Operating Manual

Calibration Test Pump KHP 35

Tips:

This symbol provides you with tips, information and notes.

Warning!
This symbol warns you against actions that can cause damage to persons or to the instrument.

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1. Safety Instructions

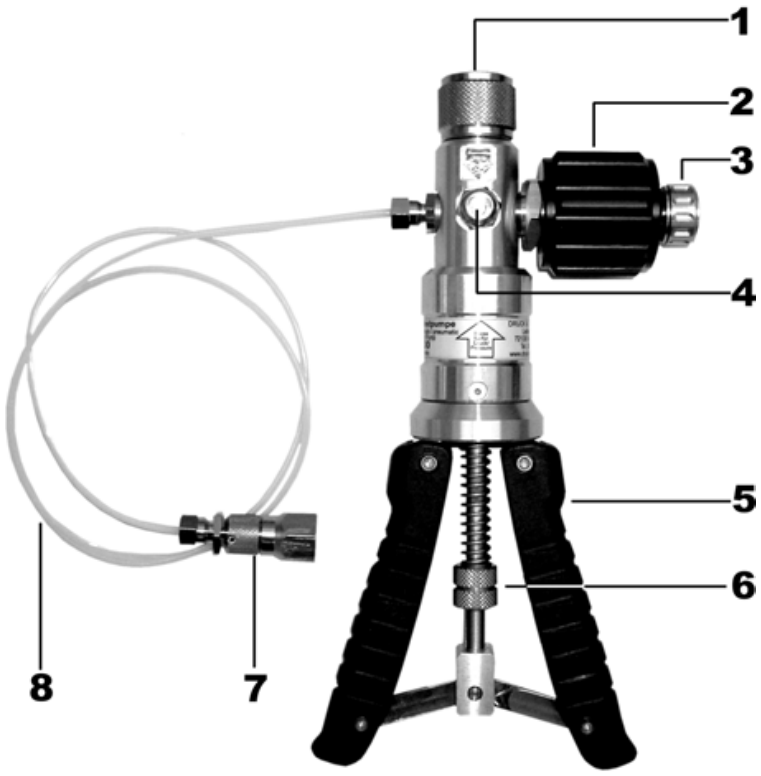
Read these operating instructions carefully prior to operating the pneumatic calibration test pump KHP 35. The pressure inside the pump can be extremely high. Ensure that all pressure connections have been established correctly.

2. Product Description

The KHP 35 calibration test pump is used to generate pressure and vacuum for checking, adjusting and calibrating mechanical and electronic pressure measuring instruments by comparative measurements. These pressure tests may be carried out in laboratories, workshop or on site at the measuring point.

If the instrument to be tested and a sufficiently accurate reference measuring instrument are connected up to the test pump, the same pressure is applied to the two measuring instruments when the pump is operated. By comparing the two measure valves at random pressure values, the accuracy can be verified or the instrument under test can be adjusted.

Despite its compact dimensions, the calibration test pump KHP 35 is easy to operate and allows for exact generation of the required test pressures; a change-over switch enables the generation of vacuum as well. The pump is fitted with a fine adjustment valve for the precise adjustment of pressures. The reference instrument is screwed directly on to the top of the pump and the unit under test is connected by means of the connection tube incorporating an adapter, contained in the scope of delivery.



(1) = pressure connector for reference instrument

(2) = fine adjustment valve

(3) = pressure relive valve

(4) = change-over switch for pressure/vacuum generation

(5) = handles

(6) = adjustable knurled nut for the adjustment of the delivery rate of the pump (overpressure protection)

(7) = pressure connection for test specimen

(8) = test tube, length app. 1 m

3. Mounting Instructions

- The reference instrument is fitted to the upper side of the calibration test pump KHP 35. Finger tight fastening of the reference instrument with the knurled nut is sufficient. The reference instrument is sealed by the integral O-ring sealing gasket.

- The unit under test is mounted to the end of the flexible tube. Please use a suitable sealing gasket from the optional adapter set or another nylon gasket.

Do not use teflon tape, this may damage your test pump.

Tip: You can unscrew the tube and also directly attach the test specimen with the same adapter to the pump (to minimize volume of your test system, for more easy operating the KHP 35 pump).

4. Operation (pressure)

- First, check whether the change-over valve (4) has to be actuated (see sticker on the device). For this purpose use a pen or a small screw-driver. The encasement of the switch is intended to help prevent unintentional actuation.

Never actuate the change-over valve (4) when the test pump is under pressure or vacuum! Actuate the change-over valve only when the relief valve is open.

- Please make sure that the pressure relief valve (3) is not closed completely.

- Turn the fine adjustment valve (2) anticlockwise up to the end (smooth “stop” can be felt).

- Make sure, that the adjustable knurled nut (6) is in such a position, that the visible spring above the nut has some clearance, if the handles (5) are pressed together.

