

**Filling and testing kit (NW 6)
for BSD filling valve**

**Filling and testing kit (NW 2)
for Minimes filling valve**

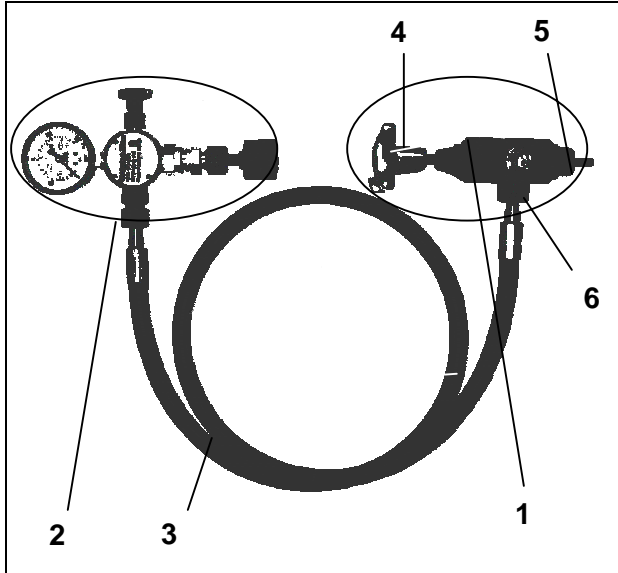


Fig. 2-1 Filling and testing kit (NW 6)
for BSD filling valve

Fig. 2-2 Filling and testing kit (NW 2)
for Minimes filling valve

The filling and testing kit consists of:

- 1 Accumulator connector
- 2 Cylinder connection
- 3 High-pressure hose
- 4 Spindle
- 5 Thread
- 6 Hose connection

2.3 Filling / emptying process

Filling and testing kits may only be used according to the following instructions by qualified personnel who are specially trained.
For carrying out the instructions (filling) please see the circuit diagram and parts list.



2.3.1 Preparing the filling process

Filling by means of the BSD filling valve (NW 6) fig. 2-1	Filling by means of the Minimes filling valve (NW 2) fig. 2-2
<ol style="list-style-type: none">1. Unscrew the blanking plug (fig. 1-1, pos. 8) and remove the seal on the blanking plug.2. Turn the spindle (fig. 2-1, pos. 4) of the accumulator connector (fig. 2-1, pos. 1) of the filling and testing kit all the way to the left to its stop.3. Use the removed seal for the accumulator connector and screw the thread (fig. 2-1, pos. 5) into the pressure equipment instead of the blanking plug.4. Screw the cylinder connection (fig. 2-1, pos. 2) on to a commercial nitrogen gas cylinder.5. Connect the accumulator connector and the cylinder connection with the corresponding high-pressure hose (fig. 2-1, pos. 3).6. Now turn spindle of part 1 all the way to the right to its stop. This way the non-return valve (fig. 1-1, pos. 7) is opened and the pressure equipment can be filled with nitrogen.	<ol style="list-style-type: none">1. Screw cylinder connection (fig. 2-2, pos. 2) on to a commercial nitrogen gas cylinder. The gas cylinder valve is closed.2. Connect the high-pressure hose and the cylinder connection.3. Unscrew the sealing cap of the Minimes filling valve on the pressure equipment.4. Connect the high-pressure hose with the filling valve of the pressure equipment.5. The accumulator can be filled with nitrogen.
Same procedure for both equipments from point 7 to point 10.	

2.3.2 Filling with nitrogen

7. Open valve of the gas cylinder until the required pre-load pressure on the pressure gauge is reached. The required pre-load pressure can also be read from the gas side pressure gauge when the valve is open, should this exist on the system. For reading the pressure P_0 close the cylinder valve from time to time.
8. Since the pressure P_0 depends on the temperature and the temperature of the nitrogen changes during the filling procedure the final measurement of the pre-load pressure can only take place after the temperature of the gas has compensated with the environment. For this you have to wait a while (15 min.).
9. If the pre-load pressure P_0 is too high reduce the pressure to the correct value by means of the pressure discharge valve. The gas cylinder valve must be closed.



Caution!

If the pressure of the N₂ pressure gas cylinder is higher than the maximum permissible pressure of the pressure equipment and if there is no pressure fuse-protection on the pressure equipment, insert a pressure control which protects the pressure equipment.



2.3.3 Termination of the filling procedure

10. For terminating the filling procedure close the gas cylinder valve.
11. Turn the spindle (fig. 2-1, pos. 4) of the accumulator connector (fig. 2-1, pos. 1) of the filling and testing kit all the way to the left to its stop and the non-return valve in the pressure equipment closes.
12. The depressurization of the accumulator connector, cylinder connection and high-pressure hose (fig. 2-1) takes place by opening the pressure release valve on the cylinder connection.
13. Unscrew the accumulator connector and the cylinder connection.
14. Tightly screw in blanking plug with gasket (see point 1 and 3) again. Only use original screw plugs with depressurization.

Possible occurring problems and solutions:

If a balance of pressure between the pressure equipment and N₂ gas cylinder can be created prior to reaching the pre-load pressure the procedure of filling the pressure equipment cannot be continued (nitrogen gas cylinder does not have enough pressure anymore).

Changing the N₂ gas cylinder:

1. Carry out points 10 to 12; loosen screw setting of the cylinder connection (fig. 2-1) on the empty gas cylinder and attach the cylinder connection to the new N₂-gas cylinder.
2. Now you can continue filling the pressure equipment as described starting from point 6.

2.4 Depressurization

2.4.1 Depressurization of the oil side is to be carried out by the customer

2.4.2 Depressurization of the gas side

Discharging by means of the BSD filling valve (NW 6) fig.2-1	Discharging by means of the Minimes filling valve (NW 2) fig.2-2
<ol style="list-style-type: none"> 1. See working procedure 1 to 3, chap. 2.3.1 2. Screw accumulator connector (fig. 2-1, pos. 1) into the connection of the pressure equipment hand-tight. 3. Slowly turn the spindle (fig. 2-1, pos. 4) to the right. The non-return valve (fig. 1-1, pos. 7) in the pressure equipment opens and gas flows to the cylinder connecting piece (fig. 2-1, pos. 2). 4. The gas can be discharged by turning the depressurization screw to the left. 5. Check if the pressure equipment is depressurized on the gas side. If this is the case the pressure gauge display shows 0 bar. Leave depressurization screw open. 6. If there is still pressure in the system repeat the procedure. 	<ol style="list-style-type: none"> 1. Connect the high-pressure hose and the cylinder connection. 2. Unscrew the sealing cap of the Minimes filling valve on the pressure equipment. 3. Connect the high-pressure hose with the filling valve of the pressure equipment. 4. By turning the depressurization screw to the left on the cylinder connecting piece (fig. 2-1, pos. 2) you can clearly hear the gas discharging. 5. Check if the pressure equipment is depressurized on the gas side. If this is the case the pressure gauge display shows 0 bar. Leave depressurization screw open. 6. If there is still pressure in the system repeat the procedure.