#### Heat Exchanger Systems featuring DEG Temp-Plate®





# **Heat Exchangers**

DEG heat exchanger systems consist of fully-welded Temp-Plate® banks and rank among the most important components for efficiency and sustainability in process industry and plant engineering. We offer customized Temp-Plate Heat Exchangers (TPHE) for all of your industrial applications, such as condensation, reaction processes, evaporation, cooling and heating.

- Temp-Plate Heat Exchanger systems designed for high efficiency in thermal energy transfer between gaseous and/or liquid media
- Compact heat exchanger, high heat transfer surface density and reduction of column height
- Customized to individual design, equipment and process requirements

- Spot-welded and hydraulically expanded panels possess excellent heat transfer characteristics due to elliptic flow channels and increased turbulences
- Low-pressure loss in compact models
- Low-pressure drop in condensation
- Minor susceptibility to fouling



- 1 Temp-Plate 1
- 2 Temp-Plate 2
- 3 Space between Temp-Plate 1 and 2
- 4 Medium inside Temp-Plates
- 5 Spot-welding
  6 Expanded area Temp-Plate 1
  7 Expanded area Temp-Plate 2

## **Gas/Gas Heat Exchangers**

DEG Temp-Plate<sup>®</sup> gas/gas-heat exchangers are used in the following applications:

- Flue gas cleaning systems
- Power stations
- Petrochemical plants
- Paper industry

The use of various materials and the suitability of the product for high-temperature applications provides a high degree of flexibility and cost savings in your operation.

DEG Temp-Plate Heat Exchangers (TPHE) are recuperative gas/gas heat exchangers with a cross-flow, cross-counterflow or counterflow design.

## **Evaporators**

DEG Temp-Plate evaporators offer evaporation in the Temp-Plate side or in the shell. The design is customized to process requirements and our engineers analyze and provide an individual solution for you. DEG Temp-Plate evaporators are especially suitable for columns as reboilers or as falling film evaporators with integrated feed systems.

The compact construction achieved by the efficiency of the Temp-Plate evaporator results in reduced vessel volume.



### Continuous Stirred Tank Reactors

Continuous Stirred Tank Reactors (CSTR) are used in reactions with liquid mediums, where the catalyst is either heterogenous or homogenous. DEG's Temp-Plate<sup>®</sup> reactor systems improve the heat transfer in and out of the CSTRs, with higher efficiency than conventional coils.

### Catalytic Reactor Systems



Reactors with Temp-Plate systems are suitable for highly exothermic catalytic reaction processes, such as:

- Selective or non-selective hydrogenation, e.g. hydrogenation from acetylene to ethylene
- Selective or non-selective oxidation, e.g. oxidation from ethylene to ethylene oxide
- Synthesis processes, e.g. methanol synthesis

DEG Temp-Plate reactors offer several advantages in comparison to conventional shell and tube systems:

- Larger heat exchange surfaces produced more cost-effectively with Temp-Plate systems
- Thick-walled tube sheets are not required, thereby cutting costs
- Much lower pressure drops on the reaction side than with conventional reactors
- Temp-Plate cooled reactors can be produced as modular banks sized for on-site assembly to ease maintenance with spare banks



# **Manufacturing Standards**

The DEG Temp-Plate<sup>®</sup> heat exchangers are constructed according to the following standards and are governed by a sophisticated quality system to ensure continuous efficiency and appropriate operation.

Manufacturing in Accordance with:	Standard Temp-Plate Metals
<ul> <li>PED</li> <li>ASME</li> <li>Lloyds</li> <li>China Stamp</li> <li>TR</li> <li>Others on request</li> </ul>	<ul> <li>1.4301</li> <li>1.4541</li> <li>1.4462</li> <li>1.4404</li> <li>1.4306</li> <li>1.4571</li> <li>1.4539</li> <li>1.4435</li> <li>1.4307</li> </ul>
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Application Temp-Plate:           We have customized solutions available	Special Temp-Plate Metals

#### **Principles in Condensation with Temp-Plate® Heat Exchangers**



- Proportion Control
- Division of the • condensate outlet
- Variety of cooling fluids
- Joint condensate outlet

outlet





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