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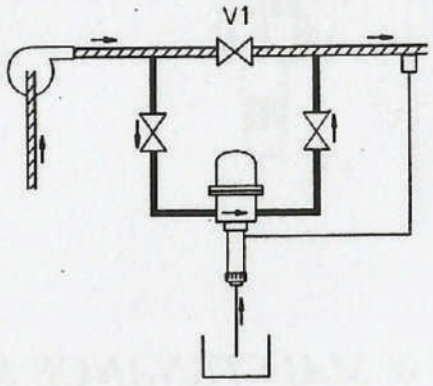
IMPORTANT

- Ensure that Doser has been fitted in right direction. Refer arrow mark on housing.
- Install doser as by pass across ball/globe valve of main pipeline. Throttle valve till doser starts clicking.
- Use only 20 N.B. pipe / tubing & gate /ball/ globe isolation valves.
- Clean suction filter & Chemical tank regularly. Replace seals RI & RMI every six months.
- When not in continuous use, rinse dispenser after each use by running doser with the suction tube put in clean water.
- Avoid direct exposure of Dosamatic to sunlight.

For Chlorination

To avoid clogging of Dosamatic & associated piping due to hardness precipitation, only for chlorination, install Dosamatic as shown below



INITIATIVE ENGINEERING

INSTALLATION OF DOSAMATIC EXA–02

VALVE V1 : AS OER MAIN PIPE LINE SIZE GLOBE OR DIAPHRAM
VALVE V2 & V3 : 3/4" GATE OR BALL VALVE

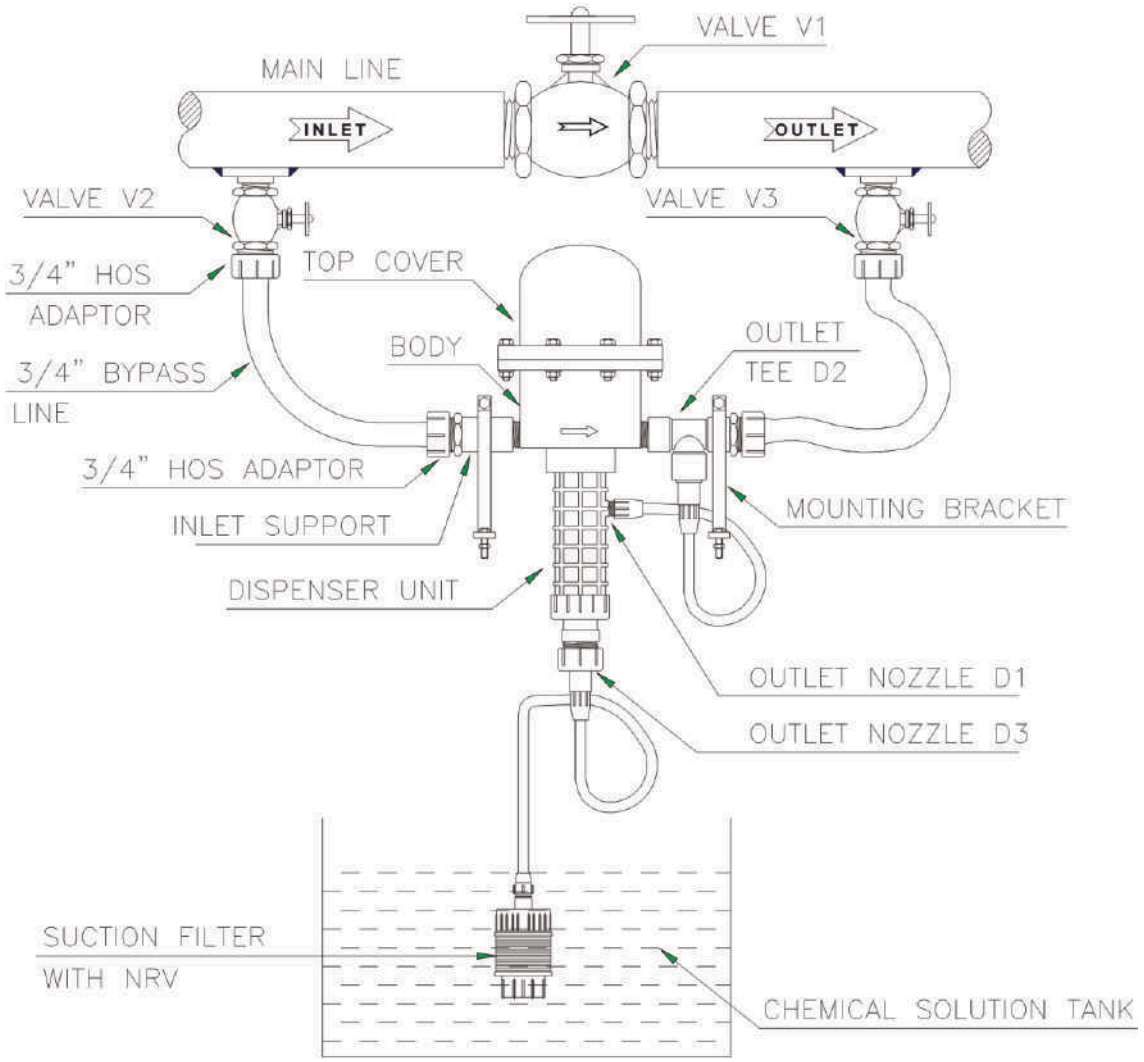


FIGURE – 2

INITIATIVE ENGINEERING

INSTALLATION

1. Dosamatic is normally installed on a bypass line to the main flow as shown in Installation Diagram on Page 5. Ensure that the arrow mark on Dosamatic is in the direction of the main flow. Other types of installation are shown on page 6.

2. Dosamatic can be mounted on the lid of the solution tank itself as shown in Fig 4A Two brackets are provided with the Dosamatic which can be bolted on to the lid of the tank by drilling holes on the lid. An additional hole has to be drilled in the centre of these brackets to allow the dispenser unit to go in. Alternatively Dosamatic can be mounted on any support structure like a wall etc. by attaching the brackets perpendicular to Dosamatic and parallel to the ground as shown in Figure 4B.

3. Dosamatic is supplied with 4 hose pipe adaptors (3/4") which are to be used if the connection from the mainline to the Dosamatic is made with flexible tubing. Two hose adaptors are to be attached to the two 3/4" valves and one each on the inlet socket and outlet tee of the Dosamatic as shown in Figure 2.

