

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.

INDEX

1.-GENERAL DESCRIPTION	4
2.-CARRIAGE AND MAINTENANCE	5
3.-TECHNICAL FEATURES	6
4.-OPERATION	9
5.- INSTALLATION	
Generalities	9
Electric connection	10
Hydraulic connection	11
General installation scheme	13
6.- START UP	14
7.- MAINTENANCE	
List of parts Dostec piston	16
List of parts Dostec diaphragm	20
Periodical maintenance	24
Problems: causes and solutions	25
CE APPROVAL DECLARATION	26
WARRANTY	26



1.- GENERAL DESCRIPTION

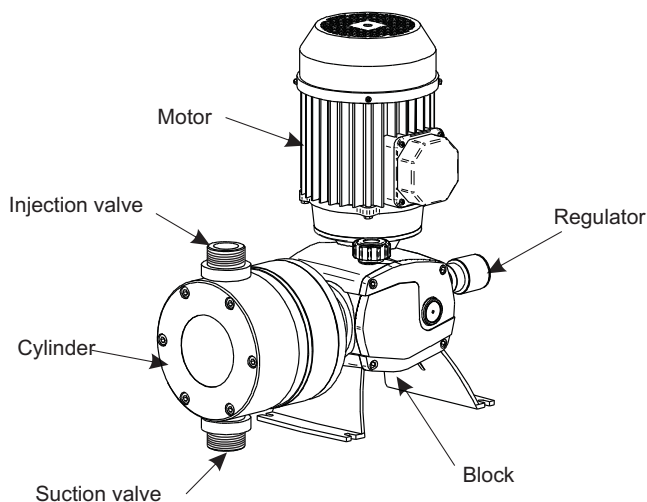
DOSTEC-50 dosing pumps are heavy duty, high precision, piston pumps for dosing liquid products.

This series allows many injection possibilities depending on the head being chosen. The available heads are from 330 to 1000 l/h for the piston series, and from 207 to 870 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.

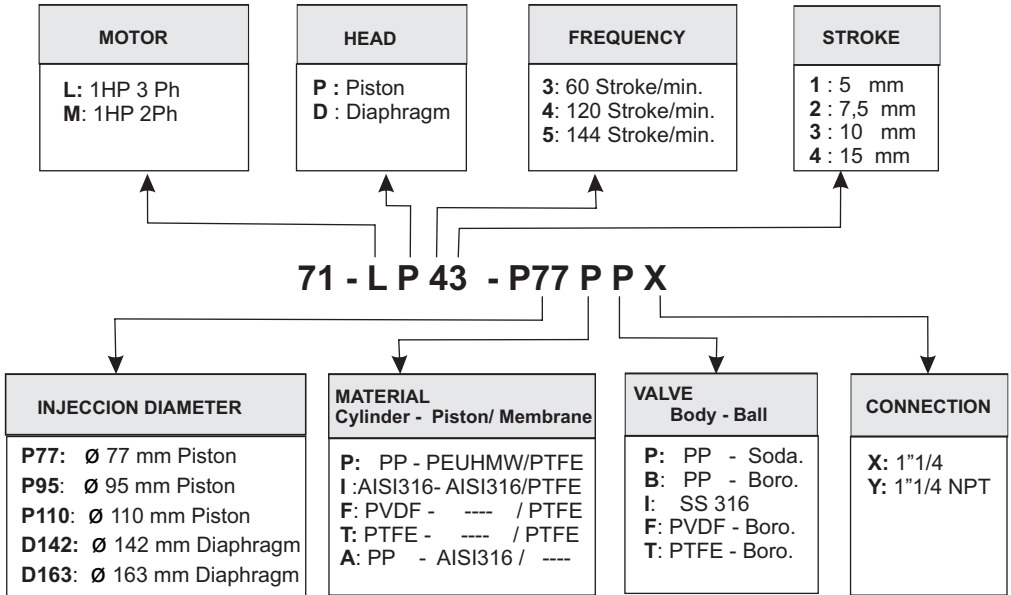
Dosing flow of each module is adjustable independently with no need to stop the pump from 0% to 100% of its capacity.

It is made up as follows:





Code formulation



2.- CARRIAGE AND MAINTENANCE

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 (700cm³)



