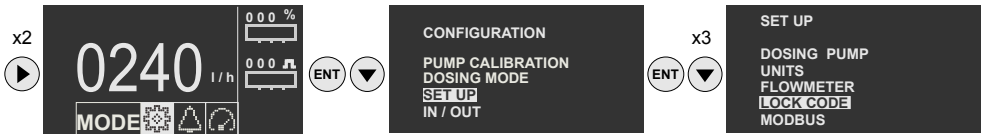


Change by pressing and confirm by pressing

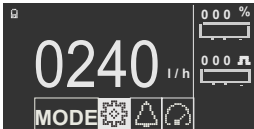
TIME Q=0, Time interval (seconds) between two pulses to consider zero flow.

#### 4.2.3.4 Lock code

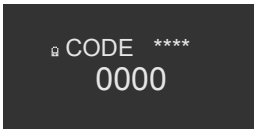
Blocks access to the equipment configuration, allowing the pump to start and stop. When the access code is 0000 (default value), the lock is disabled.



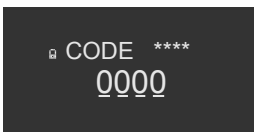
Enter the desired password and confirm by pressing



By pressing for 3 seconds to lock the pump



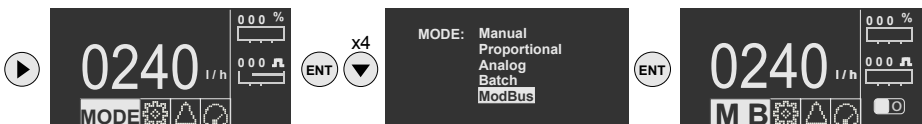
Press for 3 seconds to enter the code and unlock the pump



Enter the code starting with the units (from right to left). Change values by pressing and confirm by pressing

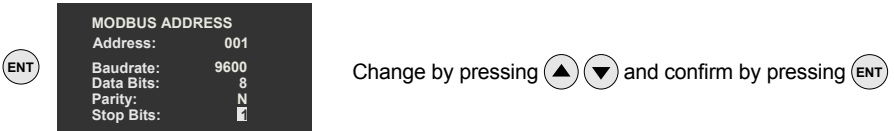
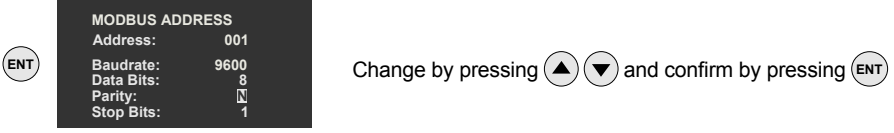
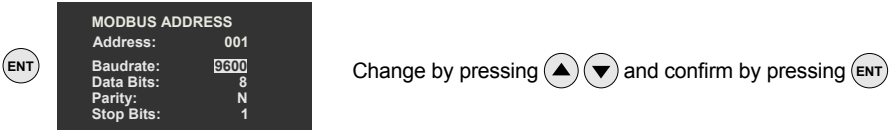
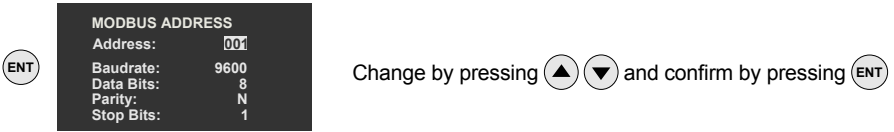
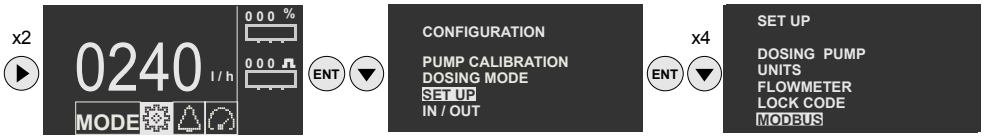
#### 4.2.3.5 ModBus

This operation mode allows the pump to be controlled via the RS485 serial port and Modbus RTU protocol.



- Bus: RS485
- Communication: half-duplex L(H), H(B), and GND
- Baud rate: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Hardware handshake: No
- Character time out: 20 ms
- Time out message end: 100 ms

*Important: If an RS232RS485 or similar type converter is required, make sure that the signal emitted does not produce an echo signal.*





## 4.2.4. Inputs/outputs

### 4.2.4.1 Pressure input

Calibration of the 4-20 mA pressure transducer input.

Enter the pressure value corresponding to 4 mA  
Change by pressing and confirm by pressing

Enter the pressure value corresponding to 20 mA  
Change by pressing and confirm by pressing

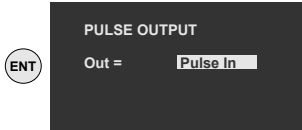
### 4.2.4.2 Flow detector

The flow detector is an accessory that allows the pulses of the supplied flow to be monitored.

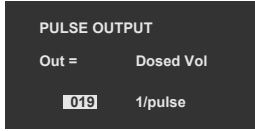
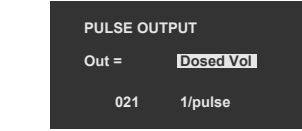
Enter the number of pump cycles during which no pulse is detected for the alarm to be activated.  
Change by pressing and confirm by pressing

### 4.2.4.3 Pulse output

Configuration of the volume/pulse in order to monitor the pump flow.



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

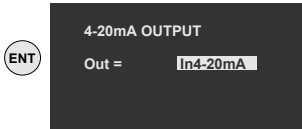
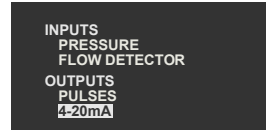
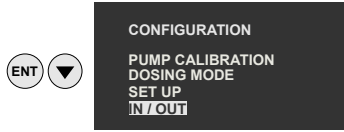


Enter the volume of product dispensed for each product. Change by pressing and confirm by pressing

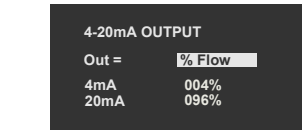
With this option another device can receive the dosed volume. Review 5.5.4 for connections.

**4.2.4.4 4-20 mA output**

4-20 mA output for log or monitoring.

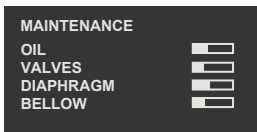


Set whether the pulse output is the same as the pulse input. Change by pressing and confirm by pressing

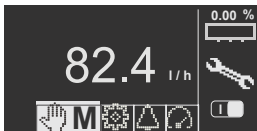


Enter the % flow rate at which the 4 mA will be emitted  
Enter the % flow rate at which the 20 mA will be emitted  
Change by pressing and confirm by pressing

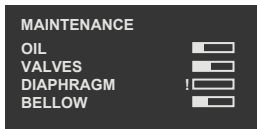
**4.2.4.5. Maintenance**



In the Maintenance menu, the status of components subject to wear can be viewed using the status bars.

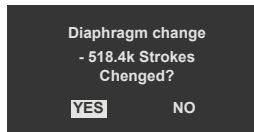
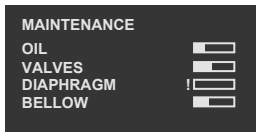


A warning will appear on the main screen at the end of the useful life of a component.



The status bars in the maintenance menu show the remaining life of each component and display a when the bar becomes empty, with this being the recommended time to replace the component.

You can view the cycles completed by selecting each component. A negative cycle value indicates that it has exceeded the maintenance interval.



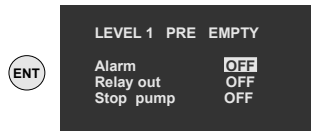
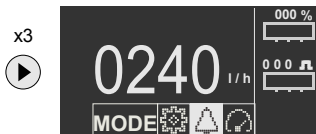
When replacing a component that has reached the end of its useful life, the cycle counter must be set to zero by using the YES option.

## 4.3 ALARMS

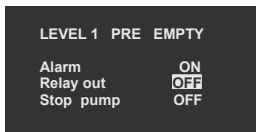
In the event of an alarm, the corresponding icon will flash on the main screen. If the cause of the alarm disappears the icon will remain steady. To erase the alarm icon, it is necessary to stop and start the pump using the “ENT” key. The security time is 5 seconds before any alarm is activated.

### 4.3.1 Level alarm 1

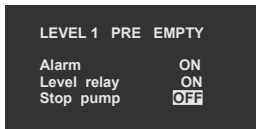
Low level pre-warning according to Level 1 input. Automatic reset.



Activate or deactivate the alarm by pressing and confirm by pressing



Activate or deactivate the Alarm Relay output, when the unit is in alarm, by pressing and confirm by pressing


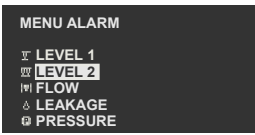


Activate or deactivate, stop the pump when the alarm goes off, by pressing and confirm by pressing

### 4.3.2 Level alarm 2

Low level alarm according to Level 2 input. Automatic reset

x3

ENT ▼

LEVEL 2 EMPTY

Alarm	OFF
Level 2 relay	OFF
Stop pump	OFF

Activate or deactivate the alarm by pressing ▲ ▼ and confirm by pressing ENT

LEVEL 2 EMPTY

Alarm	ON
Level 2 relay	OFF
Stop pump	OFF

Activate or deactivate the Alarm Relay output, when the unit is in alarm, by pressing ▲ ▼ and confirm by pressing ENT

LEVEL 2 EMPTY

Alarm	ON
Level 2 relay	ON
Stop pump	OFF


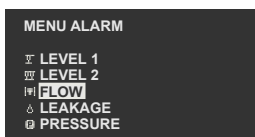
Activate or deactivate, stop the pump when the alarm goes off, by pressing ▲ ▼ and confirm by pressing ENT

### 4.3.3 Flow fault alarm

Dosing flow detector alarm.

See section 4.2.4.2 (Configuration/Inputs/Flow Detector)

x3

ENT ▼

FLOW FAILURE

Alarm	OFF
Relay out	OFF
Stop pump	OFF

Activate or deactivate the alarm by pressing ▲ ▼ and confirm by pressing ENT

FLOW FAILURE

Alarm	ON
Relay out	OFF
Stop pump	OFF

Activate or deactivate the Alarm Relay output, when the unit is in alarm, by pressing ▲ ▼ and confirm by pressing ENT

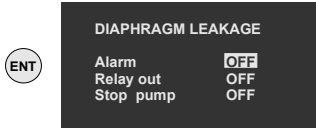
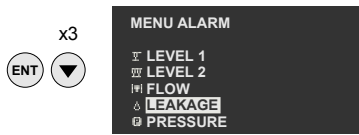
FLOW FAILURE

Alarm	ON
Relay out	ON
Stop pump	OFF

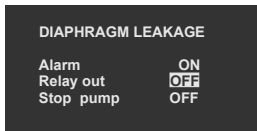
Activate or deactivate, stop the pump when the alarm goes off, by pressing ▲ ▼ and confirm by pressing ENT

### 4.3.4 Diaphragm leakage alarm

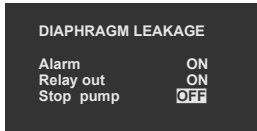
Diaphragm leakage detection alarm for electrically conductive liquids (min. 0.05 ms).



