

NK300S

Refilling combination

APPLICATION

The refilling combination serves filling and refilling of closed heating systems according to DIN EN 12828:2014-07.

It can be connected in accordance with EN 1717 permanently with the drinking water supply.

The refilling combination combines a BA type backflow preventer, pressure reducing valve and two ball valves in one appliance.

The unit consists of all needed devices for refilling a heating installation according to conforming standards are contained.

APPROVALS

- DVGW-approval

SPECIAL FEATURES

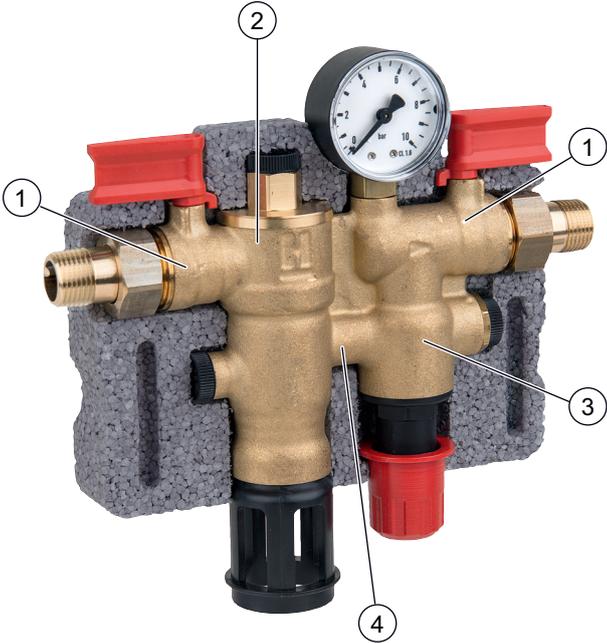
- Permanent connection with the drinking water supply in accordance with EN 1717 by hose line or piping is possible
- Optimal protection of the drinking water supply system
- Pressure reducing valve with inlet pressure balancing - inlet pressure fluctuation does not influence the outlet pressure
- Outlet pressure adjustable and directly visible on the pressure gauge
- Low maintenance effort - cartridge insert and valve insert are completely replaceable
- Meets KTW/W270 regulations for drinking water



TECHNICAL DATA

Media	
Medium:	Drinking water
Connections/Sizes	
Connection sizes:	1/2" external threads
Connection size discharge:	40 mm
Connection ball valve backflow preventer:	G 1/4"
Pressure values	
Inlet pressure:	2 - 10 bar
Outlet pressure:	1.5 - 4 bar adjustable
Preset outlet pressure:	1.5 bar
Operating temperatures	
Max. operating temperature medium:	65 °C
Specifications	
Liquid category backflow preventer BA:	4 (toxic, highly toxic, tumourigenic, radioactive materials)
Installation position:	horizontal pipework with discharge connection directed downwards

CONSTRUCTION

Overview	Components	Materials
	1 Shut-off valve, up- and downstream	-
	2 Complete backflow preventer with discharge connection, valve cartridge (incl. integrated check valve and discharge valve, upstream), integrated strainer upstream (mesh size approx. 0.2 mm) and check valve downstream and three test points.	High-grade synthetic material
	3 Complete pressure reducing valve with valve insert (incl. diaphragm and valve seat), spring bonnet (incl. adjustment screw), adjustment spring and pressure gauge	High-grade synthetic material, Fibre-reinforced EPDM diaphragm
	4 Housing	Dezincification-resistant brass
Not depicted components		
	Seals	NBR, EPDM
	Adjustment spring	Spring steel
	Fine filter mesh	Stainless steel

METHOD OF OPERATION

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

The backflow preventer is a safety device in accordance with EN 1717 to protect the quality of drinking water against back pressure, back flow and back syphonage of non-drinking water from plants and connected equipment.

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 check valves and the discharge valve are closed.

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

The backflow preventer changes to shut-off position (back pressure) if the differential pressure between middle- and inlet chamber falls under 0.14 bar. The check valves are closed and the discharge valve is opened.

The pressure reducing valve reduces the inlet pressure to the desired set-pressure on the outlet side.

The pressure reducing valve works according to the force comparison 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 has no influence in either opening or closing of the valve. Because of this, inlet pressure fluctuation does not influence the outlet pressure, thus providing inlet pressure balancing.

