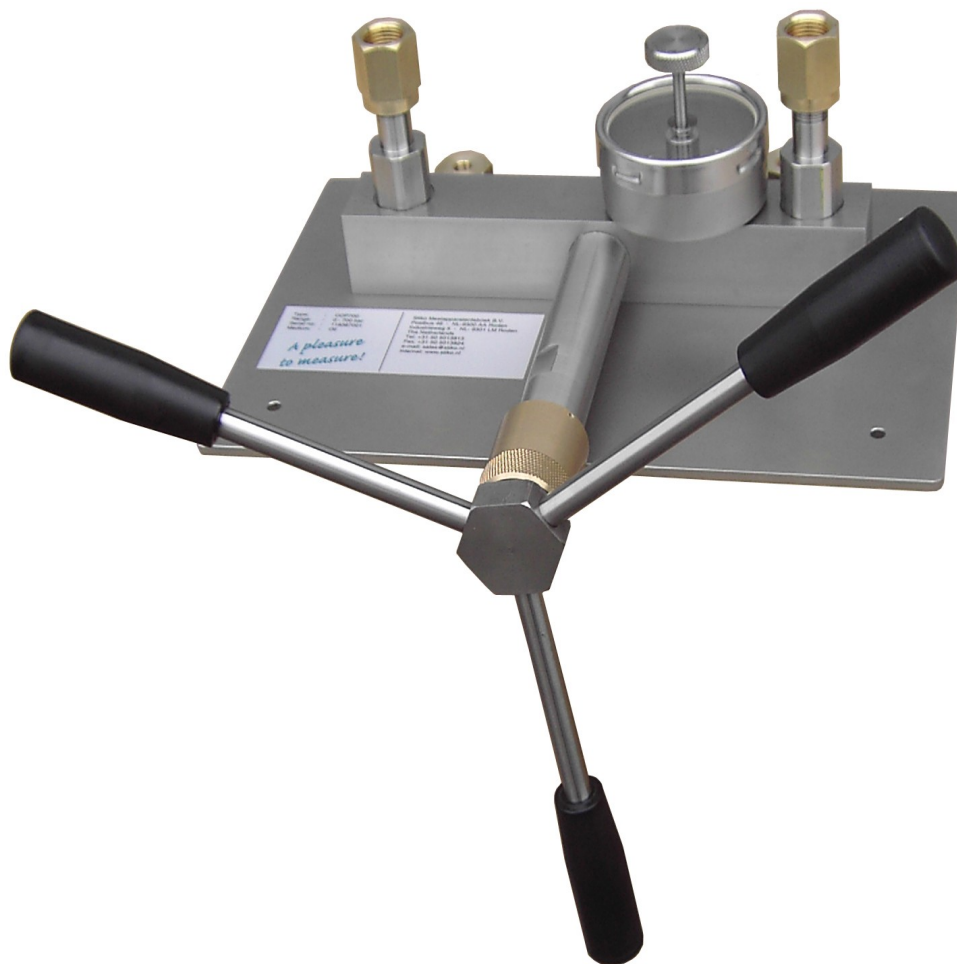


# COP700 / COP1400



**Operating manual for comparison test pump COP700 / COP1400**





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# 1 introduction

## 1.1 general product description

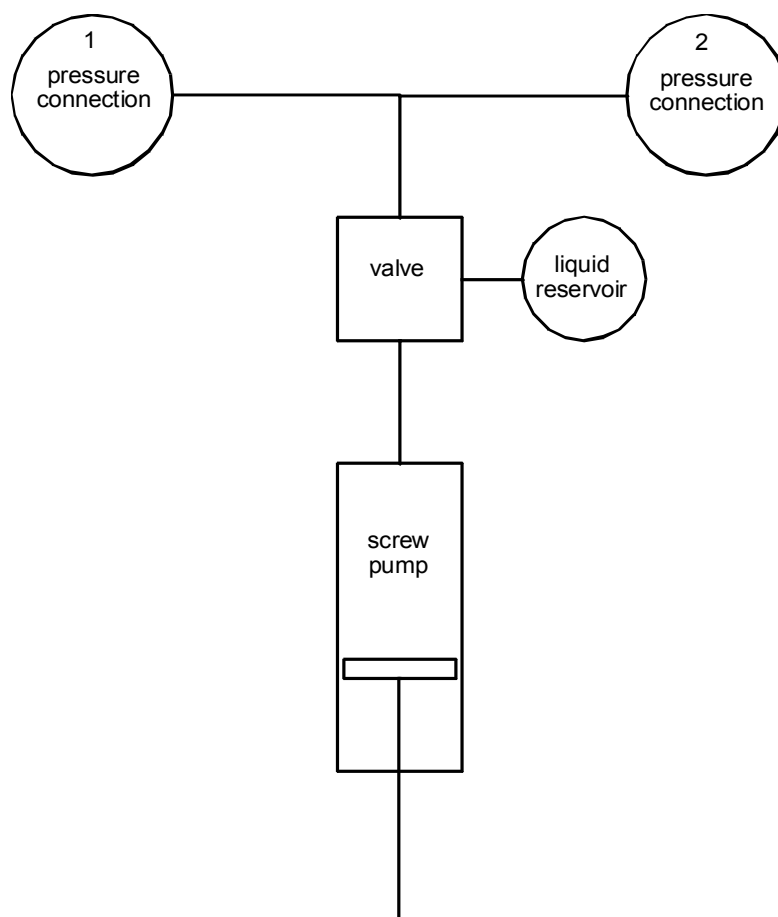
The COP700/COP1400 comparison test pump is designed to test a pressure gauge/transmitter by comparing the instrument with a high accurate pressure standard.

