

## Neutralisation system GENO-Neutra FNH-420-R

### Intended use

The neutralisation system GENO-Neutra FNH is suitable for the neutralisation (increase of the pH-value to > 6.5) of condensate originating from gas or oil-fired heat generators (condensing boilers) and/or exhaust systems made of stainless steel, plastic, glass, graphite and ceramics according to work sheets DWA A 251:2011 and DVGW VP 114 up to the specified capacity.

### Possible applications

The neutralisation system GENO-Neutra FNH-420-R is designed exclusively for use in industrial and commercial applications.

The condensate can also contain impurities, combustion residues and, in case of oil operation, unburnt hydrocarbons or oil.

In case of condensate containing an extremely high amount of impurities, we recommend installing a condensate prefiltration box upstream. This increases the service life of the neutralisation system.

### Function

The condensate flows via the integrated condensate filter into the collection area of the neutralisation box where it is circulated and where the pH value is increased and monitored by dosing the neutralising agent. Upon reaching the admissible pH value (> 6.5), the condensate is pumped to the drain.

The control unit GENO-Neutra-matic<sub>2</sub> controls and monitors all important system functions. The

display shows the pH value of the condensate as well as the levels.

In addition, the level in the neutralisation box is monitored by a level probe and when the critical filling level is exceeded, a voltage-free fault signal contact is triggered as overflow warning.

A second voltage-free fault signal contact enables a safety switch-off of the condensing boiler either in parallel to the fault signal contact (overflow warning) or time-delayed.

A third voltage-free contact switches if the set maintenance interval has elapsed or the set limit values for the pH alarm have been exceeded or undershot during pumping out.

In addition, a voltage-free output for the actual pH value 4 – 20 mA (pH 0.0 – 14.0) is available as well as a voltage-free fault signal contact on the GENODOS dosing pump.

### Design

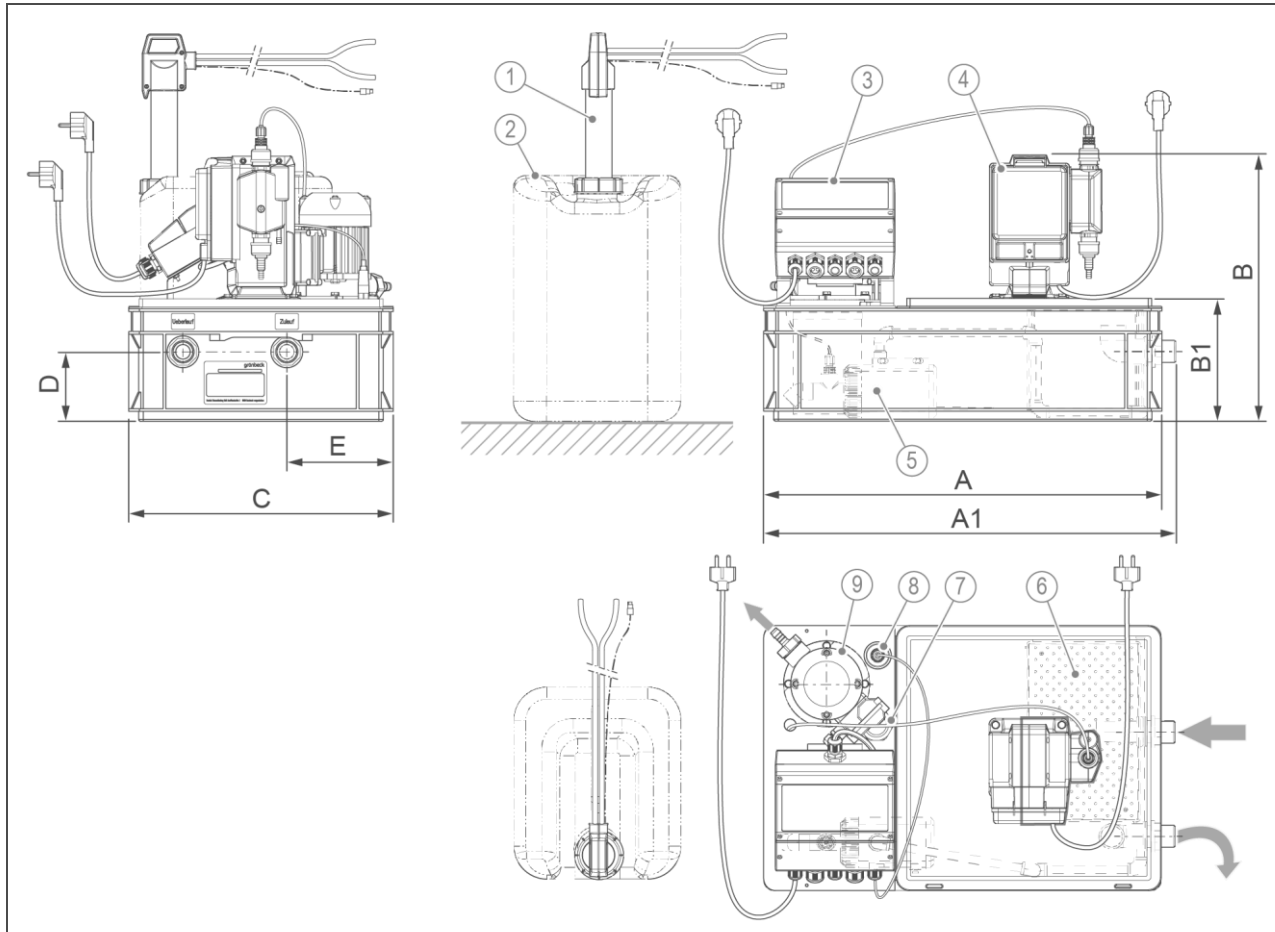
- Neutralisation box with inlet and overflow connection for DN 25 hose
- Integrated in the neutralisation box
  - Condensate filter, distribution line and circulation pump with dosing valve
- Delivery pump with filter cage
- Dosing pump GENODOS GP with suction lance for 25 kg canisters and dosing connections
- Control unit GENO-Neutra-matic<sub>2</sub>

