



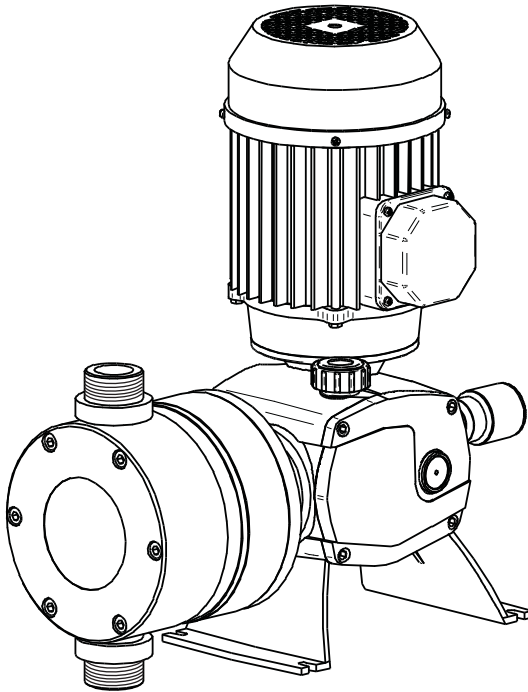
Management  
System  
ISO 9001:2015



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ID: 9105017955

# ITC

DOSING PUMPS



# DOSTEC-50

ENGLISH



## **SAFETY RULES**

To avoid personal or environmental 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.

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## 1.- GENERAL DESCRIPTION

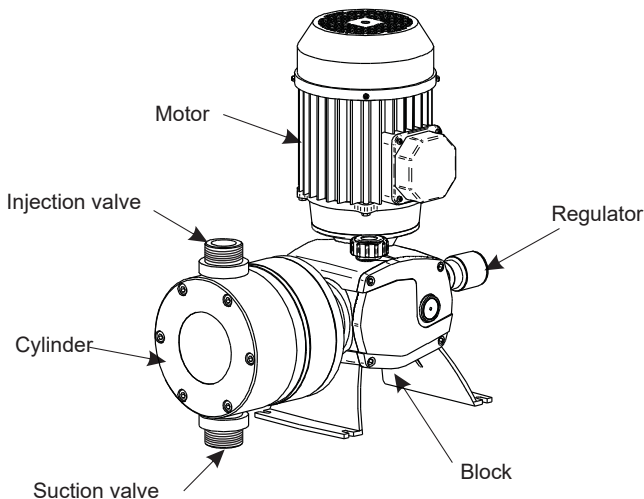
DOSTEC-50 dosing pumps are heavy duty, high precision, piston pumps for dosing liquid products.

This series allows many injection possibilities depending on the head being chosen. The available heads are from 330 to 1200 l/h for the piston series, and from 207 to 1080 l/h for the diaphragm series.

DOSTEC-50 dosing pumps are manufactured with materials that can resist most chemicals products, even acids. They are designed for all sorts of processes where it is necessary to dose a product into a hydraulic network, such as: food, textile, chemical industry, water treatments, etc. (See materials in Technical Features). In case there is any doubt about compatibility of materials with the products to be used please contact ITC S.L. Technical Service.

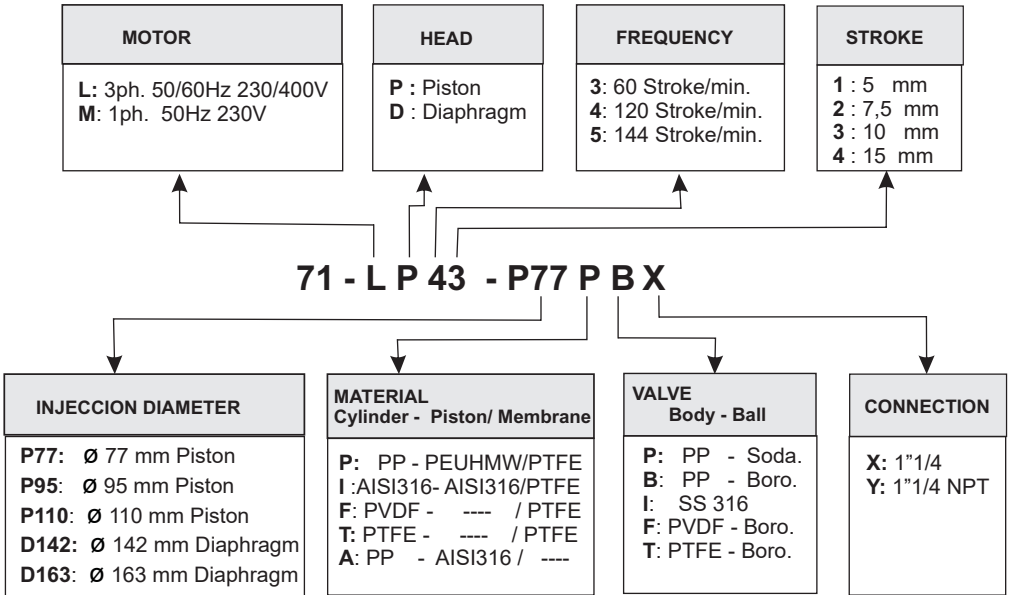
Dosing flow of each module is adjustable independently with no need to stop the pump from 0% to 100% of its capacity.