The pressure standard (test pressure gauge or high accurate pressure transmitter) should be occasionally calibrated by a dead weight tester. The tester is of a simple robust construction.

The device is built around the following main components:

- screw pump 700 or 1400 bar
- valve
- liquid reservoir
- 2 pressure connections

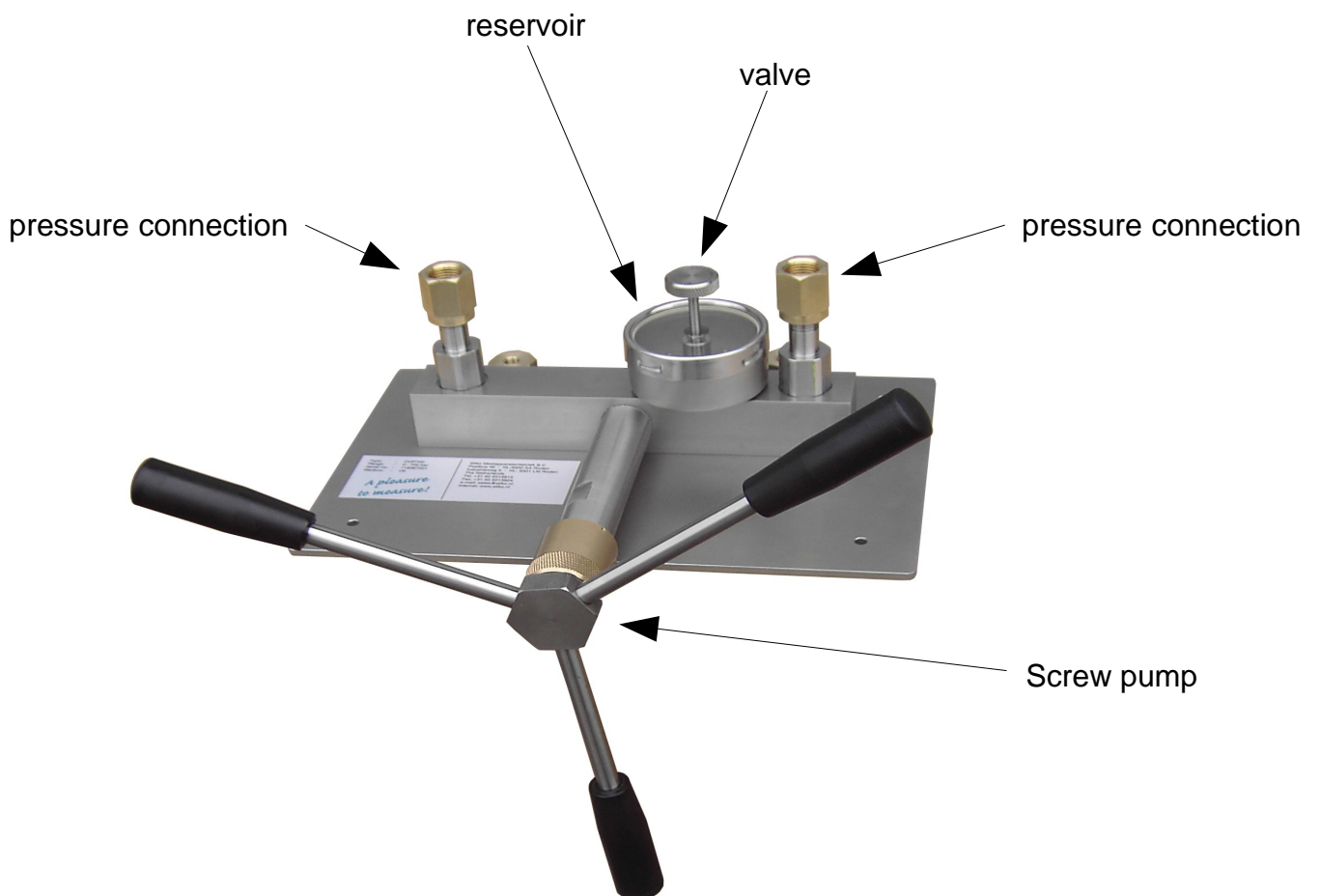
## 1.2 schematics



### 1.3 specifications

|                      |                               |  |
|----------------------|-------------------------------|--|
| type                 | COP700                        | COP1400                                |
| maximum pressure     | 700 bar                       | 1400 bar                               |
| footprint            | 340 mm (W) x 225 mm (D)       | 340 mm (W) x 225 mm (D)                |
| height               | 130 mm                        | 130 mm                                 |
| pressure connections | 3/8" bsp left handed male     | 3/8" bsp left handed male              |
| female bsp adapters  | 1/2"; 3/8"; 1/4"; 1/8"; brass | 1/2"; 3/8"; 1/4"; 1/8" stainless steel |
| medium               | Esso Nuto H32                 | Esso Nuto H32                          |
| piston displacement  | 24 cm <sup>3</sup>            | 24 cm <sup>3</sup>                     |

### 2 instrument outline



### **3 installation**

The COP700/COP1400 is designed to be fastened on a firm table with bolts.

#### **3.1 filling up COP700/COP1400**

Before connecting any external device it is good practice to purge the COP700/COP1400 first.

1. make sure there is sufficient oil (Nuto H32) in the reservoir
2. open the valve (clockwise, till its mechanical stop)
3. rotate the screw pump clockwise until it hits its end stop
4. block the pressure connections with a plug or by a finger
5. rotate the screw pump anti clockwise until it hits its end stop (the pump is filled with oil)
6. close the valve (anti clockwise, max 2 turns)
7. unplug the pressure connections
8. carefully operate the screw pump until the liquid level is at the sealing of the pressure connections
9. mount the two pressure instruments
10. carefully operate the screw pump (clockwise) up to maximum 10 bar
11. carefully open the valve, the pressure will be reduced and air will be pressed out
12. repeat step 10 and 11 until no air bubbles escape when the valve is opened
13. the comparison test pump is ready for use

### **4 operating COP700/COP1400**

Make sure the comparison test pump is purged with oil as described in chapter 3.1.

1. open the valve (clockwise, till its mechanical stop)
2. rotate the screw pump anti clockwise until it hits its end stop
3. close the valve (anti clockwise, max 2 turns)
4. rotate the screw pump clockwise until the desired pressure has been reached
