

### GENO®-Neutra NO-5 GENO®-Neutra NO-12 GENO®-Neutra NO-24

Fig. 1: GENO®-Neutra NO-5, NO-12, NO 24

### Designated application

The GENO®-Neutra NO-5, NO-12 and NO-24 systems are designed for the neutralisation (increase of the pH-value to more than 6.5) of condensed water originating from oil and gas fired heat generators (condensing boilers) and/or exhaust systems made of stainless steel, plastics, glass, graphite and ceramics according to ATV-DVWK-A 251, DIN 4716-1, DVGW-VP114 and DIN 4716-2 up to the specified capacity.

### Function

Condensed water flows into the sedimentation zone of the neutralisation system. The condensed water is then distributed via the integrated filter plate and flows through the activated carbon and neutralisation granulate material. The granulate is thus solubilised and the condensed water neutralised while the ventilation device reduces the iron deposits. Afterwards, the condensed water flows to the drain.

The amount of neutralisation granulate contained in the scope of delivery corresponds to the initial filling required for 12 months at maximum capacity (refer to technical specifications).

### Design

The neutralisation system consists of a neutralisation tank with hose connections for inlet and outlet. In the neutralisation tank, a sedimentation zone for impurities, a zone for activated carbon as well as neutralisation material with ventilation and a collection zone for condensed water are aligned in direction of the flow.

An overflow orifice is located above the outlet piece, so that in case the condensate outlet to the drain is blocked, the condensate may escape at a pre-defined point. The neutralisation systems may be equipped with an optional overflow alarm switch – please refer to accessories.

The ventilation pump is installed at the outside of the neutralisation tank by means of a tension strip and is connected to the outlet system by means of a hose and a non-return valve.

In case of the NO-5, a siphon with a locking height of 46 mm is integrated at the inlet connection. The NO-24 consists of two NO-12 systems connected in series which are combined by means of a piece of hose.

### Scope of delivery

- 1 Neutralisation system GENO®-Neutra NO-5, N-12 or N-24
- The NO-24 consists of 2 NO-12 units.
- 1 Pack of pH indicator strips
- 3 Hose clips (for NO-12 and NO-5)
- 5 Hose clips (for NO-24)
- 1 Connection hose (for NO-24)
- 5 m hose DN 20
- Activated carbon material (in case of NO-5 filled into the system)
- Neutralisation granulate GENO®-Neutralit Hz
  - 3 kg for NO-5
  - 8 kg for NO-12
  - 16 kg for NO-24
- 1 Operation manual completely packed in a cardboard box

### Accessories

- Overflow alarm switch  
**Order no. 410 680**
- GENO® alarm delay relay  
**Order no. 410 285**
- Spiral-wound hose DN 20, 5 m  
**Order no. 410 764e**
- Waste water lifting system AH-300  
**Order no. 420 150**
- Oil binding mats, 20 pieces  
**Order no. 420 585**

### Consumables

- Maintenance set for NO-5  
**Order no. 410 805**
- Maintenance set for NO-12  
**Order no. 410 806**
- Maintenance set for NO-24  
**Order no. 410 807**
- GENO®-Neutralit Hz - 8 kg  
**Order no. 410 011**
- pH indicator strips - 3 pieces  
**Order no. 170 173**

### Installation requirements

Please observe the technical specifications of the system, the rules for the discharge of condensate according to worksheet ATV-DVWK-A 251 as well as the local directives.

The installation site must be frost-proof and protect the system from chemicals, dyes, solvents and vapours, high radiation temperatures, dust and direct sunlight.

Take into consideration that in standard operation, the condensed water is accumulated to approx. the level of the outlet connection of the neutralisation system. If the condensed water shall completely drain from the heat generator or the chimney, the erection areas respectively the outlets for the condensed water (e. g. chimney) must be provided for accordingly. A drain connection (min DN 40) must be available for the discharge of the condensed water and discharge without backwater must be ensured.

If no floor drain is available in the installation room, an alarm device needs to be installed. In case of a disturbance, this alarm device must reliably and visibly indicate the alarm and by switching of the heat generator prevent overflowing and consequential damage. With regard to the overflow alarm switch, please refer to accessories.

A mains cable of an approx. length of 2 m with a Euro-type flat plug is connected to the neutralisation system (for NO-24, there are 2 mains cables). For electrical connection, one respectively two sockets 230 V / 50 Hz are required.

This power supply must carry continuous current or be switched in parallel to the burner of the condensing boiler. Differing operating modes may considerably affect the neutralisation function, reduce the service life and significantly increase the maintenance cost.

Concentrations of iron, manganese, aluminium and zinc contained in the condensate may clog the neutralisation granulate and therefore considerably affect the function of the neutralisation system. If need be, the applicability should be checked by means of separate tests, and if necessary, regular cleaning of the system with replacement of granulate must be arranged for. In case of condensed water with an extremely high content of impurities, we recommend removing the impurities upstream of the neutralisation system by means of a filter.

