

## Fully welded PHE

Shell & Plate Heat Exchangers FP SP

FUNKE as specialist for shell-and-tube as well as plate heat exchangers has combined the advantages of these two designs in one – with the FP SP heat exchangers FUNKE presents a new generation.

Main components of these heat exchangers are a pack of welded circular plates and a shell enclosing this plate core.

The result are very large heat exchanging areas with little need for place and low weight.

With their compact and gasket-free design the FP SP are suited for applications with high temperatures and/or high pressures with a concurrently very good heat exchange ratio.

The circular heat exchanging plates promote an improved distribution of tensions caused by differences in pressure or temperature. The plates are available with different profiles, with one plate laid on top of another turbulence-optimized channels are created for the two operating media. The media can be guided in countercurrent, cross-flow or co-current.

The plates are welded by laser with low heat input resulting in a large connection area. The low heat input prevent from structural changes during cooling down. Due to laser welding there is only little vulnerability to corrosion of the weld seam, protection against leakage generally augments.

The FUNKE shell & plate heat exchangers are available with openings on one or two sides, both with removable plate pack.

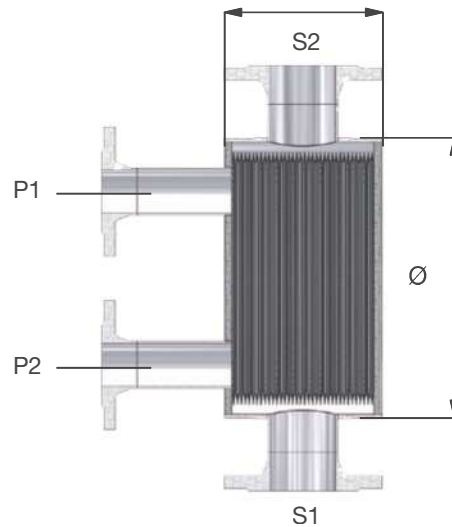
### Applications

- Chemical and petrochemical industries
- Pharmaceutical industries
- Oil- and gas industries
- Refrigeration engineering
- Power generation

### Operating data

The maximum operating data depend on the size of the unit, the materials used and the thickness of the material.

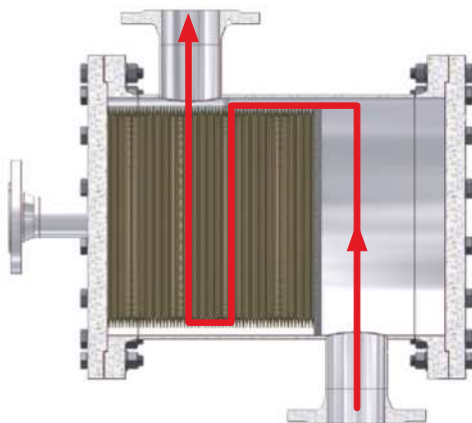
Operating Pressure: -1 to 150 bar  
 Operating Temperature: -200 to 500°C  
 Dynamic Viscosity: up to 8,000 mPa s



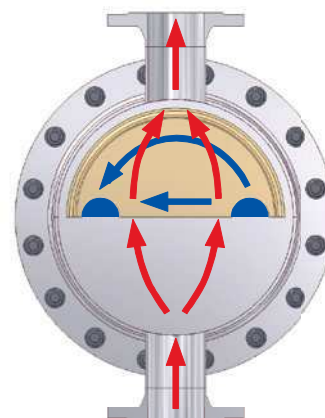
### Dimensions

	FP SP 50	FP SP 100	FP SP 150	FP SP 200	FP SP 300
S1, S2	DN 20-100	DN 25-250	DN 50-350	DN 50-450	DN 50-600
P1, P2	DN 50	DN 100	DN 150	DN 200	DN 300
Ø (mm)	360	610	890	1,100	1,400
L (mm)	(depending on no. of plates and design pressure) from 150 to 2,400				
area (m <sup>2</sup> )	1.5 up to 30	up to 100	up to 320	up to 500	up to 700

Thickness of plate material: 0.6 to 1.25 mm.  
 Liquid hold-up varies from 3 to 1,000 litres per pressure chamber. All sizes can be delivered with different plate profiles.



Multiple redirection on shell side



Operating media in cross-flow



Funke Industrial - Türkiye  
 MDTHEX MÜHENDİSLİK HİZMETLERİ LTD. ŞTİ  
 İletişim Bilgileri  
 Adres: Maltepe Mah. Davutpaşa Kışla Cad. Kale İş Merkezi, A Blok No:63,  
 Topkapı-Zeytinburnu İstanbul  
 Tel: 0212 482 90 03  
 Fax: 0212 48290 04  
 Mbl: 0535 355 05 34  
 Web: www.mdthex.com