4. Dosamatic is supplied with 2 meter length PVC tubing with suction NRV and filter. Cut a portion of the tube (0.5 meter length) and connect it from the outlet nozzle (D1) of dispenser unit to the outlet tee NRV (D2) as shown in Installation Diagram on Page 2. Tighten hose with the NRV nut.

5. Cut the remaining tubing to desired length & connect to the suction side of the dispenser unit (D3) and immerse the tubing with the filter end in the chemical solution tank. Please note that the filter should be at least 50mm above the bottom of the tank so that it does not suck in dirt, which may have settled to the bottom of the tank.

6. Pour solution of desired concentration in the solution tank. Ensure that the suction filter is completely immersed in solution.

7. Dosamatic can be started by throttling valve V1 with V2 and V3 fully open to allow part of the main line flow to pass through the Dosamatic. Dosamatic is self priming, the solution from the tank will rise through the tubing and get discharged into the outlet tee (D3).

Note: For deciding how much to throttle Valve V1, please refer to "SETTING THE DOSAGE" on the next page.

INITIATIVE ENGINEERING

EXAMPLE

If chemicals have to be dosed for Boiler Feed Water under the following conditions

Flow rate of feed water entering the Service Tank is 4 M^3/hr. Catalysed Sodium Sulphite has to be dosed at 80 ppm. Then If you prepare a 5% solution of Sodium Sulphite in the Solution tank then the dosing flow required will be:

$$\text{Dosing flow (lph)} = \frac{\text{Main flow } (M^3/HR) \times \text{ppm dosage } (g/m^3)}{10 \times \text{Solution concentration in percentage}}$$

$$\text{then dosing flow} = \frac{4 \times 80}{10 \times 5} = 6.4 \text{ lph}$$

For a dosing flow of 6.4 lph the number of clicks per minute
= 4 X 6.4 lph = 25.6

So throttle Valve V1 such that 26 clicks/min can be heard. The DOSAMATIC is now set to dose 80 ppm of Sodium Sulphite.

