



**TEST BENCH FOR SAFETY VALVES**



This Bench Contains One Panel and One Reservoir.

## 1) Hydro panel :

This Panel possesses

### 1 No. Monobloc



Version : Single Phase AC, 50 Hz

Type of Duty :S1 (Continuous)

Class of insulation : 'B'

Speed : 2800 rpm (For slow speed – 1440 rpm)

Direction of Rotation : Clockwise when viewed from motor end.

Maximum Liquid temperature : 40Deg C

Maximum ambient teprature : 45 Deg C

Maximum suction Head : Self prime models : 6 m(20 ft)

: Prime models :7.5 m (25 ft)

- Operation manual and maintenance manual as per attached.

### 10 No. Pressure Gauges:



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5 Nos. : For Gauge Isolation

5 Nos. : For Gauge SELF Calibration

#### Details:

PG-1 : 0- 200 psi

PG-2 : 0- 1000 psi

PG-3 : 0- 3000 psi

PG-4 : 0- 5000 psi

PG-5 : 0- 15000 psi

**3 Nos. Air regulators**



*Specifications*

Pressure Gauge port Size	1/8"
Max.Supply Pressure	15 bar (225 psi)
Set Pressure	refer product nameplate
Installation	Any Position
Medium	Compressed Air – Filtered
Ambient/media temperature	5 Deg c- 60 Deg C (41- 140 Deg F)

Operation manual and maintenance manual as per attached.

**1 No. Filter regulator Combination-Lubricator**



*Specifications*

Max.Supply Pressure	10 bar (140 psi)
Installation	Vertical
Recommend Oil	ISO VG-32/ Mobil DTE Light
Medium	Compressed Air – Filtered
Ambient/media temperature	5 Deg c- 60 Deg C (41- 140 Deg F)
Bowl Material	Polycarbonate

Operation manual and maintenance manual as per attached.

### **3 nos. Mercury Pumps**

#### *Specifications:*

Suitable to Pressure Class 150 to 2500.

Operation manual and maintenance manual as per attached.

### **1 Nos. Air Compressor**



#### *Specifications:*

Size :457 x 960 mm

Shell Thickness : 4 mm

Dished End Thickness : 4 mm

Working Pressure : 175 PSIG

Designed Pressure : 192 PSI

Hydraulic Test Pressure : 290 PSIG

Operation manual and maintenance manual as per attached.

## 2) Reservoir :-



This reservoir withstand Pressure of 12 Kg/cm<sup>2</sup>. Media will be Air.

This reservoir contains 4 Ports.

- 1) Inlet
- 2) Outlet ( Inlet to tested Valve)
- 3) For Pressure Guage
- 4) For Drain
- 5) Additional as per the application.

By this reservoir,  
Pressure can be held (/stored) and suddenly release by Any type of attachment as per the Requirements of tested Valve.

Relief valve Must posseses some SET PRESSURE.

### Theory for Test

----A method and system for testing safety relief valves utilizes a reservoir of high pressure fluid which is metered into a smaller pressure vessel in communication with the safety relief valve to be tested. The method and system permits a safety relief valve to be tested with air as well as water(Only for Hydro test of Body)

----Many types of plants and manufacturing facilities, among other locations, include the use of safety relief valves which are designed to open and release excess pressure within pressure vessels and pressure lines, when the pressure therein exceeds a predetermined

pressure value. Such safety relief valves can range in size from quarter inch diameter threaded valves to twelve inch diameter safety relief valves. It is of utmost importance to be able to determine at what pressure the safety relief valve does in fact open. Although such safety relief valves are engineered and designed to open at a particular pressure, commonly referred to as the set pressure, the actual pressure, or actual set pressure, at which the valve opens is frequently different. Likewise, the design pressure at which the safety relief valve is designed to reseal, or close, may be in fact different from the actual reseal pressure. In many installations wherein safety relief valves are utilized, such as nuclear power plants, it is extremely important to know at what exact pressure such safety relief valves open, rather than what the design set pressure is.