3.- TECHNICAL FEATURES

	CODES	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	7	23
	71-LP34-P77	250	66	300	79	12	174	7	23
	71-LP33-P110	330	87	400	106	5,5	80	2	7
	71-LP43-P77	330	87	400	106	12	174	6	20
	*71-LP53-P77	400	106	-	-	12	174	5	16
	71-LP34-P110	500	132	600	159	5,5	80	1	3
	71-LP44-P77	500	132	600	159	11	160	5	16
	*71-LP54-P77	600	159	-	-	9	131	5	16
	71-LP44-P95	750	198	900	238	7,5	109	2	7
	*71-LP54-P95	900	238	-	-	6	87	2	7
	71-LP44-P110	1000	264	1200	317	5,5	80	1	3
*71-LP54-P110	1200	317	-	-	4,5	65	1	3	
Diaphragm	71-LD31-D142	104-134	27-35	124-160	33-42	10	145	6	20
	71-LD32-D142	156-201	41-53	186-241	49-64	10	145	6	20
	71-LD33-D142	207-267	55-71	249-321	66-85	10	145	5	16
	*71-LD51-D142	249-321	66-85	-	-	10	145	5	16
	71-LD33-D163	260-342	69-90	312-411	82-109	7	102	3	10
	71-LD42-D142	311-401	82-106	373-481	99-127	10	145	4	13
	71-LD43-D142	415-535	110-141	498-642	132-170	10	145	3	10
	71-LD34-D163	435-522	115-138	522-627	138-166	5	73	2	7
	*71-LD53-D142	510-642	135-170	-	-	9	131	3	10
	71-LD43-D163	520-685	137-181	624-822	165-217	7	102	2	7
	*71-AD53-D163	648-822	171-217	-	-	6	87	1	3
	71-AD44-D163	870-1045	230-276	1044-1254	276-331	5	73	1	3
	*71-LD54-D163	1080-1254	285-331	-	-	4	58	1	3

*Can not work at 60Hz

** Suction lift when dosing head and suction pipe are full and with pipe diameter corresponding to the valve (Ø inner 32mm). Tested with water at 20°C



ELECTRIC CURRENT: As specified in the motor plate

POWER: 0.74 KW (1 Hp)

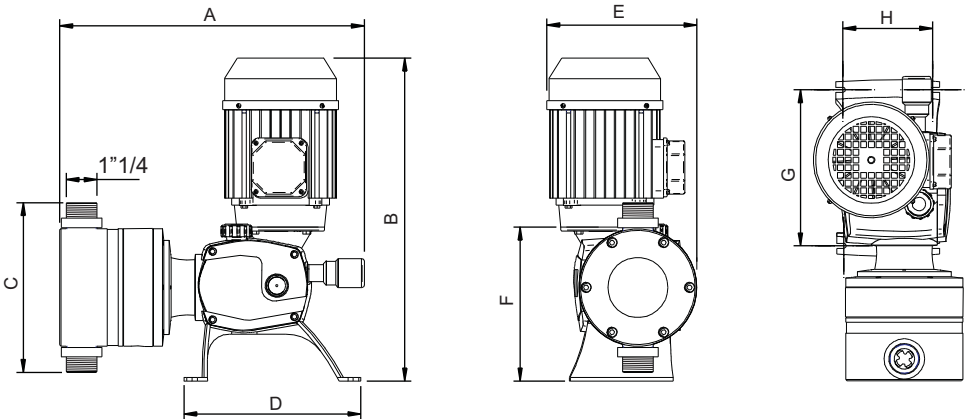
PROTECTION : IP-55


MATERIALS:	PISTON:	P.E.U.A.P.M. / PVDF / AISI 316
	DIAPHRAGM:	Elastomer base reinforced with fiber and P.T.F.E clothing
	RETENTION:	FPM
	CYLINDER:	P.P. / PVDF / AISI 316
	VALVE(body):	P.P/ PVDF/ AISI 316
	VALVE(ball) :	glass / glass borosilicate / AISI 316
	SHAFT:	Aluminium
	RING GEAR :	Bronze
	PINION:	Steel
	BLOCK:	Aluminium cast
	ECCENTRIC SHAFT:	Steel


NOISE LEVEL dB(A): minor than 70

WEIGH: 21 Kg (46 lb)

