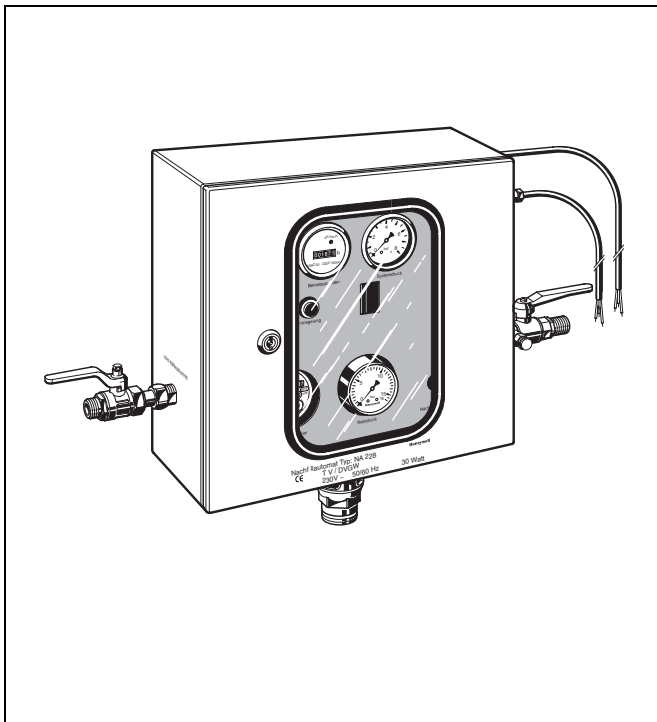


## NA228S-A

### Automatic Refilling Unit for closed heating or cooling systems

#### Product specification sheet



#### Construction

The automatic refilling unit comprises:

- Powder coated pressed steel housing
- Drinking water and system connection with shutoff ball valve
- Cut-in/cut-out pressure switch
- Electronic time relay
- Fault indicator lamp and cut-out button
- Pressure gauges for inlet and system pressures
- Discharge tundish
- Electrical plug for remote connection
- ON/OFF switch
- One metre connection cable without plug
- Water meter
- Bush for cable connection to a building management system
- Operating-time meter

#### Application

The NA228S-A automatic refilling unit with DVGW-tested mechanical disconnecter permits the fixed connection of closed heating or cooling systems to the drinking water supply network.

It integrates a mechanical disconnecter, a check valve and a water meter in a single unit. The automatic refilling unit maintains pressure between prescribed upper and lower limits in closed heating and cooling systems. It prevents back flow, back syphonage or back pressure of the heating or cooling water into the potable water network. Limitation of the refilling time is also provided as well as the facility for fast and automatic refilling of the system. In addition, build up of steam in the system caused by loss of pressure is prevented.

#### Special Features

- All components DIN/DVGW approved
- Electrical changeover valve for control of the mechanical disconnecter
- Supplementary hot-water-resistant check valve for increased protection of the drinking water network
- Setting facility for fast filling or refilling of the system
- Pressure switch with separately adjustable cut-in and cut-out pressures
- Time relay, for limitation of the refilling period
- Standardised discharge connection
- Remote volt-free connection
- Bush for cable connection to a building management system
- Circuit protection for volt-free connection
- Operating-time meter, measures the refilling time
- Water meter, measures the refills

#### Range of Application

The following operating data applies for the downstream system:

System pressure      max. 6.0 bar (87 psi)\*

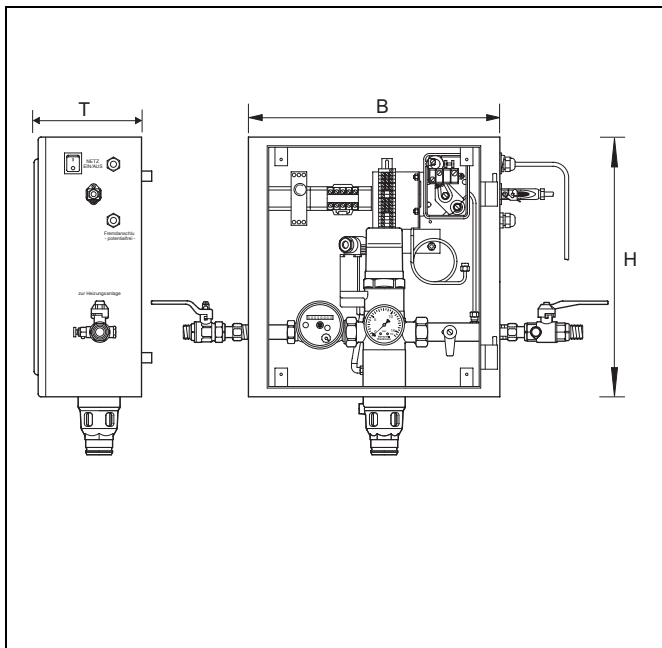
Temperature            max. 120 °C (248°F)\*\*

\* A pressure reducing valve must be fitted before the refilling unit for pressures above 6.0 bar

\*\* For temperatures above 100°C, the pressure at the highest point in the system when the system is cold must be at least 1.0 bar above the operating pressure (static height plus 1.0 bar).

**Technical Data**

|                              |   |
|------------------------------|---|
| Refilling                    | Flow rate 110 litres/h at $\Delta p = 2.0$ bar (29 psi)   |
| Fast filling                 | Flow rate finely adjustable between 110 litres/h and 1100 litres/h at $\Delta p = 2.0$ bar (29 psi) |
| Filling duration             | Adjustable between 5 and 100 minutes  |
| Cut-in pressure              | Adjustable between 0.2 and 7.5 bar (2.9 and 108.8 psi)  |
| Cut-out pressure             | Adjustable between 0.5 and 8.0 bar (7.3 and 116 psi)  |
| Switching level differential | 0.3 to 0.5 bar (4.4 to 7.3 psi) (depending on pressure range)                                       |
| Water inlet pressure         | Minimum 3.0 bar (43.5 psi), maximum 6.0 bar (87psi)**   |
| Remote connection            | Volt-free contact   |
| Supply voltage               | 230 V ~ 50/60 Hz  |
| Capacity                     | 30W   |
| Connection size              | R 1/2" and $\varnothing 15$ mm  |



**Method of Operation**

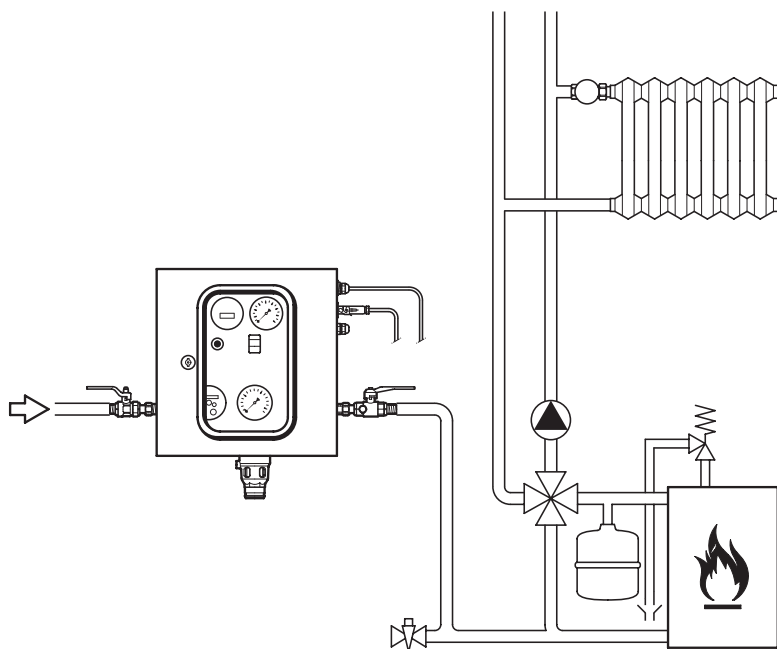
If the system pressure falls below the set limit, for example because of leakage losses, then the changeover valve is opened by an electrical impulse from the pressure switch and thereby opens the hydraulic supply to the backflow preventer. The inlet pressure brings the backflow preventer to the flow position and the system is refilled up to the pre-set upper pressure limit. The duration of fill is controlled by the time relay. Once the upper fill pressure has been reached, the pressure switch cuts out, the changeover valve closes and the backflow preventer goes to the cutoff position. The time relay goes to the outlet position. If the inlet pressure during the filling operation falls to the backflow preventer set pressure (2 bar), the backflow preventer automatically goes to the shutoff position (open to atmosphere). The shutoff position of the backflow preventer is indicated in the viewing window (green visible = shutoff position).