- Carefully turn in the pressure relief valve (3) until the valve closes. You will not notify any “hard stop”.

- Operate the hand pump (5) until the approximate pressure has been reached, but max. to 20 to 25 bar.

- Turn the fine adjustment valve (2) to increase the pressure. If you have prepared at previous step a pressure of about 20-25 bar, with the fine adjustment valve (2) you can increase the pressure now to 35 bar (up to 40 bar, depending on the volume of the measuring circuit). Turn the fine adjustment valve (2) clockwise to increase the pressure or anti-clockwise to decrease the pressure until the requested test pressure has been reached precisely (to be read on the reference instrument).

NOTE: After increasing the pressure, the reading may slightly drop again for about 30 seconds, which is caused by thermodynamic effects, the tube connection and the sealing gaskets. If the pressure drop does not come to a standstill, check the measuring circuit for tightness. Due to the low volume of each compression stroke of the test pump, only small volume test specimens should be tested.

- A pressure reduction is achieved by turning the fine adjustment valve (2) counter-clockwise first and the by carefully opening the relief valve (3).

Remove the reference instrument or the test specimen only when the relief valve (3) is open and no pressure is in the test pump any more.

5. Operation (vacuum)

First, check whether the change-over valve (4) has to be actuated (see sticker on the device). For this purpose use a pen or a small screw-driver. The encasement of the switch is intended to help prevent unintentional actuation.

Never actuate the change-over valve (4) when the test pump is under pressure or vacuum! Actuate the change-over valve only when the relief valve is open.

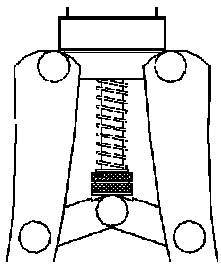
- Please make sure that the pressure relief valve (3) is not closed completely.
- Make sure, that the adjustable knurled nut (6) is in such a position, that the visible spring above the nut has some clearance, if the handles (5) are pressed together.
- Turn the fine adjustment valve (2) clockwise up to the end (“stop” can be felt).
- Carefully turn in the pressure relief valve (3) until the valve closes. You will not a “hard stop”.
- Operate the handles (5) smoothly and slowly until max. -0.9 bar of vacuum are reached.
- Turn the fine adjustment valve (2) anti-clockwise to increase vacuum up to -0.95 bar. Turn this valve for fine-adjustment.

NOTE: After increasing the vacuum, the reading may slightly increase again for about 30 seconds, which is caused by thermodynamic effects, the tube connection and the sealing gaskets. If the vacuum drop does not come to a standstill, check the measuring circuit for tightness. Due to the low volume of each compression stroke of the test pump, only small volume test specimens should be tested.

- A vacuum reduction is achieved by carefully opening the relief valve (3)

Remove the reference instrument or the test specimen only when the relief valve (3) is open and no vacuum is in the test pump any more.

For a maximal performance of the LPP 30 pump, please make sure that the adjustable knurled nut (6) is adjusted to a position that the visible spring get some small clearance. If you operate with a reference or test item with small pressure range, you can reduce the performance of the pump by turning the adjustable knurled nut(6) clockwise (upwards). This reduces the pressure you get by every handle-stroke.



6. Maintenance Instructions

Prior to connecting the reference instrument and the test specimen, the sealing gaskets in the two connectors should be checked for correct position and wear, and should be replaced, if and when necessary. A service kit (code LPP-WARTUNG), consisting of spare sealing gaskets and o-rings, is available as an accessory.

The test pump KHP 35 must not be soiled, and in particular it must not get into contact with fluid or aggressive media.

7. Cause of fault

- If the pressure or vacuum cannot be generated correctly or if the set pressure or vacuum does not stay stable, this is likely to be caused by the incorrectly positioned or selected sealing gaskets. Please also check whether any adapters used on the test specimen have been tightened sufficiently to eliminate leaks.

- Before assuming there is a leak in the calibration test pump: First of all, check if the relief valve (3) is closed and if the pressure / vacuum change-over switch (4) is correctly positioned and has not come to rest in a “centre position”.

- If the test pump has not been used for a longer period of time, the first lift may be somewhat sluggish. This effect will disappear again during further operation.

- By no means apply any force to the operating elements of the calibration test pump.

- Never connect an external pressure supply system to the KHP 35 pump.

8. Technische Daten

Pressure range:	-0.95...+35 bar (-28 inHg...+500 psi)
Medium:	air
Pressure ports:	1/2" BSP female rotating for reference instrument, 1/4" BSP female for unit under test
Fine adjustment:	fine adjustment valve
Overpressure:	overpressure protection adjustable by means of knurled nut
Material:	anodized aluminum, brass, ABS
Dimension:	220 (L) x 120 (W) x 65 (D) mm
Standard supply:	connection tube app. 0.5 m

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