

Design and Application

This Flow heater serves for heating up Methane to the specific mode of operation.

$$\dot{V} = 750 \text{ Nm}^3/\text{h} \quad \text{PS} = 16 \text{ bar} \quad p_0 = 16 \text{ bar g max.}$$

$$T_{\text{In}} = -20 \text{ }^\circ\text{C} \quad T_{\text{Out}} = +25^\circ\text{C} \quad \text{TS} = -50 / +80 \text{ }^\circ\text{C}$$

It consists of the components flange-mounted heating element and pressure vessel

The flange-mounted heating element is located in the center of the pressure vessel and has the following mechanical layout. The heater coil of mineral insulated round tubular heating elements with dia. of 8,5 mm and the protective tube for the temperature sensor are brazed or welded pressure-tight to the mounting flange. The heating element connections lead out to the connection box containing the temperature monitoring equipment and electrical connection terminals, which ensure clarity and ease of installation.

Installation

The instructions for erection given in the EC-Type-Examination certificate PIB 01 ATEX 1008U and PIB 99 ATEX 3103 are also part of this operation instruction.

Install the flow heater for horizontal application systems according to the data in the specifications. Connect inlet and outlet fittings to the local piping system without tension observing the direction of flow. The leakage test can be completed during test operation.

Complete electrical connection to the local switchgear in the connection housing as indicated in terminal drawing using wires with the max. possible cross sections given in the specifications.

Have installation performed only by qualified skilled personnel according to all applicable safety regulations.

Potential equalization in the hazardous area

Outside of the flameproof enclosure there is a potential equalizing terminal as required by DIN VDE Standard 0165. By means of this terminal the heater must be connected to the equalizing system of the whole plant with a single-core wire green/yellow of at least 4mm² cross section. The earth terminal inside the terminal box must be connected in any case

in order to meet the protection class I (DIN VDE 0721 part 1 / 11 75)

Operation

The medium flows into the heater through the inlet fittings and on through the heater in the longitudinal direction across the heating element.

The surface-temperature is measured and regulated by the temperature regulator (B2). The temperature can be set in the connection box. (Temperature range → Specifications). The temperature setting should be at least 10 K below the temperature safety limit set at the factory.

The flow heater is protected against impermissible heat-up by a safety temperature limiter (B1). Upon reaching the temperature set at the factory (see specification) this limiter switches off permanently. After checking the cause for the malfunction and allowing the medium to cool down, the trip function can be reset by momentarily pressing the reset button in the connection box.

The medium temperature at the outlet of the flow heater is measured and regulated by the temperature regulator (B3). The temperature can be set in the connection box. (Temperature range → Specifications).

The operation of stage 2+3 is permitted only in connection with stage 1. The terminals of stage 1 are marked black.

Start-Up

- Check the electrical connections according to the terminal drawing.
- Check whether the flow direction matches the specifications in the data sheet
- After switching on the line power the heater starts operating. The temperature of the medium is regulated automatically according to the temperature set.
- The flow heater is ready for operation.

Maintenance

The safety temperature limiter should be checked for proper function by means of a heat-up test every three years at the latest. Check the connections in the electrical connection box regularly to ensure that they are tight.

Repairs

Repairs must be executed only by the manufacturer or a qualified expert.

Trouble Shooting

Malfunction	Cause	Remedy
Heater output insufficient	Line power missing or phase failure	<ul style="list-style-type: none">- Check phase voltages and fuses- Check connections in electric connection housing
Safety temperature limiter tripped	<ul style="list-style-type: none">- Temperature regulator malfunction- No flow or flow rate too low- Deposits on heating element surface	<ul style="list-style-type: none">- Replace temperature regulator- Eliminate flow hindrance- Clean heating element surface

Hint

Further data on the heater can be taken from the belonging to documentation (specification, dimension sheet, wiring diagram resp. EC-Type-Examination certificate).

Storage Specifications

Explosion proof equipment has to be stored in a dry warehouse. The equipment must be protected against mechanical damages, dirt and moisture. Especially electrical heaters need protection against the penetration of moisture into the casing and connection boxes.