**Options**

NA228S-A      Standard version

|                          |                  |            |
|--------------------------|------------------|------------|
| Connection size          | R                | 1/2"       |
| Soldered connection size | $\varnothing$ mm | 15         |
| Weight                   | approx. kg       | 16         |
| Dimensions               | mm               |            |
|                          | H                | 380        |
|                          | B                | 370        |
|                          | T                | 160        |
| Test Certificate Number  |                  | 101/87/147 |

**Installation Example**



**Installation Guidelines**

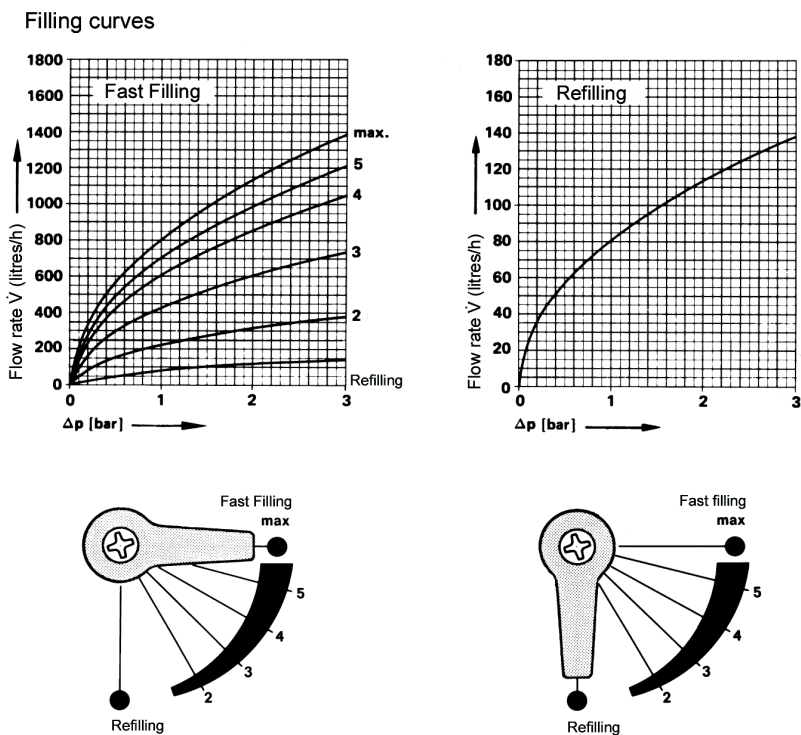
- Fix appliance to wall
- Fit isolating valves
- Ensure good accessibility
  - Simplifies maintenance and inspection
- For supply pressures over 6.0 bar fit a pressure reducing valve on the inlet
- Make hydraulic connections and check for leaks
- Check time setting on time relay
- Controll lowest cut-in pressure and highest cut-out pressure
- Connect discharge pipe to discharge tundish

