

OPERATION AND MAINTENANCE MANUAL



Available with:

FILTRA CONSULTANTS AND ENGINEERS LTD.

Gala No. 2 & 3, Ground Floor, Neminath Industrial Estate No. 2, Navghar, Vasai (East), Dist.: Palghar - 401 219
Tel.: +91 8691009127/26 Email: filtraw@gmail.com Website: www.ewatertreatmentindia.com



FEATURES

- Auto resetting thermal fuse.
- Double ball NRV with PTFE seal.
- Splash proof enclosure.
- Built in air release valve (ARV).
- PTFE diaphragm for longer life.
- Adjustable frequency (up to 400 spm) with a frequency knob.
- Compact and lightweight.
- IP 65 certified.

SCOPE OF SUPPLY

- Metering pump.
- Suction/discharge tubing (3 meter).
- Foot valve with strainer.
- Injection valve (NRV).

MATERIAL OF CONSTRUCTION FOR WETTED PARTS

- Pump Head : GFPP
- Diaphragm : PTFE
- Connectors : GFPP
- Suction Tubing : PE
- Discharge Tubing : PE
- Ball Seal : VT

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SPECIFICATIONS

Dosing		LPH	6	10
Mechanical Data	Turn Down Ratio	10:1		
	Maximum Dosing Capacity	l/h	7.8	13
		GPH	2.06	3.43
	Minimum Dosing Capacity	l/h	0.6	1.0
		GPH	0.16	0.26
	Maximum Operating Pressure	Kg/cm ²	4	
		PSI	57	
	Maximum Stroke Frequency	strokes/min.	400	430
	Stroke Volume	ml	0.28	0.4
	Accuracy of Repeatability	%	±2	
	Maximum Suction Lift During Operation	meter	1.5	
Min. / Max. Liquid Temperature	°C	5 to 50		
Suction / Discharge Tubing Size	mm	4/6		
Electrical Data	Voltage	V	230 ± 10%	
	Frequency	Hz	50 – 60	
	Length of Main Cable	meter	2	
	Maximum Power Consumption	W	30	
	Electric Safety Class	II		
	Enclosure Class	IP 65		
	Pollution Degree	3		
Sound Pressure	Maximum Sound Pressure	dB	<80	

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INSTALLATION

- (1) Always wear protective clothing, face shield, safety glasses and gloves when working on or near your metering pump. Additional precautions should be taken depending on the solution being pumped.
- (2) Pump is to be protected from sun and rain. If outdoor installation is unavoidable, provide a canopy over the pump. Pump should be accessible for routine maintenance and should not be subjected to ambient temperature above 50° C.
- (3) Flooded suction -: The pump is mounted at the base level of the storage tank. This installation is most trouble free and is recommended for low flow output and high viscosity solutions. Since suction tubing is filled with solution, priming is accomplished quickly and chance of losing prime is reduced.
- (4) Suction lift -: Suction lift should be less than 1.5 meter for solutions having a specific gravity of water, for denser solutions consult factory.
- (5) The foot valve act as a check valve to keep the pump primed in suction lift applications.
- (6) The valve is designed to submerge in the solution tank or drum and must sit in a vertical position at the bottom. Position approximately 2 inches off the bottom if the tank or drum contains sediment.
- (7) Injection valve prevents back flow from the main line. When installing the injection valve, be sure to position it in vertical so that the valve enters the bottom of the pipe line.
- (8) Mount the pump on a tank/surface using mounting bracket and nut-bolts provided and tighten the nut-bolts properly.
- (9) The discharge point marked with arrow should be always faces upwards.
- (10) The suction nipple will be on the lower side with the suction tubing being immersed completely in the dosing liquid.
- (11) After cutting an appropriate length of tubing, connect tubing to injection valve and then back to the discharge side of the pump head.
- (12) Use the remaining tubing on the discharge side and connect the back injection valve to the injection pipe into which dosing is to be done.
- (13) Connect the nozzle on the pump to the injection valve.
- (14) Plug the pump.

