

OPERATION AND MAINTENANCE MANUAL



@dose[®] **MAX**

Introduction

- The Edose max series pumps are reciprocating chemical dosing pumps capable of producing controlled flows up to 400 LPH at pressure up to 5 kg/cm² (depending upon the model). These pumps with a mechanical actuated diaphragm and a stroke adjustment mechanism. It is designed for industrial services and offers an accuracy of $\pm 2\%$ of 100 % of its flow range.
- The pump consists of two major assemblies, the drive and liquid end. The pump delivery is a function of the drives stroke rate, liquid end size and stroke length. Stroke lengths can be adjusted while pump running by turning the stroke adjusting knob.

NOTE: It is important that the pressure in the liquid end remain above the vapour pressure of the process liquid during the suction stroke. If the fluid pressure drops below the vapour pressure cavitation will occur, impairing in the performance of the pump

General Specification

	200 LPH	5 kg/cm ²	120	1 1/4" BS	12 X 16mm TUBING (PVC)	0.18 KW
	300 LPH	5 kg/cm ²	160	1 1/4" P	12 X 16mm TUBING (PVC)	0.37 KW
	400 LPH	5 kg/cm ²	170	1 1/4" BSP	12 X 16mm TUBING (PVC)	0.37 KW

P

NOTE :- IE3 Motors are available on request. / 25/50/100 LPH at 8 kg available

Unboxing

- Carefully examine the shipping carton upon receipt from the carrier to be sure there is no obvious damage to the contents. Open the carton box carefully, so that accessory item inside will not be damaged or lost. Examine all the material and check against packing list to be sure that all the items are accounted for and intact

Safety Precautions

- When installing and operating our Edose max dosing pump, keep safety considerations foremost. Use proper tools, protective clothing and eye protection when working on the equipment. Follow the instructions in the manual and take additional safety measures appropriate to the liquid being pumped.
- Locate the pump in an area that is convenient to both chemical injection point and electrical supply. Edose Max design pumps should not be subjected to the continuous high temperature over 50 deg. Celsius. Mount pump at a convenient operational height on a firm foundations.

Mounting

- Locate the pump in an area that is convenient to both chemical injection point and electrical supply. Edose max dosing pumps should not be subjected to continues operation on high temperature over 50° C. Mount pump at a convenient operating height on a firm foundation.

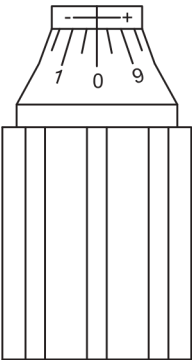
Lubrication

- Before operating the pump check oil level with the help of oil window plug. The pump is shipped with oil filled from the factory.
- NOTE: the gear oil should be replaced after successful completion of 3000 operations hours.
- Gear oil: ISO Viscosity grade 320

Back-Pressure Requirement

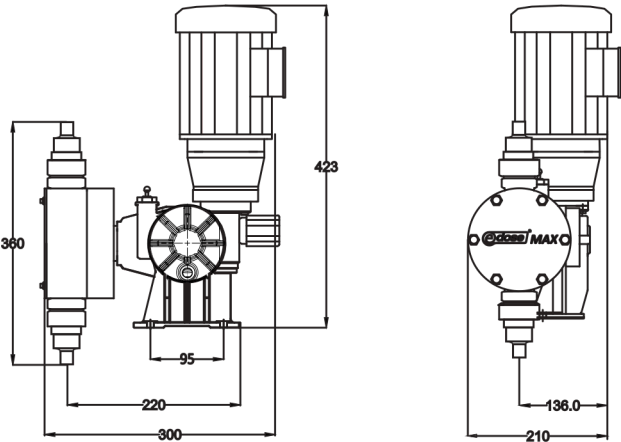
- All metering pumps are prone to over pumping (excessive output) at low discharge pressure and while pumping into the tank. To prevent this condition from occurring, it is necessary to maintain approximately 10 psi back pressure across the pump. This is achieved by a spring loaded injection check/ anti syphon valve. Consult factory for injection check/ anti syphon valve with increased back pressure ratings