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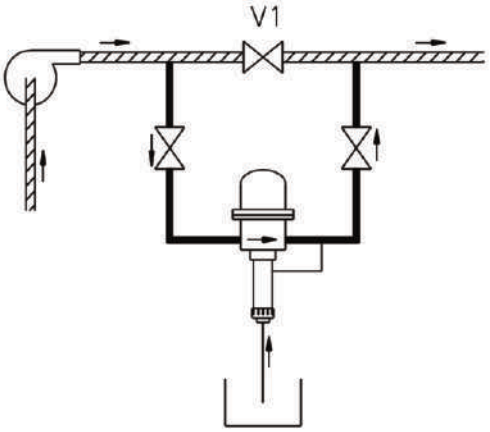
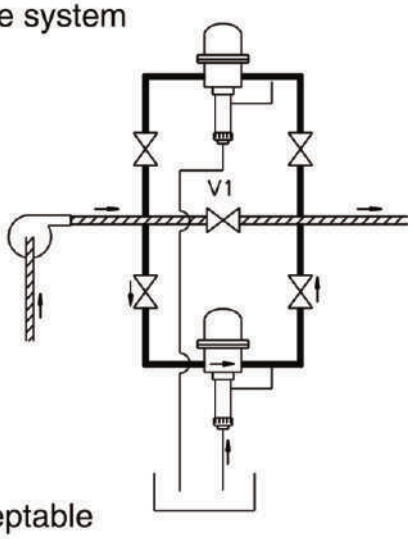
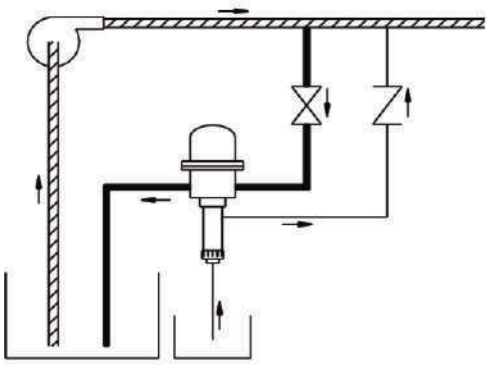
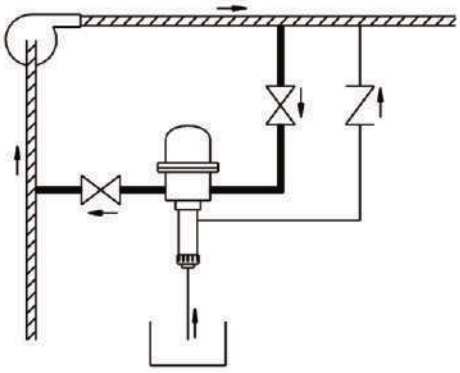
1. Where sufficient pressure is available
Note : Valve V1 must be set at the minimum expected flow condition in the system