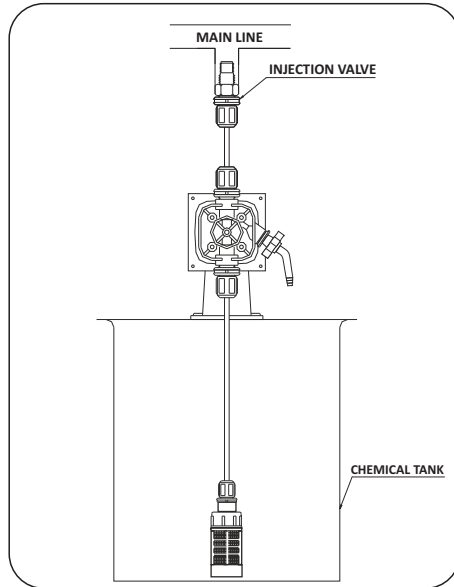
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MOUNTING SET-UP SCHEMATIC



STARTUP

- (1) Connect the mains supply.
- (2) Turn the frequency knob fully in clockwise direction to 100 (max. frequency setting of the pump).
- (3) Switch ON the mains button and press the on-off key of the pump to start the pump.
- (4) Open the ARV (Air Release Valve) by approximately three-five turns.
- (5) Keep the ARV open until the dosing liquid flows in a continuous stream in the tubing (without any bubbles).
- (6) Close the ARV.

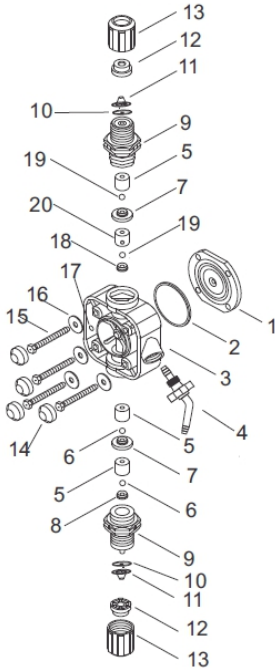
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DOSING HEAD ASSEMBLY



Sr. No	DESCRIPTION
1	DIAPHRAGM (PTFE)
2	DIAPHRAGM "O" RING
3	DOSING HEAD
4	ARV
5	NRV BALL CAP
6	6mm BALL (BOROSILICATE)
7	NRV WASHER BIG (PTFE)
8	NRV WASHER SMALL (PTFE)
9	NRV BODY
10	NRV "O" RING
11	NRV NOZZLE
12	TUBING CAP
13	TUBING CONNECTOR
14	BOLT HEAD CAP
15	DOSING HEAD BOLT (M4X40)
16	HEAD BOLT WASHER (M4)
17	STAR WASHER
18	BALL SEAL (VT)
19	6mm BALL (BOROSILICATE)
20	NRV BALL CAP DISCHARGE

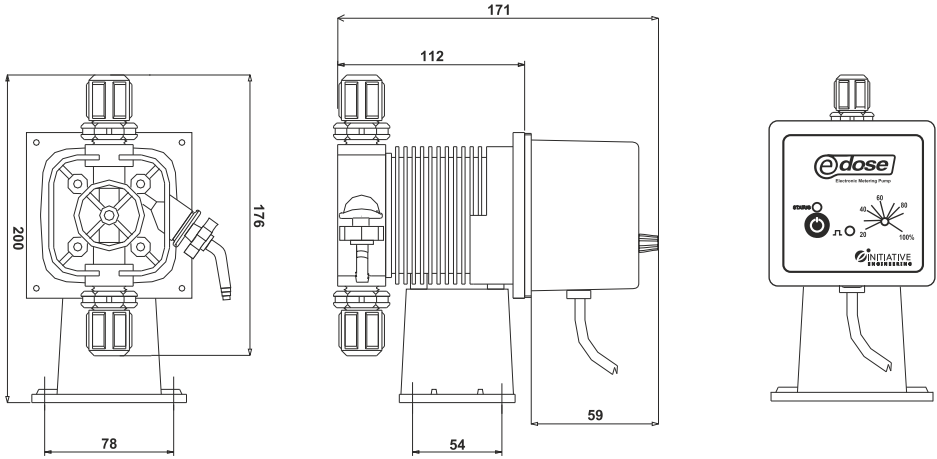
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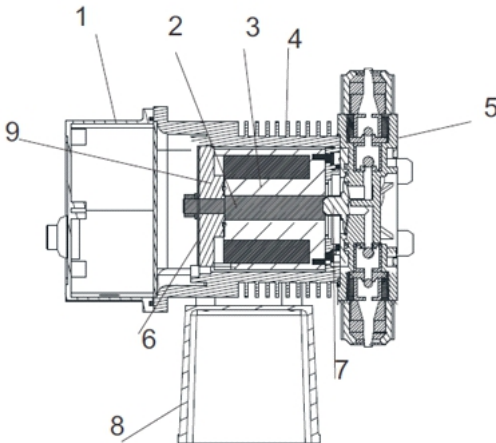