Stroke length Adjustment

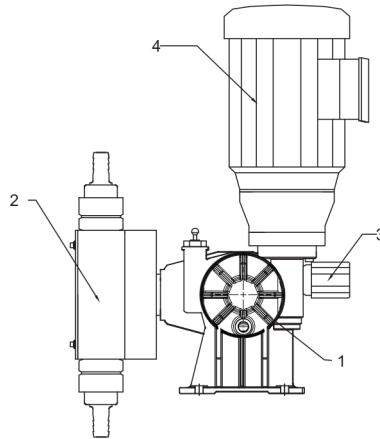


One Full Length=100% Strokes

General Assembly

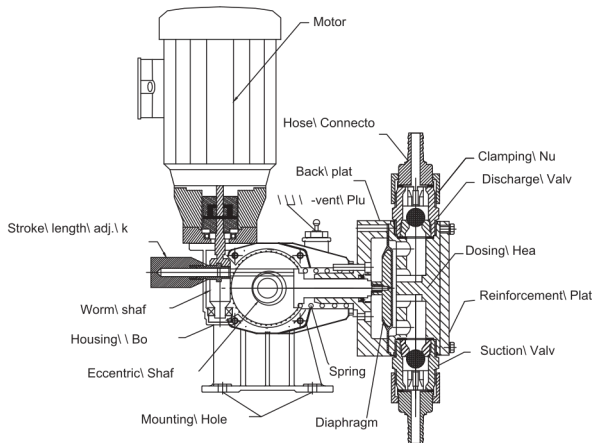


Typical Arrangement of Edose Max



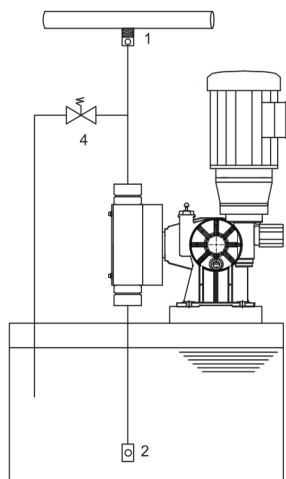
1. GEAR BOX
2. DOSING HEAD
3. STROKE KNOB
4. MOTOR

Sectional View Of Pump

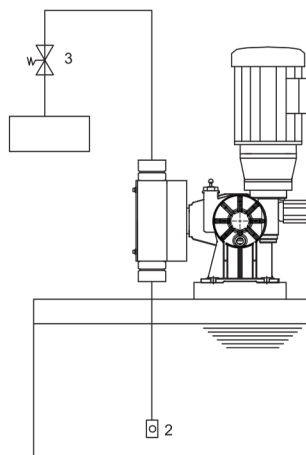


Typical Installations

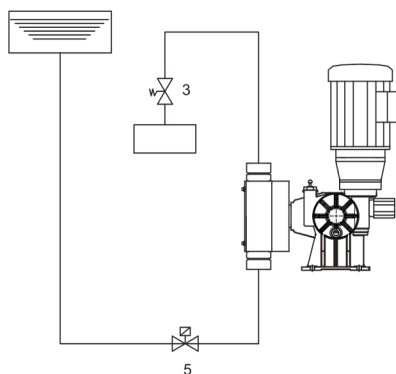
Standard pump Installation



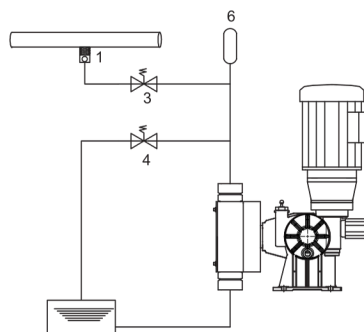
Dosing against atmospheric Pressure



Dosing with positive Suction Pressure



Dosing without Pulsation



Precaution During Piping

- Pressure test all plumbing before use, to guard against leaks.
- Install a small valve in the suction side of flooded suction installations to simplify Maintenance.
- A foot valve is must in suction lift applications.
- Intake and delivery lines must always be arranged such that no mechanical stress at the connection to the liquid end. Lines must be secured that no vibrations in the hose sizes.

Installation of injection Valve

- Injection check valve should always be installed as close as possible to the point of chemical injection at the very end of the tubing
- Purpose of injection valve is to prevent back flow from treated line. It also provides the back pressure required for the pump.
- In order to ensure correct seating of ball inside the check valve, the injection check valve should be installed vertically upwards.
- Max pump pressure rating is reduced with spring installed in injection check valve.

