

INTRODUCTION

The Series 2100 suction demand valve (SDV) is designed specifically for the dosing industry to hydraulically isolate a metering pump from its bulk supply tank to prevent variations in suction pressure and hence pump accuracy due to rising and falling tank liquid levels. This is especially true with the advent of part-manned Water and Sewage treatment plants having small site footprints with correspondingly taller storage tanks. By assisting the dosing pump's accuracy the valves provide two savings - first, by reducing wastage of the primary injected chemical and then by reducing the required amount of any subsequent neutralising chemicals.

The 2100 valve has the added benefit in that it will prevent uncontrolled discharge from the storage tank in the event of a pipeline rupture downstream from the valve thus preventing potential harm to personnel and environmental pollution.



APPLICATIONS

The Series 2100 valves are designed for pulsing flow as is normally associated with metering pumps and will not function as a pressure regulating valve under continuous flow conditions. The valves are designed to be used with a wide range of corrosive chemicals of low to medium viscosity. Whilst they can handle some slurries problems may occur when handling particulate or materials which 'drop out' or settle quickly such as lime slurry. Contact PROCHEM in these circumstances.

SIZES AND CAPACITIES

| METRIC O.D. | METRIC DN. | IMPERIAL N.B. | CAPACITY L/HR |
|-------------|------------|---------------|---------------|
| 20 | 15 | 1/2" | 125 |
| 25 | 20 | 3/4" | 300 |
| 32 | 25 | 1" | 500 |
| 40 | 32 | 1 1/4" | 750 |
| 50 | 40 | 1 1/2" | 1000 |

*Note: Due to pressure losses through the SDV's the effective capacity of the dosing pump is reduced by approx. 5%.

MATERIALS OF CONSTRUCTION

The design of the 2100 Series SDV's allows an almost limitless choice of constructional materials to be used to match virtually all chemicals encountered in normal dosing applications. Below are the more common materials of construction. **Other materials are available for specific applications.**



BODY - PVC, POLYPROPYLENE, PVDF, & 316S/STEEL.

DIAPHRAGM - EPDM, VITON, PFA, & PTFE COATED VITON

VALVE STEM (The only metallic contact part) - 316 S/STEEL, TITANIUM, & HASTELLOY 'C'.

CONNECTIONS

Due to the orientation of the connections screwed or solvent weld connections are not always practical. For this reason the 2100 valves are normally supplied with either fusion or solvent weld UNION connections or flanges when specifically required. Other types of connection can be fitted where practical if requested.

