



NHP700 - User Handbook

PRESSURE CALIBRATION

Operating Handbook



Calibration Test Pump Type NHP700

OPERATING HANDBOOK



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This symbol provides non mandatory tips, informations and notes.



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

1. Safety Instructions



Read these operating instructions carefully prior to operate the hydraulic calibration test pump NHP700. The pressure inside the pump can be extremely high. Ensure that all pressure connections have been established correctly.

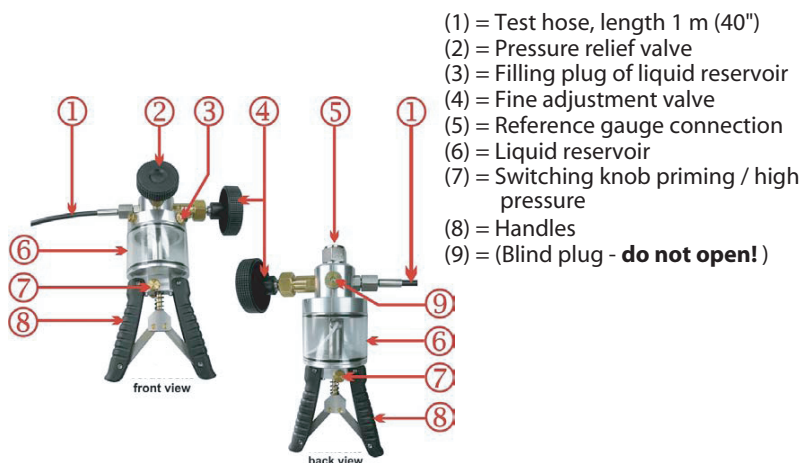
2. Product Description

The NHP700 calibration test pump is employed to generate pressure to check, adjust and calibrate mechanical and electronic pressure measuring instruments by comparative measures. These pressure tests may be carried out in laboratories, workshops or on site wherever the measure is required. If the instrument to be tested and a fairly accurate reference measuring instrument are connected to the test pump, the same pressure is applied to the two instruments when the pump is operated. By comparing the two measures 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 NHP700 is easy to operate and allows the exact generation of the required test pressures.

The pump is fitted with a fine adjustment valve for the precise adjustment of pressure.

The reference instrument is screwed directly on the top of the pump and the unit under test is connected to the pump by the connection hose incorporating an adapter 1/4" BSP female thread, supplied in the scope of delivery.



3. Mounting Instructions

The reference instrument is fitted to the upper side of the calibration test pump NHP700. The reference instrument is sealed by the integrated O-ring sealing gasket. The maximum torque is 15 Nm (11 lbf ft).

The unit under test is mounted to the end of the flexible test hose. Tighten the connector to prevent any leaks to a maximum torque of 15 Nm (11 lbf ft).



Never apply external pressure to the NHP700. Do not connect to external pressure sources.

As an accessory, a stainless steel set of adapters is available to cover several thread dimensions of your test specimen.

Tighten the optional adapters to a maximum torque of 15 Nm (11 lbf ft).



Tip: It is possible to connect the test specimen directly to the pump. After dismantling the hose connector, there is a 1/4" BSP female thread at the side of the pump body.



• Open the filling plug (3) of the liquid reservoir (6) and fill it with a suitable fluid: **mineral oil based hydraulic fluid or clean water, free of calcium-carbonate / scale**. **Do NOT use distilled water or water based hydraulic fluid.**

(Optional: Execution "S" to be used with brake fluid or Skydrol, but **not** with oil).

• Fill the liquid reservoir (6) up to the lower edge of the upper label (typed label, placed around the liquid reservoir).

4. Operazion (Pressure)

- Make sure the NHP700 is in priming position. If necessary, press the switching knob (7).