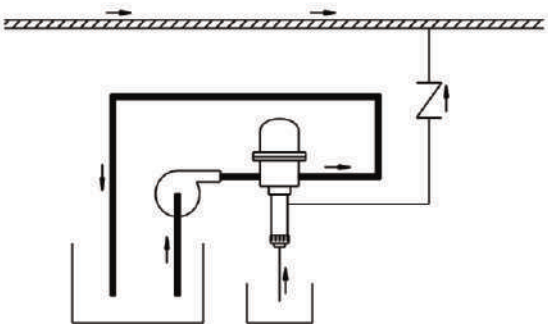


2. Where pressure loss is not acceptable
Note: Here a small water flow loss will occur.





3. Where line fluid cannot be used for powering Dosamatic either due to pressure of chemical compatibility problems.



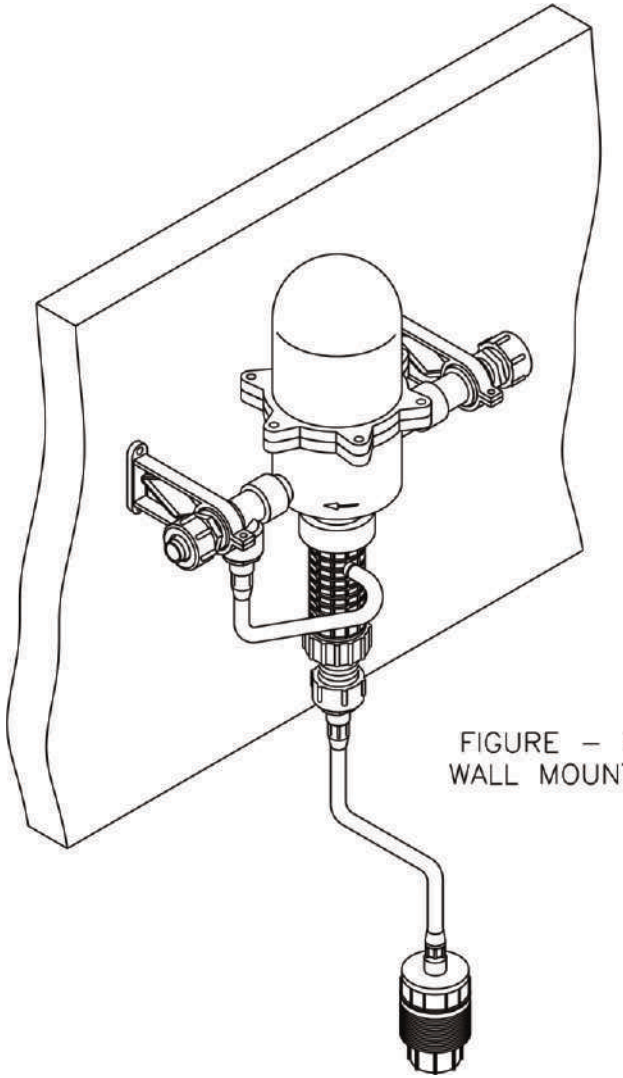


FIGURE – 4B
WALL MOUNTED

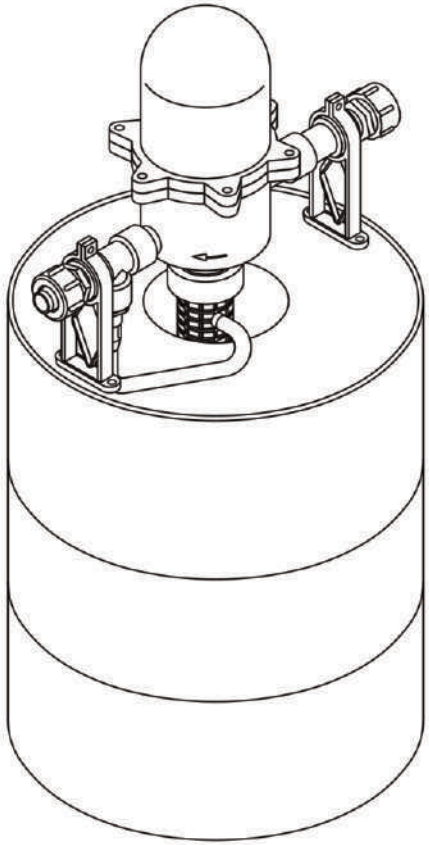


FIGURE – 4A
MOUNTED ON
SOLUTION TANK

POSITIONS OF MOUNTING BRACKET

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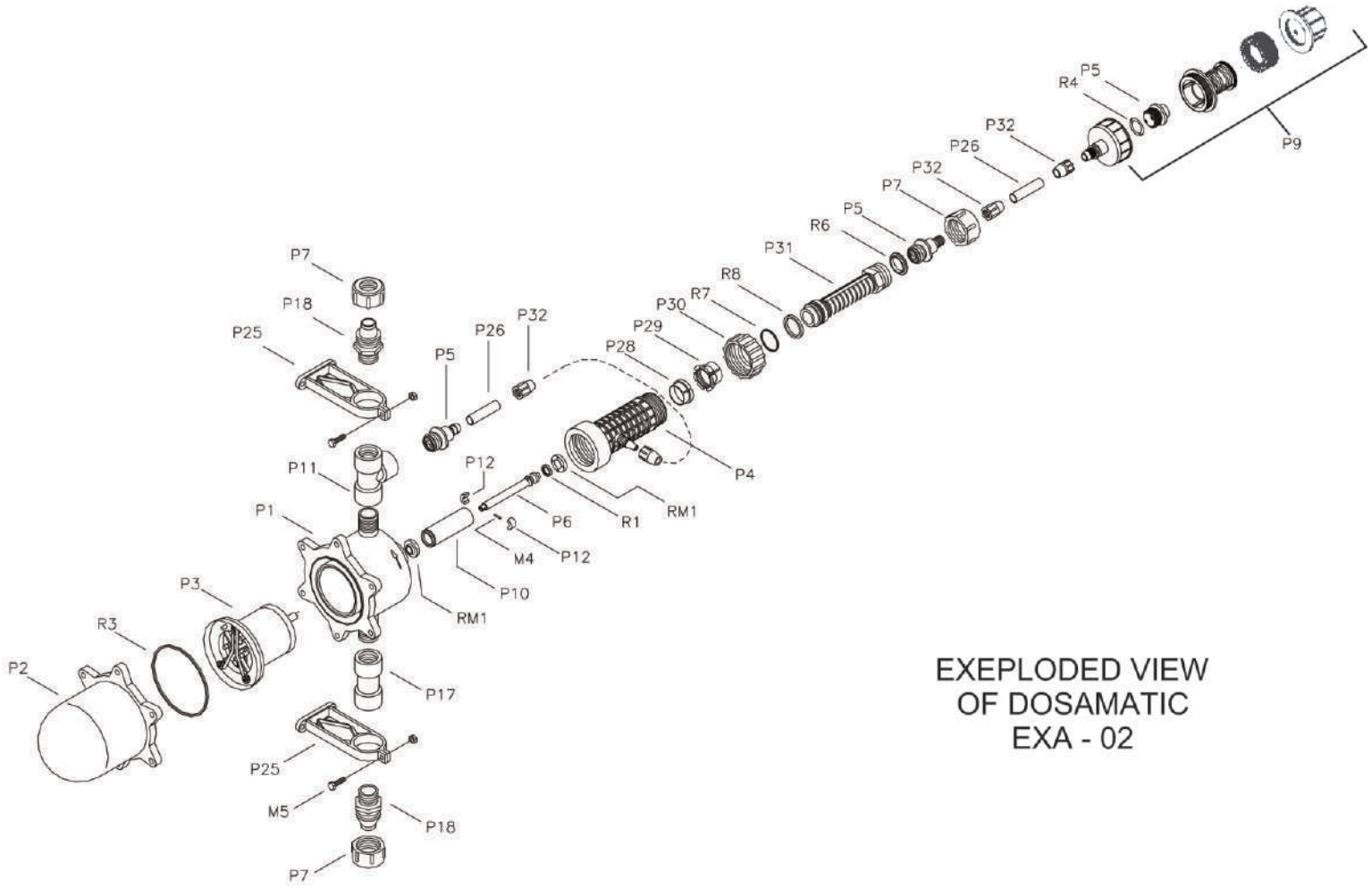

EXEPLODED VIEW
OF DOSAMATIC
EXA - 02

INITIATIVE ENGINEERING

SETTING THE DOSAGE

Dosamatic can be set to achieve the desired ppm level dosage by adjusting the flow through the dosar and/or percentage dosing (rotate inner cylinder clockwise).

Flow through doser is adjusted by throttling valve V1 on the main line. While in operation, Dosamatic makes a distinct "click" sound, the frequency of which is proportional to the dosing flow.

The relationship is as under

Clicks/min = 4 X dosing flow (lph)

{ For 100% dosing i.e. inner cylinder completely inside}

eg. If the dosing flow required is 5 lph,

then clicks/min = 4 X 5 = 20.

So simply throttle valve V1 such that 20 clicks can be heard in a minute.

DOSAMATIC has now been set to the desired dosage level. DO NOT DISTURB THE SETTING OF VALVE V1. If there is any change in the main line flow, the dosing flow will change automatically to maintain the desired ppm level.

Valve V1 is DOSAGE SETTING VALVE & SHOULD NOT BE USED TO CONTROL THE FLOW IN MAIN LINE FOR ANY OTHER PURPOSE.

The minimum `clicks` setting for Dosamatic is 20 clicks/min. Hence, if dosing flow required is less than 5 lph, set the doser at 20 clicks/min & obtain further reduction by rotating inner cylinder clockwise to the correct.

percentage setting eg. Dosing flow required is 2.5 lph but setting Dosamatic at 20 clicks/min gives 5 lph. Hence percentage Dosing required is

$$\frac{2.5 \times 100}{5} = 50\%$$

So rotate the inner cylinder till the 50% mark on the indication ring.