- Outlet connection DN 12 with non-return valve
- Level probe (overflow warning)
- pH electrode

### Scope of supply

- pH-controlled neutralisation system as compact system (pre-assembled)
- Outlet hose, 6 m in length (DN 12)
- Hose, 5 m in length (DN 25) for inlet and overflow
- 2 Hose connections incl. seals and locknuts
- 1 Closing cap
- 2 Plastic nuts PG 13.5
- 3 Hose clamps (20–32)
- 1 Hose clamp (12–20)
- Activated carbon filling, 3.5 litres
- Calibration solution pH 4 and pH 7 as well as 2 measuring beakers (20 ml)
- Operation manual

## Technical specifications I



Item	Designation	Item	Designation
1	Suction lance for 25 kg canister with pre-alarm and empty signal	2	Neutralising agent GENO-Neutrox (not included in the scope of supply)
3	Control unit GENO-Neutra-matic <sub>2</sub>	4	Dosing pump GENODOS GP
5	Circulation pump with dosing valve	6	Condensate filter for activated carbon
7	Level probe	8	pH electrode
9	Delivery pump		

Dimensions and weights		FNH-420-R	
A	Length	mm	600
A1	Total length with connections	mm	621
B	Total height	mm	400
B1	Height of neutralisation box	mm	185
C	Width	mm	400
D	Connection height of inlet and overflow	mm	105
E	Distance of inlet	mm	161
	Height of switch-on level of delivery pump (condensate backwater height in standard operation)	mm	115
	Operating weight (with condensate)	kg	~ 35.0
	Empty weight	kg	~ 22.7

<b>Connection data</b>		<b>FNH-420-R</b>
Nominal connection diameter of inlet and overflow		DN 25
Nominal connection diameter of outlet hose to drain		DN 12
Drain connection provided by the client on site with delivery rate	l/min	≥ DN 40 ≥ 41.5
Mains connection, 2 connections	V/Hz	230/50
Mains cable for GENO-Neutra-matic <sub>2</sub> /GENODOS GP	m	1.8/1.8
Power input GENO-Neutra-matic <sub>2</sub> /GENODOS GP	W	220/18
Protection/protection class		IP 54/⊕