Activate or deactivate the alarm by pressing and confirm by pressing



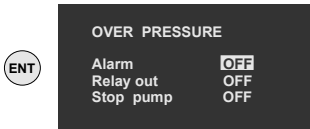
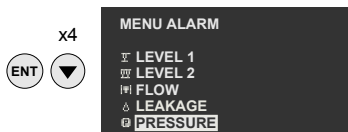
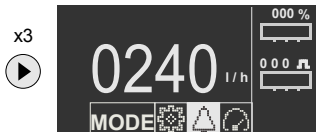
Activate or deactivate the Alarm Relay output, when the unit is in alarm, by pressing and confirm by pressing



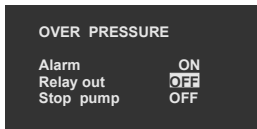
Activate or deactivate, stop the pump when the alarm goes off, by pressing and confirm by pressing

### 4.3.5 Overpressure alarm

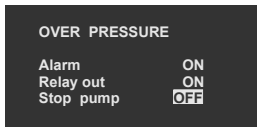
Overpressure detection alarm. Automatic reset.



Activate or deactivate the alarm by pressing and confirm by pressing



Activate or deactivate the Alarm Relay output, when the unit is in alarm, by pressing and confirm by pressing

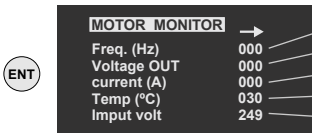
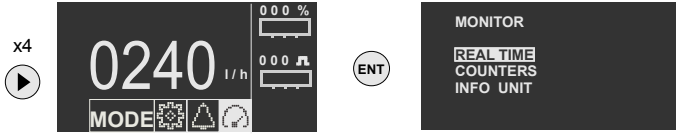


Activate or deactivate, stop the pump when the alarm goes off, by pressing and confirm by pressing

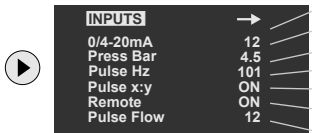
## 4.4 MONITOR

### 4.4.1 Real time

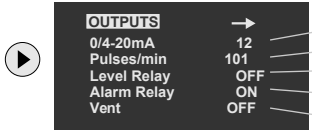
Real-time working parameters



- Frequency (Hz)
- Motor voltage (V)
- Current (A)
- Temperature (°C)
- Input voltage (V)

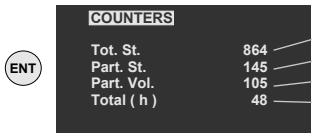
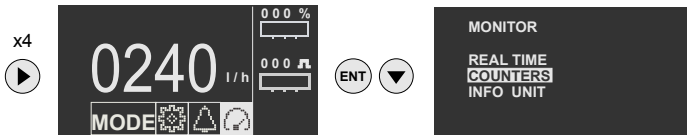


- Analogue input value (mA)
- External pulse input value (Hz)
- Pressure sensor input value (bar/psi)
- External pulse input value (ON-OFF)
- Remote control input
- Number of strokes per minute
- Flow sensing value

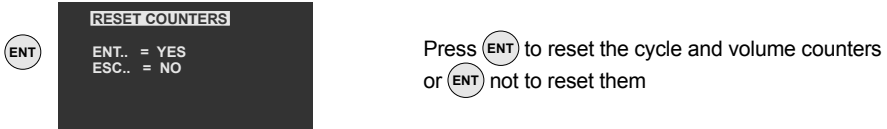
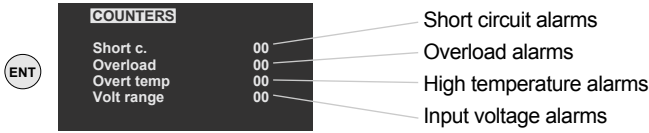


- Analogue output value (mA)
- External pulse output (pulses/min)
- Level 2 sensor alarm output
- Alarm output
- Ventilation outlet

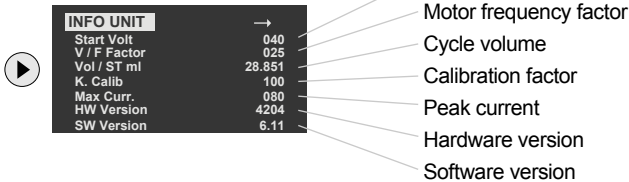
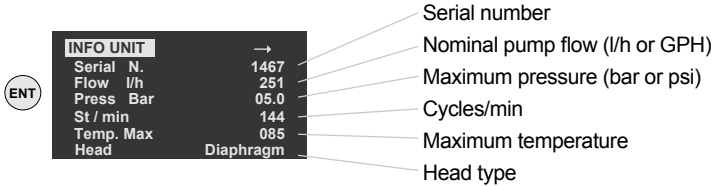
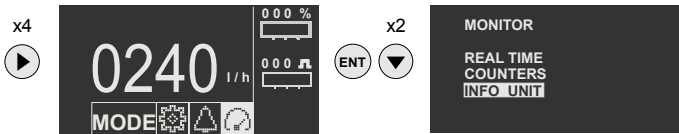
### 4.4.2 Counters



- Total cycles
- Cycles since last reset
- Volume since last reset
- Total operating time (hours)



### 4.4.3 Info Unit



## 5. INSTALLATION

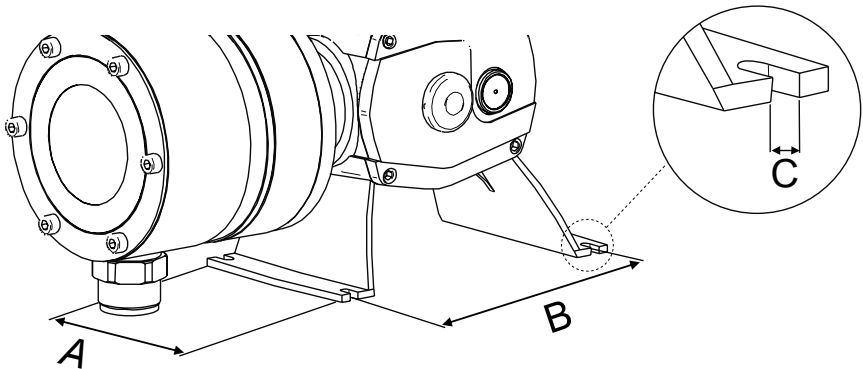
### 5.1. GENERAL

It should be installed in a place protected from water, away from heat sources and with renovation of air.

Place the pump vertically over a totally rigid surface to achieve a proper lubrication of all inner elements. Provide sufficient space to facilitate basic maintenance and installation/removal of the pump.

Fix the pump to the chosen flat surface using 4 screws

(See drawing).



	<b>A</b>	<b>B</b>	<b>C</b>	
AC3	122	212	6.5	mm
	4.8	8.3	0.26	in
AC2/1	90	155	6.5	mm
	3.5	6.1	0.26	in



## 5.2. BLOCK

Pull out the oil cap for transport, fill the pump with the SAE 80W90 oil supplied (or similar), up to the level shown by the sight glass and fit the working cap (black with an orifice).

Approximate oil capacity:

650 cm<sup>3</sup>(AC3)

250 cm<sup>3</sup> (AC1/2)

List of lubricants:

CEPSA SAE80W90

REPSOL EP 80W/90

SHELL SPIRLAXHD OIL 80W/90

ESSO GEAR OIL 80W/90

AGIP ROTRA MP 80W-90

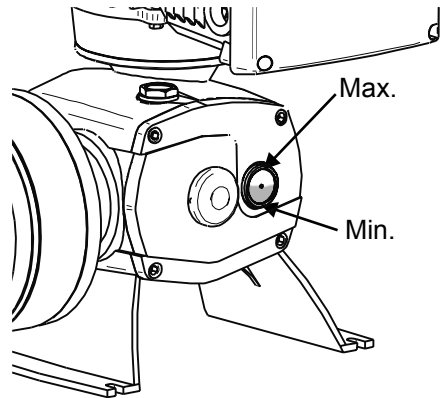
MOBILUDE HD 80W-90

BP ENERGEAR HT 80W-90

CATROL HYPOYC

GULF GEAR MP SAE 80W 90

ELF TRANSGEAR HD 80W-90



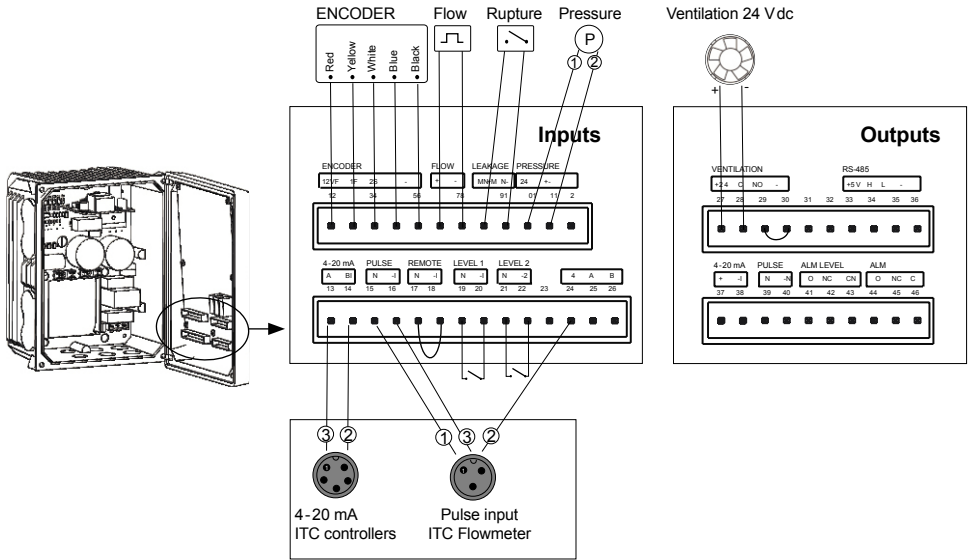
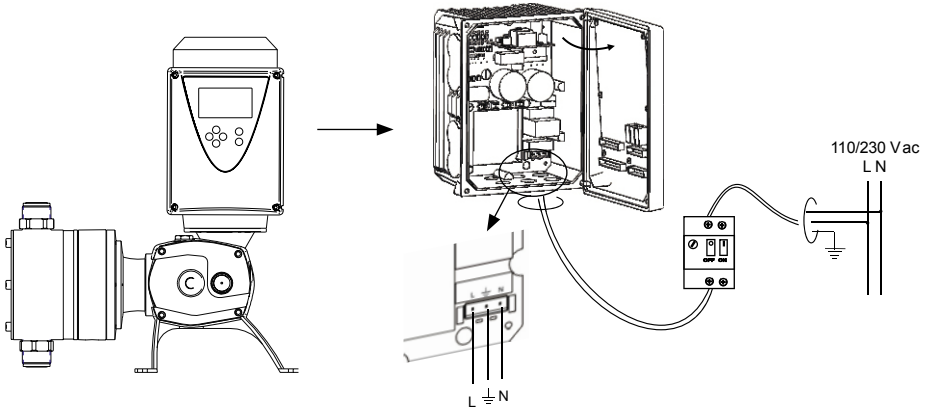
## 5.3. WIRING



The electrical protection of the motor must be installed and adjusted on the basis of its nominal current (thermomagnetic circuit breaker). (See connection).

A device for disconnection in case of emergency must be installed.

The equipment must be protected against false starts.

