



QUICKTESTER™

General Description

The unit has been designed to enable the user to check the set pressure of any elastomer seal safety relief valve and incorporates the following features: **(See Figure A)**

- 1/4" BSP parallel male thread Conex supply port (Inlet Port 1)
- 3/8" BSP parallel female safety relief valve test port (Port 2)
- 3/8" BSP parallel pressure gauge port (Port 3)
- Restricted inlet control valve (Control Valve 4)
- Vent control valve (Control Valve 5)

MAXIMUM WORKING PRESSURE – 55 bar g.

1. Competent Person

The unit must only be operated by a competent person familiar with the hazards associated with pressurised systems and testing of safety relief valves. It must only be operated in accordance with these instructions.

2. Setup Procedure

Follow entire set up procedure (2.1 to 2.4) prior to testing a safety relief valve or applying inlet pressure to Quicktester™.

2.1 Seals

All joints made by the user must provide a pressure-tight seal when subjected to the regulated inlet pressure. A leaking joint will result in an inaccurate Pressure Gauge and Set Pressure reading.

The maintenance section of these instructions provides details for checking the integrity of the internal pipe work.

2.2 Air / Inert Gas Supply

For best performance, the supply air / inert gas must be regulated, commercially clean and free of moisture.

The regulated supply pressure must be in excess of the expected set pressure of the safety relief valve (Set pressure +10% is recommended), and importantly not greater than the full scale deflection of the Pressure Gauge being used.

The maximum operating pressure of the unit is clearly marked on the panel and should never be exceeded unless otherwise indicated by these instructions (refer to sections 6 and 7).

Standard Connection - 1/4" BSP Parallel Male – Conex

2.3 Pressure Gauge

Establish the set pressure of the safety relief valve to be tested; this should be permanently marked on or attached to the valve with a tag.

Ensure the set pressure of the valve is within the limits of both the Quicktester™ and the Pressure Gauge.

Use of a digital Pressure Gauge is very strongly recommended to ensure optimum accuracy.

The Pressure Gauge should be calibrated using a system that is traceable to a national standard.

Standard Connection - 3/8" BSP Parallel Female rotatable pressure gauge connector.

2.4 Safety Relief Valve Adaptor

The unit is used with a range of stainless steel valve adaptors to suit a variety of safety relief valve inlet thread connection types and sizes. It is imperative that the correct adaptor is used. Once the correct adaptor has been selected, mount it to the valve test port 2, then fit the safety relief valve to be tested.

Connection - Adaptor to mounting block - 3/8" BSP Parallel Female.

Connection - Adaptor to safety relief valve - to suit safety relief valve inlet connection.



3. Sequence of Operation (See Figure A)

- 3.1 Ensure inlet control valve 4 is fully closed (clockwise).
- 3.2 Ensure vent control valve 5 is fully closed (clockwise).
- 3.3 Apply inlet pressure to unit (Set pressure +10% is recommended).
- 3.4 Slowly open inlet control valve 4 by turning anti-clockwise to pressurize the system.
- 3.5 At the set pressure of the safety valve the pressure in the system will stabilise and the Pressure Gauge reading will continually indicate the set pressure.
- 3.6 Close inlet control valve 4 by turning clockwise. The pressure will reduce to the pressure at which the safety relief valve under test re-seals. This re-seal pressure is indicated on the Pressure Gauge.
- 3.7 If required, further confirmation of set pressure and reseat pressure can be established by repeating steps 3.4 to 3.6.
- 3.8 Vent pressure by fully opening vent control valve 5 (anti-clockwise).
- 3.9 When Pressure Gauge reading is zero, remove safety relief valve.
- 3.10 Repeat set up procedure for next safety relief valve.