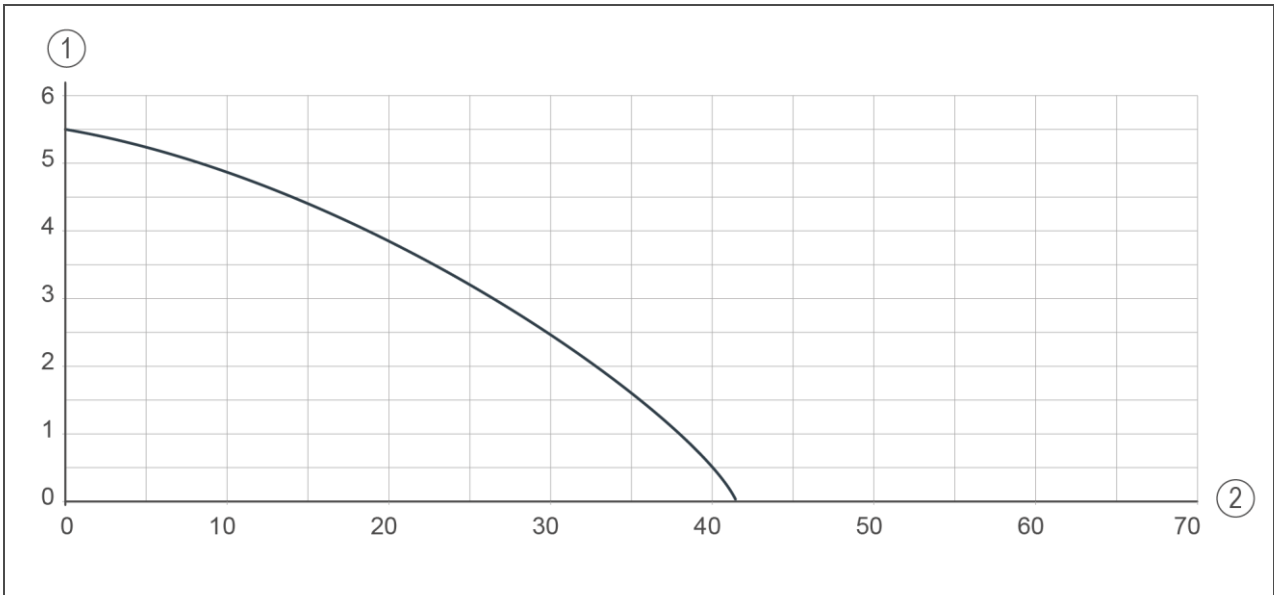
<b>Performance data</b>		<b>FNH-420-R</b>
Fuel/process (generation of condensate)		Gas or oil/condensing technology
Neutralisation capacity	l/h	420
This corresponds,	l/min	7
at 0.14 l/kWh, to a gas boiler capacity of	kW	3000
at 0.08 l/kWh, to an oil boiler capacity of	kW	5250
Nominal delivery head (refer to characteristic curve of delivery pump)		3 m at 26.5 l/min = 1590 l/h
Delivery head	m	≤ 5.5
Delivery rate	l/min	≤ 41.5

<b>Filling volumes and consumption data</b>		<b>FNH-420-R</b>
Neutralising agent		GENO-Neutrox*
Consumption of neutralising agent for gas condensate	l/m <sup>3</sup>	0.32
for oil condensate	l/m <sup>3</sup>	1.82

<b>General data</b>		<b>FNH-420-R</b>
Condensate temperature	°C	5 – 40 (briefly 50)
Ambient temperature	°C	5 – 40
<b>Order no.</b>		<b>410 540</b>

\* Not included in the scope of supply (refer to consumables)