Priming

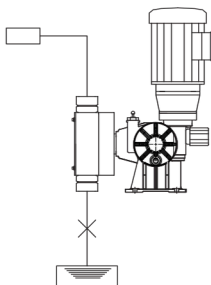
- Priming can be done only against atmospheric pressure when using a suction lift installation. Flooded suction installations will allow the pump to prime itself even under pressure.
- Temporarily, remove the tubing from injection check valve and hold the end of tubing so that it is above pump level.
- Set pump at 100 % stroke and start pump.
- As soon as chemical is visible through translucent discharge tubing, just past the discharge valve, stop the pump.
- Pump is now primed.
- Reconnect tubing to injection valve.

Warning

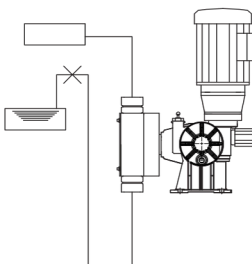
- The materials used should be tested for resistance against chemicals to be dosed.

Faulty Installation

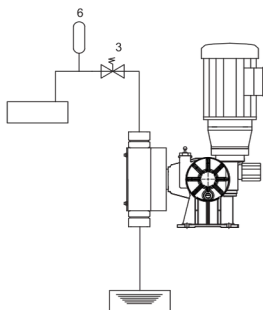
Excessive Height of Lift



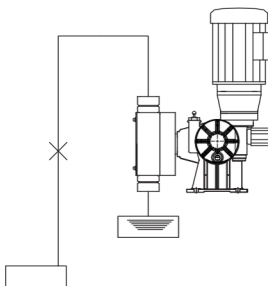
Vented Suction Line



Ineffective Dampner



Syphoning Effect



1. Dosing Valve
2. Foot Valve
3. Back Pressure Valve
4. Relief Valve
5. Solenoid Valve
6. Pulsation Dampner

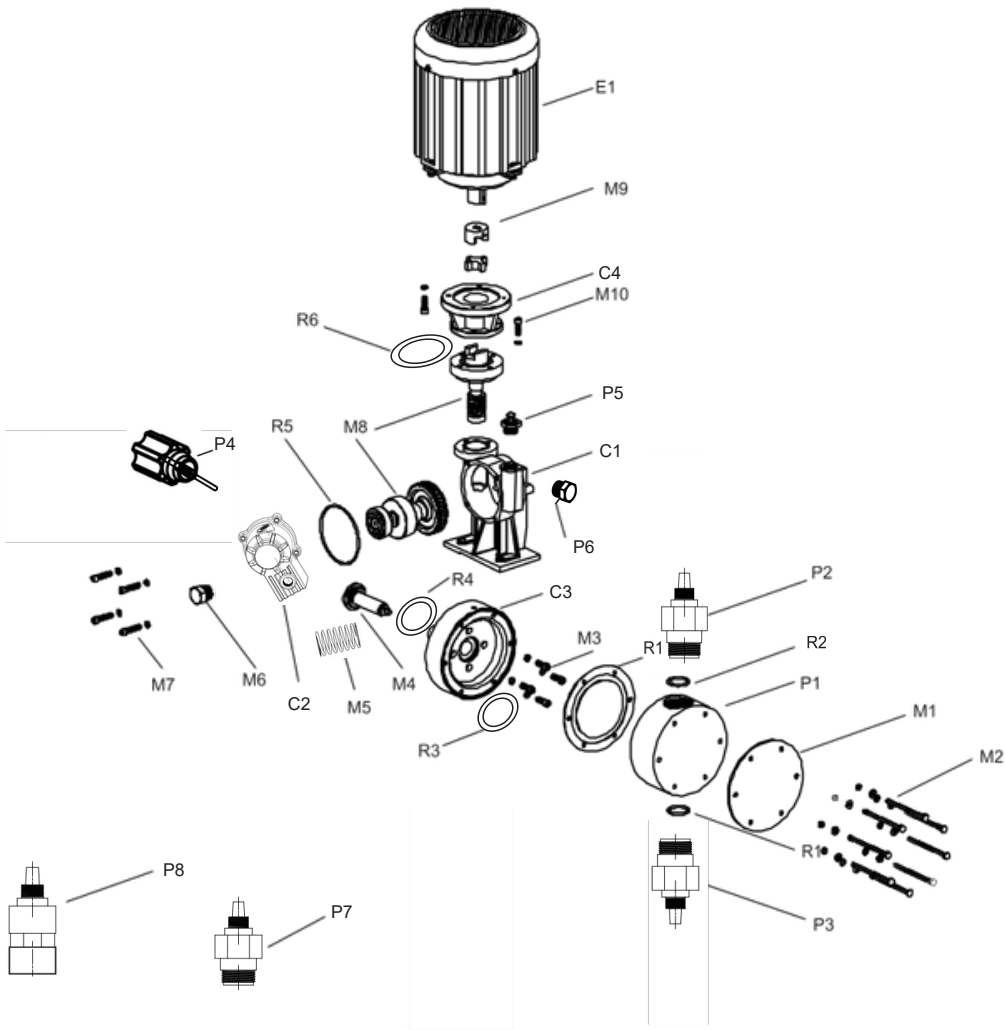
Diaphragm Replacement

- Adjust the stroke length to 0 %
- Unscrew the dosing head fasteners
- Hold the diaphragm and turn clockwise, the diaphragm get loose, take new diaphragm and hold to the connections shaft and turn anticlockwise till it tightens and put fasteners through reinforced plate, dosing head and diaphragm. Start the motor and adjust stroke to 100 % and tighten the fasteners crosswise till tightened.

Troubleshooting

Problem	Causes	Remedy
Solution drips from hole in spacer.	Diaphragm is ruptured.	Replacement Diaphragm. See Liquifarm replacement instruction in maintenance section of this manual
Diaphragm does not move	1. Output adjustment knob is set to zero 2. Power is off 3. Solution is too viscous 4. Injection into excessive pressure	1. With pump running rotate output adjustment knob to a higher setting. 2. Check power 3. Dilute Solution 4. Check and clean valves if clogged and check system pressure against maximum injection pressure rating pump. if discharge pressure is within 20 PSI of pumps maximum rating. remove spring in injection check / antisiphon valve