DIMENSIONS



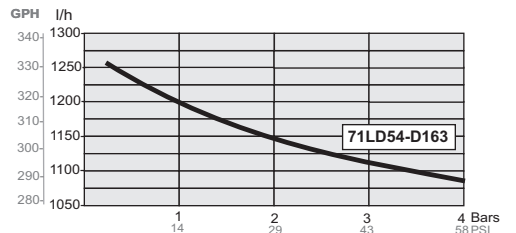
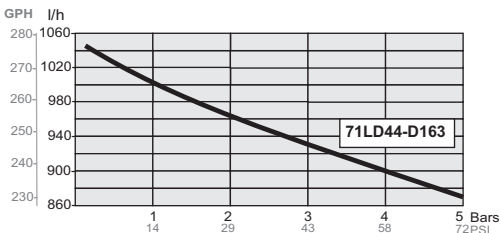
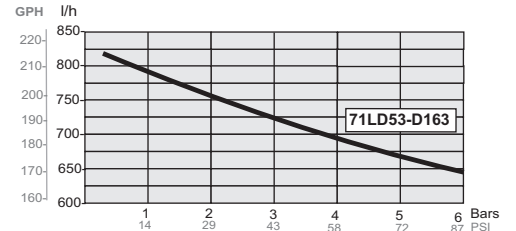
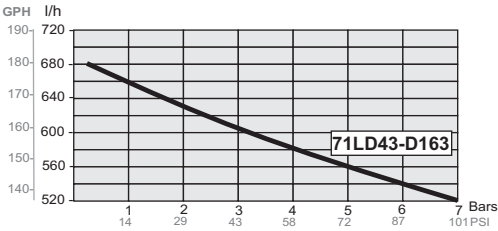
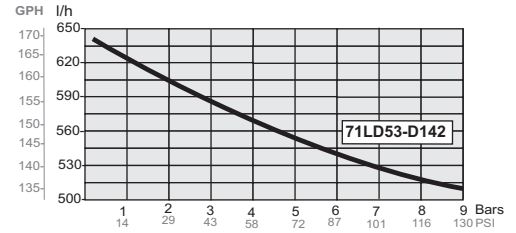
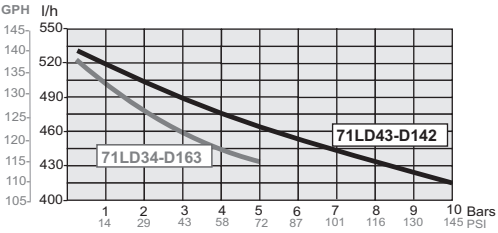
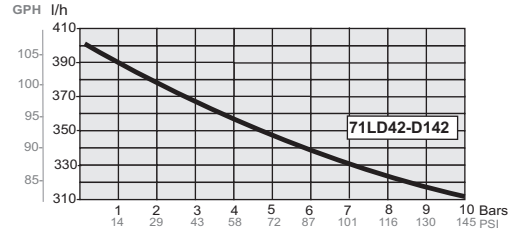
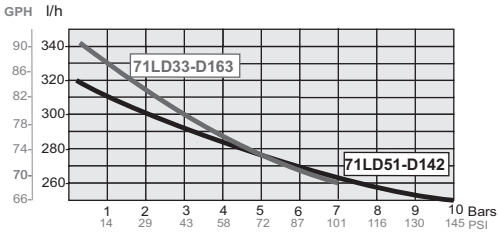
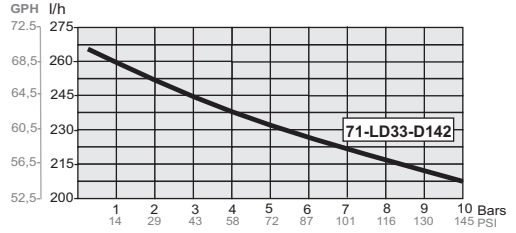
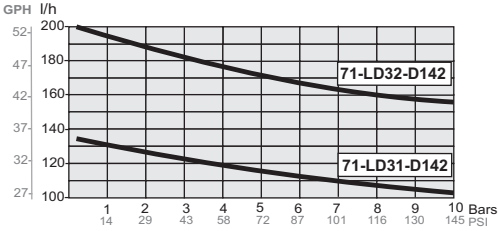
Piston 	A	B	C	D	E	F	G	H	
	415	460	230	241	204	210	212	122	mm
	16.3	18	9	9.5	8	8.2	8.3	4.8	in

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



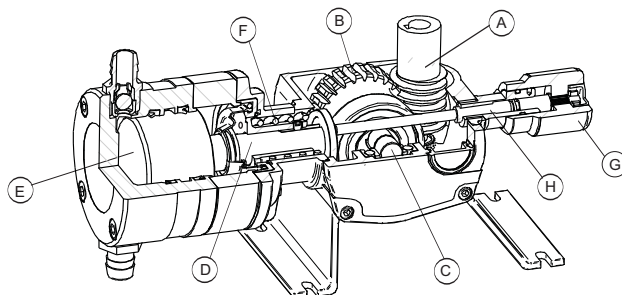


4.- OPERATION

The electric motor (**B**) transmits its power by means of a reducer, made up of a pinion (**E**) and a ring gear (**F**) solidary to an axis (**I**) and an eccentric (**A**) that alternatively pushes and draws a shaft (**C**) threaded to the diaphragm (**D**).

The micrometric regulator (**G**) increases or diminishes the stroke of the shaft and the diaphragm by means of a threaded pipe coupling (**H**), modifying the injection flow. The dosing flow is adjustable from 0% to 100%.

To regulate by means of an inverter is possible varying proportionally the dosed flow by the frequency supplied by an electric motor. The dosing flow is adjustable from a 10% to 100%.



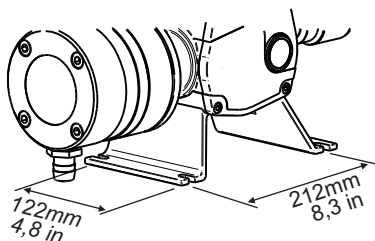
5.- INSTALLATION

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.





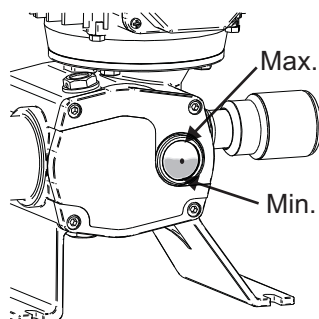
BLOCK

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 cm³

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).