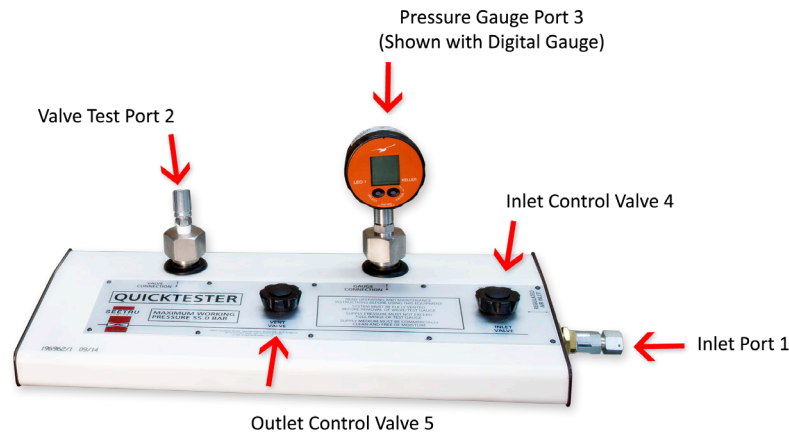


Figure A

4. Interpretation of Results

- 4.1 **Correct Set Pressure Reading** - If the reading on the Pressure Gauge at test stage 3.5 falls within the allowed tolerance range of the set pressure of the safety relief valve then this is confirmation that its set pressure is correct.
- 4.2 **Incorrect Set Pressure Reading** - If the reading on the Pressure Gauge at test stage 3.5 is above or below the allowable tolerance range of the set pressure of the safety relief valve then this indicates that there is a problem as the safety relief valve set pressure is incorrect. The safety relief valve should be overhauled or replaced.
- 4.3 **Correct Re-Seal Pressure Reading** - If the reading on the pressure gauge at test stage 3.6 is not less than the allowed re-seat pressure then this is confirmation that the valve has re-sealed correctly.
- 4.4 **Incorrect Re-Seal Pressure Reading** - If the reading on the pressure gauge at test stage 3.6 is less than the allowed re-seat pressure then this indicates that the safety relief valve has not re-sealed correctly. The valve should be overhauled or replaced.
- 4.5 **General** - The safety relief valve manufacturer should always be consulted if there is any doubt about the acceptability of the performance of the safety relief valve.

Note - Seetru Limited offers a safety relief valve refurbishment service.



5. Use As A Pressure Gauge Check Rig

The unit may also be used to check the accuracy of pressure gauges against a known standard reference gauge. Follow the set up procedure given in section 2 above, but mount the pressure gauge to be checked in the safety relief valve test port 2.

Note: It is also a safety critical requirement that the regulated gauge pressure is not greater than the full-scale deflection of the gauge to be checked. DO NOT exceed the limit of the test rig maximum pressure of 55 Bar g.

The sequence of operation is similar to that for safety relief valves, however, the pressure is applied incrementally at the desired check pressures. Use vent control valve 5 to vent the pressure prior to removal of the tested gauge.

6. Integrity Test

The integrity of the internal pipe-work must be checked periodically and at least every 12 months. The frequency will depend on the duty and must be established by the user in order to ensure safe and continued correct operation. The checks are carried out as follows:

- 6.1 Fit a Pressure Gauge, which has a full-scale capability greater than 55 bar g. to pressure gauge port 3.
- 6.2 Fit the sealing plug into the safety relief valve test port 2.
Connect the unit to a regulated supply.
- 6.4 Adjust the supply regulator to 55 bar. g.
- 6.5 Ensure vent control valve 5 is closed.
- 6.6 Open inlet control valve 4 and pressurise the unit to 55 bar g.
- 6.7 Watch the Pressure Gauge rise and stop at 55 bar g.
- 6.8 Shut off inlet control valve 4.
- 6.9 Watch the Pressure Gauge for 1 minute. The pressure must not drop.
- 6.10 If a pressure drop is observed check each external connection for leaks.
- 6.11 Use vent control valve 5 to vent the unit pressure to atmosphere.
- 6.12 Disconnect the supply at inlet port 1 and tighten any leaking joint or replace seals as required (refer to section 8 - Maintenance).
- 6.13 Repeat the test from stage 6.3.

