

## NK298S

### Refilling combination

#### Product specification sheet



#### Construction

The refilling combination consists of:

- Ball valve, up- and downstream
- Complete backflow preventer with discharge connection, valve cartridge (incl. integrated non return valve and discharge valve, upstream), integrated strainer upstream (mesh size approx. 0,5 mm), non return valve downstream and three ball valves with closing cap
- Complete pressure reducing valve with valve insert (incl. diaphragm and valve seat), spring hood (incl. adjustment screw), adjustment spring, filter bowl, fine filter (mesh size approx. 0,16 mm) and manometer

#### Materials

- Housing in red-bronze or dezincification-resistant brass
- Discharge connection, valve cartridge, valve insert, spring hood and filter bowl in high-grade synthetic material
- Ball valves in dezincification-resistant brass
- Fibre-reinforced NBR diaphragm
- Seals in NBR and EPDM
- Spring steel adjustment spring
- Stainless steel fine filter mesh

#### Application

The refilling combination serves automatic filling and refilling from closed heating systems to DIN EN 12828:2003.

The refilling combination can be connected in accordance to DIN EN 1717 constantly with the drinking water supply.

The refilling combination combines backflow preventer, pressure reducing valve and ball valve in one appliance.

The refilling combination contains all devices for refilling a heating installation, according to conforming standards.

#### Special Features

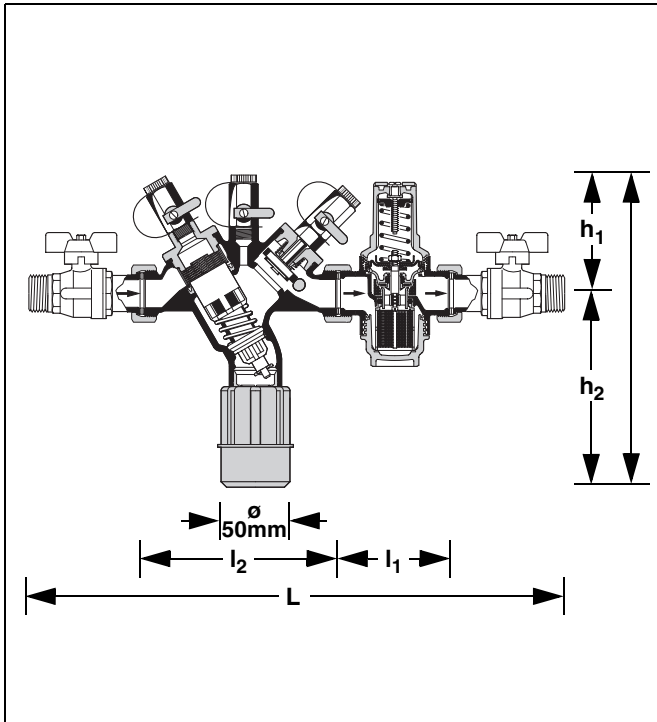
- All components DIN/DVGW approved
- Constant connection with the drinking water supply in accordance with DIN EN1717 by hose line or piping are possible
- Corrosion resistant by use of red-bronze, brass and stainless steel
- Low flow resistance and high rate of flow
- Optimal protection of the drinking water supply
- Backflow preventer sound insulation, class 2
- Pressure reducing valve sound insulation, class 1
- Backflow preventer offers threefold security - two non return valve and a discharge valve separate the backflow preventer into three chambers
- Field-tested reliable pressure reducing valve
- Pressure reducing valve with inlet pressure balancing - inlet pressure fluctuation does not influence the outlet pressure
- Outlet pressure adjustable and directly at the manometer readable
- Reliable and proven
- Low maintenance effort - cartridge insert and valve insert are completely replaceable
- Filter bowl at the pressure reducing valve in clear synthetic
- Complies with KTW requirements

#### Range of Application

Medium	Water
Inlet pressure	min. 1.5 bar max. 10.0 bar
Outlet pressure	1.5-6 bar adjustable
Liquid category	4 (toxic, highly toxic, tumourigenic, radioactive materials)
Backflow Preventer	

#### Technical Data

Installation position	horizontal pipework with discharge connection directed downwards
Operating temperature	max. 65 °C
Minimum pressure drop	1 bar
Connection ball valve	G 1/4"
Backflow preventer	
Connection size	HT 50
Discharge	
Connection size	1/2" AG



Connection size	R	1/2"
Weight	approx. kg	2.8
Dimensions	mm	
	H	222
	h <sub>1</sub>	80
	h <sub>2</sub>	138
	L	404
	l <sub>1</sub>	90
	l <sub>2</sub>	140

**Method of Operation**

The refilling combination combines backflow preventer, pressure reducing valve and ball valve in one appliance.

The backflow preventer is a safety device in accordance with DIN EN 1717 to protect systems against back pressure, back flow and back syphonage of non-potable water into service pipe, plants and equipments.