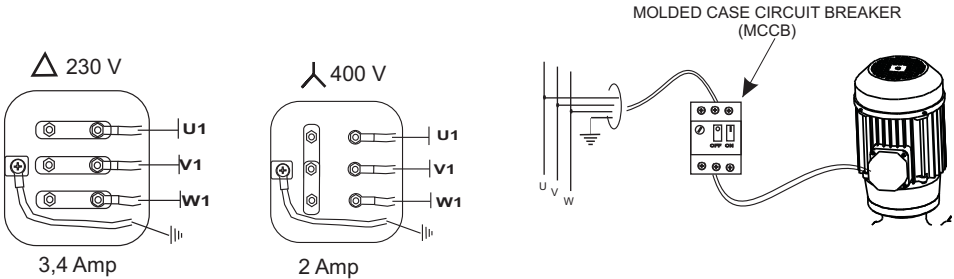
A disconnection dispositive must be installed in case of emergency.

The equipment must be protected to avoid untimely sudden starts.



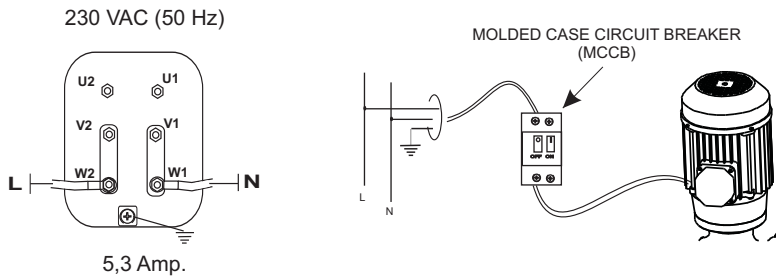
THREE-PHASE CONNECTION (50/60 Hz)

To work at 230 V we will plug the motor in triangle. Installing a protection.
To work at 400 V it will be a star connection. Installing a protection.



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.



HYDRAULIC CONNECTION



To evacuate leaks by the hole of the diaphragm breakage detector in the inferior part of the cylinder, we will take off the security bolt disassembling the cylinder and connecting a hose or a pipe of a material compatible with the product to be dosed, and collect the liquid in a safe place.



SUCTION

It is essential to fit in the suction of the dosing liquid the filter of 100 mesh.

Couple the suction pipe to the lower connector of the cylinder, putting the mesh filter in between. The stuff at the bottom of the tank must never be suctioned, to avoid taking up undiluted particles.

The piping must be stiff enough so that it does not lose its shape when there is suction.

To help suction the piping must be as short as possible, the pipe diameter must be in keeping with that of the valve. Generally for pipes of over 3 m, diameter must be increased.

INJECTION

Fix the check valve at the input of the water network, as shown in the drawing, and couple the injection hose to the upper connector of the cylinder.

To protect the piping from the pressure variations or to achieve a continuous flow, we suggest fitting a pulsation damper as near as possible to the pump.

In order to make priming easier, we suggest fitting a priming valve. You should anticipate an adequate device in order to collect the liquid than can get out when priming, and derive it where it can not be harmful.

The pipe diameter will have to be the same as the valve diameter. Generally for pipes over 5m length the diameter shall be increased. Do never insert a shutoff valve.



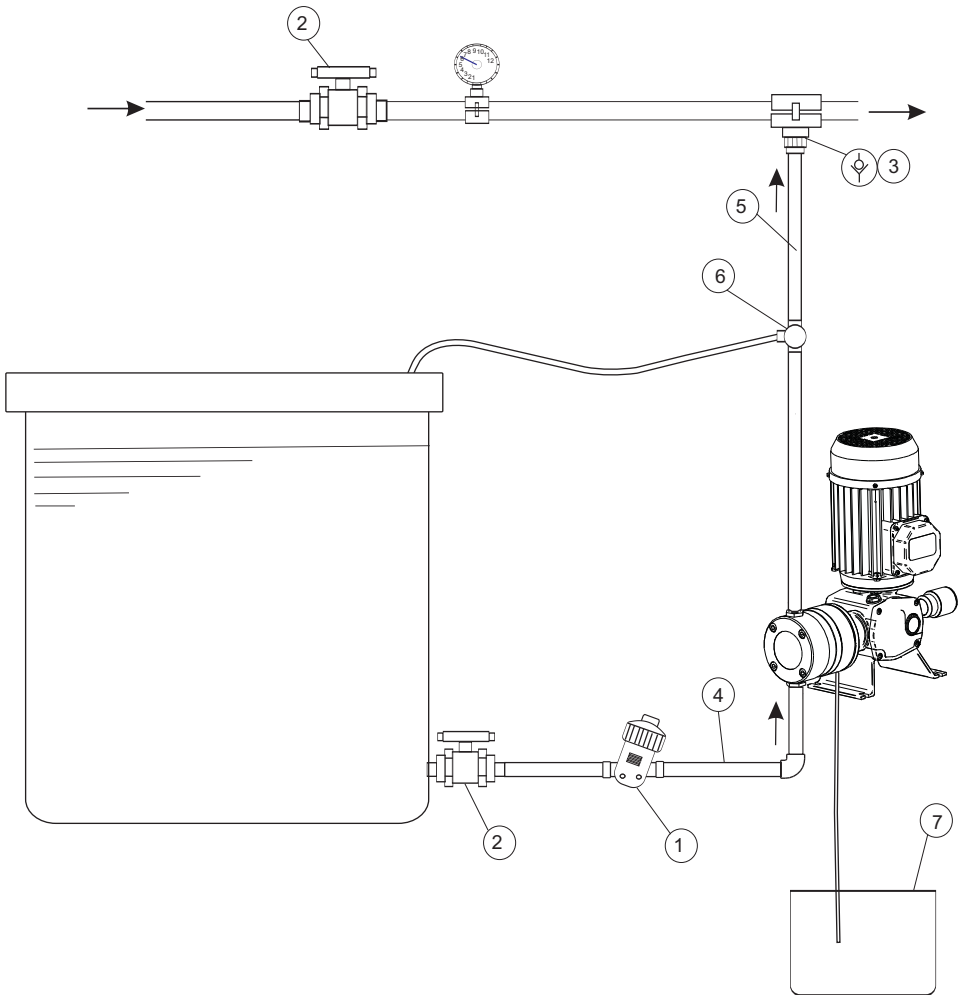
For a correct dosage it must have a back pressure in the injection pipe