Switching knob (7)



handles in position

- priming -

- high pressure generation -

- Make sure that the relief valve (2) is open.
- Turn the adjustment valve (4) counter-clockwise fully out (smooth “stop” can be felt).
- Turn the relief valve (2) clockwise until the vent is closed.
- Operate the handles (8) for priming, until the handles (8) cannot be pressed fully together anymore, due to the generated priming pressure. Depending on the volume of the calibration circuit, this can be at app. 200 to 400 bar / 3000 to 6000 psi.
- Keep the handles (8) pressed together and operate the switching knob (7). The handles (8) are now in “high pressure” position.



NOTE: if the generated priming pressure is too high and - as result - it is no longer possible to press the handles (8) fully together, please open the relief valve (2) (turn counter-clockwise) and try it again.

- Operate the handles (8) until the required pressure is nearly achieved, but max. to app. 600 bar / 9000 psi. Higher pressure is made by turning the adjustment valve (4) clockwise.



NOTE: After increasing the pressure, the reading may slightly drop for about 30 seconds, due to thermodynamic effects, the hose connection and the sealing gaskets. If the pressure drop does not come to a standstill, check the measuring circuit for tightness.

- A pressure reduction is achieved by turning the fine adjustment valve (4) counter-clockwise first and then by carefully opening the relief valve (2).



Remove the reference instrument or the test specimen only when the relief valve (2) is open and there is no pressure in the test pump any more.

5. Maintenance Instructions

Before connecting the reference instrument and the test specimen, the sealing gasket in the two connectors should be checked for correct position and wear, and should be replaced if and when necessary.

A service kit (Order No. NHP-GASKET) consisting of spare sealing gaskets and o-rings, is available as accessory.

6. Troubleshooting

- If the pressure cannot be generated correctly or if the set pressure does not stay stable, this is likely to be caused by the wrong position or wrong choosed sealing gaskets. Please also check if any adapters used on the test specimen have been tightened enough to eliminate leaks.
- Before assuming there is a leak in the calibration test pump, first of all, check if the relief valve (2) is closed.
- If the test pump has not been used for a long of time, the first stroke may be somewhat sluggish. This effect will disappear again during further operation.
- Do not apply any force to the operating elements of the calibration test pump.



Never connect an external pressure supply system to the NHP700 calibration test pump.



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7. Technical Data

Pressure:	700 bar / 10 000 psi.
Medium:	Mineral oil based hydraulic fluid or clean water, free of calcium-carbonate / scale.
Connections:	Reference gauge: Rotating 1/2" BSP female. This rotating nipple can be dismounted to have a female fixed 3/8" BSP port. Test specimen: Rotating 1/4" BSP female.
Fine adjustment:	Fine adjustment valve / volume variator.
Materials:	Anodized aluminum, brass, plastic, stainless steel.
Dimensions:	280 x 170 x 120 mm (11" x 6.7" x 4.7") without test hose.
Standard supply:	Test hose 1 m (40").

8. Order Codes / Accessories

	Descrizione	Codice d'Ordine
NHP70	Calibration test pump NHP700 up to 700 bar (10000 psi), including test hose and 1/4" BSP female connector	NHP700
Case	Carrying case 44 x 37 x 14 cm (17" x 15" x 6") with foams. Space for NHP700 plus set of adapters plus reference instrument	NHK-CASE
BSP Adapters	Set of stainless steel adapters for test port (at the test hose), BSP female threads 1/8", 3/8", 1/2" and 1/2" BSP male	NHK-ADAPTER-BSP
NPT Adapters	Set of stainless steel adapters for test port (at the test hose), NPT female threads 1/8", 1/4", 3/8", 1/2"	NHK-ADAPTER-NPT
M Adapters	Set of stainless steel adapters for test port (at the test hose), metric: M12x1.5, M20x1.5	NHK-ADAPTER-M
Adapters	Set of adapters in stainless steel for reference pressure port (on the top of the pump) 1/4" BSP, M20x1.5, 1/4" NPT, 1/2" NPT	NHK-ADAPTER-SET
Service Kit	Set of sealing gaskets and O-rings for NHP700	NHP-GASKET
Oil	Operating fluid (special oil)	CPB5000-FLUID



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