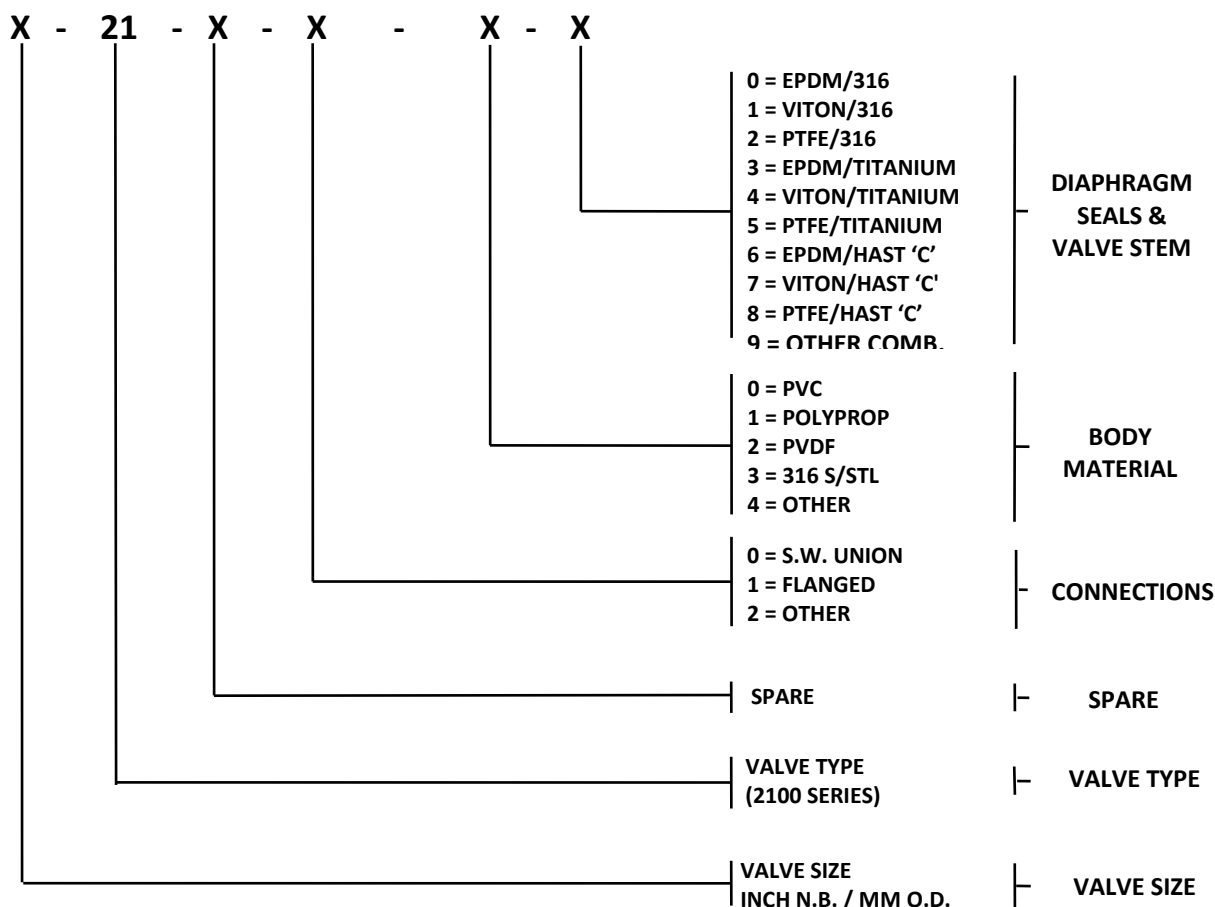


OPERATING PRESSURES

The valves accept inlet pressures up to 15 mtrs. W.C. (1.5 BarG) and will provide a pump suction condition of between 1 and 2 mtrs. W.C. irrespective of inlet pressure. This suction pressure is suitable for the vast majority of dosing pumps currently available.

THE MAXIMUM OPERATING PRESSURE FOR STANDARD PLASTIC SERIES 2100 VALVES IS 2 BarG. DO NOT EXCEED THIS PRESSURE UNDER ANY CIRCUMSTANCES. SEE PRECAUTIONS FOR HYDROTESTING LATER.

VALVE DESIGNATIONS



EXAMPLE

MODEL 1" - 2100 - 13 = 1" VALVE IN POLYPROPYLENE HAVING SOCKET (FUSION WELD) UNION CONNECTIONS AND VITON DIAPHRAGM/SEALS WITH TITANIUM VALVE STEM.