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.



GENERAL INSTALLATION



1. FILTER
2. VALVES
3. NON-RETURN VALVES
4. SUCTION
5. IMPULSION
6. SAFETY VALVE
7. SMALL DEPOSIT TO COLLECT LIQUID IN CASE OF BREAKOUT



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.



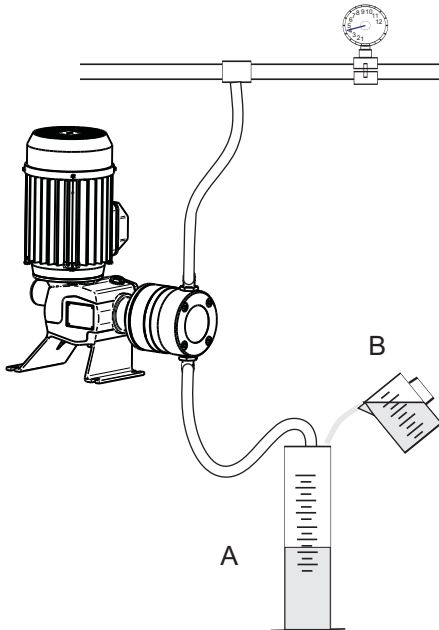
DOSING FLOW

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:

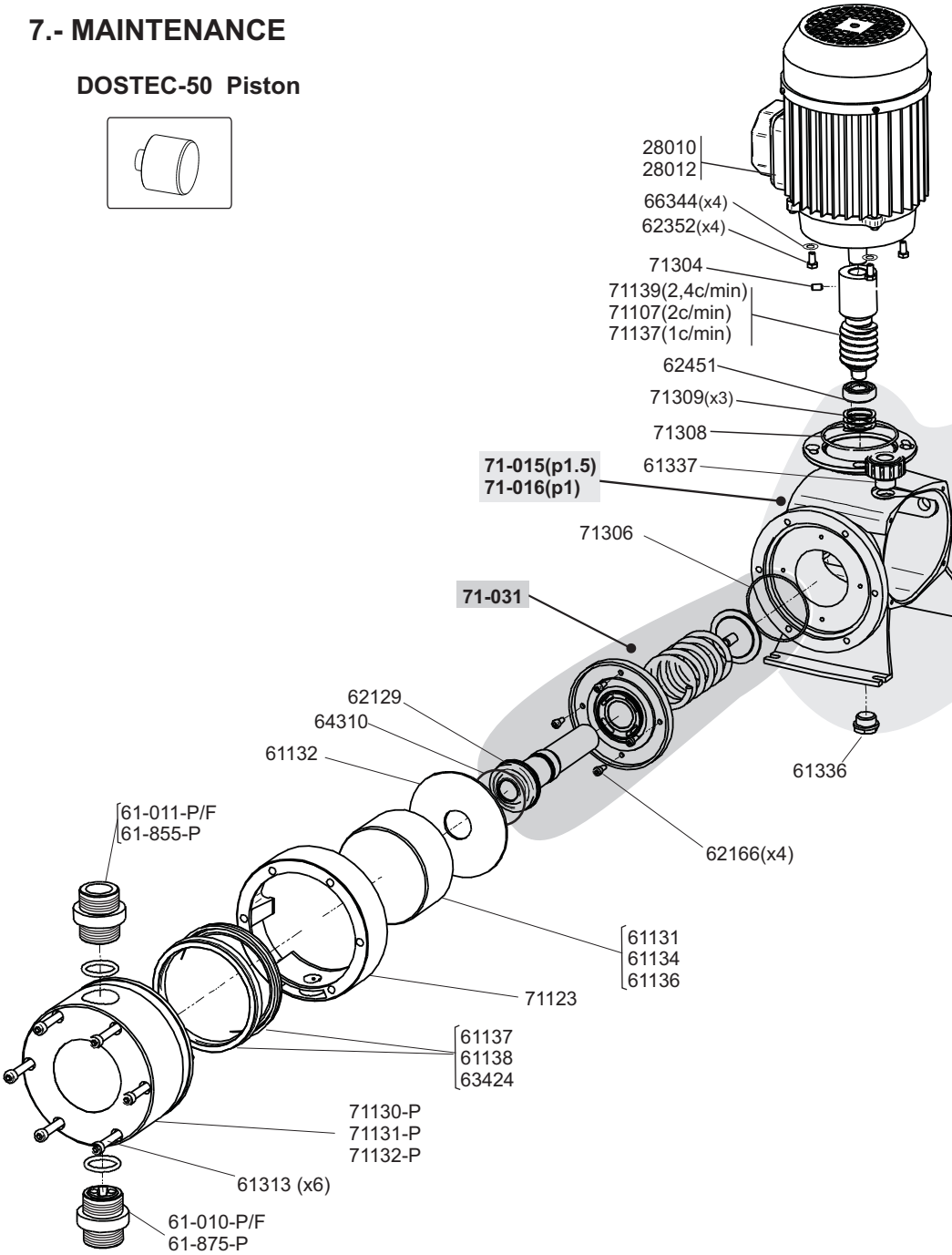
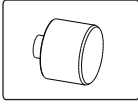
- 1.- Prime the pump immersing the suction pipe in a graduated receptacle (A).
- 2.- Mark in the receptacle the liquid level.
- 3.- Start up the pump and pour a known volume (V) of measured liquid in a second receptacle (B).
- 4.- Measure the time (t) that goes between the start up of the pump and the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