GENERAL ASSEMBLY DRAWING



NOTE : ALL DIMENSIONS ARE IN MM

SECTION VIEW



Sr. No	DESCRIPTION
1	PCB HOUSING
2	SS PLUNGER
3	SOLENOID ASSEMBLY
4	SOLENOID HOUSING
5	DOSING HEAD
6	SS SPRING
7	DIAPHRAGM
8	MOUNTING BRACKET
9	SOLENOID SPACER

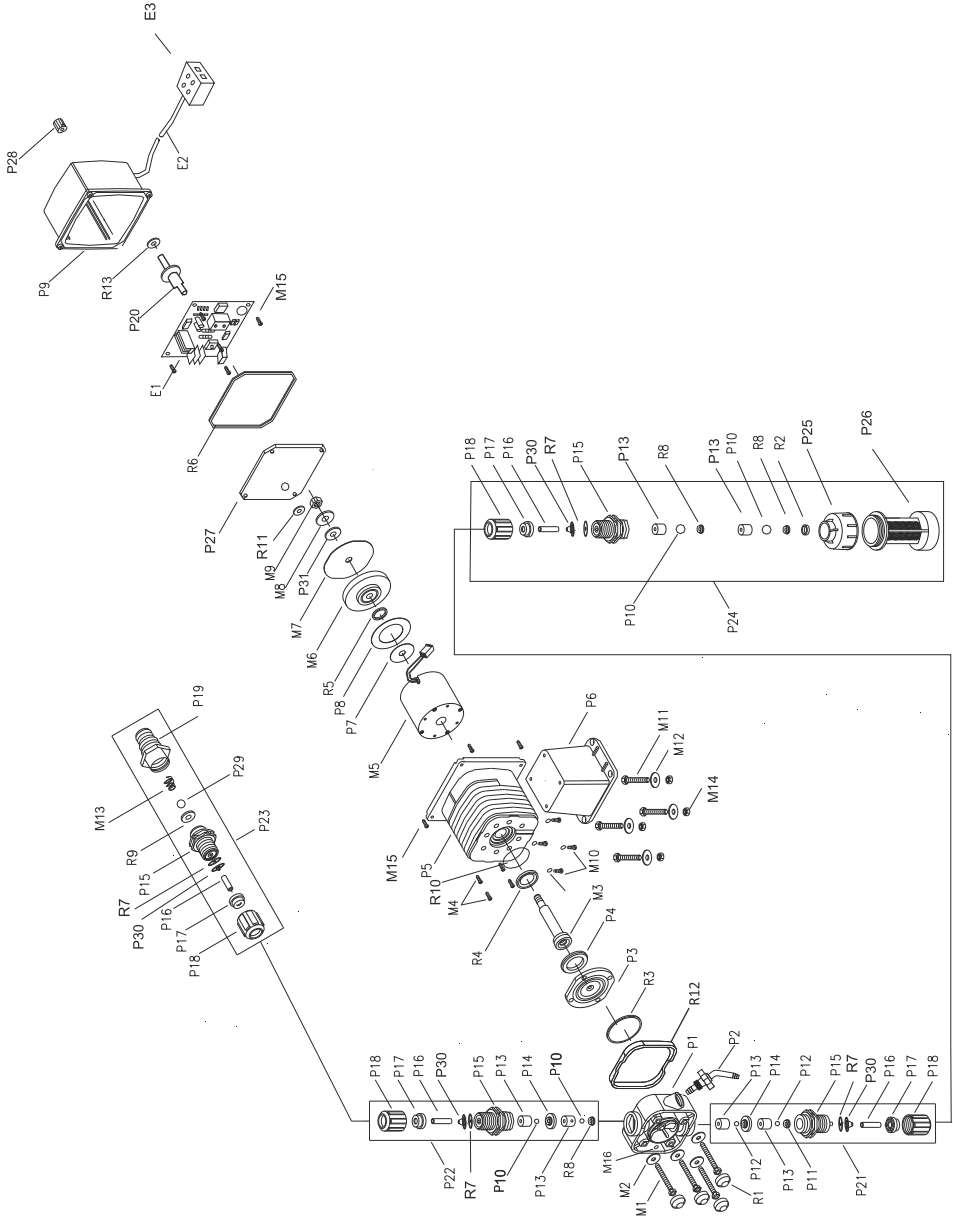
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EXPLODED VIEW