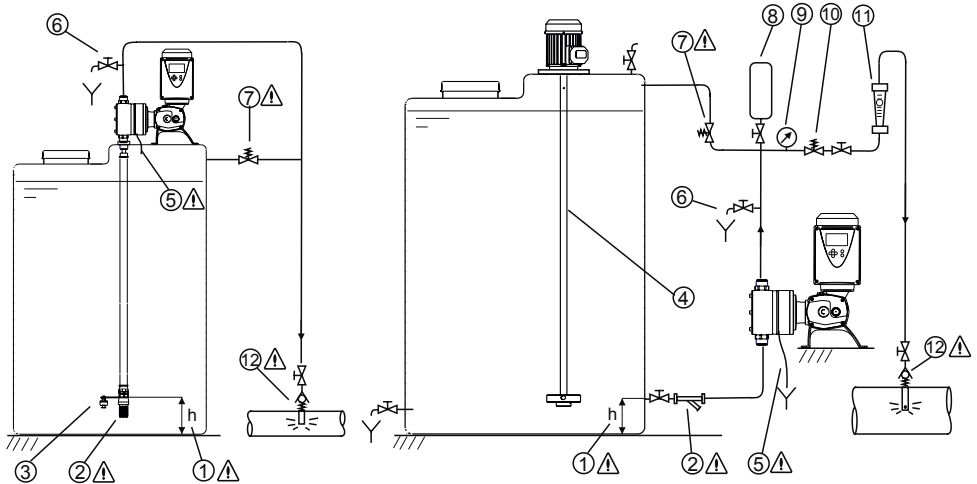


**External quick connectors**

N	FUNCTION	DETAIL
<b>Inputs</b>		
1	Encoder	+12 Vdc
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	+ 24 Vdc
11	Pressure transmitter	(+)
12	Pressure transmitter	(-)
13	4-20 mA input analogue mode	(+)
14	4-20 mA input analogue mode	(-)
15	Proportional pulse input mode	Pulses
16	Proportional pulse input mode	(-)
17		Voltage free contact
18		Voltage free contact
19	Level sensor 1	Voltage free contact
20	Level sensor 1	Voltage free contact
21	Level sensor 2	Voltage free contact
22	Level sensor 2	Voltage free contact
<b>Outputs</b>		
27	Additional ventilation	+ 24 Vdc
28	Additional ventilation	Common relay output
29	Additional ventilation	NO relay contact
30	Additional ventilation	(-)
33	RS-485	+5 Vdc
34	RS-485	H (B)
35	RS-485	L (A)
36	RS-485	(-)
37	4-20 mA monitor output	(+) Not isolated
38	4-20 mA monitor output	(-) Not isolated
39	Monitor pulse output	Signal. Not isolated
40	Monitor pulse output	(-) Not isolated
41	Level alarm 2 output	NO
42	Level alarm 2 output	NC
43	Level alarm 2 output	Common (max. 5 Amps 250 Vac)
44	Alarm output	NO
45	Alarm output	NC
46	Alarm output	Common (max. 5 Amps 250 Vac)

## 5.4. HYDRAULIC INSTALLATION


### 5.4.1. Installation examples

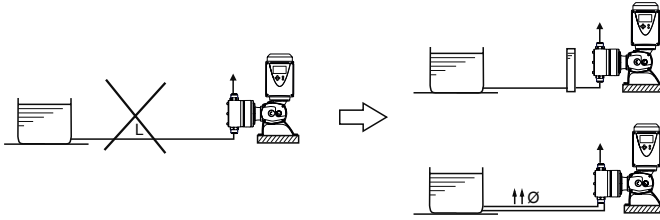


- ⚠ 1. To avoid undissolved particles, never suck the product to be injected from the bottom of the tank.
- ⚠ 2. Filter. It is essential to install a filter (150 micron) in the suction piping.
- 3. Level sensor
- 4. Agitator
- ⚠ 5. Make sure to collect any liquid leakage from the cylinder's vent/drain orifice in a proper container.
- 6. Priming/drain valve.
- ⚠ 7. Pressure relief valve. Install a pressure relief valve in a bypass as close as possible to the pump in order to protect the pump and the installation from possible overpressure. This bypass should pipe the liquid to a safe place.
- 8. Pulse dampener
- 9. Pressure gauge.
- 10. Pressure maintenance valve.
- 11. Flowmeter
- ⚠ 12. Injection check valve

### 5.4.2. Installation recommendations


#### SUCTION

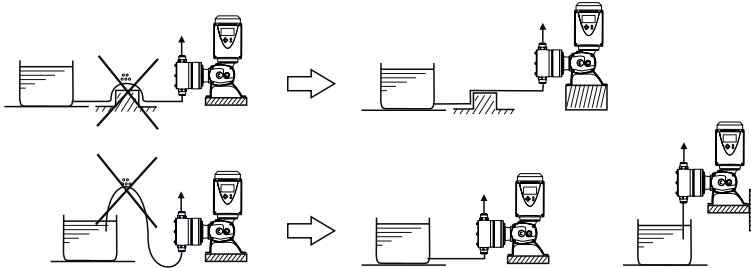
 Long suction:  $L > 2$  m (6.5 ft)




PIPE SIZE		
Øint	L ≤ 2 m	L ≤ 5 m
AC1/ 2	6	25
	15	100
	20	200
	25	300
	30	500
AC3	40	800
	50	850
	60	900
	70	1000

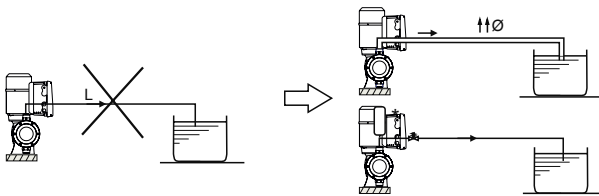
**Q max. (l/h)**

 Air in suction



#### DISCHARGE

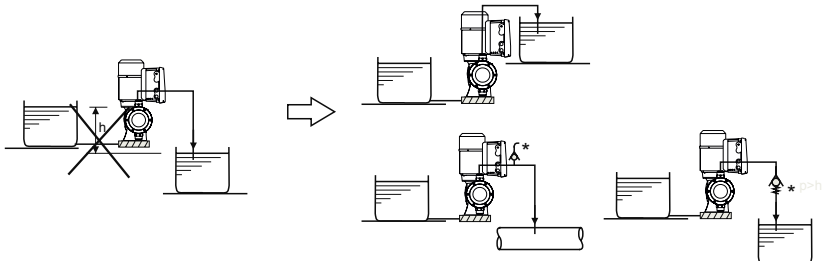
 Long discharge:  $L > 5$  m (16 ft)



PIPE SIZE		
Øint	L ≤ 2 m	L ≤ 10 m
AC1/ 2	6	10
	15	70
	20	100
	25	200
	30	300
AC3	30	1000
	40	400
	50	600
	60	1000

**Q max. (l/h)**

 Siphon



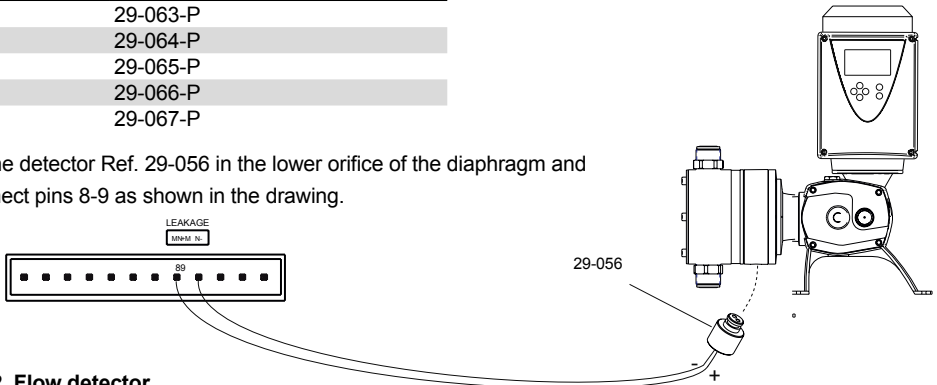
## 5.5. ACCESSORIES

### 5.5.1. Diaphragm leakage detector

The diaphragm leakage detector is an electrical conductivity sensor capable of detecting the presence of liquid when its conductivity is 0.05 mS or higher. The pump must be provided with the specific diaphragm flange for housing the detector.

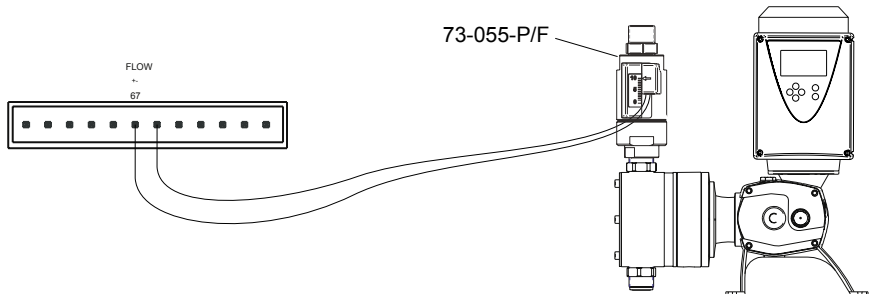
Diaphragm Ø	Diaphragm leakage sensor kit
69	29-063-P
95	29-064-P
115	29-065-P
142	29-066-P
163	29-067-P

Fit the detector Ref. 29-056 in the lower orifice of the diaphragm and connect pins 8-9 as shown in the drawing.



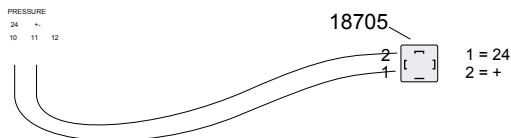
### 5.5.2. Flow detector

The flow detector is a device which monitors the delivered pulsated flow. The pulses are received and processed by the Advance Control Unit in order to detect dosing failures like lack of priming, cavitation or check valves faults. The unit compares the strokes of the pump with the pulses from the detector and allows an alarm to be set according to the configuration parameters.

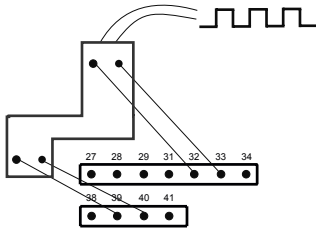


### 5.5.3. Pressure sensor

The pressure sensor protects the pump from working in overpressure conditions, when the pressure alarm is activated. Connect the 4-20 mA 10 bar pressure sensor Ref. 18705 as shown in the drawing.



### 5.5.4. Pulse output isolator

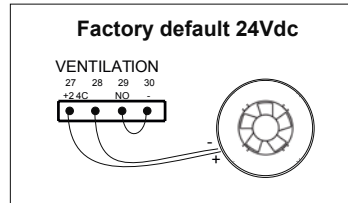
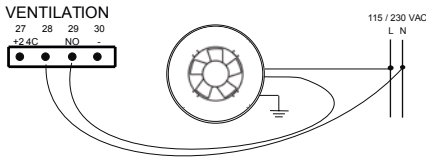


The pulse output isolator allows any device to be securely connected to a pulse output.

The pulse output is a voltage free output. The isolator is not necessary when the output is connected to a 38 39 40 41 pulse input of another Dostec AC.

### 5.5.5. Additional ventilation 115 / 230 V

This option is recommended for continuous operation at temperatures above 40 °C (104 °F) up to a maximum of 50 °C (122 °F)



## 6. START-UP AND REGULATION

⚠️ **FIXING:** Check that the pump is properly secured

⚠️ **OIL:** Check the oil level using the side sight glass  
Replace the transport fill cap for transport with the working one.

⚠️ **HYDRAULIC CIRCUIT CHECK:** Check that all valves are open, and that the bleed and relief valve outlets are diverting the liquid to a container.