**It is made up as follows:**





## Code formulation



## 2.- UNPACKING 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.

Inside packing we include:

- DOSTEC-50 dosing pump
- Handbook
- Oil (700cm<sup>3</sup>)



### 3.- TECHNICAL FEATURES

	CODE	FLOW 50Hz		FLOW 60Hz		PRESSURE		**Suction lift	
		l/h	GPH	l/h	GPH	bar	PSI	m	ft
Piston	71-LP33-P77	167	44	200	53	12	174	9	30
	71-LP34-P77	250	66	300	79	12	174	9	30
	71-LP33-P110	330	87	400	106	5,5	80	7	23
	71-LP43-P77	330	87	400	106	12	174	9	30
	71-LP34-P95	375	100	450	119	7,5	109	9	30
	*71-LP53-P77	400	106	-	-	12	174	9	30
	71-LP34-P110	500	132	600	159	5,5	80	7	23
	71-LP44-P77	500	132	600	159	11	160	9	30
	*71-LP54-P77	600	159	-	-	9	131	9	30
	71-LP44-P95	750	198	900	238	7,5	109	8	26
	*71-LP54-P95	900	238	-	-	6	87	7	23
	71-LP44-P110	1000	264	1200	317	5,5	80	5	16
	*71-LP54-P110	1200	317	-	-	4,5	65	3	10
Diaphragm	71-LD31-D142	104-134	27-35	124-160	33-42	10	145	9	30
	71-LD32-D142	156-201	41-53	186-241	49-64	10	145	9	30
	71-LD33-D142	207-267	55-71	249-321	66-85	10	145	9	30
	*71-LD51-D142	249-321	66-85	-	-	10	145	9	30
	71-LD33-D163	260-342	69-90	312-411	82-109	7	102	8	26
	71-LD42-D142	311-401	82-106	373-481	99-127	10	145	9	30
	71-LD43-D142	415-535	110-141	498-642	132-170	10	145	8	26
	71-LD34-D163	435-522	115-138	522-627	138-166	5	73	8	26
	*71-LD53-D142	510-642	135-170	-	-	9	131	8	26
	71-LD43-D163	520-685	137-181	624-822	165-217	7	102	7	23
	*71-LD53-D163	648-822	171-217	-	-	6	87	5	16
	71-LD44-D163	870-1045	230-276	1044-1254	276-331	5	73	4	13
	*71-LD54-D163	1080-1254	285-331	-	-	4	58	2	6

\*Can not work at 60Hz

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



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

**POWER:** 0.74 KW (1 Hp)

**PROTECTION :** IP-55

**MATERIALS:** PISTON: PEUHMW / PVDF / SS 316  
 DIAPHRAGM: Elastomer base reinforced with fiber and P.T.F.E clothing  
 RETENTION: FPM  
 CYLINDER: P.P. / PVDF / SS 316  
 VALVE(body): P.P/ PVDF/ SS 316  
 VALVE(ball): glass / glass borosilicate / SS 316

**AMBIENT TEMPERATURE:** 0 ... 45 °C

**MEDIA TEMPERATURE:** PP: 0 ... 50 °C

PVDF: -10 ... 50 °C

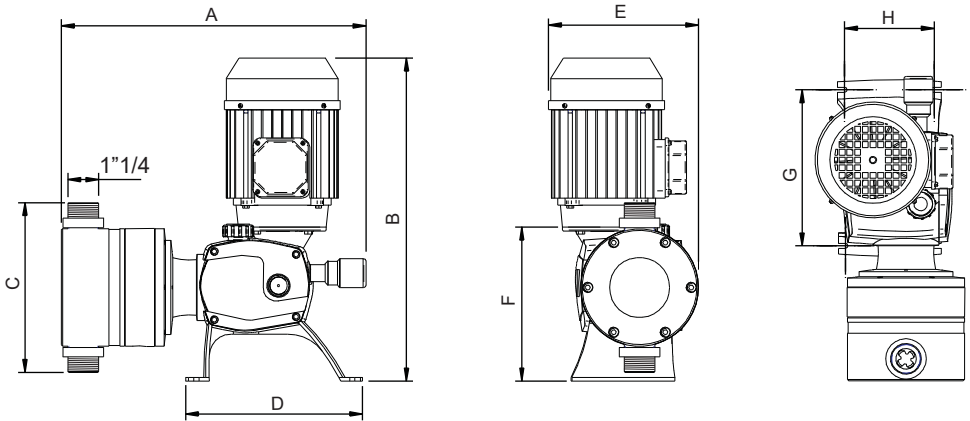
SS: -10 ... 60 °C


**RELATIVE HUMIDITY MAX.:** 95% (without Condensation)


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

**WEIGH:** 21 Kg (46 lb)

## DIMENSIONS



Piston 	A	B	C	D	E	F	G	H	
	415	460	230	241	204	210	212	122	mm
	16.3	18	9	9.5	8	8.2	8.3	4.8	in

Diaphragm 	A	B	C	D	E	F	G	H	
	D163	392	440	270	241	224	210	212	122
	15.4	17.3	10.6	9.5	8.8	8.2	8.3	4.8	in
D142	392	440	250	241	214	210	212	122	mm
	15.4	17.3	9.8	9.5	8.4	8.2	8.3	4.8	in