The backflow preventer is separated in three chambers (inlet, middle and outlet chamber).

If no water is drawn from the downstream system, the backflow preventer is in normal position. The up- and downstream non return valves and the discharge valve are closed.

If water is drawn from the downstream system, the backflow preventer is in flow position. The non return valves up- and downstream are opened and the discharge valve is closed.

The backflow preventer change to shut-off position (back pressure) if the differential pressure between middle- and inlet chamber falls under 0.14 bar. The upstream non return valve is closed and the discharge valve is opened.

The pressure reducing valve reduces the pressure on the inlet side (admission pressure) to the level of the desired pressure on the outlet side (outlet pressure) in individual cases.

The pressure reducing valve functions on a force equalisation principle. The force of a diaphragm operates against the spring force of the regulating valve. If the outlet pressure and therefore diaphragm force fall because water is drawn, then the greater force of the spring causes the valve to open. The outlet pressure then increases until the forces between the diaphragm and the spring are equal again.

The inlet pressure (admission pressure) has no influence on the regulating valve of the pressure reducing valve. Inlet pressure fluctuation does not influence the outlet pressure, thus providing inlet pressure balancing.

**Options**

NK298S-1/2A= Standard version with threaded connection R<sup>1</sup>/<sub>2</sub>"

**Accessories**

**TK295 Test kit**

Electronic pressure measuring device with digital indicator, runs by a battery.

With case and accessories, ideal for inspection and maintenance of backflow preventer type BA.

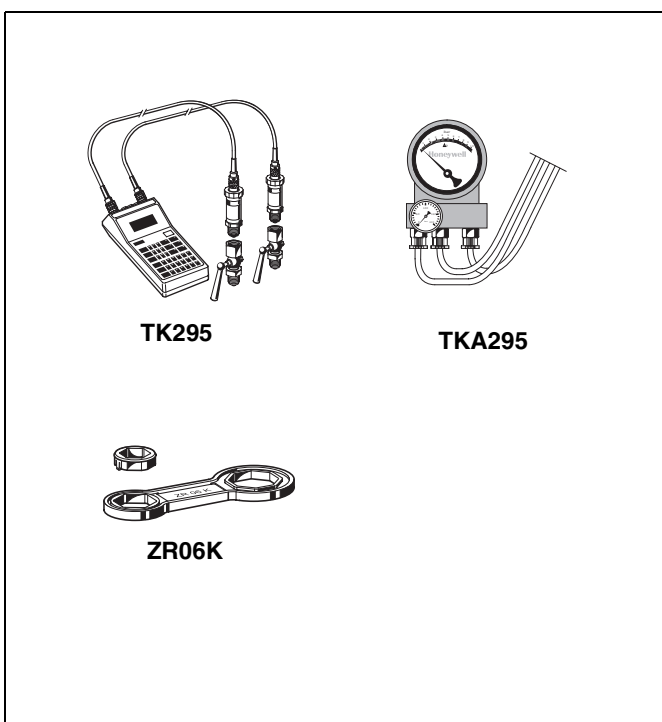
**TKA295 Test kit**

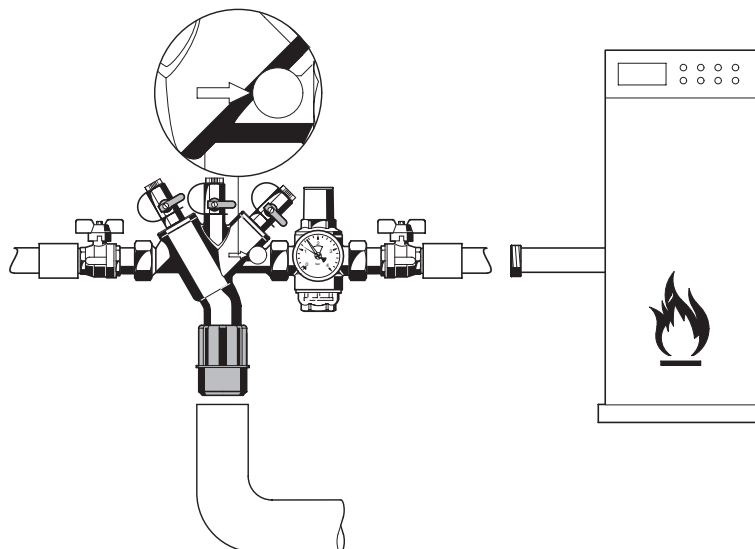
Analogue pressure measuring device with differential pressure display.

With case and accessories, ideal for inspection and maintenance of backflow preventer type BA.