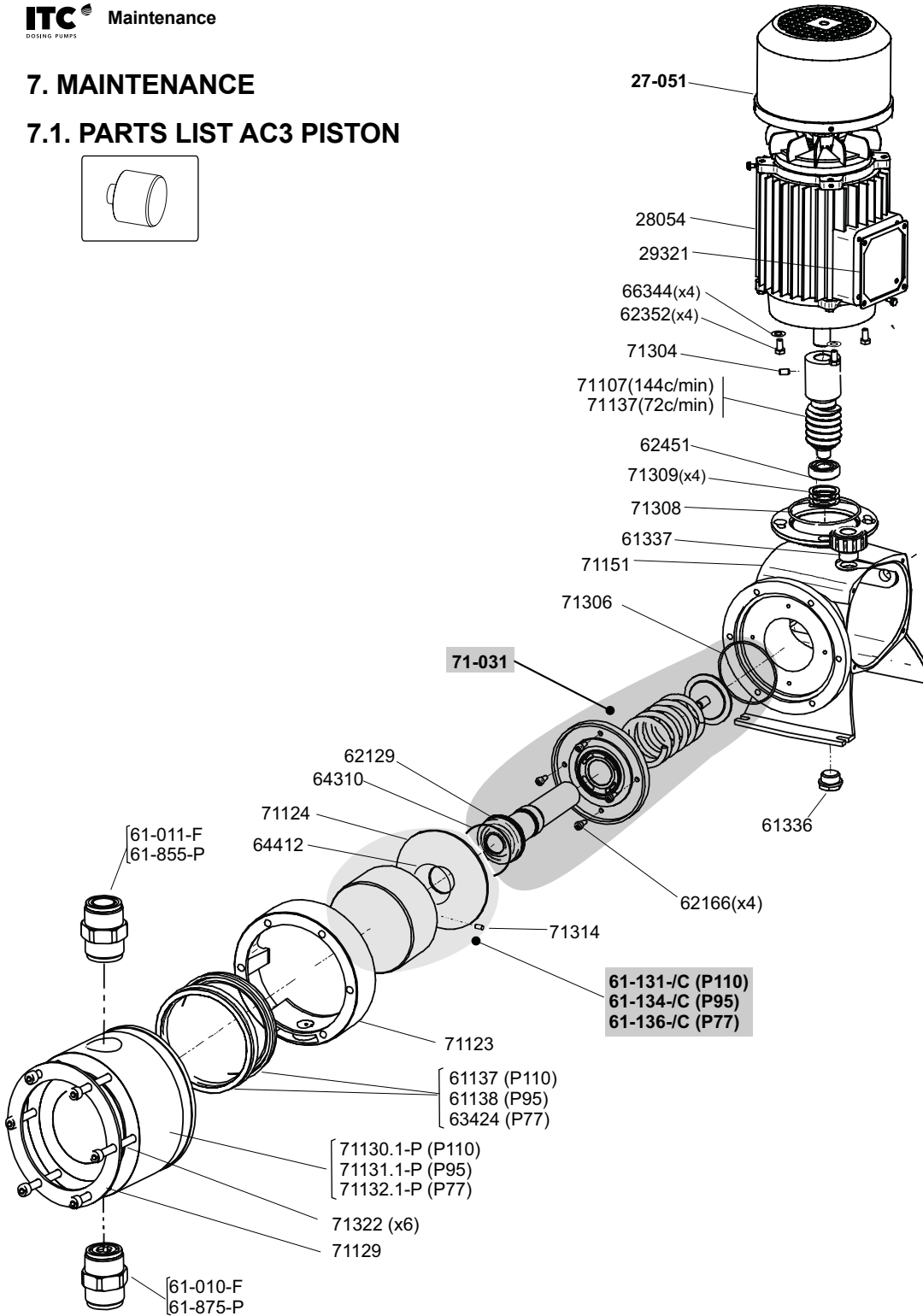
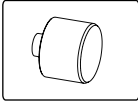
**PUMP CHECK:** Make a visual/auditory check of the correct operation of the pump.

**PRIMING:** To facilitate pump priming, especially with low flows when there is no priming valve, it is advisable to minimize the pressure in the ejection line. Another option is to fill the head cylinder and suction pipe with liquid.

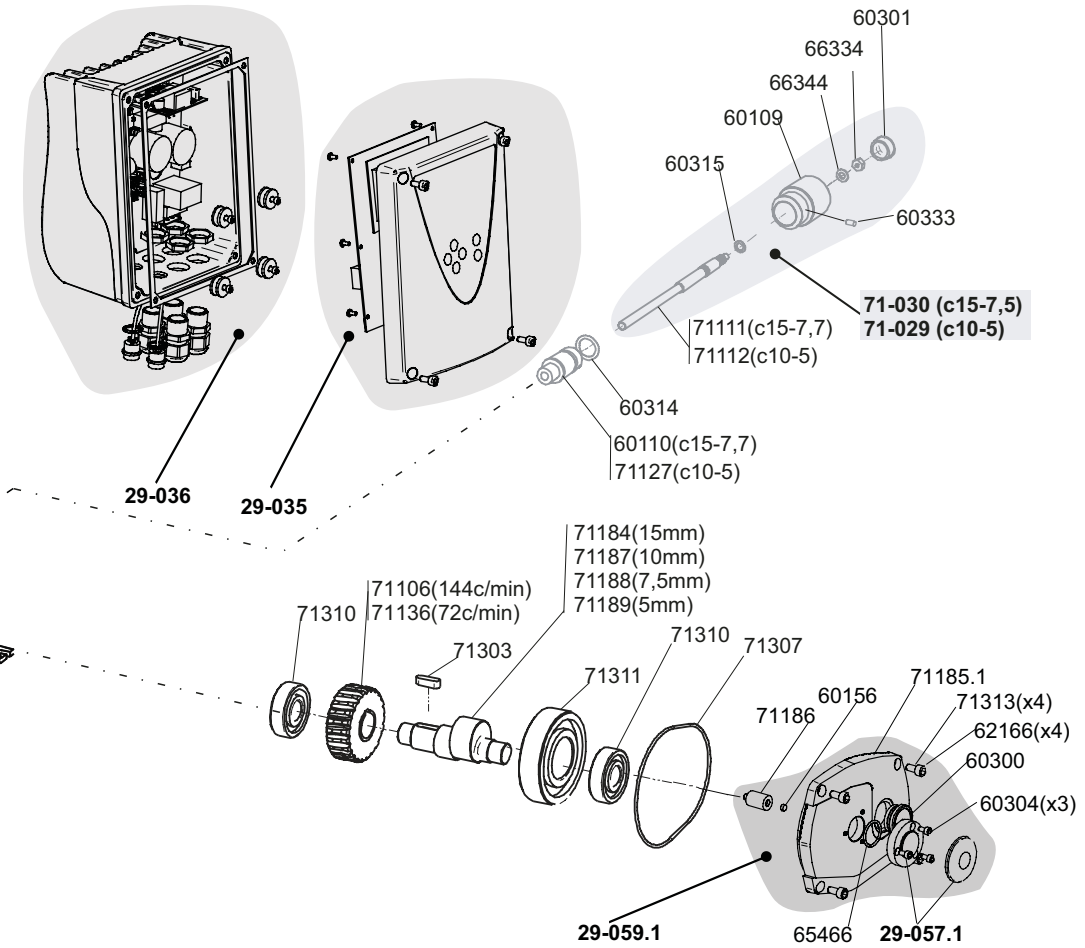
⚠️ **OVERPRESSURE PROTECTION:** Adjust the safety, overpressure or pressure relief valve to the desired pressure to protect the installation, while never exceeding the nominal pressure of the pump.

## 7. MAINTENANCE

### 7.1. PARTS LIST AC3 PISTON



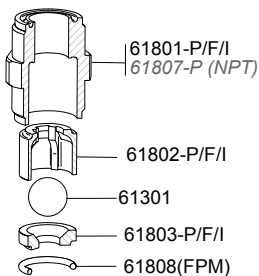




**61-885-P**

**61-011-F/I**

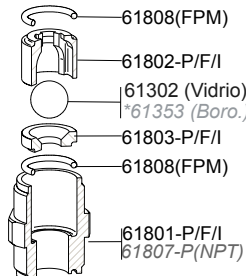
**61-882-P (NPT)**



**61-875-P**

**61-010-F/I**

**61-872-P (NPT)**



**AC3 PISTON PARTS LIST**

<b>CODE</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
28054	Electric motor 1.2 kW 6P 110/190 3ph 80/100	1
29321	B14 Motor seal Maraz T80	1
29620	AC control board PCB	1
29622	Power board PCB 230 V ac	1
33429	M4 x 20 DIN 912 a-2 screw	4
38301	Philips M3 x 8 DIN 7985 A2 screw	7
60109	Dostec 10v regulator	1
60110	Regulator guide p1.5 mm Dostec	1
60156	D6 x 2.5 encoder magnet	1
60300	Oil peep hole 26	1
60301	Regulator knob plug 20.6	1
60304	M4 x 8 DIN 912 A4 screw	4
60314	O-ring 17 x 3.5 NBR	1
60315	O-ring 6.5 x 2 NBR	1
60333	M4 x 8 DIN 913 A-2 screw	1
61-131/-C	Piston 1000 l/h D110 lock EF D50	1
61-134/-C	Piston 750 l/h ceramic D95 lock D50	1
61-136/-C	Piston 500 l/h ceramic D77 lock D50	1
61137	Seal P110 108x127x12 FPM 1000 l/h	2
61138	Seal P95 96x112x12 FPM 750 l/h	2
61336	Drain plug ½"	1
61337	Filler plug ½"	1
62129	Bellows FPM	1
62166	M6 x 16 DIN 912 A4-80 screw	8
62352	M6 x 12 DIN 933 A2 screw	4
62451	6202 zz (15x35x11) roller bearing	1
63424	Seal 78x87x6 FPM 500 l/h	2
64310	O-ring 55.56x3.53 NBR	1
65466	O-ring 20x2 NBR	1
64412	44x2 FPM O-ring	1
66334	Nut M6 DIN 934 A2	1
66344	D6 DIN 125 A2 washer	5
70304	M5 x 20 DIN 912 A2 screw	4
71106	Ring gear 2 injection (120 strokes/min) D50	1
71107	Pinion 2 injections (120 strokes/min) D50	1
71111	Regulating rod p1.5 mm D50	1
71112	Regulating rod p1 mm D50	1
71123	Cylinder spacer D50	1
71124	Protection disc D50	1
71127	Regulation guide p1 mm D50	1
71129	Piston cylinder ring gear D160	1
71130.1-P	Cylinder 1000 l/h s PP ring gear	1
71131.1-P	Cylinder 750 l/h s PP ring gear	1
71132.1-P	Cylinder 500 l/h s PP ring gear	1
71136	Ring gear 1 injection (60 strokes/min) D50	1
71137	Pinion 1 injection (60 strokes/min) D50	1
71129	Piston cylinder ring gear D160	1
71151	Block D-50 A.C.	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	Key DIN 6885-a (8x7x25)	1
71304	M6 x 10 DIN 913 8.8 screw	1
71306	O-ring 70x2.5 NBR	1
71307	O-ring 125x2.5 NBR	1
71308	O-ring 77x2 NBR	1
71309	Wave spring washer (34x26x0.4)	3
71310	6304zz (20x52x15) roller bearing	2
71311	6308zz (40x90x23) roller bearing	1
71313	M6 Nord-Lock washer	4
71314	M5 x 12 DIN 914 A2 screw	1
71322	M8 x 150 DIN 912 A2 screw	6

**ASSEMBLIES**

27-051	Additional ventilation 24 V dc IP56 DOSTEC AC3	1
29-035	Control PCB with cover DOSTEC AC	1
29-037	Power PCB with box AC2/3	1
29-057.1	PCB, encoder base and cover DOSTEC AC	1
29-059.1	Encoder with cover AC3 (Dostec-50)	1
71-029	Regulator Dostec-50 pas1 mm complete	1
71-030	Regulator Dostec-50 pas1.5 mm complete	1
71-031	Shaft guide Dostec-50P	1