The dosing flow can also be varied by changing the solution concentration.

The relationship is as follows:

$$\text{Dosing Flow (lph)} = \frac{\text{Main flow } (M^3/Hr) \times \text{ppm dosage } (g/m)^3}{10 \times \text{Solution concentration in percentage}}$$

eg. If the main flow 5 m^3/Hr
and the ppm dosage 80 ppm
and the solution concentration 10%
then dosing flow $\frac{5 \times 80}{10 \times 10} = 4$ lph

In the above example if the solution concentration is changed to 5%

Then dosing flow $\frac{5 \times 80}{10 \times 5} = 8$ lph

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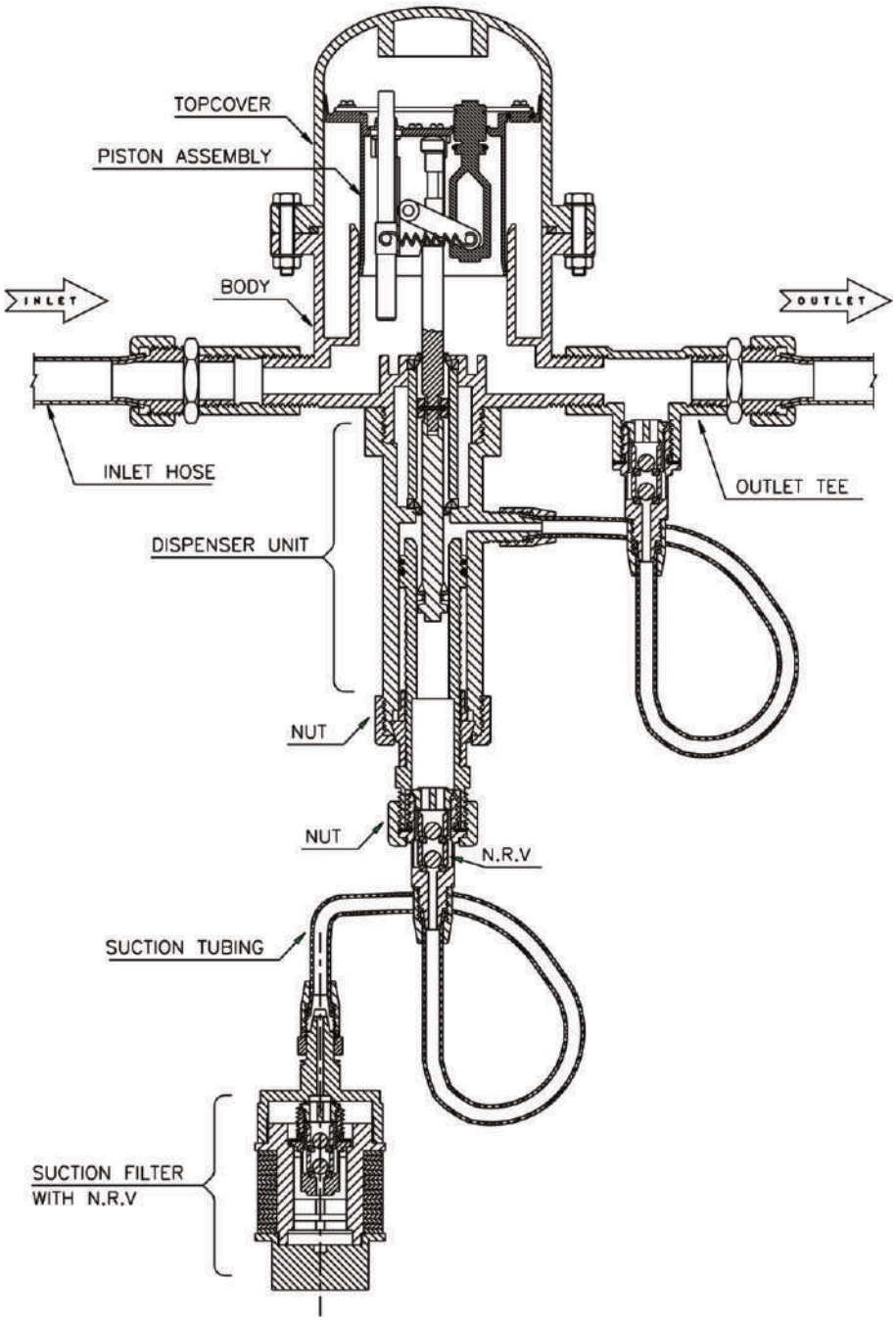

