

# Comparison Pumps

Case Version, Special Version for 0/10,000 psi (0/700 bar)  
with Air Drive Liquid Pump (Haskel Model M-188)

Model

**PS 700-G**

## Applications

Comparison pumps models PS 700-G are suitable for testing and calibrating pressure gauges with ranges 0/10,000 psi resp. 0 - 700 bar. Also other pressure instruments, e.g. pressure transmitters, can be tested.

The piston pump with star handle and the additional *air drive liquid pump M-188* are used for building up the pressure. Please compare Haskel data sheet MLP-20/46D resp. M-LP 20D. Admission pressure (usually compressed air) of max. 60 psi (4 bar) is required for driving the *liquid pump* up to **10,000 psi** resp. 700 bar. The output pressure produced with the *liquid pump* = the air drive pressure x 188 times. Max. allowed output pressure **10,000 psi** resp. 700 bar.

Measuring medium is an acid free, thin oil. The specimen gauge must be compared with a pressure gauge of higher accuracy (test gauge, please note our general information leaflet 2000).

Comparison pumps in case version suit even for permanent use, e.g. in test workshops. Furthermore, the instrument connection tubes are provided with filters to avoid contamination of the pump pipe system (see schematic drawing on reverse side, no. 5 and 6).

## Configuration

**PS 700-G** for pressure ranges 0 ... 10,000 psi (0/700 bar)

### Instrument Connections

2 connections for measuring instruments (for the test gauge and for the specimen gauge), each connection provided with a union nut 1/2" BSP and a separate additional union nut M20x1,5

### Case

Grey enameled cast aluminum 500 x 400 x 300 mm resp. 19.7" x 15.8" x 11.8" (length x depth x height)

### Piston and Cylinder

Hardened alloy steel

### Spindle

Alloy steel

### Measuring Medium

Acid free, thin oil

### External Admission Pressure

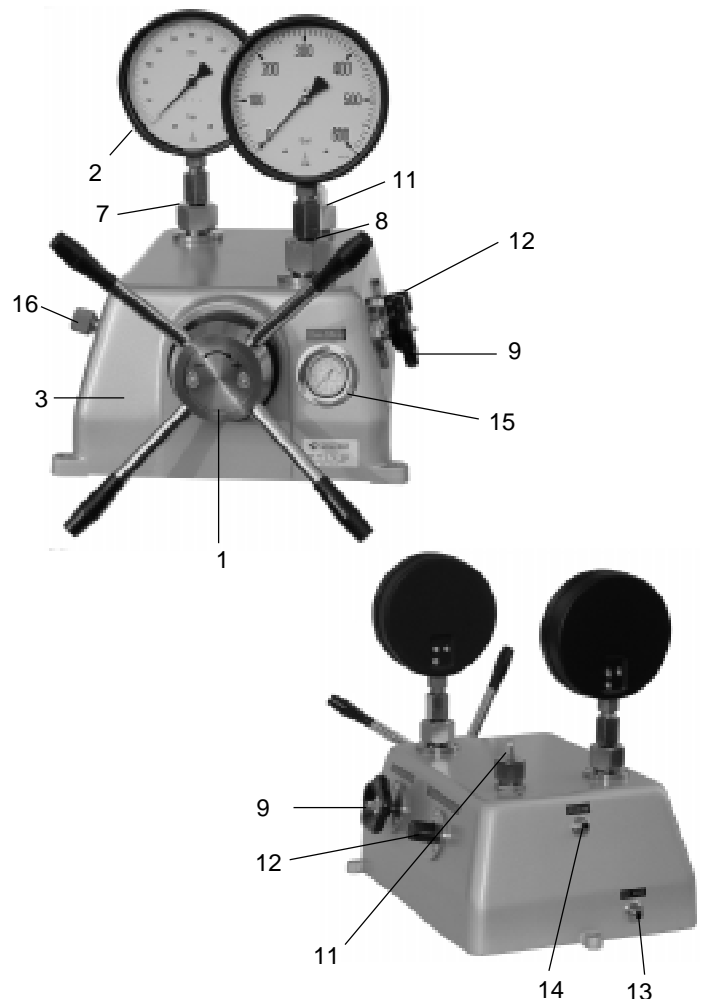
Compressed air, required for driving the *liquid pump M-188*; max. 4 bar or 60 psi;  
(ratio: air drive pressure x 188 times = output pressure)

### Connection for Air Drive Pressure

Air drive pressure regulator with plug connection (Prestolock) for PA tubing N 4x1 and an adapter for tubing N 6x1

### Weight

Approx. 26 kg (57.32 lb)