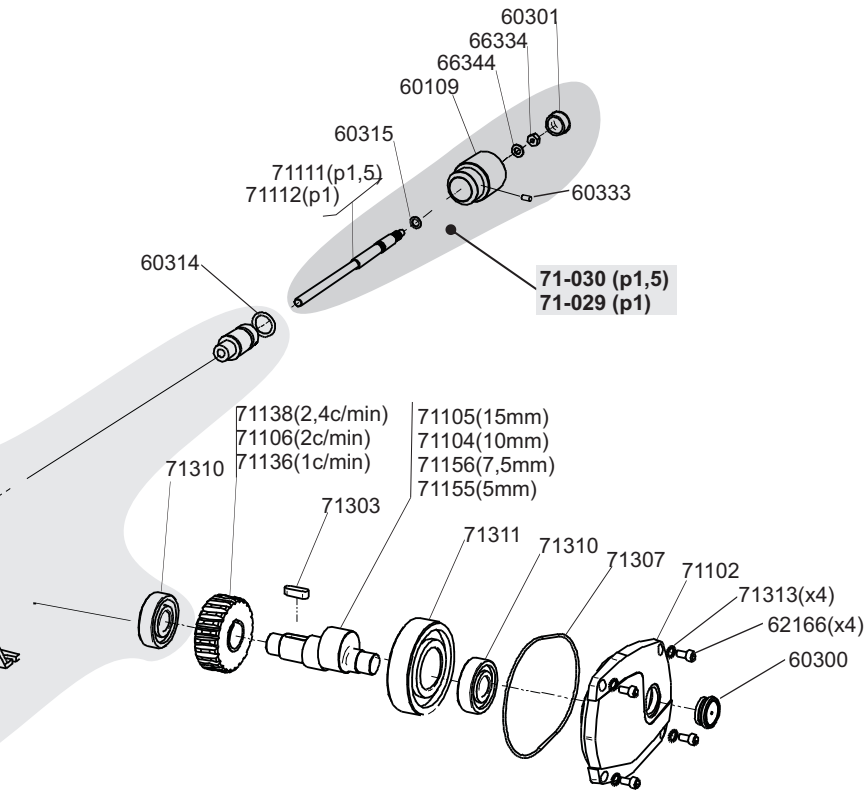
$$Q(l/h) = V (\text{liters}) / t (\text{seconds}) \times 3600$$



7.- MAINTENANCE

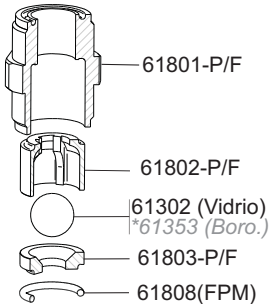
DOSTEC-50 Piston





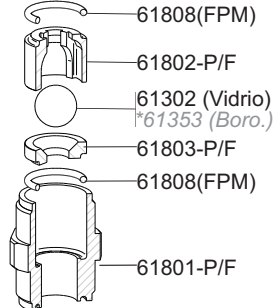
61-011-P/F

*61-885-P (Boro.)