# DIAPHRAGM PUMP



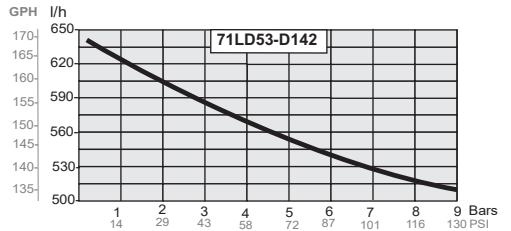
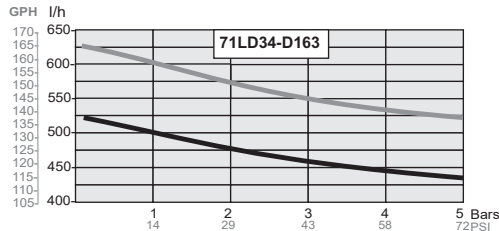
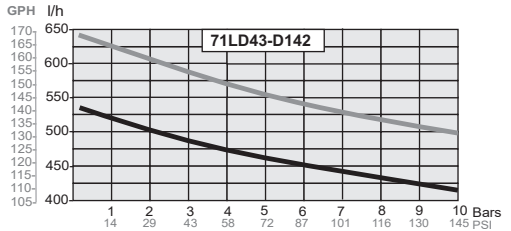
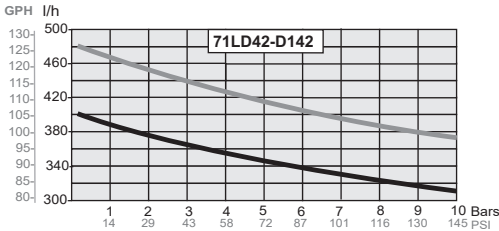
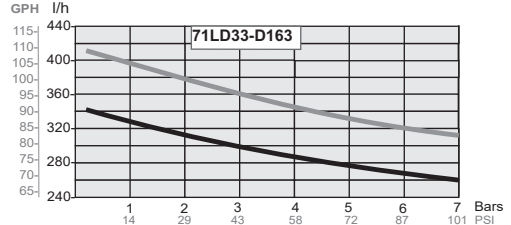
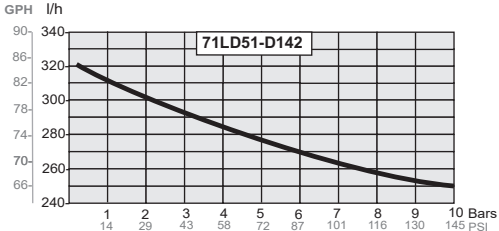
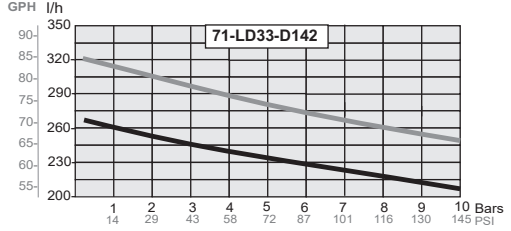
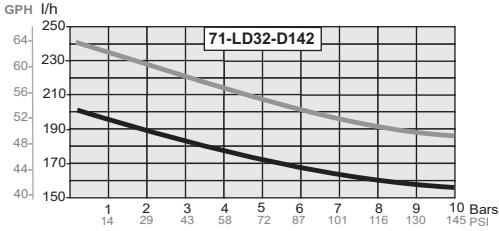
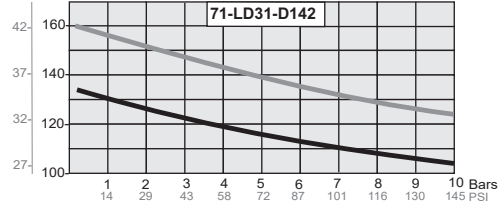
## FLOW - PRESSURE GRAPHICS

71-.....-..... Code

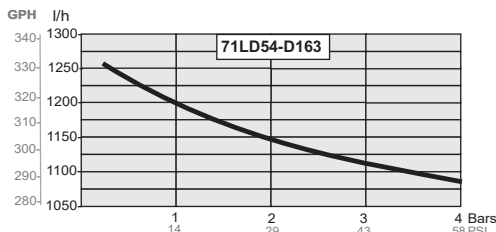
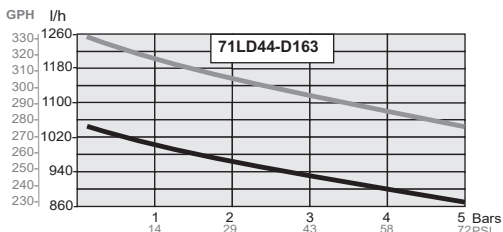
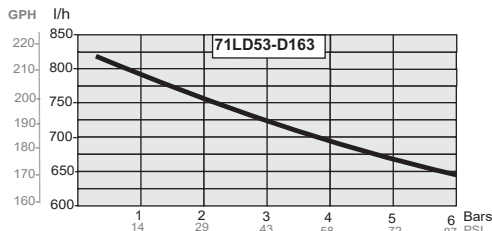
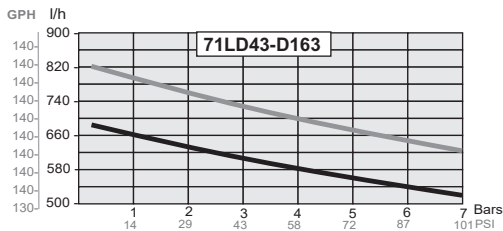
— 60Hz

— 50Hz

GPH l/h





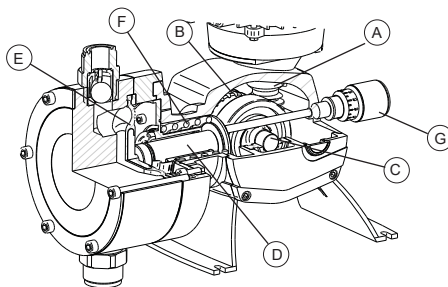


## 4.- OPERATION

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 threaded to the diaphragm or the piston **(E)**. The return movement is made by the spring **(F)**.

While the pump is running the stroke length can be regulated by the flow regulator knob **(G)**. It increase or reduce the discharge or suction's strokes, either the piston or the diaphragm, changing the injection flow. The dosing flow can be adjusted between 0% and 100%.

The flow can be adjustable through an inverter, which will vary the engine speed of the pump and will allow regulate the dosing flow between 10% and 100%.





