Screw-in heater (EHK)

Operating and Installation Manual English

Please read the Operating Instructions before taking the heater into operation.

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General information

Please read the Operating Instructions carefully and in full before installing and connecting the screw-in heater! If damage is incurred as a result of non-observance of the Operating Instructions, the warranty claims will expire. We do not assume liability for consequential damages.

Warranty:

The warranty for this article is 24 months from the date of purchase.

The warranty comprises the free-of-charge rectification of defects, which are verifiably due to the use of faulty materials or defective design. The faulty device must be returned to the manufacturer, together with proof of purchase and fault description, immediately after the defect has become known.

Further claims are excluded.

The liability for defects does not refer to natural wear-and-tear, transport damage or damage due to non-compliance with the installation instructions, customary national installation provisions or non-professional installation.

The manufacturer is not liable for damages which have not been incurred on the item of delivery itself, in particular not for indirect, consequential or pecuniary damages in connection with this product.

We retain the right to repair, rework, spare parts delivery or refund of the purchase price.

When removing our marking (serial number) or opening the device, a warranty claim cannot be raised.

If you have queries and/or comments, please do not hesitate to contact us:

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Certified

according to DIN ISO 9001:2008

Contents:

1.Safety Instructions

Retain these Instructions carefully and pass these on to subsequent owners where necessary.

- Gräff screw-in heaters, without TÜV acceptance, may, according to the pressure vessel regulation, only be operated when it is ensured that the operating temperature as well as the boiling temperature of the medium at atmospheric pressure, is not exceeded. If this is not the case, an acceptance by the TÜV or a comparable institution must normally be carried out. Please see the pressure vessel regulation for further details on this subject. As the case may be, the TRbF (German technical rules for flammable liquids) may need to be observed, depending on the application.
- The heater may only be installed horizontal or vertical from below.
- Repairs and any actions in the heater may only be executed by an expert.
- In the case of fault, switch the heater to zero-potential!
- During operation the heater and possibly the shield tube must be fully surrounded by the medium!
- Caution! Outer surfaces and connecting head get hot during operation.
- A thermal medium discharge may not be hindered!
- Please observe maximum connection temperature in the case of line connection!
- The heater may not be operated when it has been de-installed!

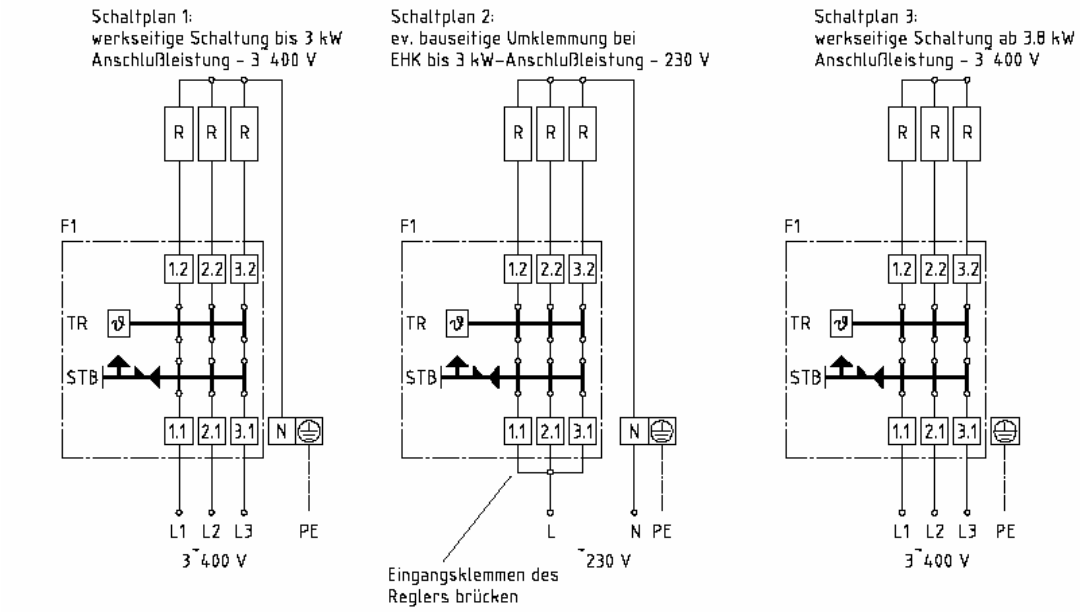
2. Installation

- Installation and electrical connection may only be carried out by trained qualified personnel under compliance with all known standards and regulations!
- Before installation, the heater must be checked for correct condition and attention must be paid that the heating rods do not touch. If necessary, these must be adjusted manually!
- Please pay attention that there is adequate space available for a later installation, resp. removal of the screw-in heater.
- The cover of the connecting side must be removed for electrical connection of the heater.
- The screw-in heater must be screwed in with a suitable sealing option (seal, etc.) and subsequently fixed to the hexagon with a “spanner”. It is not permitted to use pliers or similar tools!
- When installing or de-installing the heater, attention must be paid that medium cannot leak. It must be ensured in advance that possibly containers or streaming vessels need

to be emptied corresponding to manufacturer's instructions!