(ALL DETAILS SHOWN IN THE MANUAL ARE SUBJECTED TO CHANGE WITHOUT NOTICE)

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PART LIST

SR. NO.	PART NO.	DESCRIPTION
1	P1	DOSING HEAD
2	P2	AIR RELEASE VALVE
3	P3	DIAPHRAGM
4	P4	DIAPHRAGM SPACER
5	P5	SOLENOID HOUSING
6	P6	MOUNTING BRACKET
7	P7	PVC WASHER
8	P8	PVC RING
9	P9	PCB HOUSING
10	P10	NRV BALL GLASS (6MM)DISCHARGE VALVE
11	P11	NRV WASHER SMALL (PTFE)
12	P12	NRV BALL PTFE (6MM)SUCTION VALVE
13	P13	NRV BALL CAP
14	P14	NRV WASHER BIG (PTFE)
15	P15	NRV BODY
16	P16	SUCTION FILTER TUBING
17	P17	TUBING CAP
18	P18	TUBING CONNECTOR
19	P19	INJECTION VALVE ADAPTOR
20	P20	KNOB STICK
21	P21	SUCTION VALVE
22	P22	DISCHARGE VALVE
23	P23	INJECTION VALVE ASSEMBLY
24	P24	SUCTION FILTER ASSEMBLY
25	P25	TOP CAP
26	P26	FOUR RIB ADAPTER
27	P27	SOLENOID HOUSING PLATE
28	P28	KNOB
29	P29	NRV BALL 8 MM(INJ.VALVE)
30	P30	NRV NOZZLE
31	P31	PLUNGER WASHER PTFE
31	R1	BOLT HEAD CAP
32	R2	FILTER TOP CAP WASHER (14X19X2)
33	R3	DIAPHRAGM "O" RING (Ø42X2)
34	R4	PLUNGER WASHER
35	R5	SOLENOID SPACER "O" RING (Ø 15.6 X 1.78)
36	R6	P.C.B HOUSING WASHER (90 X 90 X 2.5)
37	R7	NRV BODY "O"RING(9.8X2.2)
38	R8	BALL SEAL
39	R9	BIG STEP WASHER (18X8.5)
40	R10	SOLENOID HOUSING O RING (Ø 40 X 2)
41	R11	SOLENOID HOUSING PLATE GROMET
42	R12	BEADING
43	R13	KNOB STICK WASHER
44	E1	P.C.B
45	E2	POWER CORD
46	E3	TWO WAY CONNECTOR
47	M1	M4 X 45 BOLT (S.S. 316)
48	M2	SMALL WASHER (5.2 X 15 X 2)
49	M3	SS PLUNGER
50	M4	8 X3 SOLENOID BOLT COMBI. S.S
51	M5	SOLENOID ASSEMBLY
52	M6	SOLENOID SPACER
53	M7	SPRING S.S
54	M8	BIG WASHER (8.5 X 18 X 2)
55	M9	8MM NUT (S.S)
56	M10	10X 13 M.S.S.TAP. SCREW
57	M11	M6 X 20 BOLT. S.S
58	M12	M6 WASHER. S.S
59	M13	S.S INJECTION VALVE SPRING
60	M14	M6 NUT
61	M15	PCB M.S.S.TAP. SCREW 4 X 6.5
62	M16	STAR WASHER (M4)

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ESSENTIAL SAFETY REQUIREMENT