TRANSPORTATION AND STORAGE

Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

Parameter	Value
Environment:	clean, dry and dust free
Min. ambient temperature:	-15 °C
Max. ambient temperature:	+70 °C
Min. ambient relative humidity:	25 % *
Max. ambient relative humidity:	95 % *

*non condensing

INSTALLATION GUIDELINES

Setup requirements

- Install in horizontal pipework with discharge connection directed downwards
- The installation may not take place in areas or ducts where poisonous gases or vapours may be present or where flooding can occur
- Requires regular maintenance in accordance with EN 806-5
- The installation environment should be protected against frost and ventilated well
- The installation location has to be easily accessible
 - Simplified maintenance and cleaning
 - Pressure gauge at the pressure reducing valve can be read off easily
- Provide a straight section of pipework of at least five times the nominal valve size after the pressure reducing valve (in accordance with EN 806-2)
- The refilling combination has an integrated strainer - no separate strainer necessary
 - 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
- The national installation regulations must be observed during the assembly
- In order to avoid flooding, it is recommended to arrange a permanent, professionally dimensioned wastewater connection

Installation Example

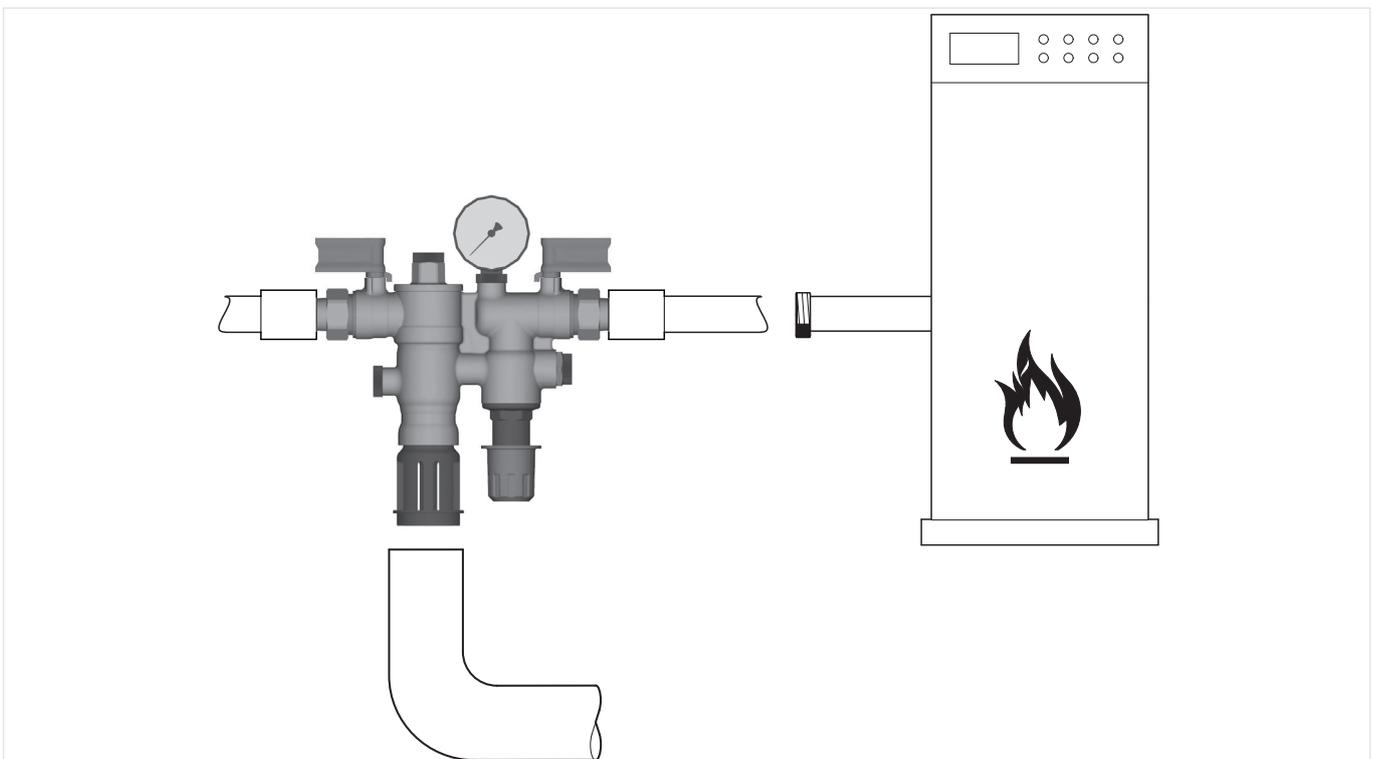
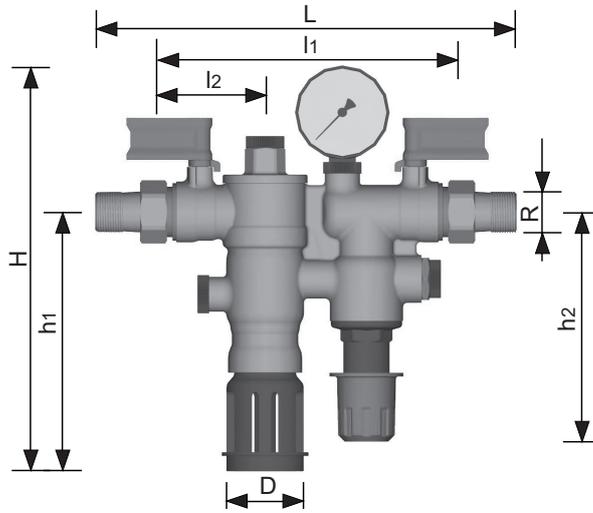