**VALVES**

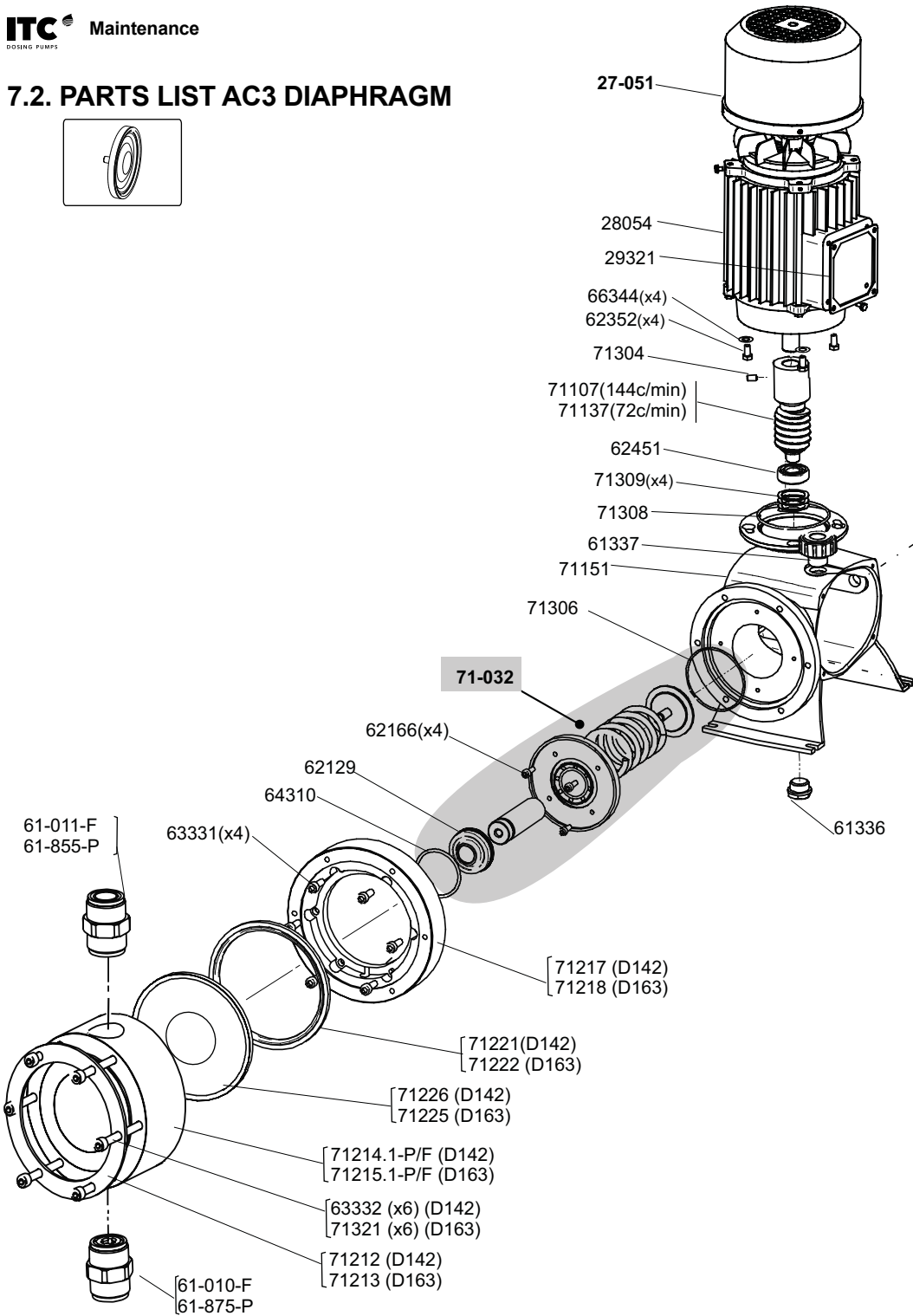
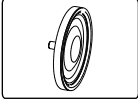
61-010-P/F/I	Suction valve 1-¼	1
61-011-P/F/I	Discharge valve 1-¼	1
61-875-P/	Suction valve 1-¼ PP Borosilicate	1
61-885-P	Discharge valve 1-¼ PP Borosilicate	1

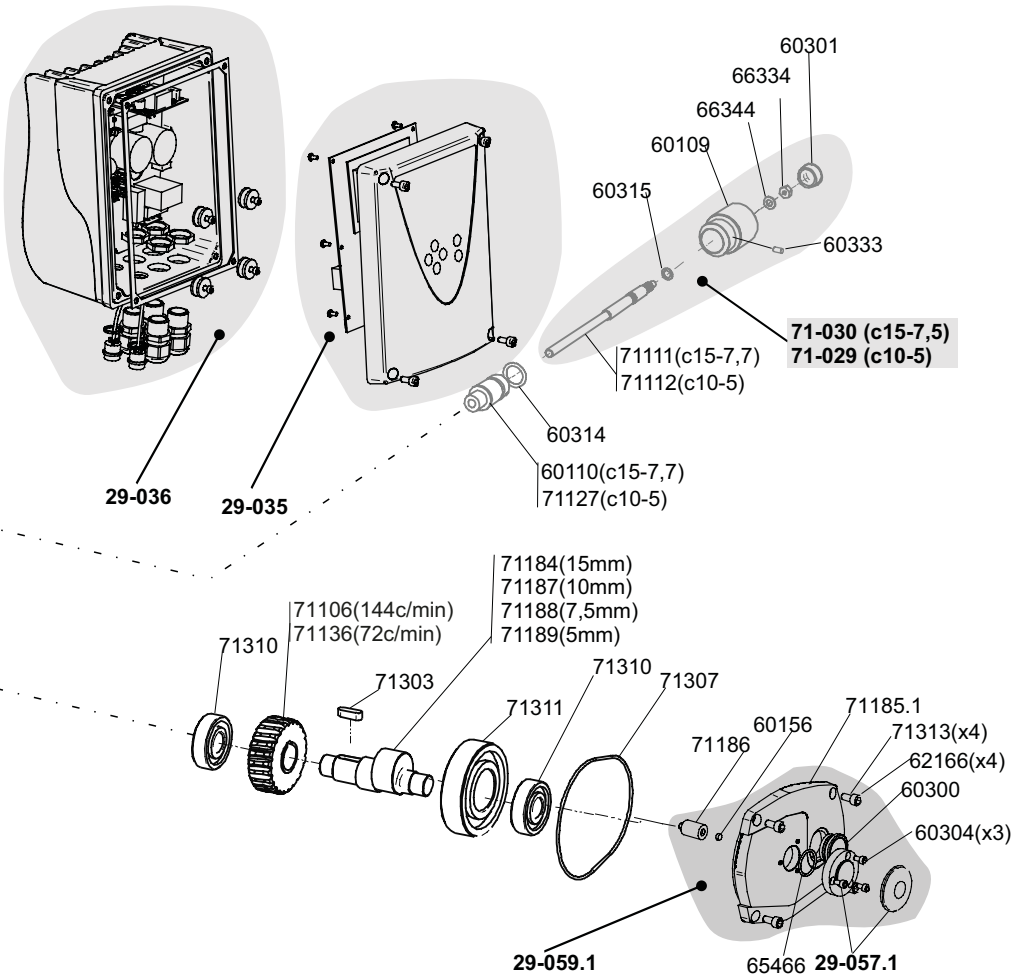
**MAINTENANCE KIT (valves+seals+bellows)**

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

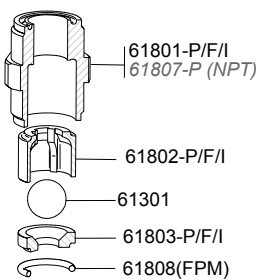
Material code:    – P = Polypropylene  
                           – F = PVDF  
                           – I = AISI 316  
                           – C = Ceramic

## 7.2. PARTS LIST AC3 DIAPHRAGM

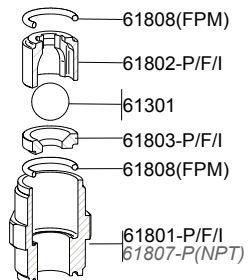




- 61-885-P**
- 61-011-F/I**
- 61-882-P (NPT)**



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



**AC3 DIAPHRAGM PARTS LIST**

<b>CODE</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
28054	Electric motor 1.2 kW 6P 110/190 3ph 80/100	1
29321	B14 Motor seal Maraz T80	1
60109	Dostec D40 regulator	1
60110	Regulator guide p1.5 mm Dostec	1
60156	d6 x 2.5 encoder magnet	1
60300	Miselli 26 oil peep hole	1
60301	Regulator knob plug 20.6	1
60304	M4 x 8 DIN 912 A4 screw	4
60314	O-ring 17x3.5 NBR	1
60315	O-ring 6.5x2 NBR	1
60333	M4 x 8 DIN 913 A-2 screw	1
61336	Drain plug ½" tcn 12	1
61337	Filler plug ½" tmdf 12	1
62129	Bellows FPM MF	1
62166	M6 x 16 DIN 912 A2 screw	8
62352	M6 x 12 DIN 933 A2 screw	4
62451	Bearing 6202 zz	1
63331	M8 x 20 DIN 912 A2 screw	6
63332	M8 x 90 DIN 912 A2 screw	6
64310	O-ring 55.5x3.5 NBR	1
65466	O-ring 20x2 NBR	1
66334	Nut M6 DIN 934 A2	1
66344	D6 DIN 125 A2 washer	5
71106	Ring gear 2 injection D50	1
71107	Pinion 2 injections D50	1
71111	Regulating rod p1.5 mm D50	1
71112	Regulating rod p1 mm D50	1
71127	Regulation guide p1 mm D50	1
71136	Ring gear 1 injection D50	1
71137	Piñon 1 injection Dostec 50	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
71212	Diaphragm cylinder ring gear D142	1
71213	Diaphragm cylinder ring gear D163	1
71214.1-P/F	Diaphragm cylinder D50 ring gear D142	1
71215.1-P/F	Diaphragm cylinder D50 ring gear D163	1
71217	Diaphragm flange D142	1
71218	Diaphragm flange D163	1
71221	D142 diaphragm base	1
71222	D163 diaphragm base	1
71225	D163 diaphragm	1
71226	D142 diaphragm	1
71303	Key DIN 6885-a (8x7x25)	1
71304	M6 x 10 DIN 913 8.8 screw	1

71306	O-ring 70x2.5 NBR	1
71307	O-ring 125x2.5 NBR	1
71308	O-ring 77x2 NBR	1
71309	Wave spring washer (34 x26x0.4)	3
71310	6304zz (20x52x15) roller bearing	2
71311	6308zz (40x90x23) roller bearing	1
71313	M6 Nord-Lock washer	4
71321	M8 x 100 DIN 912 A2 screw	6

**ASSEMBLIES**

27-051	Additional ventilation 24v D50 / EF low pressure	1
29-035	Control PCB with cover DOSTEC AC	1
29-037	Power PCB with box AC2	1
29-057.1	PCB and base encoder DOSTEC AC	1
29-059.1	Encoder AC3 (Dostec-50)	1
71-029	Regulator Dostec-50 pas1 mm complete	1
71-030	Regulator Dostec-50 pas1.5 mm complete	1
71-032	Shaft guide Dostec-50D	1