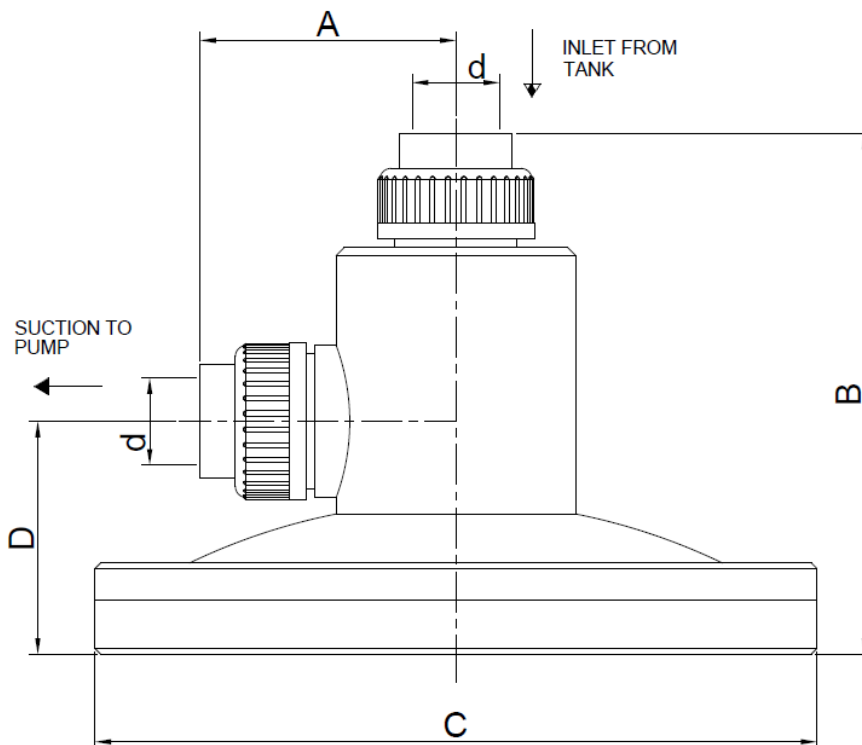
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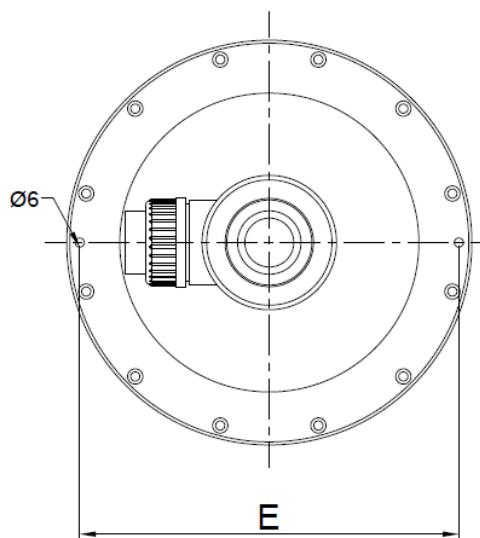
EQUIPMENT
SERIES 2100 SUCTION DEMAND VALVES

DATE
11/09/2013

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| ød | | | A | B | C | D | E |
|-----|----|-----|-----|-----|-----|-----|-----|
| O.D | DN | NB | | | | | |
| 20 | 15 | ½" | 80 | 157 | 147 | 65 | 133 |
| 25 | 20 | ¾" | 84 | 180 | 208 | 79 | 192 |
| 32 | 25 | 1" | 99 | 200 | 265 | 87 | 248 |
| 40 | 32 | 1¼" | 100 | 230 | 315 | 104 | 297 |
| 50 | 40 | 1½" | 112 | 257 | 345 | 115 | 328 |



DIFFERENT MATERIALS OF CONSTRUCTION EXHIBIT SLIGHT VARIATIONS ON BASIC DIMENSIONS

PVC UNIONS ARE SOLVENT WELD
PP/ PVDF UNIONS ARE FUSION WELD
316 UNITS ARE BSP/ SOCKET WELD

THE 2 OFF Ø6 MM HOLES PASS THROUGH CASING ASSEMBLY

TOLERANCES: ± 0.2 MM UNLESS STATED

ALL DIMENSIONS IN MM UNLESS OTHERWISE STATED

BREAK ALL CORNERS AND DE-BURR, CHAMFER WHERE SHOWN

| | | | |
|-------|--------------------------------|------|----------|
| DRAWN | RB | DATE | 11.09.13 |
| REV | 1 1/4" ADDED & DIMS UP TO DATE | REV | |
| REV | | REV | |