61-010-P/F

*61-875-P (Boro.)





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
61131	Piston 1000 l/h EF	1
61132	Protection disc	1
61134	Piston 750 l/h EF	1
61136	Piston 500 l/h 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
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
71130-P	Cylinder 1000 l/h s PP	1
71131-P	Cylinder 750 l/h s PP	1
71132-P	Cylinder 500 l/h s 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
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

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	Suction check valve 1 1/4	1
61-011-P/F	Discharge check valve 1 1/4	1
61-875-P	Suction check valve 1 1/4 PP Borosilicate	1
61-085-P	Discharge check valve 1 1/4 PP Borosilicate	1

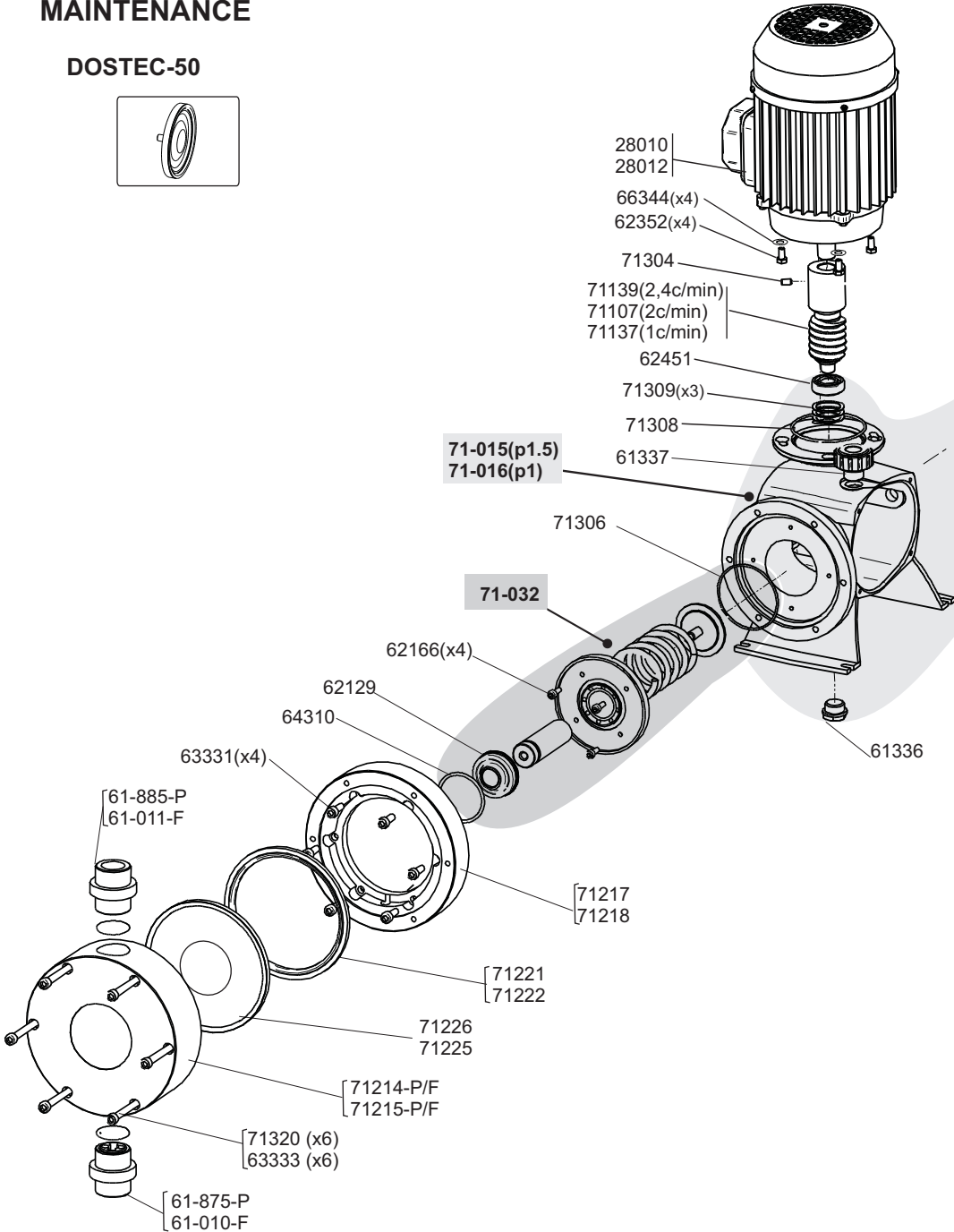
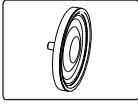
MAINTENACE KIT (valves+seals+bellow)