**ZR06K Double ring spanner**

For removal of spring hood and filter bowl



**Installation Example****Installation Guidelines**

- Install in horizontal pipework with discharge connection directed downwards
- The installation is independent of the highest possible water level
- The installation may not take place in areas or ducts where poisonous gases or vapours may be present or where flooding can occur
- The installation location must be ventilated well
- The installation location should be protected against frost and be easily accessible
  - o Simplified maintenance and cleaning.
  - o Manometer at the pressure reducing valve can be read off easily
  - o Degree of contamination in the filter bowl can be well observed
- Provide a straight section of pipework of at least five times the nominal valve size after the pressure reducing valve (in accordance with DIN 1988, Part 5)
- The refilling combination has an integrated strainer - no separate strainer necessary
  - o Refilling combination is protected against malfunction and corrosion damage resulting from ingress of foreign bodies, e.g. welding beads, sealing materials, metal cuttings and rust

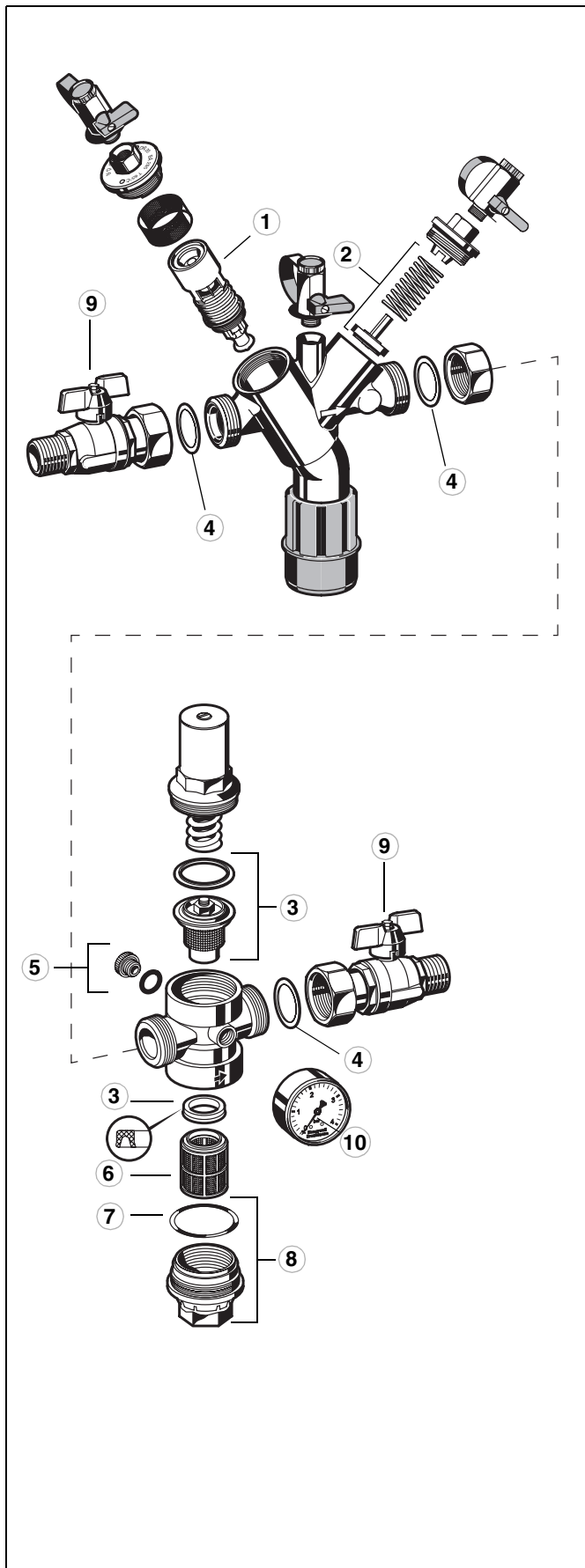
**Typical Applications**

The refilling combination is priority suitable for domestic drinking water supply.

The refilling combination can be used for commercial and industrial applications in consideration of its specifications.

Below two typical applications:

- Automatic refilling of the heating system
- Automatic refilling of systems up to liquid category 4 in accordance with DIN EN 1717.



**Spare Parts**

**Refilling combination NK298S, from 2005 onwards**

No.	Description	Dimension	Part No.
①	Cartridge insert complete	3/4"	0903733
②	Non return valve complete	3/4"	0903735
③	Replacement valve set (not incl. filter)	1/2" + 3/4"	D06FA-1/2
④	Sealing set (10 pieces)	1/2"	0901443
⑤	Blanking plug with O-ring R <sup>1</sup> / <sub>4</sub> " (5 pcs.)	all	S06K-1/4
⑥	Replacement filter insert	1/2" + 3/4"	ES06F-1/2A
⑦	O-ring set	1/2" + 3/4"	0901246
⑧	Filter bowl	1/2" + 3/4"	SK06T-1/2
⑨	Ball valve	1/2"	2192900
⑩	Manometer	0 - 4 bar	M07M-A4

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