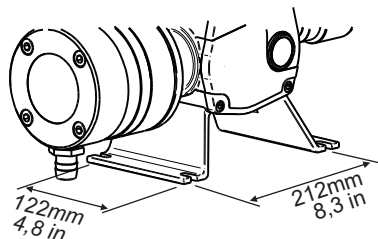
## 5.- INSTALLATION

### 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 / desinstall the pump.

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



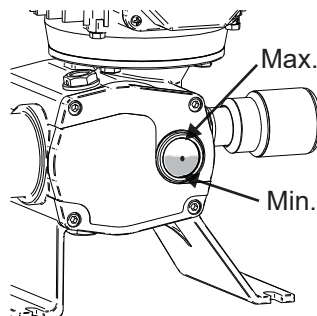
### BLOCK

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



# 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.

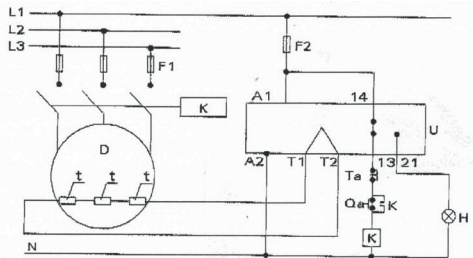
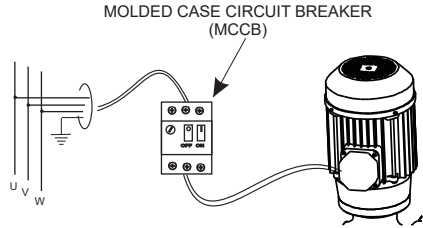
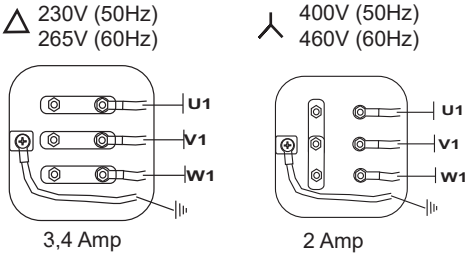
The equipment must be protected to avoid untimely sudden starts.

## THREE-PHASE CONNECTION (50/60 Hz)

To work at 230V(50Hz)/265V(60Hz) plug the motor in triangle. Install a protection.

To work at 400V(50Hz)/460V(60Hz) use a star connection. Install a protection.

Electrical cable AWG14-10.

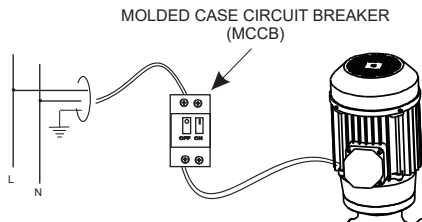
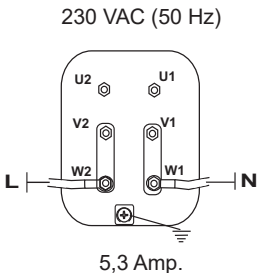


## Wiring with Thermal Protection

- K, Electromagnetic switch
- D, Motor
- U, Superheat protection, relay GRB
- Ta, Switch OFF button
- Qa, Switch ON button
- H, Trouble lamp

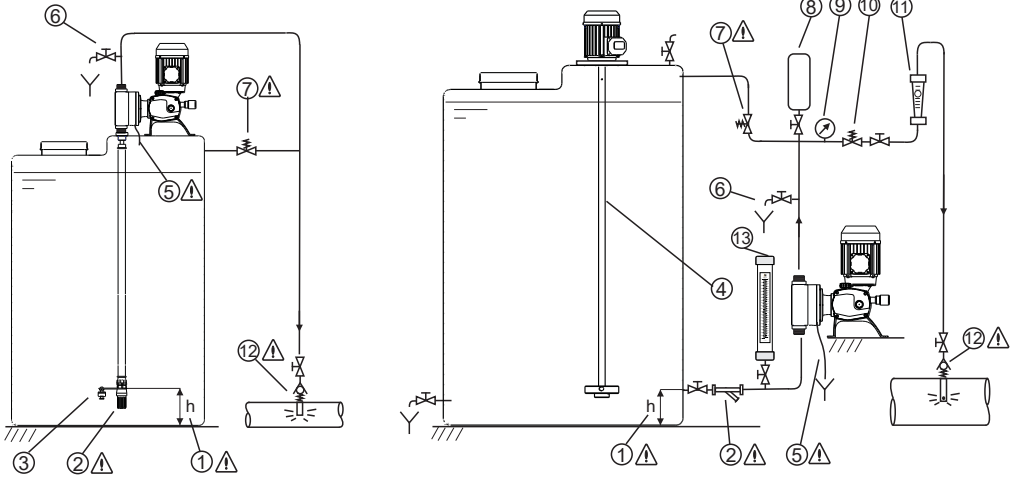
## SINGLE PHASE CONNECTION

To work at 230 V single-phase at 50 Hz we will connect directly the motor wire to the adequate protection. To work at 60 Hz we will connect the connection box plates as shown in the drawing.





## Installation examples



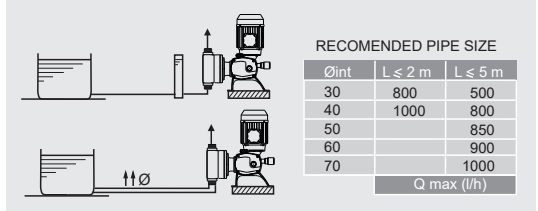
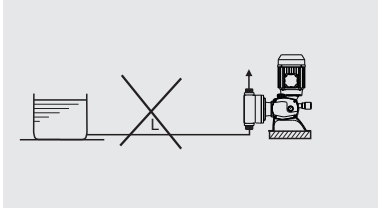
- ⚠ ① Avoid suctioning the undiluted particles from the bottom of the tank.
- ⚠ ② Filter. It is important to install a filter (150 micron) in the suction pipe.
- ③ Level sensor
- ④ Agitator
- ⚠ ⑤ Make sure to collect any liquid leakage from the cylinder's vent/drain hole in a proper container.
- ⑥ Prime 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
- ⑬ Calibration cylinder