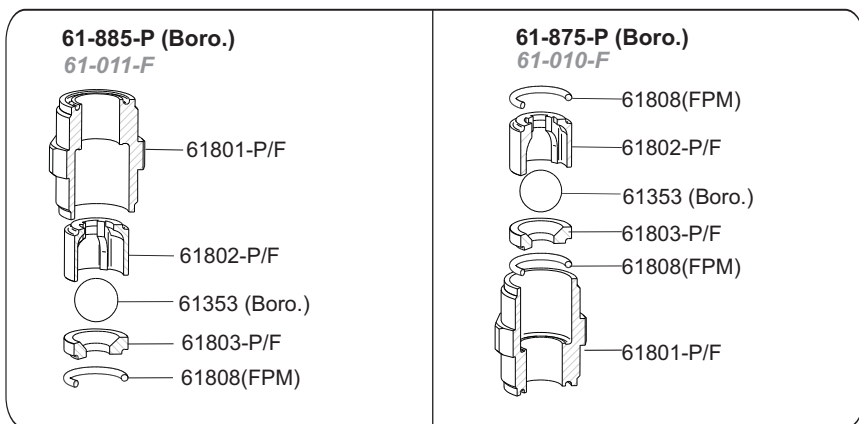
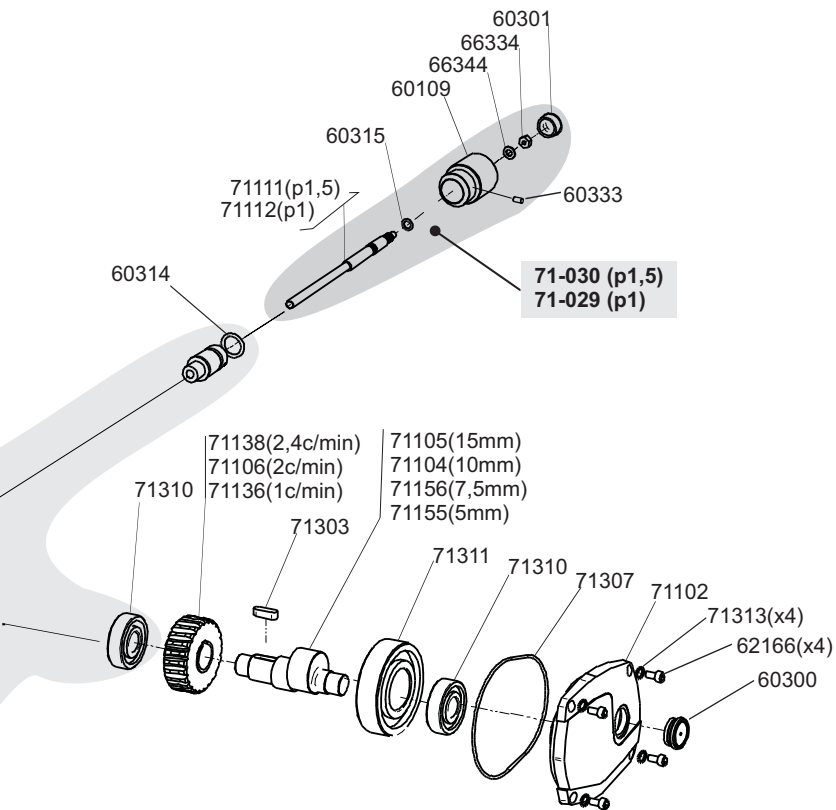
71-071-P	Maintenance kit Dostec-50 P77 PP	1
71-072-P	Maintenance kit Dostec-50 P95 PP	1
71-073-P	Maintenance kit Dostec-50 P110 PP	1

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

MAINTENANCE

DOSTEC-50







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 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
63331	Screw M8x20 Din 912 A2	6
63333	Screw M8x80 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
71214-P/F	Cylinder diaphragm D142	1
71215-P/F	Cylinder diaphragm 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
71320	Screw M8x70 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
61-085-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.



PROBLEM	CAUSE	SOLUTION
MOTOR DOES NOT RUN	THERE IS NO VOLTAGE MOTOR PROTECTION HAS BLOWN UP	<ul style="list-style-type: none">- 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)	<ul style="list-style-type: none">- 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	<ul style="list-style-type: none">- 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	<ul style="list-style-type: none">- Change seals- Change piston
PUMP TRICKLES OIL THROUGH INFERIOR CYLINDER HOLE	DAMAGED BELLOWS	<ul style="list-style-type: none">- Change bellows
PUMP LEAKS OIL THROUGH REGULATOR	DAMAGED REGULATOR O'RINGS	<ul style="list-style-type: none">- Change o'rings

EC CONFORMITY DECLARATION



I.T.C S.L..
Mar Adriàtic, 1
Polígono Torre del Rector
08130 Santa Perpètua de Mogoda

Declares that all models **DOSTEC** products, identified by a serial number and year of manufacture, strictly fulfill 98/37/CE Governing Body, as long as installation, use and maintenance are carried out following the prevailing regulation and following the instructions contained in the handbook.

Antón Planas
Manager

WARRANTY



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

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

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

MODEL

Sales date and shop stamp

SERIAL #

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