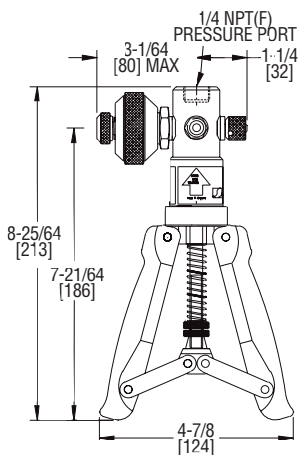




Model PHP Pneumatic Hand Pump

Specifications – Operating Instructions



Model PHP Pneumatic Hand Pump verifies calibration of pressure transmitters, switches, controllers, indicators, and recorders. The Model PHP is a hand operated pump for sourcing pressure and vacuum. Use in conjunction with an analog or digital gage for a complete calibration system.

The unit provides output pressures up to 600 psi (40 bar) or vacuum down to -28.5" Hg (-0.960 bar). The reliable pump reaches 100 psi in 4 strokes. Model PHP is fitted with a fine adjustment valve for precise volume control and an adjustable stroke to provide over pressure protection. Model PHP includes a 39" (1 m) hose with a 1/4" female NPT quick fit connector. The optional service kit includes seals, O-rings, retaining screws and an allen key.

Figure 1 Key:

1. Pressure port - NPT female connection to take master instruments. E.g. Digital/Analog gage.
2. Fine adjustment valve.
3. Pressure release valve.
4. Pressure/Vacuum selector.
5. Adjustable stroke for varying maximum pressure output (over pressure protection).
6. NPT adaptor set.
7. Flexible hose to item under test.
8. Knurled 'quick-fit' connectors.
9. Pump Handles.

SPECIFICATIONS

Output Ranges: -28.5" Hg to 600 psi (-0.960 to 40 bar).

Process Connection: 1/4" female NPT (quick fit).

Gage Connection: 1/4" female NPT.

Materials: Nickel plated brass, anodized aluminum, and nylon.

Weight: 1.4 lbs (0.65 kg).

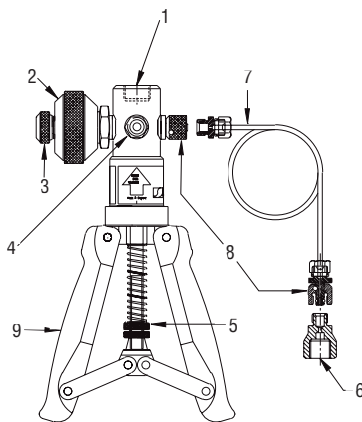


Fig. 1

DESCRIPTION OF KEY ITEMS:

Hose/Adaptors

The hoses (7) and adaptors (6) are fitted by simply screwing them into the connectors (8) by turning the knurled nut on the connector fully anti-clockwise.

Release Valve (3)

This can be used to reduce or release the pressure in the system. The rate of pressure reduction is dependent upon the degree of rotation when opening the valve. Minimal force is required to seal the system.

Volume Control (2)

The pressure generated can be finely adjusted by turning the fine adjustment valve (2) either clockwise or anti-clockwise to increase or decrease pressure accordingly.

Over Pressure Protection (5)

To adjust the maximum output pressure of the system turn the nuts (5) to increase or decrease the stroke length.

IMPORTANT

Under no circumstances should the fine adjustment valve (2) be wound back beyond the red line indicator on the body. Should this occur, then the pressure must be released from the system before attempting to re-engage the fine adjustment valve.

Pressure/Vacuum Selection (4)

Press the selector (4) as indicated on the label to engage the desired mode. Ensure that the release valve (3) is open before changing mode.

Note:

The system should only be used for pressurizing small volumes due to its small displacement. If the system has not been used for a period of time, it could be difficult to operate on the first stroke. The cylinder has been lightly greased on assembly but, if additional lubrication should ever be required, then apply a minimal amount to the inside of the cylinder.

Access is via the three retaining screws located under the black collar.

WARNING: Do Not Connect To External Pressure Source.

GUIDELINES FOR USE:

1. Calibration/Comparison against Analog gauge

1.1 Fit a Test Gage to the top of the test system (1), and correct seal.

Note: The retaining nut should be screwed fully

down but needs to be no more than finger tight as seal is achieved by O-ring.

1.2 Connect item under test using appropriate adaptor and sealing (6) at the end of the flexible hose (7) or directly to body.

Note: Adaptors tightened to a maximum torque of 15 Nm.

1.3 Screw fine adjustment valve (2) fully clockwise.

1.4 Screw fine adjustment valve (2) 4 - 6 full turns anti-clockwise.

1.5 Screw pressure release valve (3) fully clockwise, tightening to ensure good seal.

1.6 Operate handles (9) until the pressure is close to that finally required. **Ensure handles are fully squeezed together on each stroke to achieve maximum pressure output.**

1.7 Wind the fine adjustment valve (2) clockwise to increase pressure or anti-clockwise to decrease pressure until required pressure is reached.

Note: The pressure may settle for up to 30 seconds after increasing pressure due to thermodynamic effects, settling of seals and expansion of the flexible hose.

Caution: NEVER screw the fine adjustment valve (2) beyond the red line indicator.

1.8 Reductions in pressure can also be achieved by careful use of the pressure release valve (3).

1.9 Vacuum is achieved using the above procedure and having the changeover valve (4) pushed completely towards the vacuum position. **Note: release pressure before changing mode.**

2. Fault Investigation

In the event that the system appears to lose pressure then the procedure above should be repeated ensuring new seals are used, adaptors are tightened sufficiently and the pressure release valve (3) is tightened firmly.

Note: The connections to the hand held test system are sealed with O-ring or bonded seals and should not leak. The pipe to body connection can be checked but tightened no more than 2 Nm.

DO NOT attempt to tighten the other fittings to the test system as this could lead to damage of sealed joints. When testing for leaks it may be noticed that air is drawn in or expelled from around the changeover valve. This is normal and should cause no concern.