### Characteristic curve of delivery pump

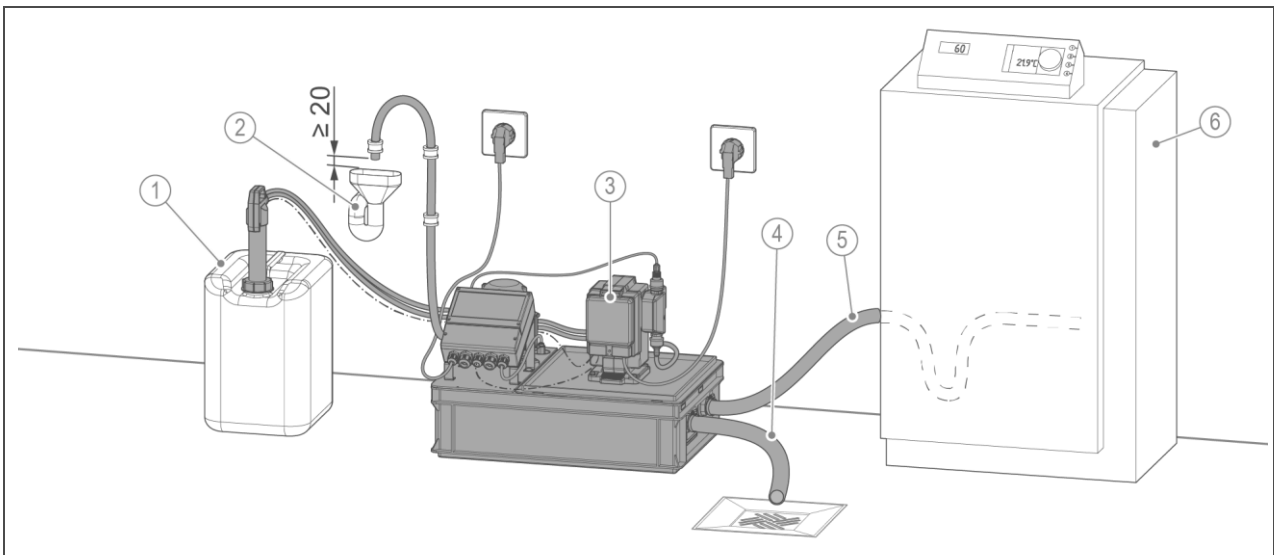


Item	Designation	Item	Designation
1	Delivery head in m	2	Delivery rate in l/min

**Note:**

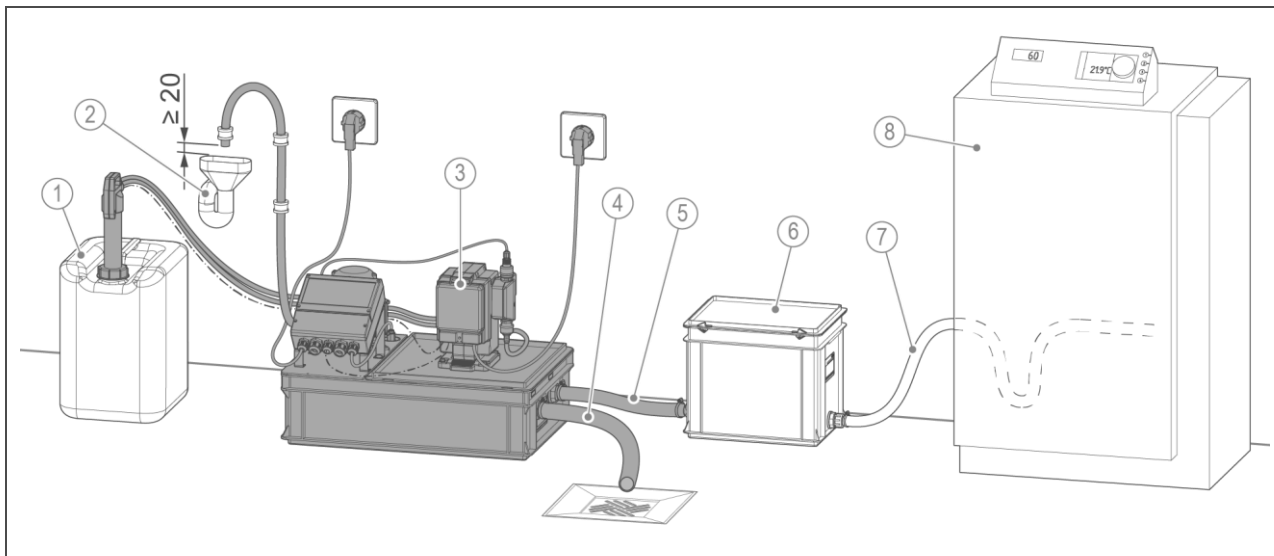
Delivery rate at a hose length of 6 m (line extensions and cross-sectional constrictions on the outlet hose cause a decrease in performance)