7. Test Integral Fitted Safety Valve

The integrity of the internal safety relief valve, which is set at 61 bar g. and is supplied with the unit, can readily be checked in a similar manner to the integrity test, see section 6 above. Using this method, the safety relief valve does not have to be removed from its position inside the case where it is attached to the valve test port block.

- 7.1 Fit a Pressure Gauge that has a full-scale deflection of 90 bar g. to pressure gauge port 3.
- 7.2 Fit a sealing plug into the safety relief valve test port 2.
- 7.3 Connect the unit to a regulated supply.
- 7.4 Adjust the supply regulator to 70 bar g.
- 7.5 Follow section 3 'Sequence of Operation', this should show a set pressure of 61 bar g.
- 7.6 On no account apply a pressure in excess of 70 bar g.



8. Maintenance

Prior to any maintenance, the supply pressure must be isolated and attached pipe-work disconnected.

8.1 Access to Internal Components

The unit contains a safety relief valve, which must be included in any maintenance scheme required by the pressure systems and safety regulations. To gain access to the internal components open the case as follows:

- 8.1.1 Remove the safety relief valve test port adaptor.
- 8.1.2 Remove the Pressure Gauge and adaptor.
- 8.1.3 Remove the control valve operating hand wheels by prising off the plastic cover and unscrewing the retention nut.
- 8.1.4 Turn the unit over.
- 8.1.5 Unscrew the four rubber feet.
- 8.1.6 The top and bottom halves of the case will now separate.
- 8.1.7 Turn the unit over, exposing all of the internal components.

8.2 Flow Restrictor

Periodically check the restrictor for blockage by holding up to a light source and viewing through the bore. Replacement restrictor's are available from Seetru. Please quote part reference number M00000210.

To remove the flow restrictor (See Figure B):

- 8.2.1 Unscrew conex supply port.
- 8.2.2 Unscrew and remove / discard the flow restrictor as required.
- 8.2.3 Replace old restrictor or a new flow restrictor.
- 8.2.4 Reassembly is the reverse of the above. Ensure restrictor is fitted in direction indicated by arrow.
- 8.2.5 Carry out an integrity test as detailed Section 6.

Note: Only suitably trained & competent engineers should undertake any maintenance of this equipment.

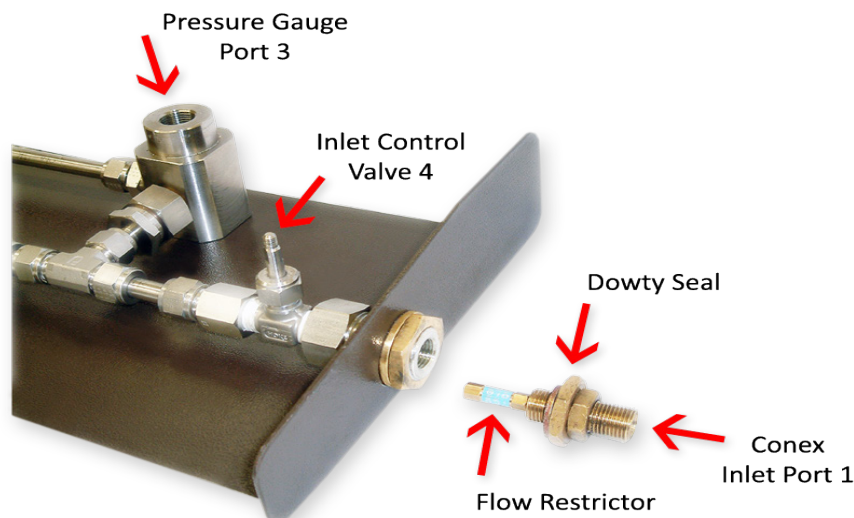


Figure B

(Shown with cover removed, not necessary to replace restrictor)