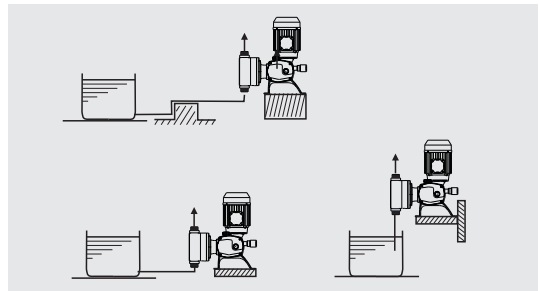
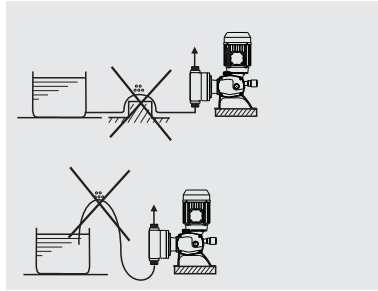
# Recommendations for correct installation

## SUCTION PIPE

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

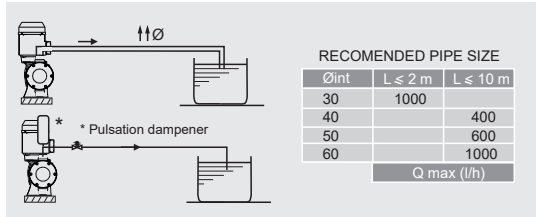
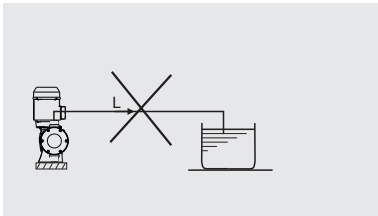


⚠ Air in suction pipe

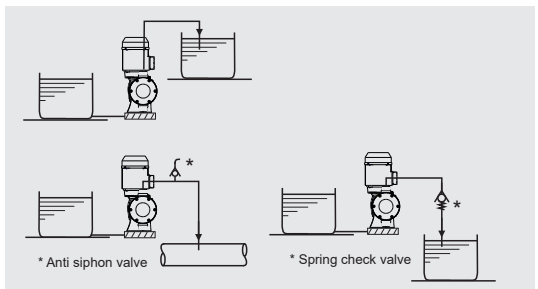
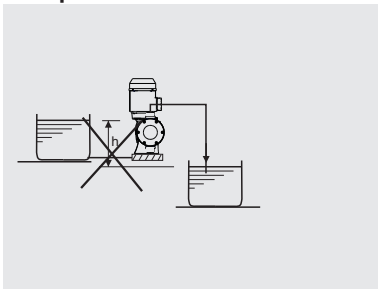


## DISCHARGE PIPE

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



⚠ Siphon





## 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.



**ROTARY DIRECTION:** Start up the pump to check that the rotary direction coincides with the one shown by the arrow. To change rotary direction invert two phases in the motor terminals box.



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



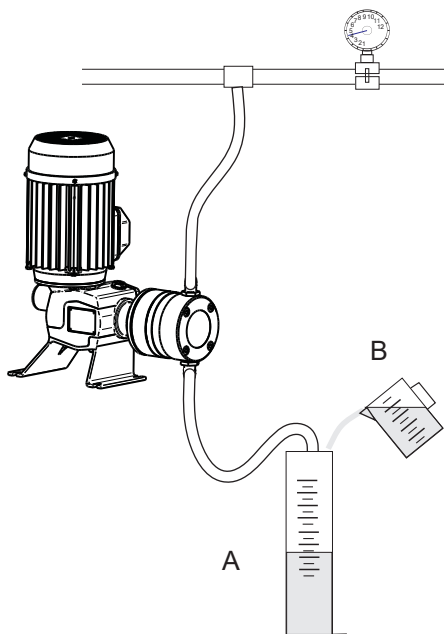
## DOSING FLOW

Through the micrometric regulator, we will adjust the dosing flow from 0 to 100% depending on the wished value. It is not advisable a regulation under 10%.

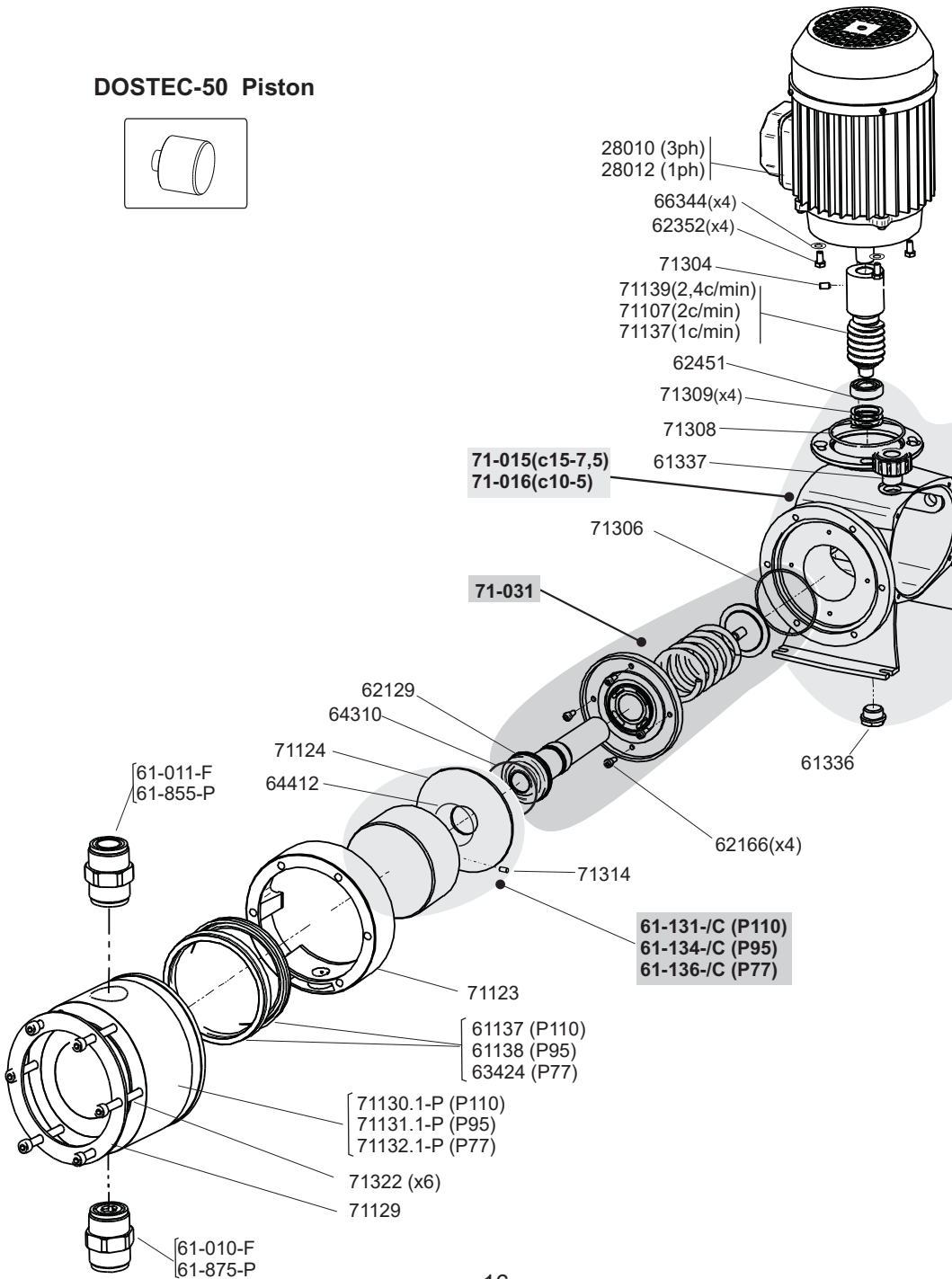
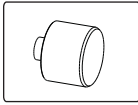
In order to check the dosing flow:

- 1.- Prime the pump immersing the suction pipe in a graduated receptacle (A).
- 2.- Mark in the receptacle the liquid level.
- 3.- Start up the pump and pour a known volume (V) of measured liquid in a second receptacle (B).
- 4.- Measure the time (t) that goes between the start up of the pump and the precise instant in which the liquid reaches the level of the mark receptacle A.
- 5.- The dosed flows corresponds to:

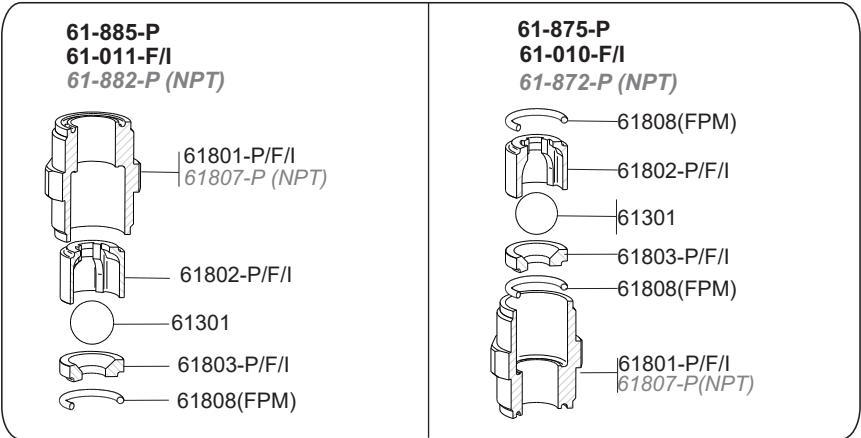
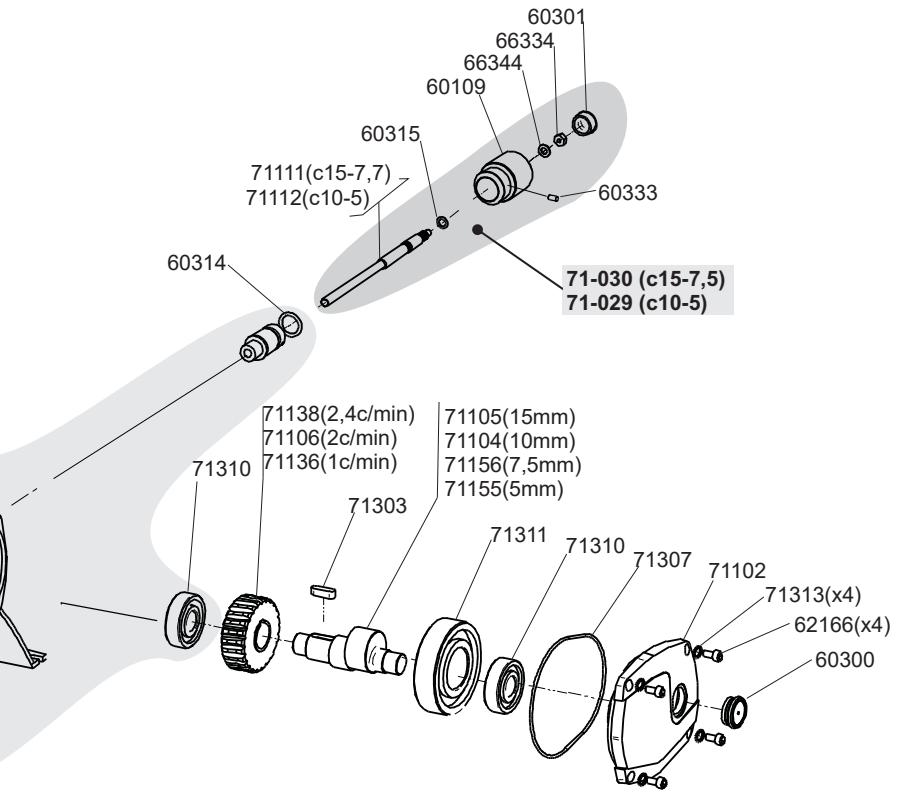
$$Q(l/h) = V \text{ (liters)} / t \text{ (seconds)} \times 3600$$



