

**SIGMA
plate heat
exchanger**

**Trouble
Shooting**



API Heat Transfer

... world leaders in heat transfer technology

Leakage Towards the Outside

Problem	Solution	Possible causes	How to avoid these problems in the future
Corrosion of the plates	Replacement of the plates	Chlorides	Change the material of the heat exchanger plates
Deformation of the plates	Replacement of the plates	Pressure shocks Over-pressing of the plates	Change the valves or the production process Teaching of the maintenance staff
Plate cracks	Replacement of the plates	Pressure changes Chemical attacks on the plate material	Thicker plate material and reduction of the platage More resistant plate material
Aging of the gaskets	Replacement of the gaskets	End of lifetime Temperature- or pressure changes	Change the gasket material
Leakage when cold	Replacement of the gaskets	Aging of the gaskets, especially compressed fiber gaskets	Installation of spring packages on the tie rods
Hardening of the gaskets	Replacement of the gaskets	Inadequate chemical resistance Temperatures too high	Change the gasket material
Swelling of the gaskets	Replacement of the gaskets	Inadequate chemical resistance Temperatures too high	Change the gasket material
Gasket cracks	Replacement of the gaskets	Mechanical stress	Arrangements to avoid mechanical stress

Product Mixture / Internal Leakage

Problem	Solution	Possible cause	How to avoid these problems in the future
Corrosion of the plates	Exchange of the plates	Chlorides	Change the material of the heat exchanger plates
Plate cracks	Exchange of the plates	Pressure changes Chemical attacks on the plate material	Thicker plate material, Reduction of platage More resistant plate material
Braking of the connections	Exchange of the connections	Stresses in the pipeline	Compensatory expansion joints or articulation elbows

Heat Exchange Performance Problems / Low Service Life

Problem	Solution	Possible cause	How to avoid these problems in the future
Fouling in the plate gaps	Cleaning of the plate heat exchanger	Particles, Fibers, Bacteria Composition of the product Hard deposit due to high temperature	Filters Changing of the plate arrangement Changing of the temperature difference between cold and hot side
Fouling in the connections	Cleaning of the plate heat exchanger	Particles, Fibers, Bacteria Composition of the product	Filters
Changing of the operating conditions	Switch back to old operating conditions, if possible	Entrance temperatures Change of flow rates Composition of the product	Changing of the plate arrangement or plate type

Pressure Loss- / Flow Rate Problems

Problem	Solution	Possible cause	How to avoid these problems in the future
Fouling in the plate gaps	Cleaning of the PHE	Particles, Fibers, Bacteria Consistency of the product Hard deposit due to high temperature	Filter Changing of the plate arrangement Changing of the temperature difference between cold and hot side
Fouling in the connections	Cleaning of the PHE	Particles, Fibers, Bacteria Composition of the product	Filter
Changes of operating conditions	Switch back to old operating conditions, if possible	Entrance temperatures Flow rates Composition of the product	Changing of the plate arrangement or plate type