**Obligatory neutralisation according to ATV-DVWK-A 251**  
**Excerpt derived from chapter 4.1.3 of the August 2003 edition**

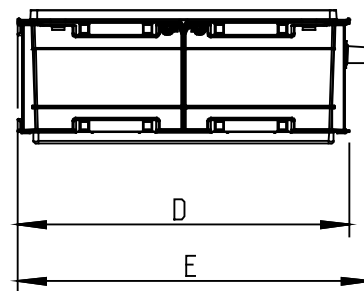
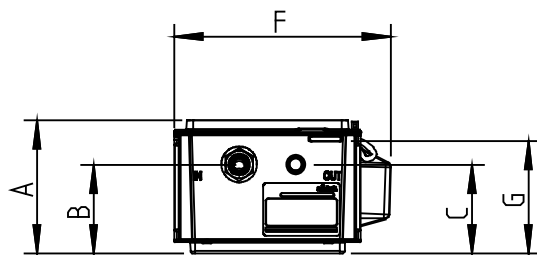
Nominal heat output	Neutralisation for firing systems and motors without catalytic converter is required for		
	Gas	Heating oil DIN 51603-1 low on sulphur	Heating oil DIN 51603-1
< 25 kW	no 1), 2)	no 1), 2)	yes
25 to 200 kW	no 1), 2),3)	no 1), 2),3)	yes
> 200 kW	yes	yes	yes

However, a neutralisation is nevertheless required

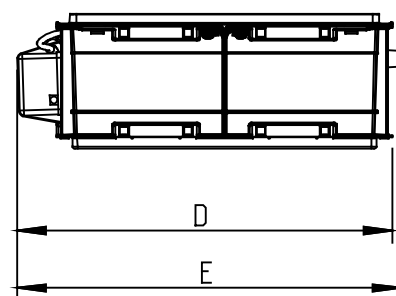
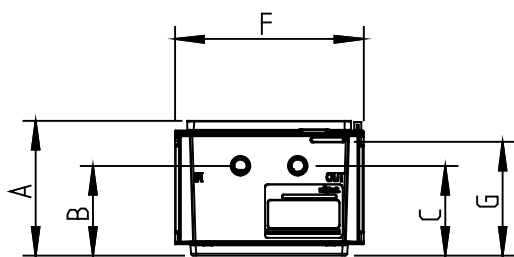
- 1) if the domestic waste water is discharged to small sewage plants
- 2) in case of buildings and lots whose drainpipes do not meet the material requirements stipulated in paragraph 5.3,
- 3) in case of buildings which do not meet the requirements for sufficient blending as per paragraph 4.1.1.

Table C-1: Technical specifications/dimensions	GENO®-Neutra		
	NO-5	NO-12	NO-24
<b>Connection data</b>			
Power supply	230 V / 50 Hz		
Power input [W]	5	5	10
Protection/protection class	IP X4/II		
Voltage-free fault signal contact (optional overflow alarm switch)	Wechsler, switching power 250 V / 6 A (ohmic load) electrical connection receptacle 6.3 x 0.8 mm		
Nominal diameter of inlet/outlet hose [DN]	20		
Min. drain connection [DN]	40		
<b>Performance data</b>			
Combustible/process (generation of condensate)	oil/gas condensing boiler technology		
Max. neutralisation capacity [l/h]	4.4	12.8	25.6
At 0.08 l/kWh this corresponds to a max. boiler capacity of [kW]	55	160	320
<b>Filling volumes and consumption data</b>			
Neutralisation granulate (8 kg, order no. 410 011)	GENO®-Neutralit Hz		
Filing volume of neutralisation granulate [kg]	3	8	16
Service life in case of standard condensate acc. to DIN 4716-1, pH 2	12 months	12 months	12 months
Neutralisable condensate volume [m³]	2.9	8.3	16.6
This corresponds to ... hours of full boiler use [bVH]	650	650	650
Service life in case of standard condensate, however, at a min. pH of 2.5	12 months	12 months	12 months
Neutralisable condensate volume [m³]	6.6	19.2	38.4
This corresponds to ... hours of full boiler use [bVH]	1500	1500	1500
<b>Dimensions and weights</b>			
Backwater level of condensate in standard operation [mm]	120		
A Total height [mm]	165		
B Height of inlet connection [mm]	110		
C Height of outlet connection [mm]	110		
D Length without hose connections [mm]	410	458	458
E Length with hose connections [mm]	435	469	469
F Width [mm]	268	230	460
G Overflow height (bottom edge of orifice) [mm]	140		
H Length, including connecting hose, approx. [mm]	-	-	600
Operating weight, approx. [kg]	12	16	32
Shipping weight [kg]	7.5	14	28
<b>Ambient data</b>			
Condensate temperature [°C]	5 – 60		
Ambient temperature [°C]	5 – 40		
<b>Test mark/Certification mark</b>			
DVGW-registration number	DG-4585CM0232		
<b>Order no.</b>	<b>410 230</b>	<b>410 240</b>	<b>410 250</b>

NO-5



NO-12



NO-24

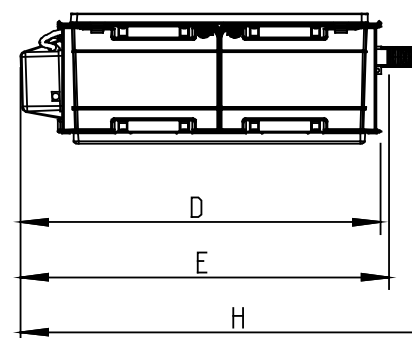
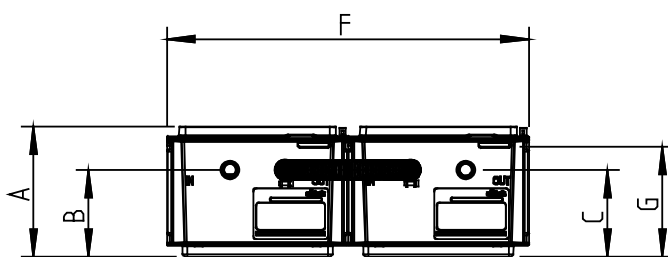


Fig. C-2: Dimensional drawing