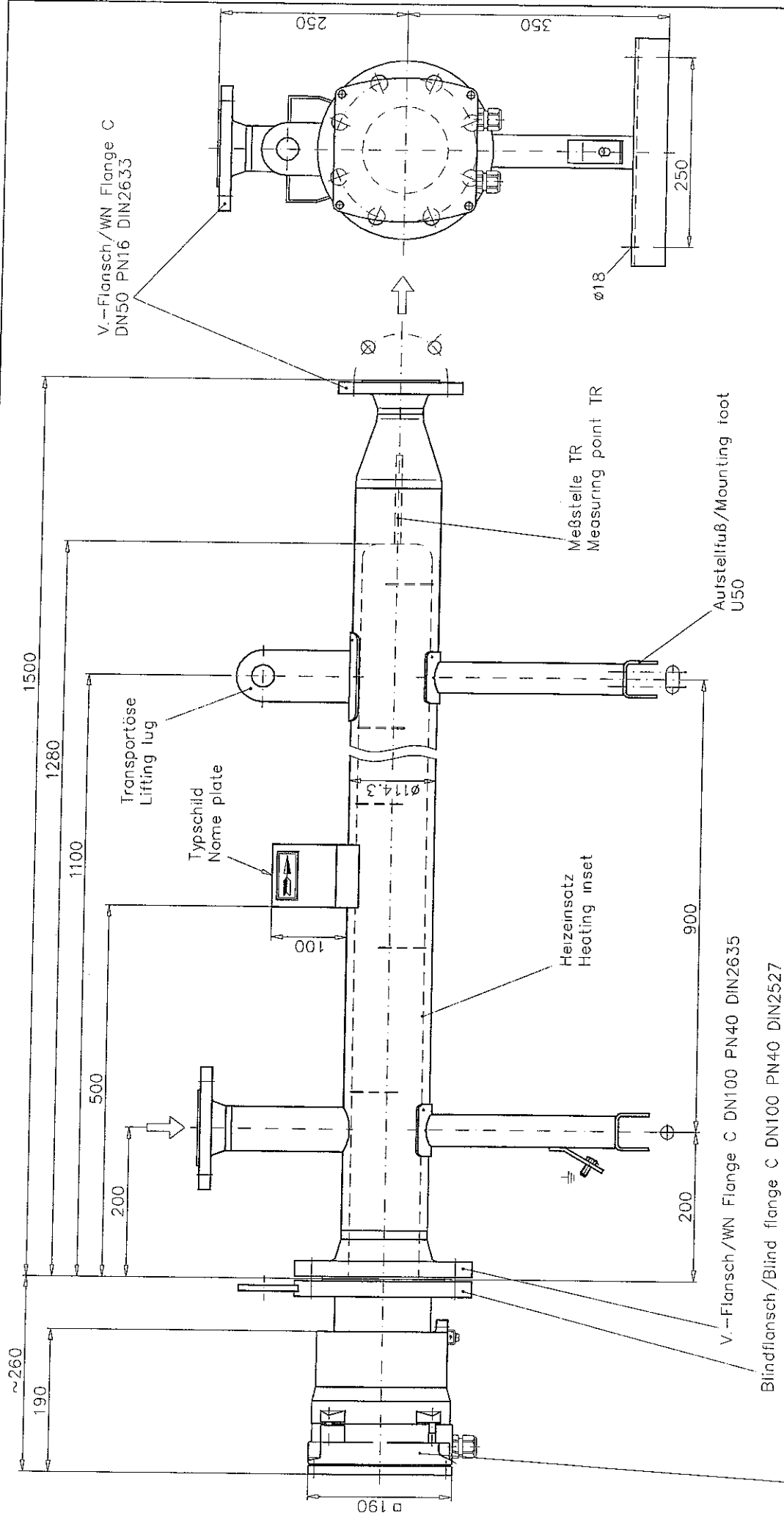
In case of long storage periods drying agent (e.g. Silicagel) should be put into the packing.

If the equipment is to be mounted in installations or part of installations which are transported unprotected to buildingsite for outdoor mounting or intermediate storage until start-up, the explosion proof casings must be packed in seal plastic foil.

After a long storage period heater(s) insulation resistance must be checked and compared with the figures of the factory test certificate. If the insulation resistance is too low, drying of the heater(s) in a drying oven is necessary.

If repairs should become necessary, the appliance must be returned to the address of ELMESS-Thermosystemtechnik GmbH & Co KG, Nordallee 1, D-29525 Uelzen.

If any media residues adhere to the appliance which could be hazardous to health and which could lead to such hazard during inspection and processing, particularly in the case of thermal treatment (drying, welding and soldering), the device must be cleaned carefully beforehand and attention must be drawn to possible risks. Information: www.elmess.de



EEEx de IIC-Gehäuse mit Kabelverschraubungen
EEEx de IIC-Casing with cable glands

Medium/Fluid

zul. Betriebsüberdruck/Design pressure
zul. Betriebstemperatur/Design temperature
Auslegungsvorschrift/Design code
Abnahme/Inspection

LNG (Gas)
16 bar / barg
-50/+80°C
DGRL (PED) 97/23/EG(CE), AD 2000
Hersteller/Manufacturer

Ex-Strömungserhitzer/Ex Flow Heater

Type DHGB3-7,5-T3/SE

2008	Tag	Name	Werkstoff:	gem. Angebot
Gez.	28.02.	Peters		occ. offer
Gepr.	28.02.			
Norm				

Artikelnummer:

Alle Rechte gem. DIN 34 Abschn. 2.1 vorbehalten
Ausgabe: früher:

Maßstab
1:5(A3)

Maße ohne
Toleranzang.
nach
DIN 28005

Zeichn.-Nr.

A-10108140-08

CAD\04 Strömer VA-10108140

ELMESS
THERMO-TECHNIK
Niedder 1 D - 29925 Lehen