**VALVES**

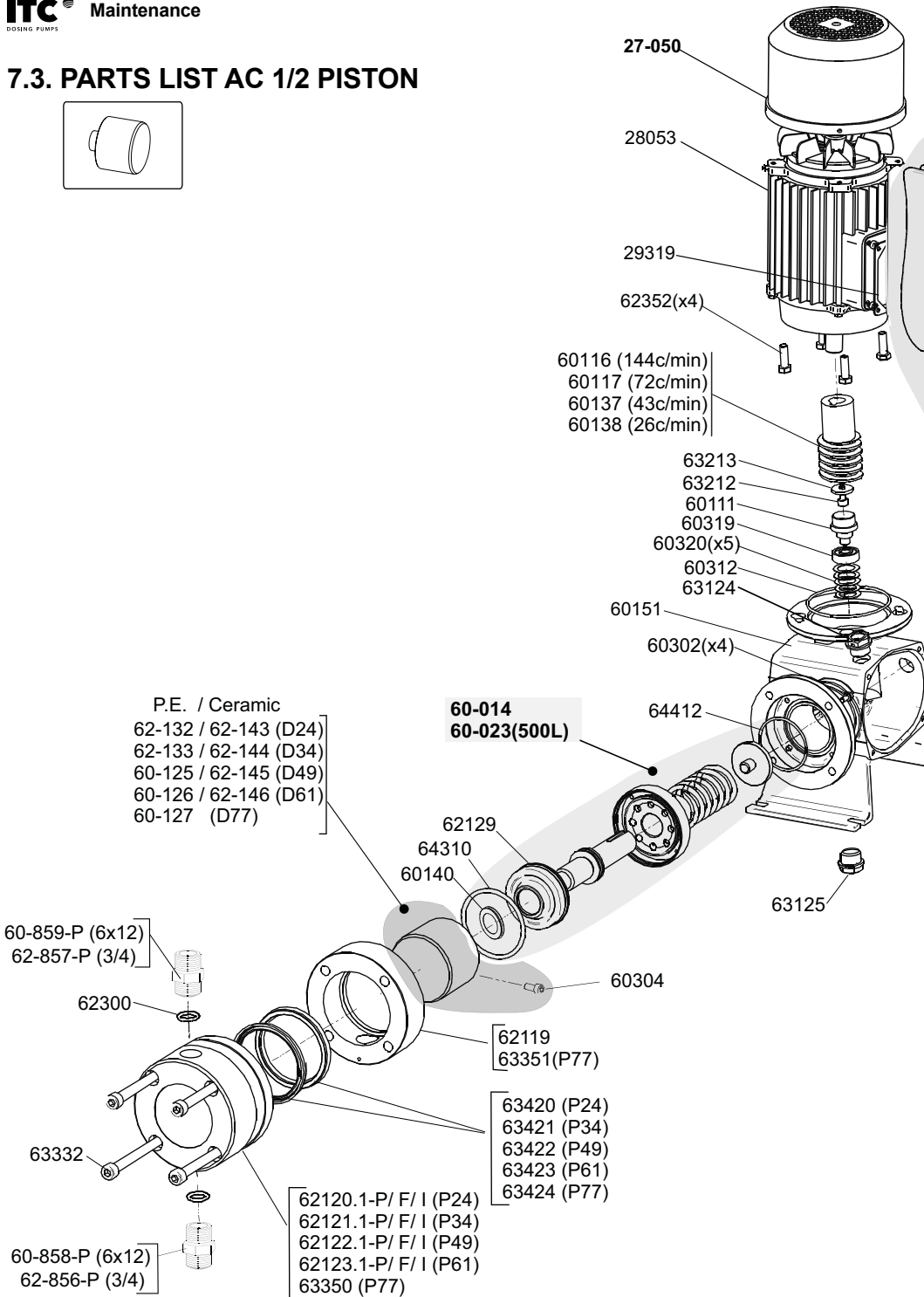
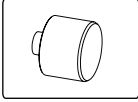
61-010-F	Suction valve 1-¼ PVDF	1
61-011-F	Discharge valve 1-¼ PVDF	1
61-875-P	Suction valve 1-¼ PP Borosilicate	1
61-885-P	Discharge valve 1-¼ PP Borosilicate	1

**MAINTENANCE KIT (valves+diaphragm+bellows)**

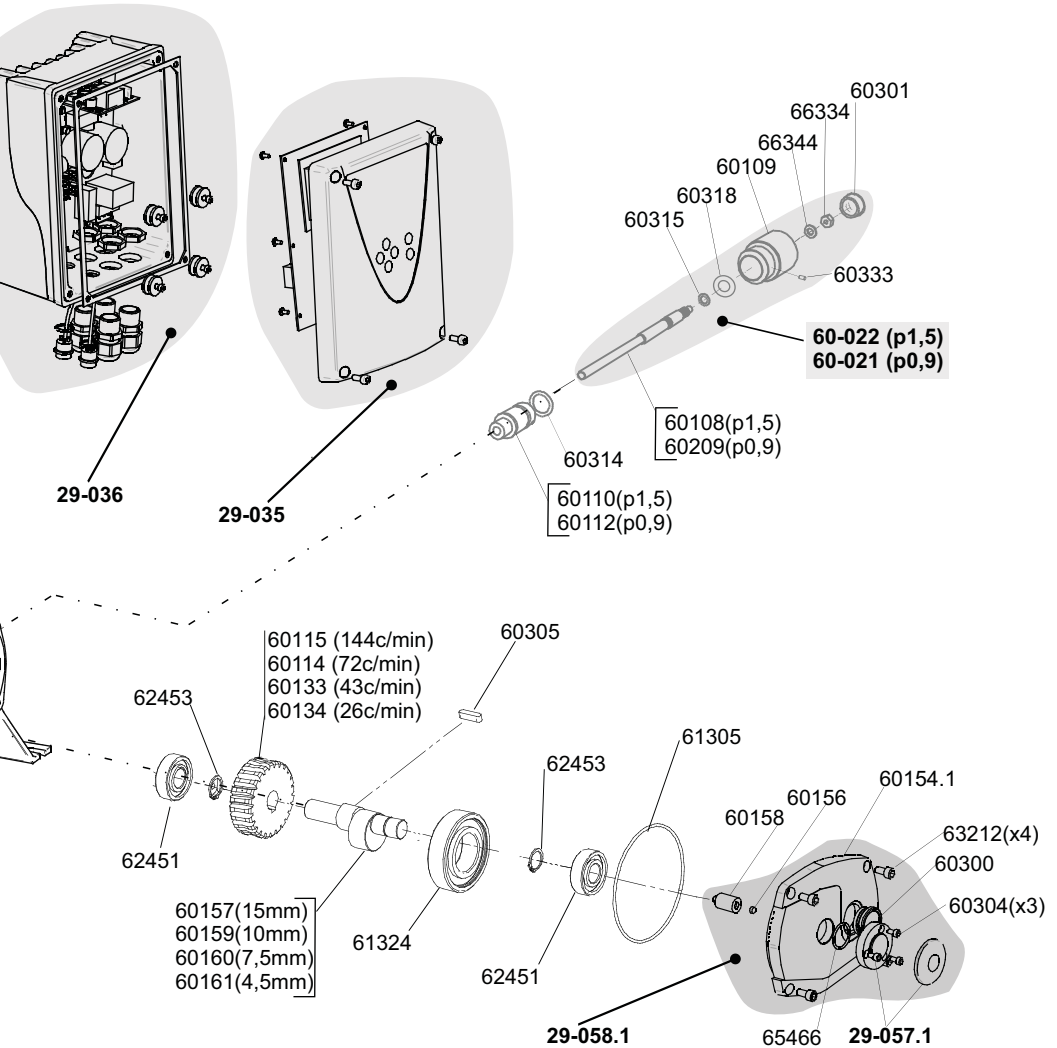
71-075-P	Dostec-50 D142 PP maintenance kit
71-076-P	Dostec-50 D163 PP maintenance kit

Material codes:  
 – P = Polypropylene  
 – F = PVDF  
 – I = AISI 316

### 7.3. PARTS LIST AC 1/2 PISTON







**AC1/2 PISTON PARTS LIST**

<b>CODE</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
28053	Electric motor 430 W 6P 110/190 3ph 71/65 B14	1
29118	Variator adapter to motor 0.5 HP 110 V	1
29319	Motor seal Maraz T71	1
60108	Regulating rod 15 Dostec	1
60109	Dostec 10v regulator	1
60110	Regulator guide p1.5 mm Dostec	1
60111	Bsf stop	1
60112	Step 0.9 mm regulator guide	1
60114	Ring gear 1 injection (60 strokes/min) D40	1
60115	Ring gear 2 injections (120 strokes/min) D40	1
60116	Pinion 2 injections (120 strokes/min) D40-MF	1
60117	Pinion 1 injection (60 strokes/min) D40-MF	1
60-125	Piston 200 l - s M20 lock	1
60-126	Piston 300 l - s M20 lock	1
60-127	Piston 500 l/h M20 lock	1
60133	Ring gear 0.6 injection (36 strokes/min) D40	1
60134	Ring gear 0.3 injection (22 strokes/min) D40	1
60137	Pinion 0.6 injection (36 strokes/min) D40	1
60138	Pinion 0.3 injections (22 strokes/min) MF D40	1
60140	Shaft protector D40	1
60151	Block Dostec 40 AC1-2	1
60154.1	Encoder block lid D40	1
60156	D6 x 2.5 encoder magnet	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 regulating rod Dostec	1
60300	Oil peep hole 26	1
60301	Regulator knob plug 20.6	1
60302	M4 x 8 DIN 933 A2 screw	4
60304	M4 x 8 DIN 912 A4 screw	4
60305	Key DIN 6885-a 5x5x20	1
60312	O-ring 67 x 1.5 NBR	1
64412	44 x2 FPM O-ring	1
60314	O-ring 17 x3.5 NBR	1
60315	O-ring 6.5x2 NBR	1
60318	D8 DIN 125 A2 washer	1
60319	608-zz (8x22x7) roller bearing	1
60320	Wave spring washer (21.5x14.5x0.3)	5
60333	M4 x 8 DIN 913 A-2 screw	1
61305	O-ring 85.5x2.4 NBR	1
61324	6206zz (30x62x16) roller bearing EF	1
62119	Cylinder spacer D40/MF	1
62120.1-P/F/I	Cylinder 100 l/h - s ¾'	1
62121.-P/F/I	Cylinder 100 l/h - s ¾'	1
62122.1-P/F/I	Cylinder 200 l/h - s ¾'	1
62123.1--P/F/I	Cylinder 300 l/h - s ¾'	1
62129	Bellows FPM	1
62-132	Piston 50 l/h d24 -s lock	1

62-133	Piston 100 l/h - s M20 lock	1
62-143	Piston 50 l/h d24 lock ceramic	1
62-144	Piston 100 l/h d34 lock ceramic	1
62-145	Piston 200 l/h d49 lock ceramic	1
62-146	Piston 300 l/h d61 lock ceramic	1
62300	19x3 FPM O-ring	2
62352	M6 x 12 DIN 933 A2 screw	4
62451	6202 zz (15x35x11) roller bearing	2
62453	15 DIN 471 elastic ring	2
63124	Filler plug 3/8"	1
63125	3/8" drain plug	1
63212	M5 x 12 DIN 912 A4-80 screw	1
63213	Washer 18x5x2.5 F5	1
63332	M8 x90 DIN 912 A2 screw	4
63350	Cylinder 500 l/h	1
63351	Electro flange 500 litres	1
63420	Seal P24 25x34x6 FPM 50 l/h	2
63421	Seal P34 35x45x6 FPM 100 l/h	2
63422	Seal P49 50x60x6 FPM 200 l/h	2
63423	Seal P61 60x68x6 FPM 300 l/h	2
63424	Seal P77 78x87x6 FPM 500 l/h	2
64310	O-ring 55.56x3.53 NBR	1
65466	O-ring 20x2 NBR	1
66334	Nut M6 DIN 934 A2	1
66344	D6 DIN 125 A2 washer	1

#### ASSEMBLIES

27-050	Additional ventilation 24 V dc IP56 DOSTEC AC1-2	1
29-035	Control PCB with cover DOSTEC AC	1
29-036	Power PCB with box AC1	1
29-057.1	PCB, encoder base and cover DOSTEC AC	1
29-058.1	Encoder with cover AC1-2 (Dostec-40)	1
60-014	Shaft guide AI Dostec-40P	1
60-021	Regulator Dostec-40 pitch 0.9 mm assembly	1
60-022	Regulator Dostec-40 pitch 1.5 mm assembly	1
60-023	Shaft guide Dostec-40P 500 l/h	1

