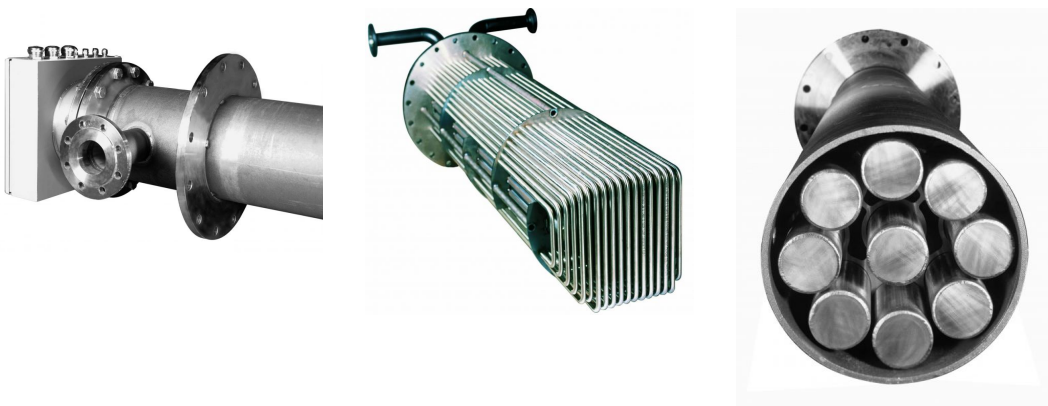


Push-in preheaters



Tank push-in preheaters are mainly designed for heating heavy fuel oil and other liquid fuels directly in the tank.











The tank push-in preheaters are used to heat the fluid in the tank at the tap so that it is not necessary to keep the complete tank volume to temperature. Rather, the tapped heavy oil and the immediate vicinity is heated, minimizing the losses.

heatsystems tank push-in preheaters are available with or without a tap connection. The tap connection design mixes the returning fuel directly at the tap, minimizing the energies required for preheating by this as well. Nevertheless, degassing of the fuel is ensured.



Auch in ex-geschützter Ausführung erhältlich

Anwendungsbereiche:

 Speichern 	 Heizen 	 Tauschen 
 Industrie 	 Life Science 	 Anlagenbau 
 Flüssigkeitserwärmung 	 Gaserwärmung 	 Werkzeugbeheizung 

Fluids

For example, these fluids are heated in tank push-in preheaters:

I. Fuels

- Heavy oil, not pumpable in a cold condition, maximum surface load between 1 and 2 W/cm² depending on the quality
- Fuel oil, diesel, heating to max. 40 °C, max. surface load approx. 4 W/cm²
- Animal fats require a corrosion-resistant design
- Used oil requires an explosion-protected design in most cases.

Materials

The fluid to be heated and the application temperature mainly define the materials which can be used for the unheated and/or heated surfaces. Otherwise, corrosion may quickly result in a failure of the electrical flange heater, for example.

Materials of the wetted and unheated components:

- Carbon steel
- Corrosion-resistant stainless steel

Materials of the heating surface:

- Carbon steel
- Corrosion-resistant stainless steel

Heating elements

Due to the large tank volumes exchangeable heating elements are mainly used for tank push-in preheaters. Thus, a heating element may be exchanged in case of a defect without the necessity of draining the fluid.

I. Heating elements

- Tubular heaters, diameter 8.5 or 16 mm
- Cartridge-type heaters, diameter 16, 18 or 25 mm
- Exchangeable heating elements, including a protective tube, diameter 25, 42 or 65 mm

If other process heat is available (hot water, steam or thermal oil), a part of the heating surface can be designed as heat transfer medium, providing a combined tank push-in preheater and both providing an electrical and a conventional heating surface in a compact space. The electrical heater is only required for starting the plant; after that transfer to another heating medium is made.

Control equipment

Electrical flow-type heaters can both be equipped with a built-in control system (for low power) or an external switchgear cabinet or for load switching by customer-provided switchgear and control gear. The electrical heating power can be divided into one or several heating stages. This division can individually be adjusted to match the control equipment.

I. Controllers

- Electronic ON-OFF control or PID control. (-> ON-OFF control switches off the heater if the temperature is exceeded, and switches it on again when the temperature falls below its lowest value. Thus, the temperature will always oscillate around the setpoint. The algorithm of the PID controller will optimally compensate the control fluctuations.)
- Load switching by contactors or wear-free semiconductors (thyristors). (-> contactors are wearing parts and must be replaced after approx. 100,000 make/break operations; thyristors switch quickly and without any wear but generate more heat losses than contactors.)
- Electromechanical control.
Thermostats installed in the electrical flow-type heater are price-efficient controllers whose accuracy is sufficient for many applications.

II. Sensors

- Thermal protectors and limiters as capillary thermostats (as a safety design as well).
- Temperature sensors for the fluid and heating rod temperature.
- Overheating protection for the heater or electrical terminal compartment.

Fluid connections

We are prepared to agree with you on the type and position of the fluid connections. The following connections are available:

I. Fluid connections

- Standard flanges (DIN, ASME, SAE etc.)
- Female or male thread connections
- Clamp flanges
- Sterile flanges
- Dairy-type pipe connections