- The connection cable must be inserted through the supplied cable gland into the cable terminal compartment of the screw-in heater. Attention must be paid to corresponding "tolerance" inside!
- The electrical connection must be made properly and professionally according to the terminal diagram!
- Attention must be paid to correct connection voltage; this information is shown on the type plate of the screw-in heater!
- We recommend checking the electrical connection again after an operating period of about 4 weeks, as it cannot be excluded here that the contact points do not loosen due to the influence of heat!

3. Electrical Connection:



IMPORTANT: The earth conductor must be connected!!

Circuit diagram:
Factory connection up to 3 kW
Connection power – 3 400 v

poss. Customer to reconnect
EHK up to 3 kW connection power - 230 V
Bridge input terminals of controller

Factory connection from 3.8 kW
Connection power – 3 400 v

4. Start-up

Before the initial start-up, the screw-in heater must be reliably immersed in adequate medium! A screw-in heater may never be operated without adequate heat intake.
The first heating up must be conducted under observation and must be monitored correspondingly!
For safety reasons, the automatic switch-off in the case of versions with limiters or with controller/limiter combinations must be controlled and ensured!

4.1 Versions with Temperature Controllers

The desired temperature can be set on the scale of the temperature controller installed in the connection housing upon request. The correct setting must be checked before start-up. Please note that mechanical temperature controllers can have a differential gap of up to 8 K and a system-inherent inertia.

4.2 Versions with Temperature Limiters/Overheating cut-out

Temperature limiters and/or overheating cut-out are installed optionally in the connection housing. The temperature limiter protects the medium, the overheating cut-out the heating surface against excessive temperatures. Attention must be paid that the temperature set on the temperature limiter and/or the overheating cut-out shows adequate difference to the operating temperature.

5. Maintenance and Revision

It is necessary to check the container, in which the screw-in heater is installed, for impurities and deposits at appropriate intervals. Any deposited sludge must be removed so that the heat generated by the heating surface is not prevented from being passed on to the medium. If the sludge is not removed, heat build-up occurs which can lead to burn out of the heating elements. Sludge, which has deposited in the lower part of the container, can be flushed out. Deposits which cannot be removed by flushing must be removed mechanically or dissolved. When cleaning, attention must be paid that the heating elements are not damaged mechanically. Any and all warranty claims lapse in the case of mechanical damage as well as damage caused by corrosion!

5.1 Maintenance Recommendations

- Removal of the Gräff screw-in heaters

If it is necessary to remove the screw-in heater from the container, e.g. to undertake cleaning, the following guidelines should be observed:
Current supply should be interrupted. The lid of the connection housing must be opened, the electrical connection lines removed from the terminal and pulled out of the cable entries. It must be ensured that there is no excess pressure in the container, and that the medium has been drained. The screw-in heater must have cooled down to room temperature. The screw-in heater can be pulled out of the container. Attention must be paid here that the connection housing is not subjected to any excess mechanical load, otherwise the connecting housing or installations in the housing could be damaged. If connection housing and installations are damaged, the damaged parts must be replaced by new parts. In this case please contact Gräff and we will be happy to help you.

- Re-installation of the Gräff screw-in heater
A new seal should be used when re-installing the screw-in heater. The sealing surfaces on the container and screw-in heater should be cleaned before re-installation and checked for any damages. All major parts such as heating elements, temperature controller, temperature limiter, overheating cut-out and, in particular, the safety-relevant components must also be checked. If there are any defects, the defective parts must be exchanged. We recommend that you use only original spare parts. You can purchase these from Gräff GmbH with specification of the article number of the screw-in heater.

- Replacing Temperature controller, Temperature limiter, Overheating cut-out
If the temperature controller, temperature limiter or overheating cut-out are defective, they must be replaced immediately. Replacement devices can be purchased from Gräff GmbH with specification of the article number. The screw-in heater must be switched currentless to exchange the devices. The lid of the connection housing must be opened, the electrical and mechanical connections disconnected, and the feelers pulled out of the immersion pipe. The new heater must be assembled and connected in reverse order.

- Replacing wiring or terminals

If wiring or terminals are damaged, these need to be exchanged immediately. Attention should be paid that materials are used which are appropriate for the temperature which can occur in the connection housing. It is recommended to order original spare parts from Gräff GmbH with specification of the article number or to return the screw-in heater to us for a recheck!

6. Technical Data
Please refer to our quality features for all detailed technical information. You can find these on all business documents such as order confirmation and delivery slip!
Please check these carefully against your technical requirements!

7. Notes for the disposal

The heater must not be disposed of in the general household waste but must be disposed of at a local waste disposal station.