### Installation example I



Item	Designation	Item	Designation
1	Neutralising agent GENO-Neutrox	2	Drain connection
3	Neutralisation system GENO-Neutra FNH-420-R	4	Overflow hose
5	Inlet hose	6	Heat generator

## Installation example II (with condensate prefiltration box)



Item	Designation	Item	Designation
1	Neutralising agent GENO-Neutrox	2	Drain connection
3	Neutralisation system GENO-Neutra FNH-420-R	4	Overflow hose
5	Connecting hose	6	Condensate prefiltration box DN 25
7	Inlet hose	8	Heat generator

### Requirements for the installation site

Obey the local installation directives, general guidelines and technical specifications.

- Protection from frost, severe heat exposure and direct sunlight
- Protection from high radiation temperatures in the immediate vicinity ( $\leq 40\text{ °C}$ )
- Protection from chemicals, dyes, solvents and their vapours
- Access for maintenance work (take note of space required)
- Sufficiently illuminated as well as aerated and ventilated
- Horizontal installation surface with sufficient load-bearing capacity to support the operating weight of the product

### Water installation

- Inlet hose with downward slope
- Overflow hose with a downward slope to the collection vessel or floor drain provided by the client on site
- Floor drain or an alarm device which, in the event of a malfunction, visibly indicates the alarm and switches off the heat generator, if necessary
  - Note: In normal operation, the condensate is accumulated up to the switch-on point of the delivery pump.
- Drain connection  $\geq$  DN 40 with possibility of backflow-free discharge of the condensate
- The drain connection must allow for resistance-free discharge  $\geq 41.5\text{ l/min}$

### Electrical installation

- 2 separate Schuko sockets within a maximum distance of 1.5 m from the product
- The power supply must carry continuous current or be connected in parallel to the burner of the condensing boiler

## Accessories

### Condensate prefiltration box DN 25

Order no. 410 135

With activated carbon filling, for pre-filtration of highly contaminated condensate

### Safety package for caustic substances

Order no. 180 810

Consisting of the required PPE equipment and symbol signs necessary for the safe operation of the dosing system with caustic dosing agents.

### Measuring beaker with 5-10-15-20 ml mark

Order no. 88805080

To calibrate the pH electrodes;  
1x each per calibration solution

### GENODOS-suction lance B 10/20, 750 mm

Order no. 118 505

For 75 kg canisters

### Voltage-free level signal for GENODOS GP

Order no. 163 870

For relaying the pre-alarm level of the suction lance

### Hose DN 25 (5 m)

Order no. 410 774e

To cover distances of up to 5 m on the inlet and outlet side

### Oil binding mats, 20 pcs

Order no. 410 585

Oil absorbing capacity of 100 ml/mat, water-repellent

## Consumables

### GENO-Neutrox, 25 kg canister

Order no. 180 350

### GENO-Neutrox, 75 kg canister

Order no. 180 355

### Calibration solution pH 4, 50 ml

Order no. 203 627

### Calibration solution pH 7, 50 ml

Order no. 203 628

### ecoLine pH electrode

Order no. 211 502

### Activated carbon filling, 3.5 litres

Order no. 410 590

For condensate filter

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## Contact

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