5. do not try to open the valve if the pressure exceeds 10 bar
6. to lower the pressure rotate the screw pump anticlockwise
7. disconnect the pressure instrument(s)

## 5 maintenance

The COP700/1400 is made of low maintenance parts, most of the maintenance will be caused by contamination due to external sources.

### 5.1 changing the liquid

Dependant on the frequency of use it is good practice to change hydraulic oil every 1 to 5 years.

1. open the valve
2. rotate the screw pump clockwise until it hits its end stop
3. take out the liquid
4. blow through the pressure connections 1 and 2
5. clean the reservoir
6. see chapter 3.1 purging

### 5.2 maintenance on sub assemblies

If maintenance on sub assemblies like the valves or the screw pump is required, please contact the manufacturer as servicing of these parts are normally performed by the manufacturer.

## 6 part list

| Part                    | Code                           | Qty.     | Remark                             |
|-------------------------|--------------------------------|----------|------------------------------------|
| Base plate              | 340 x 225 mm                   | 1        |                                    |
| Oil hand pump           |                                | 1        | 16 mm piston                       |
| U-cup                   | Merkel T20 8-16-5.7 1          | 1        | In piston of oil pump              |
| Back-up ring            | PTFE                           | 1        | in piston of oil pump for U-cup    |
| Oil reservoir and valve |                                | 1        |                                    |
| O-ring in valve         | Ø5.23x2.62 mm 90° shore        | 1        |                                    |
| O-ring                  | Ø22 x 2,5 mm 90° shore NBR     | 1        | for mounting oil reservoir         |
| O-ring                  | Ø15,88 x 2,62 mm 90° shore NBR | 1        | for mounting hand pump             |
| O-ring                  | Ø18,6 x 2,4 mm 90° shore NBR   | 2        | for mounting pressure connections  |
| Adapter 1/2" bsp        | 027-411-26                     | 2        |                                    |
| Adapter 3/8" bsp        | 027-411-14                     | 1        |                                    |
| Adapter 1/4" bsp        | 027-411-25                     | 1        |                                    |
| Adapter 1/8" bsp        | 027-411-15                     | 1        |                                    |
| Multi seal              | 065-260-09                     | 2        | Ø13,2 x 6,9 x 1,3 mm, for adapters |
| Hydraulic oil           | Nuto H 32                      | 0.5 ltr. | Esso                               |





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