# DOSTEC-50 Piston









## LIST OF PARTS DOSTEC-50 (Piston)

CODE	DESCRIPTION	UNITS
28010	Electric motor 750w (1cv) 3ph T80 B14 230/400	1
28012	Electric motor 750w (1cv) 1ph 50hz T80 B14 high torque	1
60109	Regulator knob Dostec	1
60300	Oil peep hole	1
60301	Regulator knob plug	1
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
64412	O-ring 44x2 FPM	1
66334	Nut M6 Din 934 A2	1
66344	Washer D6 Din 125 A2	5
71102	Block lid D50	1
71104	Eccentric shaft 10mm	1
71105	Eccentric shaft 15mm	1
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
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
71155	Eccentric shaft 5 D50	1
71156	Eccentric shaft 7,5 D50	1
71129	Ring plate for piston cylinder D160	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

71-015	Block D50 p1.5mm assembly	1
71-016	Block D50 p1mm assembly	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

### MAINTENACE 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

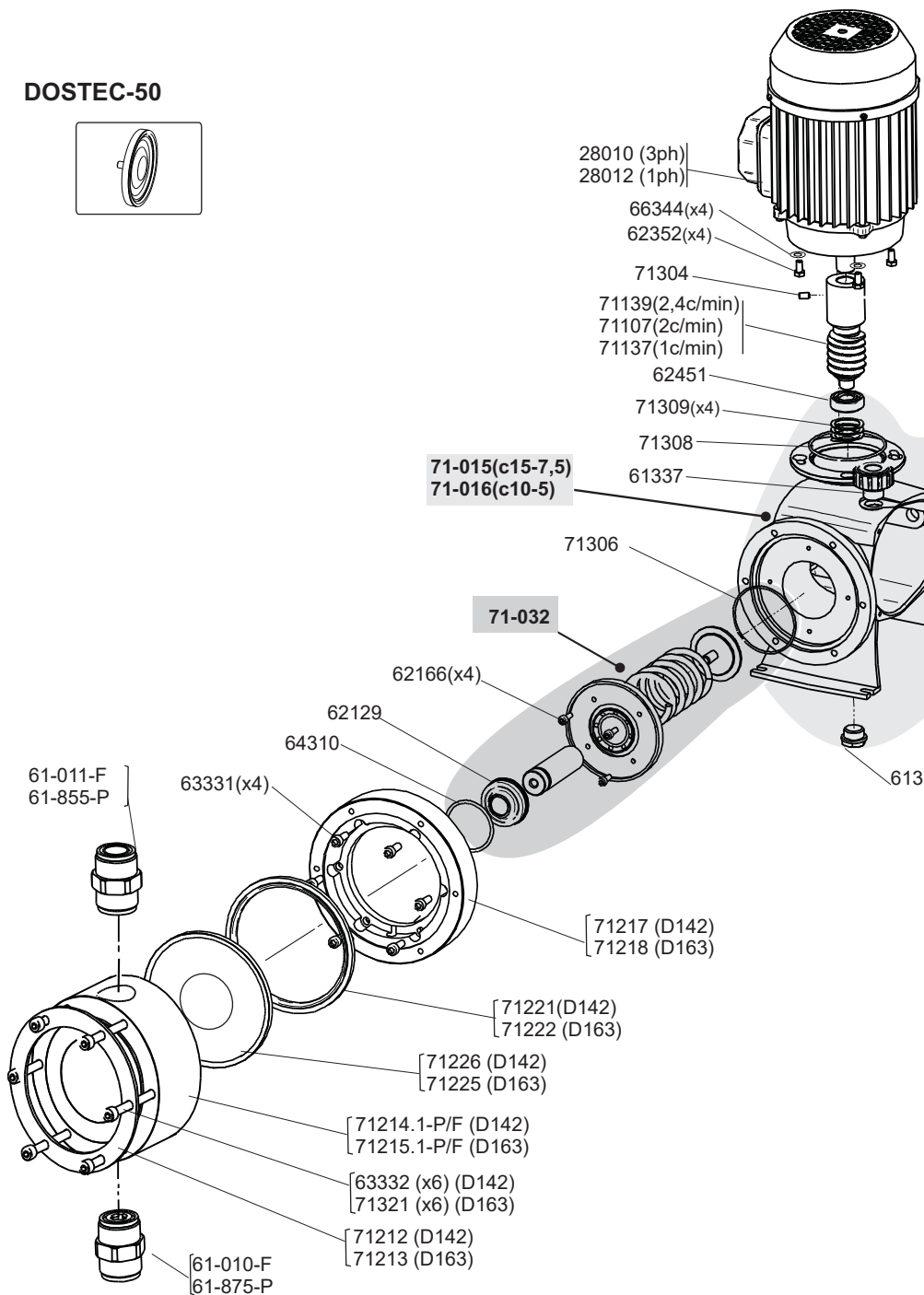
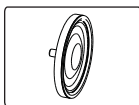
Materials code: -P= Polypropylene