**Typical Applications**

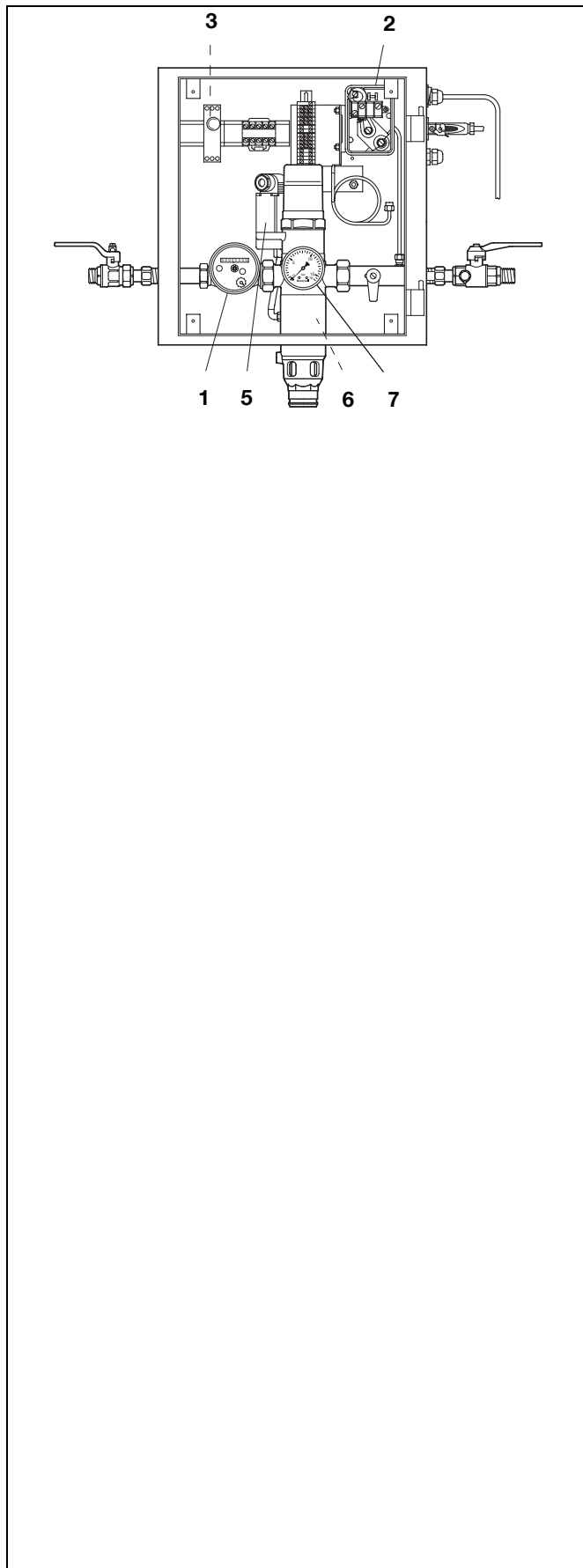
Refilling units of this type enable a permanent connection of closed heating or cooling systems to the drinking water network. Automatic refilling units are used:

- If the system pressure must be maintained
- For fast and automatic refilling of the installation
- If generation of steam caused by system pressure loss must be prevented

**Flow Diagram**



EN0H-1517GE23 R0310 • Subject to change



**Spare Parts**

**NA228S-A Automatic refilling unit, 1997 and onwards**

|          |                                     |          |
|----------|-------------------------------------|----------|
| <b>1</b> | Water meter                         | 0903110  |
| <b>2</b> | Pressure switch                     | 0903111  |
| <b>3</b> | Time relay                          | 0903112  |
| <b>4</b> | Operating time meter*               | 0903113  |
| <b>5</b> | Changeover valve                    | 0901407  |
| <b>6</b> | Discharge tundish                   | 0901340  |
| <b>7</b> | Pressure gauge                      | M07K-A16 |
| <b>8</b> | Pressure gauge for system pressure* | M228S-A8 |

\* Not visible in illustration

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