---Heretofore, safety relief valves have typically been tested by clamping the safety relief valve to a test fixture, or table, which is in fluid communication with a large volume of fluid, such as air, which fluid is maintained at a pressure slightly greater than the pressure anticipated to be necessary to open the safety relief valve. Typically, a pressure gauge is visually reviewed to determine at what pressure a safety relief valve opens. As a safety relief valve is opened, it typically opens rapidly and makes an audible report, or "pop," or "popping" noise. Typically, when the pressure in the safety relief valve rises and reaches the actual set pressure, the pop occurs. When the actual set pressure is reached, the "popping" of the valve can occur over a split second, whereby it is extremely difficult to make a visual and accurate reading of the pressure gauge to determine at what pressure the valve has in fact "popped" open. Likewise, after the pressure within the valve decreases, it is difficult to visually and accurately determine at what pressure the valve, in fact, reseals, or closes.

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## **Procedure to check the Valve.**

Below Procedure determines how to check Valves in against Pressure class. It also determines steps According to Valves Code. i.e. V1,V12 Etc. All these Procedure steps also looks on the top Desk of the Test Batch.

### **HYDRO TEST FOR # 150**

- 1) Ensure all the valves in closed condition
- 2) Open valve V12 & start monoblock by electrical switch button.
- 3) After water filling close the valve V12 & open the valve V11.
- 4) Open the gauge isolation valve V2 & open valve V6 for pump isolation regulator.
- 5) After completion required cycle time, drain the pressure by opening V13 valve, & close pump isolation by closing V6 valve, & close gauge isolation valve V2.

### **HYDRO TEST FOR #300**

- 1) Ensure all the valves are in closed condition.
- 2) Open valve V12 & start monoblock by electrical switch button.
- 3) Close the valve V12 & Open the valve V11.
- 4) Open the gauge isolation valve V3 & open valve V6 for pump isolation & regulate air regulator for #300 & set required pressure.
- 5) After completion required cycle time drain the pressure by opening V13 valve & close pump isolation by closing V6 valve & close gauge isolation valve V3.

### **HYDRO TEST FOR #600**

- 1) Ensure all the valves are in closed condition.
- 2) Open the valve V12 & start monoblock by electrical switch button.
- 3) Close the valve V12 & open the valve V11.
- 4) Open the gauge isolation valve V3 & open valve V7 for pump isolation & regulate air regulator for #600 & set required pressure.
- 5) After completion required cycle time drain the pressure by opening V13 valve & close pump isolation by closing V7 valve close gauge isolation valve V3.

### **HYDRO TEST FOR #800 & 900**

- 1) Ensure all the valves are in closed condition.
- 2) Open valve V12 & start monoblock by electrical switch button.
- 3) Close the valve V12 & open the valve V11.
- 4) Open the gauge isolation valve V4 open valve V7 for pump isolation & regulate air regulator for # 600, 800 & 900 & set required pressure.
- 5) After completion required cycle time drain the pressure by opening V13 & close pump

isolation by closing V7 valve & close gauge isolation valve V4.

### **HYDRO TEST FOR # 1500& 2500**

- 1) Ensure all the valve are in closed condition.
- 2) Open the valve V12 start monoblock by electrical switch button.
- 3) Close valve V12 & open valve V11.
- 4) Open the gauge isolation valve V5 & open valve V8 for pump isolation & regulate air regulator for #1500 & 2500 & set required pressure.
- 5) after completion of required cycle time drain the pressure by opening V13 valve & close pump isolation by closing v8 valve & close gauge isolation valve V5.

### **AIR TEST**

- 1) Ensure all valves are in closed condition.
- 2) Open air isolation valve V9 & open V11 valve for air isolation in valves. & open V1 valve for gauge isolation.
- 3) after required cycle time & required pressure drain the air pressure by opening V13 valve & close V9 valve gauge isolation valve V1.

### **NITROGEN TEST**

- 1) Ensure all valves are in closed condition.
- 2) Open nitrogen isolation valve V10 & pen V11 valve nitrogen isolation in valves & open V1 valve for gauge isolation.
- 3) After required cycle time & required pressure drain the nitrogen pressure by opening V13 valve & close V10 valve & gauge isolation valve V1.

For more details, please contact at factory.