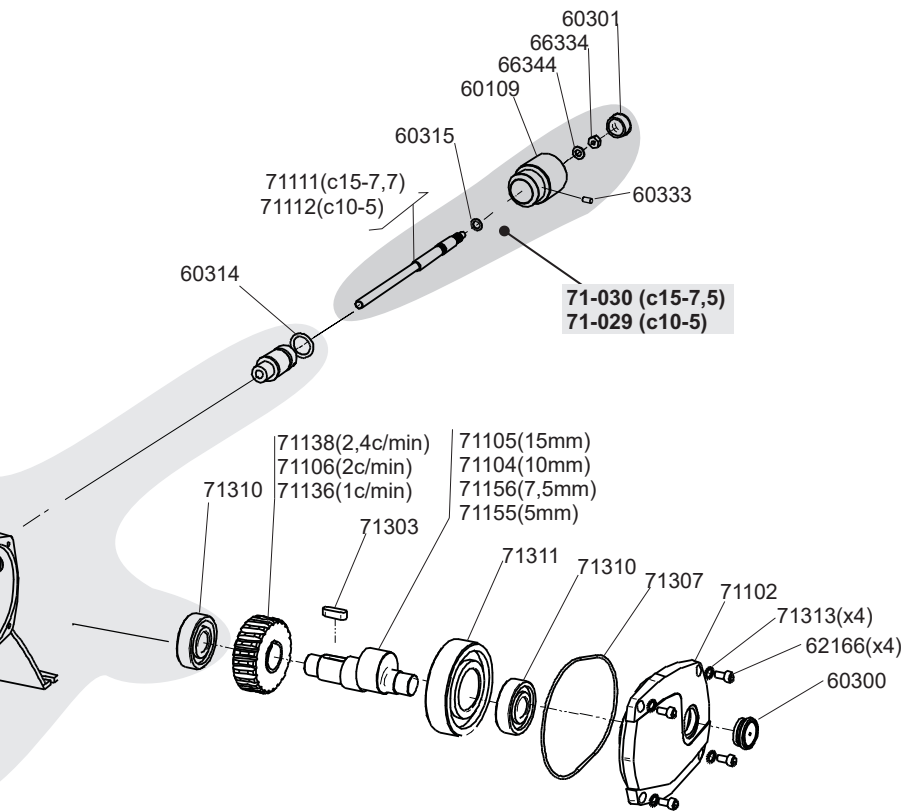
-F= PVDF

-I= SS 316

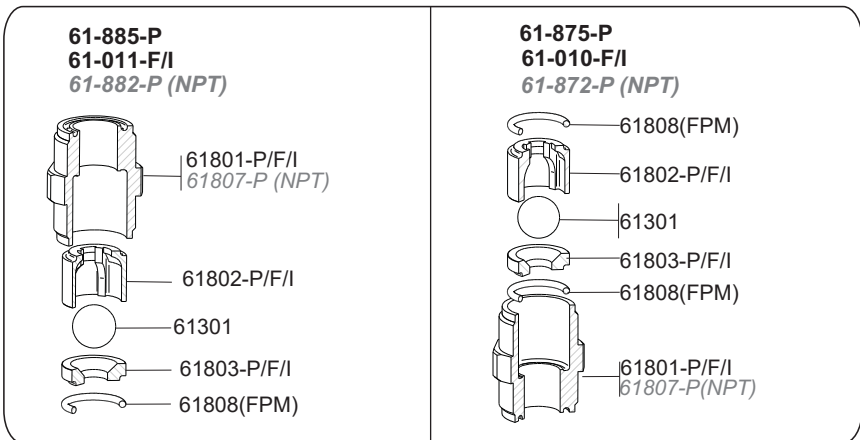
-C= ceramic

# DOSTEC-50





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## LIST OF PARTS DOSTEC-50 (Diaphragm)

CODE	DESCRIPTION	UNITS
28010	Electric motor 750w (1cv) 3ph T80 B14 230/400	1
28012	Electric motor 750w (1cv) 1ph 50hz T80 B14 high torque	1
60109	Regulator knob Dostec	1
60300	Oil peep hole	1
60301	Regulator knob plug	1
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
66334	Nut M6 Din 934 A2	1
66344	Washer D6 Din 125 A2	5
71102	Block lid D50	1
71104	Eccentric shaft 10mm	1
71105	Eccentric shaft 15mm	1
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
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
71155	Eccentric shaft 5 D50	1
71156	Eccentric shaft 7,5 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

71-015	Block D50 p1.5mm assembly	1
71-016	Block D50 p1mm assembly	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



## MAINTENANCE



*Before any maintenance operation we will check:*

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

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

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

### *PERIÓDICAL MAINTENANCE:*

Change 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 / impulsion 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>
MOTOR DOES NOT RUN	THERE IS NO VOLTAGE  MOTOR PROTECTION HAS BLOWN UP	- Check with a voltmeter incoming voltage - Check with ammeter that current is not superior than nominal one
MOTOR RUNS HOT	A PHASE IS FAILING (three-phase);  WRONG INCOMING VOLTAGE  SUPERIOR CONSUMPTION THAN NOMINAL ONE  LOW WORK FREQUENCY (only with inverter)	- Check with voltmeter tension in motor terminals - Check that incoming tension coincides with motor one (-10% / +10%) - Check that injection pressure is not superior to the one specified in the module - Check with a voltmeter incoming tension - Increase working frequency with inverter
MOTOR RUNS BUT PUMP DOES NOT INJECT OR INJECTION IS INFERIOR THAN NOMINAL ONE	PUMP HAS NOT BEEN PRIMED  SUCTION / IMPULSION 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 pipe diameter - Reduce suction pipe length - Reduce speed through an inverter - Use a less viscous liquid
PUMP TRICKLES LIQUID THROUGH INFERIOR CYLINDER HOLE	DAMAGED SEALS  DAMAGED PISTON	- Change seals - Change piston
PUMP TRICKLES OIL THROUGH INFERIOR CYLINDER HOLE	DAMAGED BELLOWS	- Change bellows
PUMP LEAKS OIL THROUGH REGULATOR	DAMAGED REGULATOR O'RINGS	- Change o'rings

## 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** products, identified by a serial number and year of manufacture, strictly fulfill 2006/042/CE and low voltages directives D2006/95/CE, 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

**ITC**  
DOSING PUMPS

**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:07/02/19 -AN

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**ITC**   
**DOSING PUMPS**

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