- 1 Piston Pump with Star Handle
- 2 Test Gauge (Not part of standard supply.)
- 3 Case
- 7 Connection Test Gauge
- 8 Connection Specimen Gauge
- 9 Pressure Relief Valve
- 11 Reservoir for the Measuring Medium
- 12 Air Drive Pressure Regulator
- 13 Air Inlet (Air Drive Pressure)
- 14 Venting
- 15 Pressure Gauge for Air Drive Pressure
- 16 Air Drive Valve

### Inclosure to Shipment

- 1 Instruction manual
- 11 Special oil
- 2 Special gaskets, each encasing an O-ring, for sealing the instrument connections (already installed)
- 4 O-rings as spare parts
- 2 Union nuts M 20x 1.5 (union nuts with 1/2" BSP assembled)
- 2 Adapter for N 6x1 flexible tubing (external admission pressure connection)

Please also take a note of the general information about our comparison pumps on general information leaflet 10920 and our data sheet 10923 for the **standard version of PS 600-G with handpump**.



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**10923-S**  
Special Version  
11/00

## User Instructions

The driving admission pressure (air compressor) has to be connected to the comparison pump (13) by a PA tubing N4x1. If required, use suitable adapter fittings.

It can be recommended to place a filter (pores  $\varnothing$  10-20  $\mu\text{m}$  [39  $\mu\text{in}$  up to .79  $\mu\text{in}$ ], with oil and water separator) into the connecting tube between admission pressure and comparison pump for contamination protection. (The filter is not supplied.)

Before starting operation respectively before mounting the measuring instruments, close the valves (9, 16).

Make sure that the medium level of the reservoir (11) is sufficient (compare below).

Turn the handwheel (1) to the left (counterclockwise) to screw **out** the spindle with the piston completely all the way to the stop point.

Screw the measuring instruments now tight into the connections, the test gauge into connection 7, the specimen gauge into connection 8. [Take care of a proper sealing. Please use the delivered special gaskets for the test gauge and the specimen gauge (assembled to the mounted union nuts)].

Adjust the driving admission pressure (air drive pressure regulator 12) to 60 psi (approx. 4 bar).

The air drive pressure will be indicated on the additional pressure gauge (15). It can be regulated by turning the button of the air drive pressure regulator (12) to direction + or -. When the desired pressure (60 psi / 4 bar) is reached, lock the air drive pressure regulator (12).

Produce the required pressure up to max. **10,000 psi** resp. 700 bar with the *liquid pump* by opening valve 16.

The outlet pressure = admission pressure x 188.

The exact pressure regulation has also to be done with the piston pump (1).

For decreasing the pressure open the pressure relief valve (9).

Never open the measuring instruments connections when pressure is still inside of the system!

### Refilling of the Medium Reservoir

The reservoir is supplied filled up and ready for use.

Oil must be refilled immediately when the red float stick is no longer visible through the window of the oil column.

Please use only the special oil included to shipment respectively re-ordered oil, which we will deliver upon request.

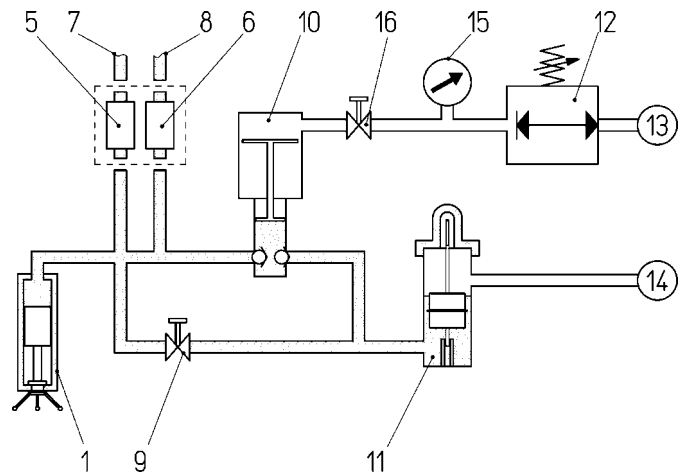
For refilling the reservoir valve 16 has to be closed. Remove the union nut and the acrylic cap from the reservoir and fill in the oil up to the rim while pressing down the float. Close the reservoir.

### Maintenance

Please compare the detailed instructions on Haskel data sheet MLP-20/46D resp. M-LP 20D referring the air drive pump.

For the other parts the maintenance is limited to periodical lubrication of instrument grease after approx. 50 working hours (lubricator nipples at the top side of the piston pump).

## Schematic Drawing



- 1 Piston Pump with Cylinder, Piston, Spindle and Star Handle
- 5 Filter
- 6 Filter
- 7 Connection Test Gauge
- 8 Connection Specimen Gauge
- 9 Pressure Relief Valve
- 10 *Liquid Pump*
- 11 Reservoir for the Measuring Medium
- 12 Air Drive Pressure Regulator
- 13 Air Inlet (Air Drive Pressure)
- 14 Venting
- 15 Pressure Gauge for Air Drive Pressure
- 16 Air Drive Valve