DOSAMATIC EXA - 02
CROSS SECTION VIEW

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MAINTENANCE

1. Chemical Solution tank and suction filter must be cleaned once a week.

2. It is recommended that once a year seals R1 and R M1 (2 Nos.) be replaced. In case Dosamatic is used for chlorination, replace seal RM1(both) every three months.

3. If the dosar is not in regular use, clean dispenser unit, suction tubing, NRV and filter before restarting since chemicals may have dried and deposited on above.

CAUTION: DO NOT ALLOW THE DOSER TO OPERATE DRY i.e. WITHOUT CHEMICAL SOLUTION (Seal R1 wears out faster when run dry)

INITIATIVE ENGINEERING

TROUBLE SHOOTING

	SYMPTOM		PROBABLE CAUSE	REMEDY
1	No Click Sounds during Operation	1	Valve V1 on the main line may have been opened completely.	Throttle V1 to obtain desired clicks per minute.
		2	Valve V2/V3 may be closed.	Open Valves V2 and V3.
		3	Piston spring may have broken	Replace.
		4	Wire form M2 may have broken.	Replace
		5	O ring R - 5 may have slipped out of valve P-20.	Replace
		6	Piston assembly P3 may be jammed because of excessive dirt/debris.	Clean & refit
2.	No dosing taking place	1	Doser may have lost its prime due to Solution level going below the filter.	Check Solution
		2	Dirt may have clogged NRV or Suction Filter.	1 Unscrew dispenser nut, remove NRV. Open and clean the NRV and reassemble.
				2 Clean suction filter.
		3.	Seal R1 may have worn out.	Unscrew dispenser unit and replace Seal R1.
		4	Doser may have lost its prime due to the air being sucked in from the sunction side of the Doser.	Locate the leakage point and plug it (seal).
3	Water flowing back to the water tank		Lip seals RM1 may be worn out.	Check and Replace.

INITIATIVE ENGINEERING

PARTS LIST

Sr no	Description	Part no.	Quantity
1	Lower Housing	P1	1
2	Upper Housing	P2	1
3	Piston Assembly	P3	1
4	Dispenser Housing	P4	1
5	NRV Assembly	P5	3
6	Plunger Rod	P6	1
7	Dispenser Cap	P7	5
8	Push Rod	P8	1
9	Suction Filter with Adaptor	P9	1
10	Bush	P10	1
11	Outlet Tee	P11	1
12	Split Nut	P12	2
13	NRV Body	P13	3
14	Teflon Ball	P14	6
15	Ball Housing	P15	6
16	NRV Cap	P16	3
17	3/4" Coupler	P17	1
18	Hose Adaptor	P18	4
19	Small Valve	P19	1
20	Large Valve Assembly	P20	1
21	Connecting Rod	P21	1
22	Mounting Bracket	P25	1
23	PVC Tubing	P26	2 meter
24	Piston	P27	1
25	Dispenser Spacer	P28	1
26	Dosing Ratio Indicator	P29	1
27	Dispenser Housing Nut	P30	1
28	Dispenser Unit	P31	1

Sr no	Description	Part no.	Quantity
29	Tubing Connector	P32	3
30	Piston Spring	M1	2
31	Wire Form	M2	1
32	Set of Screws & Washers	M3	1
33	Connecting Pin	M4	1
34	Nut & Bolt for Bracket	M5	2
35	Lip Seal	RM1	2
36	Square Ring	R1	1
37	NRV Washer	R2	6
38	Top Cover Washer	R3	1
39	Small Valve `O' Ring	R4	1
40	Large Valve `O' Ring	R5	1
41	L Shaped NRV Washer	R6	2
42	Dispenser `O` Ring	R7	1

LIST OF SPARES

The following Spares are supplied along with every DOSAMATIC:

Sr. no.	Description	Part no.	Quantity
1.	Sqare Ring	R1	2 Nos.
2.	Lip Seal	RM1	2 Nos.
3.	Connecting Pin	M4	1 No.
4.	NRV Assembly	P5	1 No.
5	Tubing Connector	P32	2 Nos.