- Install the pump in any shaded place away from direct sunlight.
- The pump can not be used in sub-merged condition.
- Before starting work on the pump, the pump must be disconnected from the power supply. The system must be pressure less.
- Make sure that any chemicals that are released from the pump or any damaged lines do not cause damages to system parts.
- Before switching on the main supply, the tubing cap (both suction and discharge valve assembly) should be tightened to dosing head properly so that the metering liquid can not spray out from the dosing head in working condition and put operator's in risk. The dosing medium/liquid is pressurized and can be harmful to health and the environment.
- When working with chemicals, the accident prevention regulations applicable at the installation site should be applied (e.g. wearing protection clothing's). Observe the chemical manufacturer's safety data sheet and safety instructions when handling chemicals.
- The dosing medium must be a liquid, Observe the freezing and boiling point of the dosing media. The resistance of the parts which comes into contact with the dosing medium, such as the dosing head, PTFE ball and washer, glass ball, 'O' ring, ball bush, pipe lines, ball seal and suction filter assembly, NRV body etc. , depends on the medium, media temperature and operating pressure. Ensure that the parts come into contact with the dosing medium are resistant to the dosing medium under operating temperature and pressure, see the data booklet.
- Ensure voltage is within range specified for the pump i.e., $230 \pm 10\%$ V.
- Electrical connection should be made between Live – Neutral and Not live-Ground.
- Avoid giving supply from the same line as heavy electrical equipment.
- Do not operate the pump with a damaged/break diaphragm. Operating with a damaged diaphragm can lead to dosing liquid entering pump housing. In case of diaphragm breakage immediately separate the pump from the power supply. Make sure the pump cannot be put back into the operation by accident. In case of diaphragm breakage use the following steps to dismantle diaphragm (refer fig. of Edose Dosing Head overview):
 1. Make the system pressure less.
 2. Empty the dosing head before maintenance and flush it, if necessary.
 3. Set the frequency knob to 0%.
 4. Switch off mains supply.
 5. Take suitable steps to ensure that the returning liquid is safely collected.
 6. Dismantle the suction and discharge tubing and check whether tubing is blocked, soiled or damaged, replace if necessary.
 7. Dismantle NRV body in suction and discharge side.

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8.Remove the ball bush and 'O' ring from NRV body. Check their safety for wear and damage.

If necessary, replace them.

9.Unscrew the PCB housing and remove it.

10.Remove the spring fitting washer and nut and PTFE washer.

11.Loosen the screws on dosing head and remove the screws.

12.Remove the diaphragm washer, plunger washer and diaphragm 'O' ring from diaphragm-plunger assembly.

13.Dismantle the diaphragm-plunger assembly

14.Check the diaphragm. If necessary, replace it.

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TROUBLE SHOOTING

Problem	Possible Causes	Trouble Shooting
Excessive Pump Output	Syphoning Little or no pressure at injection point Excessive strokes per minute	Move injection point to a pressurized point Make sure injection check valve installed properly Consult factory
Pump will not prime/loss priming	Pump not turned on or plugged in No demand as per the set point. Foot valve not in vertical position in the tank. Pump suction lift is too high Suction tubing is curved or coiled inside the tank Air trap in suction tubing No solution in the tank/container Airlock on suction side	Turn on the pump/plug in Prime the pump in manual mode Foot valve must be vertical Maximum suction lift is 5 feet. Suction tubing must be vertical Untighten the air bleed valve, run the pump till air trap is out then tighten. Refill the container/tank and re-prime Check tubing for pinholes, cracks, replace if necessary
Low output or failure to pump against pressure	Pump maximum pressure rating exceeded by injection Worn seal rings & balls Ruptured diaphragm Tubing run on the discharge side may be too long Clogged foot valve strainer	Injection pressure cannot exceed pump rated pressure Check & replace Check & replace Longer tubing may create frictional losses sufficient to reduce pump pressure rating Clean or replace

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DECLARATION OF CONFORMITY

The Manufacturer declares that the following “POSITIVE DISPLACEMENT Metering/
Dosing pumps”.

Brands:  &  NEO

Are compliant with the following directives:

- 2014/35/EU – LVD – this is a directive concerning the approach the approach of the Member States relating to electrical material designed to be used within some voltage limits.
- 2014/30/EU – EMC – this is a directive concerning the approach of the laws of the Member States relating to the electromagnetic compatibility.

To make these Metering/Dosing Pumps complaint with the above -mentioned directives, the following harmonized standards have been applied;

Standards	Summary
EN 61010-1	Safety requirement for Electrical Equipment
EN 61326-1:2012	EMC (General Requirements)
IEC 61000-4-20:2010	EMC (Emission/Immunity Testing in Transverse Electromagnetic waveguide)
IEC 61000-3-2:2014	EMC (Limits of Harmonic current emission)
IEC 61000-3-3:2013	EMC (Limits of Voltage Change, voltage fluctuations & Flicker)

The technical documentation has been prepared and will be transmitted electronically at the request of the national authorities. The person authorized to compile the technical file of the Positive displacement metering/dosing pumps is the legal representative of Initiative Engineering, Pune domiciled at the registered office of the company.

Date: 22/08/2016

Sign & Seal

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