

Reference project
Petrochemical plant



Comprex®-Cleaning
 for industrial equipment

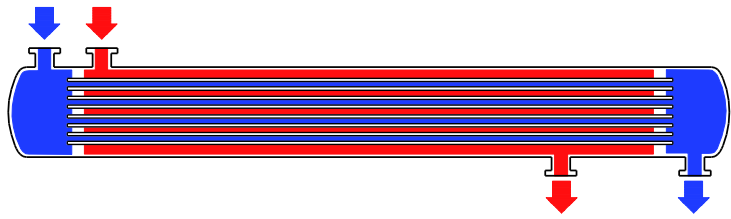


Figure 1: Scheme of a tube bundle heat exchanger [1]

Online cleaning of a tube bundle heat exchanger

Problemstellung

- Tube bundle heat exchanger in a petrochemical process
- Shut down of the plant is impossible
- Strong drawback of the thermal performance due to fouling

Technische Daten

- Tube bundle heat exchanger: Length approx. 5000 mm, Diameter approx. 1000 mm
- Pressure of the water approx. 8,5 bar
- Online-control of temperature, pressure and mass flow

Preconditions for the Comprex® - cleaning

- Cleaning of process water side during operation
- Nitrogen als inert compressed gas for Comprex®-Reinigung; suitable for explosive environments
- Process control during cleaning process was performed by operator of plant
- Adjustment of cleaning intensity according to the reaction of the system

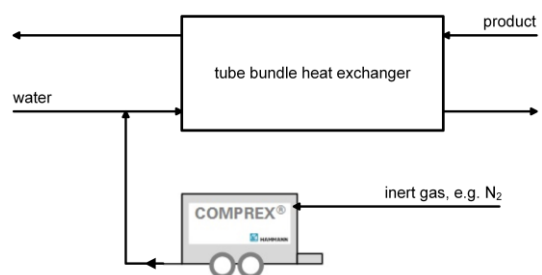


Figure 2: Scheme of cleaning

Results

- Increased performance of the heat exchanger

Table 1: Comparison of key figures of the system before and after Comprex® - cleaning

Process water	before	after
inlet temperature	94 °C	94 °C
outlet temperature	85 °C	81 °C
temperature difference	9 K	13 K
performance of heat exchanger	100%	144%

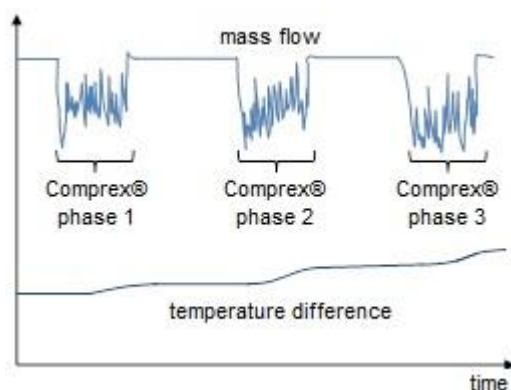


Figure 3: Mass flow and temperature difference of process water vs. Time during Comprex®-cleaning.

Fazit

The Comprex®-cleaning increased the performance of the heat exchanger by 44 %. The process required an effort of time of approx. 8 hours. The higher performance of heat transfer allows either an increased production or a reduced consumption of energy at constant production.