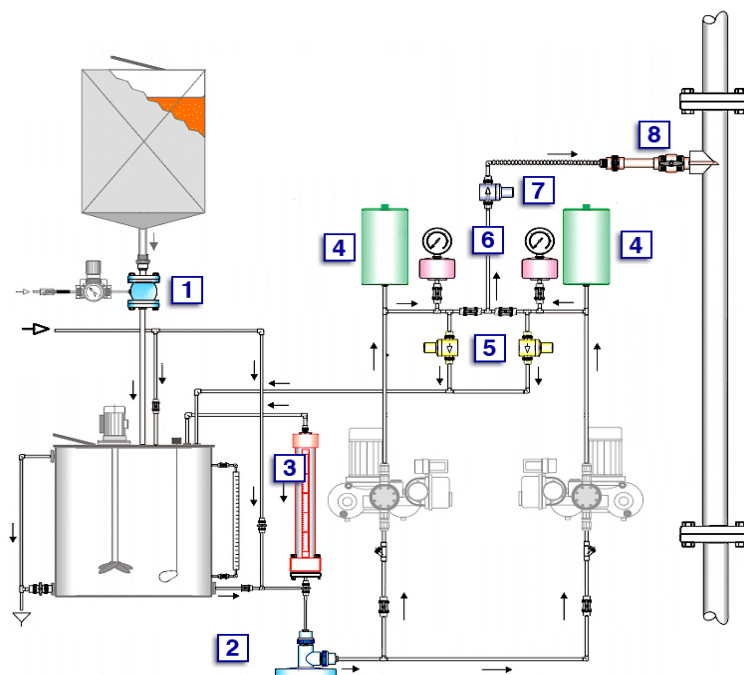
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| PROCHEM SERVICES LTD CONGLETON, CHESHIRE, CW12 2AD, ENGLAND | |
| DRAWING No. PS/96/495 | REV 1 |
| SUBJECT SERIES 2100 S.D.V G.A ALL SIZES & MATERIALS | |

INSTALLATION

The 2100 valve can be direct mounted into rigid or flexible pipework between the storage tank and the dosing pump. A calibration pot can be fitted in this suction line but no other equipment except full bore isolation valves. **It is essential that no air pockets exist in the suction line from the valve to the pump as the build up of entrained air or evolved gases (such as chlorine) will seriously impair the valve operation. If this appears to be a possibility then the suction line should rise to the pump inlet. Air entrapment in the delivery line to the valve should also be avoided.** Care should be taken when using flexibles so that excessive movement of the hoses does not overstress the valve connections. The SDV should be mounted as close as is practical to the pump suction and suction lines should be generous in size. Undersize suction lines will produce excessive suction pressure fluctuations which will impair the operation of both the pump and the SDV. The inlet to the valve should be protected by a fine screen strainer as any debris entering the poppet valve mechanism could prevent it from sealing correctly. The installation position is upright and the valve should be supported using the two mounting holes provided ideally raised off any base plate with spacer washers. The vent hole in the lower diaphragm chamber should not be obstructed. The lines to and from the valve should be flushed clear of any construction debris prior to installation.

THE 2100 VALVE SHOULD NOT BE SUBJECTED TO ANY HYDRO TEST PRESSURE WHATSOEVER AND SHOULD BE ISOLATED FROM ANY PIPEWORK SYSTEM OF WHICH IT FORMS A PART DURING ANY PRESSURE TEST PROVING OF THE PIPEWORK SYSTEM. THE VALVE SHOULD BE SUBSTITUTED WITH AN ELBOW PIECE IF ISOLATION IS NOT POSSIBLE. ELBOW PIECES ARE AVAILABLE FROM PROCHEM.

Where an isolation valve is fitted between the SDV and the storage tank care should be taken to prevent this being shut off while the pump is running. This will cause the pump to produce a strong vacuum in the suction line and can lead to permanent damage to both the pump diaphragm and the SDV internals unless a means exists for the vacuum to be relieved.



- 1) Pinch Valve.
- 2) **Suction Demand Valve.**
- 3) Calipot
- 4) Pulsation Damper.
- 5) Pressure Relief Valve
- 6) Diaphragm Seal.
- 7) Pressure Loading Valve.
- 8) Withdrawable Injection Lance.