Fig. 1 Standard installation example for the refilling combination

DIMENSIONS

Overview



Parameter		Values
Connection size:	R	1/2"
Dimensions:	H	219
	h ₁	143
	h ₂	120
	L	220
	l ₁	160
	l ₂	58
	D	40
Weight:	kg	1.2
DVGW registration number:		DW-6370CQ0329

Note: All dimensions in mm unless stated otherwise.

ORDERING INFORMATION

The following tables contain all the information you need to make an order of an item of your choice. When ordering, please always state the type, the ordering or the part number.

Options

The valve is available in the following sizes: 1/2".

- standard
- not available

		NK300S-1/2A
Connection type:	Standard version with threaded connection R ^{1/2} "	•

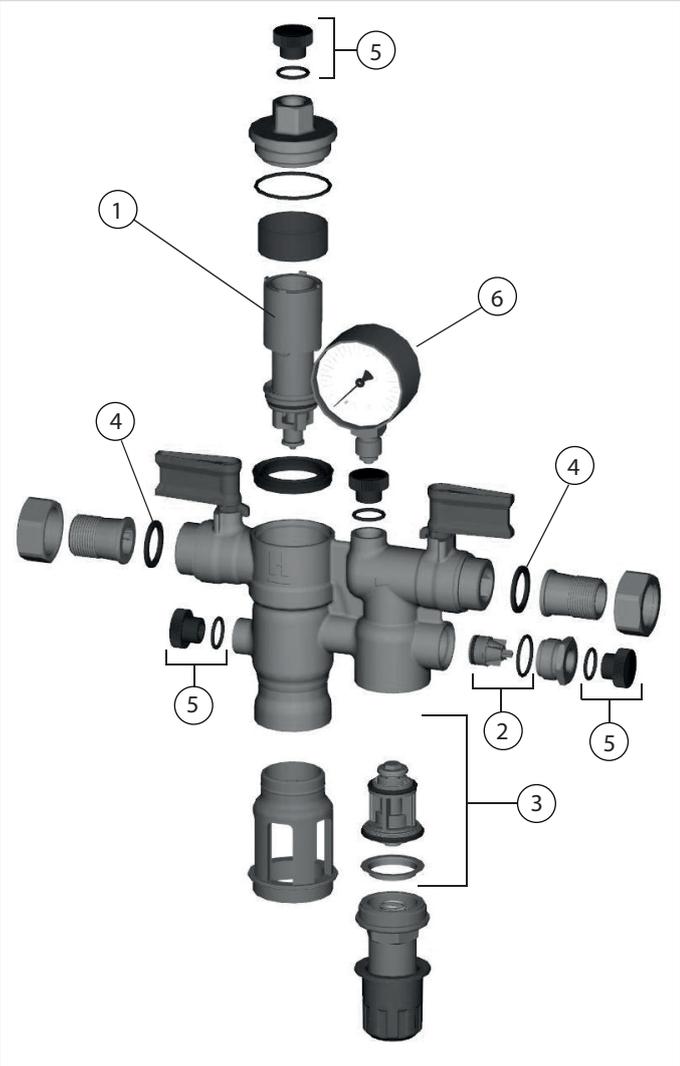
Note: Ordering number example for 1/2" and type A valve: NK300S-1/2A

Accessories

	Description	Dimension	Part No.
	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.		
			TKA295
	WS300NK Maintenance Set Maintenance set for refilling combination NK300 for use with TK295 resp. TKA295		
			WS300NK
	AK-NK300 Replacement kit NK300 Replacement kit when exchanging NK300 against NK300S		
			AK-NK300

Spare Parts

Refilling combination NK300S, from 2015 onwards

Overview	Description	Dimension	Part No.
	1 Cartridge insert complete	1/2"	0903733
	2 Check valve	1/2"	0904138
	3 Valve insert complete	1/2"	D04FMA-1/2
	4 Union seal washer (10 pcs.)	1/2"	0901443
	5 Blanking plug with O-ring R¹/₄" (5 pcs.)	1/2" - 2"	S06K-1/4
	6 Pressure gauge	0 - 10 bar	M39K-A10

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