Diaphragm moves, but no solution is pumped	1. Trapped air in pump head 2. suction lift is too high 3. loop in suction line permits air trap on suction side 4. Improperly installed or dirty valve seats 5. Air in suction line.	1. Operate pump at 100% output setting. Release pressure on pump discharge. Follow priming instructions Operate for few minutes to purge head and valves of air 2. Reduce Suction Lift or arrange pump and tank for flooded suction installation. 3. Straighten suction tubing. 4. Refer liquid handling assembly instruction. clean and reassemble valve 5. Tighten suction valve fitting. replace if necessary. Check for air leak throughout suction line
Pumps air bubble or air	1. Suction tubing has leakage or pin hole 2. Improperly installed or dirty valve seats 3. Suction lift is too high 4. Suction supply is exhausted. 5. Foot valve and strainer assembly is clogged	1. Replace suction tubing 2. Refer liquid handling assembly instruction. clean and reassemble valves. 3. Reduce suction lift or arrange pump and tank for flooded suction installation. 4. Refill solution container 5. Clean foot valve assembly.
Pump does not start under rated pressure	1. Low Voltage 2. Pressure rise due to discharge line or viscosity of solution 3. Clogged injection check/antisiphon valve	1. Check your power supply 2. Clean discharge line or dilute solution 3. Refer liquid handling assembly instruction. clean and reassemble valves
Suction tubing collapse	Foot valve and strainer assembly is clogged	Refer liquid handling assembly instruction. Clean and reassemble valves. replace strainer if necessary.
Excessive pump output	1. Output pump knob is improperly set. 2. Valve pressure at injection point. 3. Excessive positive suction head	1. With pump running turn knob counter clockwise until pump stops stroking. Line on knob should be directly over the zero mark on the dial. if setting instructions in this manual. 2. Install injection check/antisiphon valve on pump 3. When flooded suction installation is used, chemical supply should be no more than 20 feet (6 meters) above pump when using standard injection check/antisiphon valve and zero discharge pressure. After location of pump or consult factory