#### VALVES

60-858-P	Suction valve 6 x 12-3/4" PP Borosilicate	1
60-859-P	Discharge valve 6 x 12-3/4" PP Borosilicate	1
62-856-P	Suction valve 3/4" PP Borosilicate	1
62-857-P	Discharge valve 3/4" PP Borosilicate	1
63-803-I	Suction check valve 3/4" in 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	Dostec-40 P24 PP maintenance kit	1
60-072-P	Dostec-40 P34 PP maintenance kit	1
60-073-P	Dostec-40 P49 PP maintenance kit	1
60-074-P	Dostec-40 P61 PP maintenance kit	1
60-075-P	Dostec-40 P77 PP maintenance kit	1

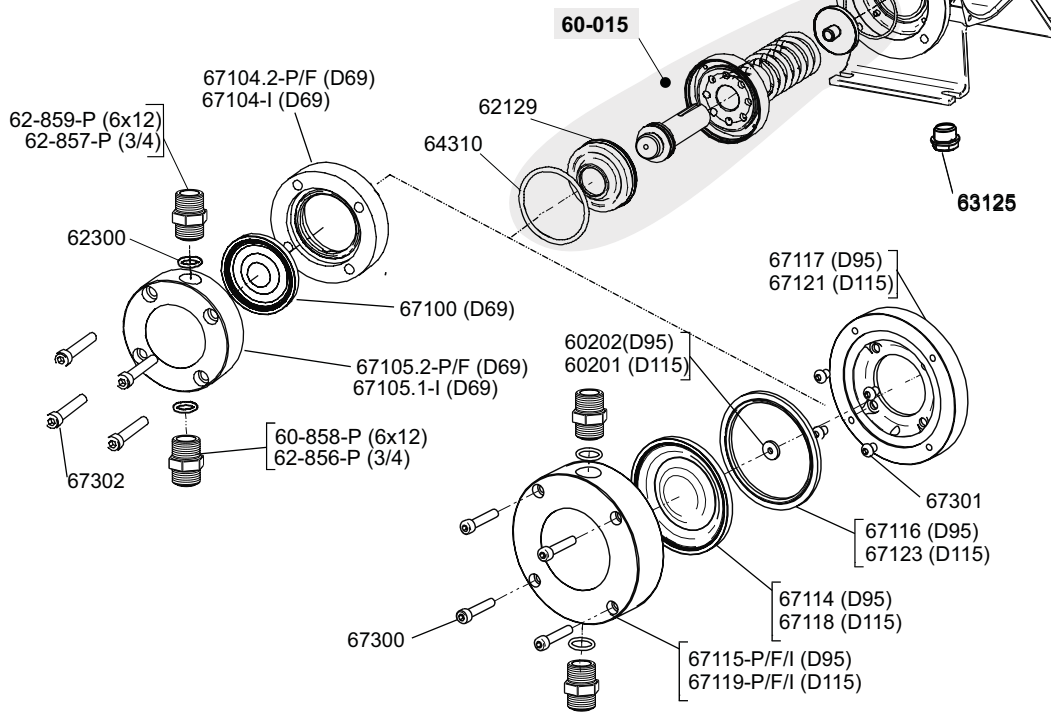
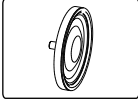
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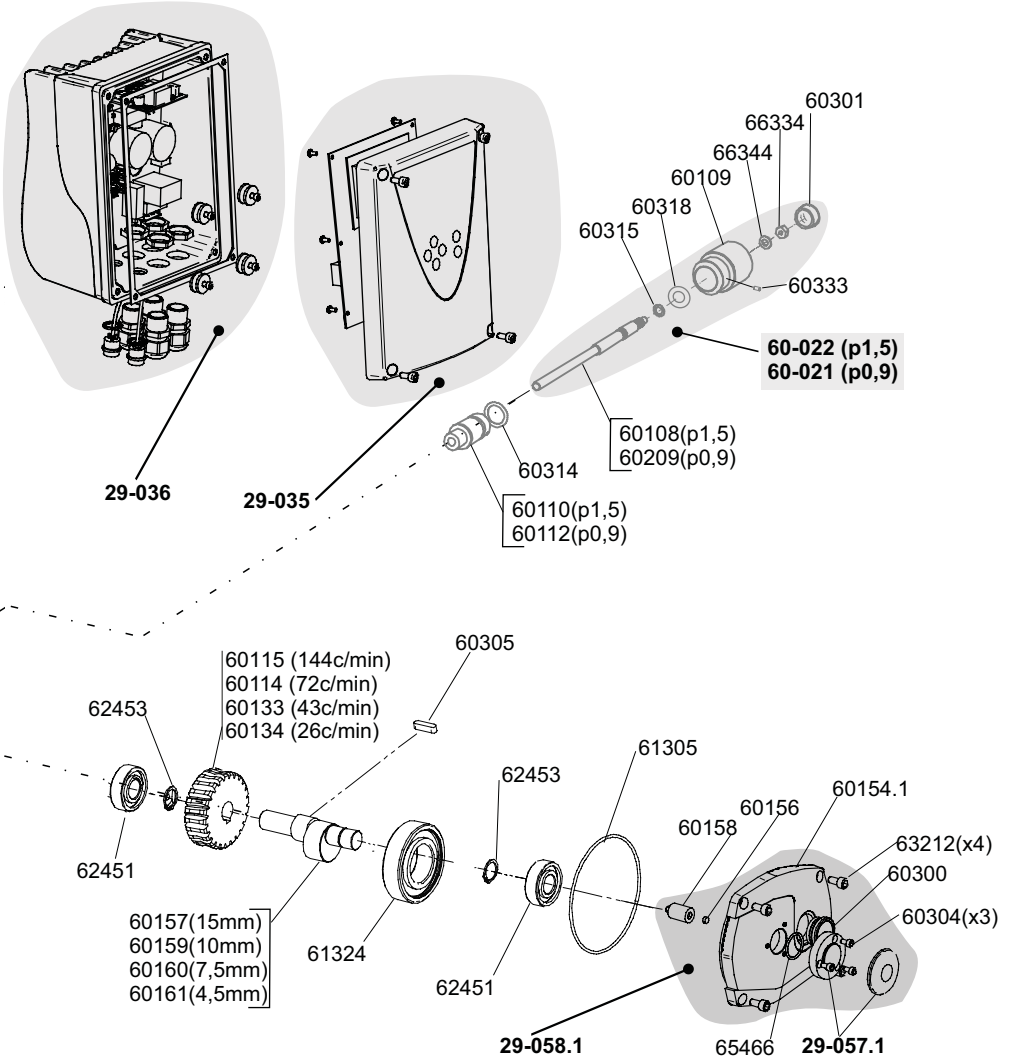
– P = Polypropylene

– F = PVDF

– I = AISI 316

## 7.4. PARTS LIST AC 1/2 DIAPHRAGM





**AC1/2 PISTON PARTS LIST**

<b>CODE</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
28053	Electric motor 430 W 6P 110/190 3ph 71/65 B14	1
29118	Variator adapter to motor 0.5 HP 110 V	1
29129	Advanced Control box	1
29131	Advanced Control lid	1
29132	Case seal DOSTEC AC	1
29202	Lexan Dostec AC	1
29307	M4 x 15 DIN 7991 st. steel screw	1
29312	O-ring 32x2 NBR	4
29315	Philips M3 x 12 DIN 7985 st. steel A2 screw	1
29318	Motor inverter seal 83x83	1
29620	AC control board PCB	1
29621	Power board PCB 110 Vac	1
29622	Power board PCB 230 Vac	1
33429	M4 x 20 DIN 912 A-2 screw	1
38301	Philips M3 x 8 DIN 7985 A2 screw	1
60108	Regulating rod 15 Dostec	1
60109	Dostec D40 regulator	1
60110	Regulator guide p1.5 mm Dostec	1
60111	Pinion bumper Dostec	1
60112	Step 0.9 mm regulator guide	1
60114	Ring gear 1 injection D40-MF	1
60115	Ring gear 2 injections D40-MF	1
60116	Pinion 2 injections D40-MF	1
60117	Pinion 1 injection D40-MF	1
60133	Ring gear 0.6 injection D40	1
60134	Ring gear 0.3 injection D40	1
60137	Pinion 0.6 injection standard D40	1
60138	Pinion 0.3 injections standard D40	1
60151	Block Dostec 40 AC1-2	1
60154	Encoder block lid AC1-2	1
60156	D6 x 2.5 encoder magnet	1
60157	Eccentric shaft 15 encoder AC1-2	1
60158	Base encoder 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 Dostec D115 (black)	1
60202	Washer spacer diaphragm Dostec D95 (red)	1
60209	Diaphragm regulating rod Dostec	1
60300	Miselli 26 oil peep hole	1
60301	Regulator knob plug 20.6	1
60302	M4 x 8 DIN 933 A2 screw	4
60304	M4 x 8 DIN 912 A4 screw	4
60305	Key DIN 6885-a 5x5x20	4
60312	O-ring 68x1.5 NBR	4
64412	44x2 FPM O-ring	1
60314	O-ring 17x3.5 NBR	1
60315	O-ring 6.5x2 NBR	1
60318	D8 DIN 125 A2 washer	1

60619	608-zz (8x22x7) roller bearing	1
60320	Wave spring washer (21.5x14.5x0.3)	1
60333	M4 x 8 DIN 913 A-2 screw	1
61305	O-ring 85.5x2.4 NBR	5
61324	6206zz (30x62x16) roller bearing EF	1
62119	Cylinder spacer MF	1
62129	Bellows FPM MF	1
62300	19x3 FPM O-ring	2
62352	M6 x 12 DIN 933 A2 screw	4
62451	Bearing 6202 zz	2
62453	15 DIN 471 elastic ring	2
63124	Filler plug ref. 483209021	1
63125	Drain plug ref. 483209011	1
63212	M5 x 12 DIN 912 A2 screw	5
63213	Washer 18x5x2.5 F5	1
64310	O-ring 55.5x3.5 NBR	1
66334	Nut M6 DIN 934 A2	1
66344	D6 DIN 125 A2 washer	1
67100	D69 diaphragm	1
67104-I	Diaphragm base D69 AISI 316	1
67104.2-P/F	D69 diaphragm base	1
67105.1-P/F	Diaphragm cylinder D69 ¾" AISI 316	1
67105.2-P/F	Diaphragm cylinder D69 ¾" AISI 316	1
67114	D95 diaphragm	1
67115-P/F	Diaphragm cylinder D95	1
67116	D95 diaphragm base	1
67117	Diaphragm flange D95	1
67117-I	Diaphragm flange D95 st. steel	1
67118	D115 diaphragm	1
67119-P/F	Diaphragm cylinder D115	1
67121	Diaphragm flange D115	1
67-121-I	Diaphragm flange D115 st. steel	1
67123	D115 diaphragm base	1
67300	M8 x 40 DIN 912 A2 screw	4
67301	M8 x 10 ISO 7380 A2 screw	4
67302	M8 x 60 DIN 912 A2 screw	4
70304	M5 x 20 DIN 912 I screw	4

#### ASSEMBLIES

27-050	Additional ventilation 24 V dc IP56 DOSTEC AC1-2	1
29-057	PCB and base encoder DOSETC AC	1
29-058	Encoder AC1-2 (Dostec-40)	1
60-015	Shaft guide Dostec-40D	1
60-021	Regulator Dostec-40 pitch 0.9 mm assembly	1
60-022	Regulator Dostec-40 pitch 1.5 mm assembly	1