INITIATIVE
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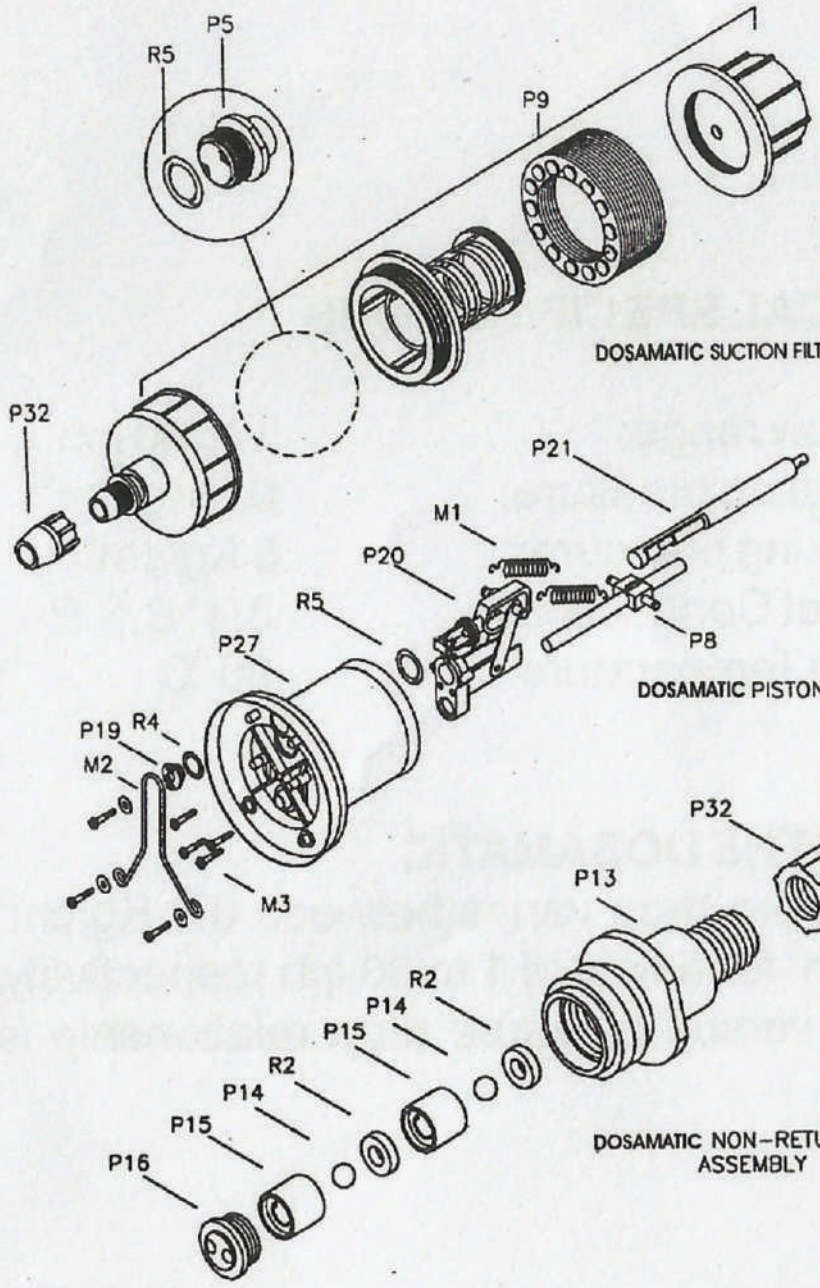
EXPLODED VIEW



INITIATIVE
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TECHNICAL SPECIFICATIONS

Dosing flow range:	1 to 30 lph
Min. actuating pressure:	0.3 Kg/cm^2
Max. working pressure:	5 Kg/cm^2
Inlet/Outlet Connections:	3/4" B.S.P.
Maximum Temperature:	50 ^{o}C

ACROSSTHE DOSAMATIC

The pressure drop varies between 0.1 Kg/cm^2 to 1Kg/cm^2 for a flow of 1 to 30 lph respectively. The flow versus pressure drop relationship is linear.