Advantages of SYNOTHERM® Plate Heat Exchangers over Coil Heat Exchangers

More efficient heat transfer characteristics

The special design of the pillow plate heat exchangers creates a strong flow of the heat exchange medium:

→ Higher heat transfer coefficient k:

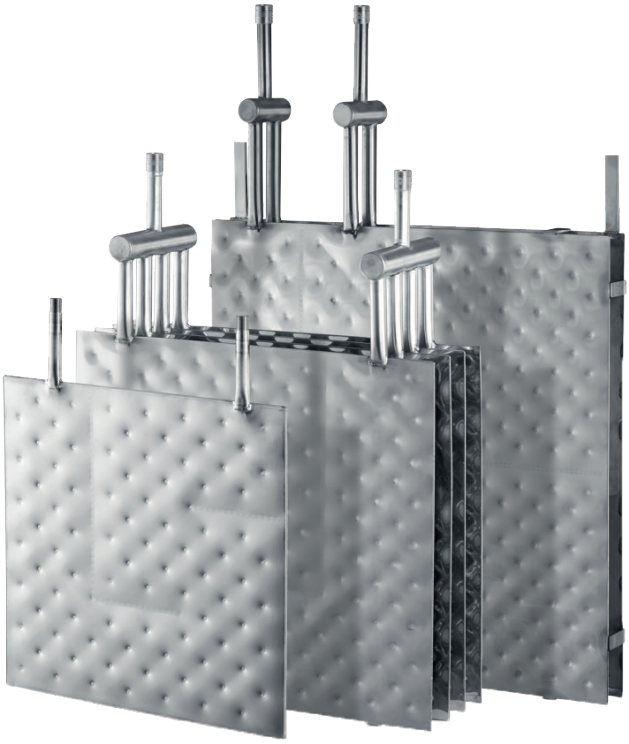
Coil heat exchanger k = 150 – 1400 W / m²K [1]
Plate heat exchanger k = 1000 – 4000 W / m²K [1]

→ p to 33 % more energy efficient than coil heat exchangers

$Q = k \times A \times \Delta\vartheta_{ln}$ [2]

Q = Power
A = Heat Transfer Area
$\Delta\vartheta_{ln}$ln = mean logarithmic temperature difference

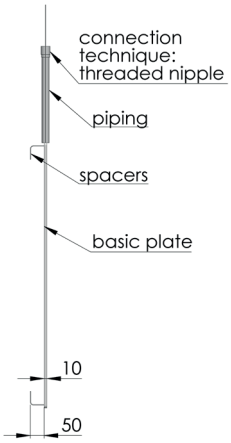
→ SYNOTHERM® plate heat exchangers save on space, weight and material costs of up to 50 %



High surface density

SYNOTHERM® plate heat exchangers have a high surface density (ratio of heat exchanger surface to required construction volume).

The total construction depth of the heat exchanger is only 60 mm (10 mm basic plate + 50 mm spacer to the tank side).



Easier cleaning and maintenance

The flat and smooth surface can be cleaned easily and quickly (steam jet, high pressure cleaner, mechanical brushing).

Reduction of risk mechanical damage

The compact, lightweight and pressuretight design reduces the risk of mechanical damage. This reduces the risk of a line breakdown with associated costs

More uniform and more homogeneous tempering

Special channel allocations allow a uniform heat transfer over the entire heat transfer surface.

More individual design options

Individual design of the connection technology (type and position). Wide variety of dimensions of the base plates (length and width).

Literature:

[1] Gesellschaft, VDI (2013), VDI-Wärmeatlas. 11. Aufl.; Wiesbaden: Springer Berlin Heidelberg, S. 85-87

[2] von Böckh, P./Wetzel T. (Hrsg.) (2015): Wärmeübertragung; Grundlagen und Praxis, 6. Auflage, Karlsruhe, S.9