#### VALVES

60-808.1-F/I	Hose suction valve 6x12-¾ Borosilicate	
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60-809.1-F/I	Hose discharge valve 6 x 12- $\frac{3}{4}$ " Borosilicate
60-858-P	Suction valve 6 x 12- $\frac{3}{4}$ " PP Borosilicate
60-859-P	Discharge valve 6 x 12- $\frac{3}{4}$ " PP Borosilicate
62-806-F	Suction valve $\frac{3}{4}$ " PVDF
62-807-F	Discharge valve $\frac{3}{4}$ " PVDF
62-856-P	Suction valve $\frac{3}{4}$ " PP Borosilicate
62-857-P	Discharge valve $\frac{3}{4}$ " PP Borosilicate
62-803-I	Suction check valve $\frac{3}{4}$ " in s.s.
63-804-I	Discharge check valve $\frac{3}{4}$ " s.s.
60-814.1-P/F/I	Priming valve $\frac{3}{4}$ " max. 60 l/h
60-840-P/F/I	Priming valve $\frac{3}{4}$ " max. 500 l/h

**MAINTENANCE KIT**

60-080-P	Dostec-40 D69 6 x 12 PP maintenance kit
60-081-P	Dostec-40 D69 $\frac{3}{4}$ " PP maintenance kit
60-082-P	Dostec-40 D95 PP maintenance kit
60-083-P	Dostec-40 D115 PP maintenance kit

Material code:

- P = Polypropylene
- F = PVDF
- I = AISI 316



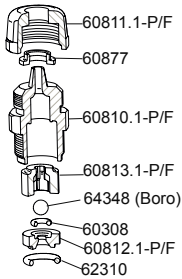
**VALVES 6x12 (60 l/h max.)**

**PP/PVDF**

**Discharge**

**60-859-P**

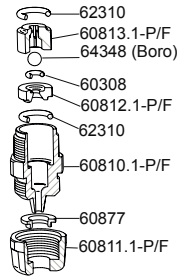
**60-809.1-F**



**Suction**

**60-858-P**

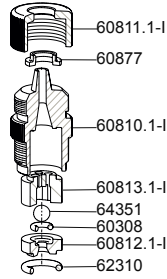
**60-808.1-F**



**AISI 316**

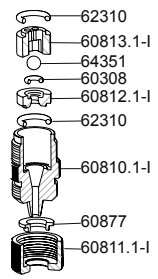
**Discharge**

**60-809.1-I**



**Suction**

**60-808.1-I**



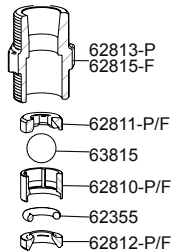
**VALVES 3/4" (500 l/h max.)**

**PP/PVDF**

**Discharge**

**62-857-P**

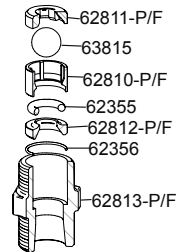
**62-861-F**



**Suction**

**62-856-P**

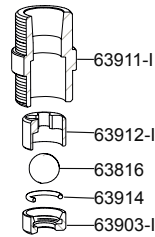
**62-860-F**



**AISI 316**

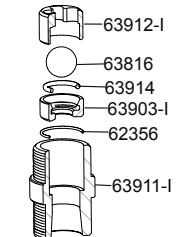
**Discharge**

**63-804-I**



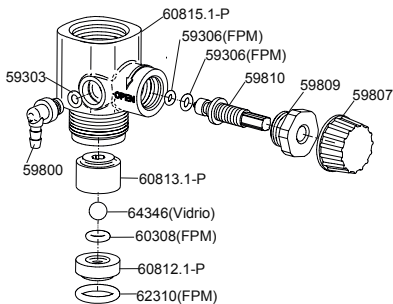
**Suction**

**63-803-I**

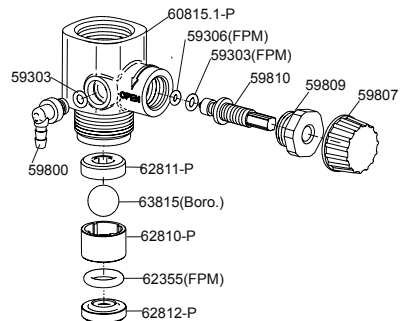


**PRIMING VALVES**

**60-840-P (60 l/h max.)**



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





Before any maintenance operation check:

The pump is stopped and disconnected from the power supply.

There is no pressure inside the head or in the discharge pipe. It is recommended to empty the head before opening it.

Maintenance personnel should use the appropriate means of protection for handling the liquid being dosed.

## 7.5. PERIODIC 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 condition of the suction filter once a month.

Check the condition of the valves every 3 months or 1000 hours

We recommend periodically circulating clean water through the dosing pump (coinciding for example with the emptying of the tank), in order to remove any precipitated remains from inside the cylinder or in the suction and discharge pipes.

**In the event of using highly corrosive liquids, it is recommended to double the frequency of the checks.**

## 7.6. TROUBLESHOOTING: POSSIBLE CAUSE AND SOLUTION

PROBLEM	CAUSE	SOLUTION
<b>Display off</b>	– No voltage	– Check the input voltage with a voltmeter
	– The thermomagnetic circuit breaker has tripped	– Check for short circuit
	– Input voltage too high	– Check the input voltage with a voltmeter
 <b>AL-1</b>	– Internal short circuit	– Contact ITC technical service
	– Motor phase failure	– Check the wiring between the motor and the electronic card.
 <b>AL-2</b>	– High temperature. Additional ventilation does not work	– Check the wiring of the additional ventilation, and test it by connecting it directly to a power source
 <b>AL-3</b>	– The pump is working with overpressure	– Check that the pressure in line is lower than the maximum pressure of the unit.
	– Discharge pipe too long	– Shorten the discharge pipe or increase the pipe diameter
<b>Motor runs but pump does not inject or dosing is lower than nominal</b>	– Pump not primed	– Prime the pump by injecting at zero pressure.
	– Dirty or damaged suction or discharge valves	– Clean or change valves
	– Dirty suction filter	– Clean filter
	– Air enters the suction pipe	– Check tightness of connection points
	– Cavitation in suction	– Increase pipe diameter. – Reduce the suction pipe length. – Reduce speed by using a variator. – Use a less viscous liquid.
<b>Pump drips liquid from bottom orifice of cylinder</b>	– Damaged seals	– Change seals
	– Damaged piston	– Change piston
	– Damaged gaskets	– Change gaskets
<b>Pump drips oil from bottom orifice of cylinder</b>	– Damaged bellows	– Change bellows

**PROBLEM**

**CAUSE**

**SOLUTION**

**Voltage out of range**

- Supply voltage outside the allowed range

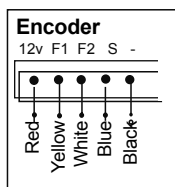
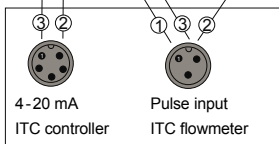
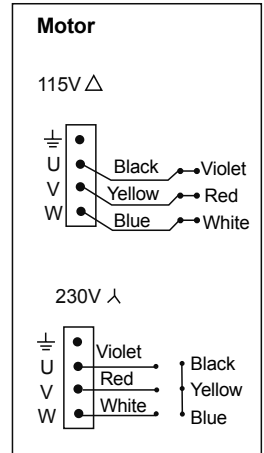
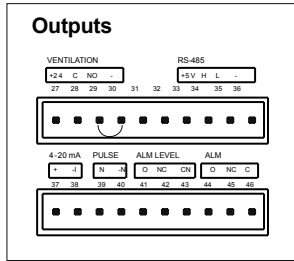
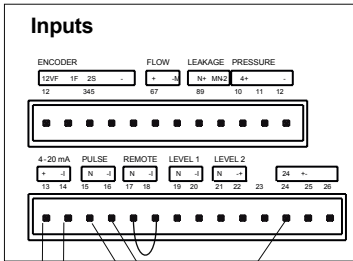
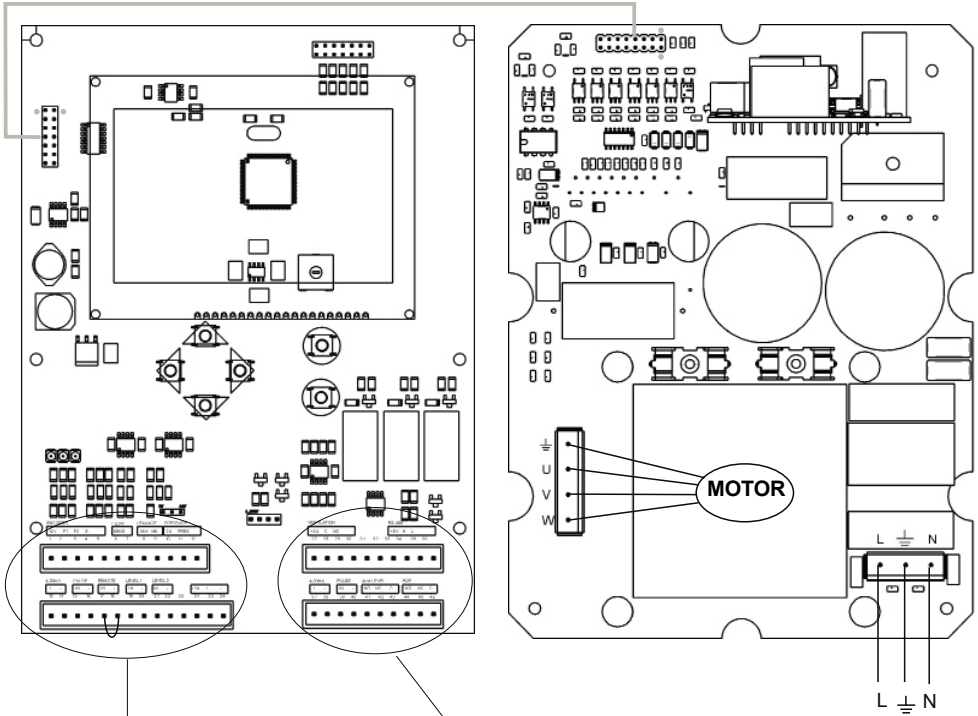
- Correct the input voltage so that it is within the allowed range



**AL-5**

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## 7.7. WIRING






# CE DECLARATION OF CONFORMITY



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

Declares that all models of DOSTEC AC products identified with serial number and year of manufacture comply with Machinery Directive 2006/42/EC, Low Voltage Directive D2014/35/EU and Electromagnetic Compatibility Directive D2014/30/EU, provided that the installation, use and maintenance are carried out in accordance with current regulations and following the instructions in the instruction manual.

Antón Planas  
 Manager

 <b>WARRANTY</b>	<p>I.T.C. S.L. guarantees the product specified in this document, for a period of 1 year from the date of purchase, against all manufacturing or material defects, provided that installation, use and maintenance of the equipment are correct.</p>	
	<p>The equipment must be sent, free of charge, to our workshop or I.T.C. S.L.-accredited technical service and will be returned cash on delivery.</p>	
	<p>The equipment must be accompanied by the warranty document, with the purchase date and stamp of the establishment where purchased, or a photocopy of the purchase invoice.</p>	
	<p><b>MODEL</b></p> <input style="width: 90%; border: none; border-bottom: 1px solid black;" type="text"/>	<p><b>Date of purchase and stamp of the establishment where purchased</b></p>
<p><b>SERIAL No.</b></p> <input style="width: 90%; border: none; border-bottom: 1px solid black;" type="text"/>	<p><b>DATE:</b> <input style="width: 80%; border: none; border-bottom: 1px solid black;" type="text"/></p>	

Original Manual

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