1 GENERAL

The tank blanketing system is a modulating pilot operated valve designed to be installed on top of storage tanks in order to maintain a constant pressure in the tank even in case of emptying. Inlet and outlet connections are supplied tapped as standard. If requested flange adapters can be supplied using screwed nipples, but this must be notified on order or can be arranged by the end-user.

2 BEFORE INSTALLATION

Before the installation of the tank blanketing system, the supply lines should be purged with inert gas in order to remove dust, sand, lint or any other particles from the piping. This is particularly true for new tanks and or new modified pipework.

NOTE

Follow the safety procedures in force in your company to help prevent accidents.

3 INSTALLATION

The tank blanketing system should be installed as shown in the diagram in this manual. We recommend a filter is fitted to the inert gas supply line before, or upstream of, the blanketing valve. A filter rated for 10 to 40 µm filtration is recommended, however it is imperative to ensure that the filter is able to provide the volume flow required by the blanketing system, and that the pressure drop is either minimal or advised to the factory, as a reduction in supply pressure will reduce the capacity of the blanketing system.

The blanketing valve should be installed in the normal upright position. The inlet is horizontal and the outlet is vertically downward. The nominal diameter of the outlet piping to the tank must be at least equal to the normal diameter of the outlet thread of the blanketing valve. The length of this piping must be as short as possible for rigidity and performance reasons.

CAUTION

Although the connection to the sense port of the tank blanketing system is ¼” NPT, the outside diameter of the sense line must be at least 1” and length must not exceed 1.2 m. However the distance between the outlet of the blanketing valve and the sense port must be a minimum of 0.6 m (see installation diagram). The sense line should slope downwards towards the tank to allow any condensate to drain into the tank.

Do not over-tighten threaded connections as this could cause severe damage. Use a PTFE ribbon and/or grease to ensure leak free joints.

The sense port is marked with a ‘D’ on the body of the valve a ‘tee’ can be added at this point for gauging pressure in the vessel. The port at the end of the main valve body, opposite the inlet, is not a sense port. It has been designed to allow an optional horizontal outlet for the valve. This port must not be used for pressure gauging, since pressure here may fluctuate widely when the tank blanketing system opens and closes.

WARNING

The installation of a pressure/vacuum relieving device is essential to protect the tank. It must be sized to prevent excess tank pressure or vacuum in all venting conditions including the failed open condition of the blanketing valve (consult Emerson).
4 START-UP

The commissioning of the tank blanketing system is automatic once the outlet pressure or blanket pressure has been set. The set point is usually bench-set at the factory prior to shipment, but it can be re-adjusted after installation. If setting of the system is made after installation, it is necessary to loosen the spring by unscrewing the adjusting screw before applying inlet pressure to the tank blanketing system.

NOTE

The set pressure is the pressure at which the tank blanketing system will be closed fully with an increasing tank pressure.

Refer to the diagram ‘Recommended Assembly of the Tank Blanketing System’. Close all the valves before beginning the start-up procedure. Use an appropriate gauge ‘M2’ to measure the pressure in the tank. Open the valves ‘V2’ and ‘V3’, and the valve ‘V4’. Then open the valve ‘V1’ SLOWLY while verifying the pressure on the gauge ‘M2’.

CAUTION

Never slam open the valve ‘V1’.

The tank blanketing system will close when the pressure in the tank reaches the set pressure of the pilot.

To adjust the set pressure of the pilot, unscrew the cap on the valve and unscrew the lock-nut of the adjusting screw. Turning the adjusting screw clockwise, increase the set and therefore tank pressure. Anti-clockwise rotation will decrease the set pressure, however the tank pressure will not decrease until the excess pressure is vented from the system. Once the valve is set to maintain the required tank pressure, re-tighten the lock-nut of the adjusting screw and replace the cap.

6 MAINTENANCE

The tank blanketing system has been designed to operate with a minimum level of maintenance. Periodically, the set pressure should be verified accurately. The frequency of this test is dependent on the service conditions, however an annual control is a minimum recommendation.

CAUTION

If the tank blanketing system must be disassembled for any reason, make sure that the isolating valves are closed and that the system is drained.

Follow the procedures in force in your company for precautions to be taken when handling toxic chemicals or any other hazardous process.

7 RECOMMENDED SPARE PARTS

- Set of gaskets
- Membrane
- Springs
RECOMMENDED ASSEMBLY OF THE TANK BLANKETING SYSTEM

MODEL ½" (TYPE 77F)

MODEL 1" (TYPE 77H)