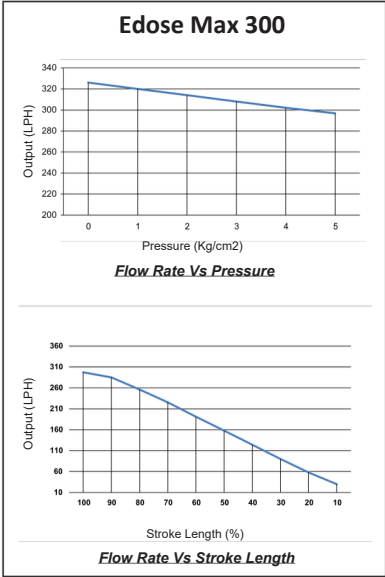
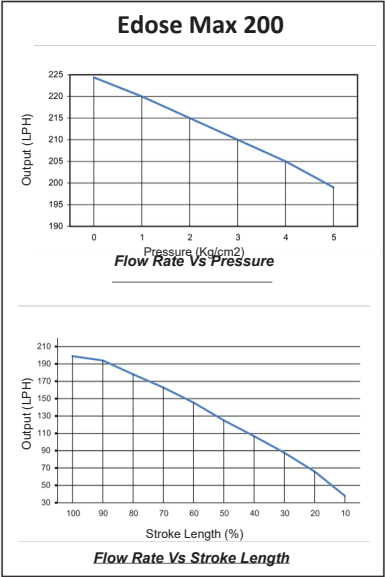
Exploded View



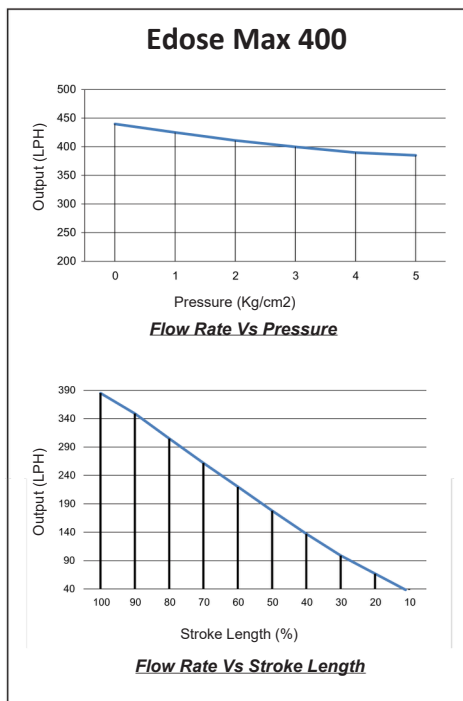
Part List

SR NO	PART NAME	PART NO
1	DOSING HEAD 200 LPH	P1
2	DISCHARGE VALVE ASSLY 200 LPH	P2
3	SUCTION VALVE ASSLY 200 LPH	P3
4	FREQUENCY KNOB ASSLY 200 LPH	P4
5	AIR VENT NUT	P5
6	OIL DRAIN NUT	P6
7	INJECTION VALVE ASSLY 200 LPH	P7
8	SUCTION FILTER ASSLY 200 LPH	P8
9	WORM WHEEL HOUSING	C1
10	PLUNJER HOUSING	C2
11	DIAPHRAGM HOUSING BIG	C3
12	MOTOR MOUNTING CONNECTOR SMALL	C4
13	MOTOR 0.25HP	E1
14	DIAPHRAGM BIG	R1
15	NRV BDDY ORING (27.6*3.5)	R2
16	ROD SEAL (20X25X3)	R3
17	DIAPHRAGM HOUSING ORING (45X2)	R4
18	PLUNJER HOSUING ORING (85X2)	R5
19	WORM WHEEL HOUSING ORING (33X3)	R6
20	DOSING HEAD SUPPORT PLATE	M1
21	DOSING HEAD BOLT WITH WASHERS (6X90)	M2
22	DIAPHRAGM HOUSING BOLT WITH WASHER (6X30)	M3
23	PLUNJER ROD	M4
24	SPRING	M5
25	OIL WINDOW INDICATOR	M6
26	PLUNJER HOUSING BOLT WITH WASHER (6X30)	M7
27	CAMSHAFT ASSLY WITH WORM GEAR 200 LPH LPH	M8
28	MOTOR COUPLER	M9
29	MOTOR MOUNTING CONNECTOR BOLT WITH WASHER	M10

Flow Rate Graphs



Flow Rate Graphs



Available with Your Trusted Partner for Water Treatment Solutions:



Workshop: 14-15, Panchratna Industrial Estate, Opp Satyam Mall, Sumip Composite-3 Lane, B/h VR Pilsulfate, Changodar-382213

Office: B-214, Nilkanth Palace, 100 feet Anandnagar Road, Satellite, Ahmedabad-380015

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