Exsafe

QINGDAO EXSAFE VALVE CO., LTD.

OPERATING INSTRUCTIONS

PORTABLE P/V VALVE TEST UNIT

Opening-pressure and leakage checks



Customer operating guide

For trained personnel. Confirm the valve-specific test limits before use.

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01 / EQUIPMENT

Equipment overview

COMPONENT IDENTIFICATION



- **0** Air pressure regulator
- **1** Positive-pressure valve
- **2** Pressure-release valve
- **3** Vacuum-side valve
- **4** Vacuum pump
- **5** Pressure/vacuum gauge

OPERATING DATA

GAUGE RANGE	REGULATOR OUTLET	PRESSURE SOURCE
-20 to +50 kPa	1 kgf/cm²	External air
Wider-range gauge optional	Approx. 98 kPa	Required for positive tests

BEFORE APPLYING PRESSURE

Verify the actual unit nameplate, fitted gauge range, connections and the valve-specific test plan. This guide does not define the unit's maximum permissible pressure or the valve's pass/fail limits. Operate each valve slowly; a high-pressure or high-flow surge can distort the result.

02 / PROCEDURE

Positive-side test

START WITH VALVES 1, 2 & 3 CLOSED

Preparation

1 **Connect the air supply**

Use an external compressed-air supply. Set regulator **0** to an outlet pressure of **1 kgf/cm² (approximately 98 kPa)**.

2 **Install the valve under test**

Bolt the P/V valve to the upper test flange. Check that the sealing gasket is intact and that the connection does not leak.

3 **Fit the leakage measurement assembly**

Attach a leakage collection fixture to the **P-side discharge outlet** and connect the flowmeter. Confirm that the collection path is secure before pressurizing.

P-side leakage check

4 **Raise pressure gradually**

Open positive-pressure valve **1** slowly while watching gauge **5**. For the leakage check, use **75% of the P-side set pressure** as the test pressure.

5 **Hold and read**

At the test pressure, close valve **1**. After **three minutes**, record the flowmeter reading and its displayed unit. Record the gauge pressure at the start and end of the hold. Apply the valve-specific acceptance criteria separately.

MEASUREMENT NOTE

The collection fixture and flowmeter are needed for this check. This guide specifies a three-minute reading, but does not prescribe a flowmeter model, calculation method or universal leakage acceptance limit.

03 / PROCEDURE

Opening-pressure checks

P-side opening pressure

1 **Depressurize, then remove the fixture**

After the leakage check, return the chamber to atmospheric pressure by the approved site procedure. Confirm gauge **5** reads 0 kPa before removing the P-side leakage collection assembly.

2 **Pressurize at a controlled rate**

Open valve **1** only slightly. Increase pressure slowly, keeping the gauge rise rate **below 10 kPa/min**.

3 **Record opening indication**

Record the pressure shown by gauge **5** when obvious discharge begins at the P-side outlet.

Vacuum-side opening pressure

4 **Set the vacuum circuit**

After the P-side check, return the chamber to 0 kPa by the approved site procedure. Close valves **1** and **2**, then start vacuum pump **4**.

5 **Apply vacuum gradually**

Open vacuum-side valve **3** slowly. Observe gauge **5** and record the opening indication for the V side.

INTERPRET RESULTS CORRECTLY

The small test chamber can cause an opening-pressure deviation of approximately **±10%**. This is an indicative field check, not a guaranteed instrument accuracy or a substitute for any required formal certification test.

After testing

Isolate the compressed-air supply and stop the vacuum pump. Return the chamber to atmospheric pressure by the approved site procedure. Confirm the gauge reads 0 kPa and no residual pressure or vacuum remains before loosening the test flange.