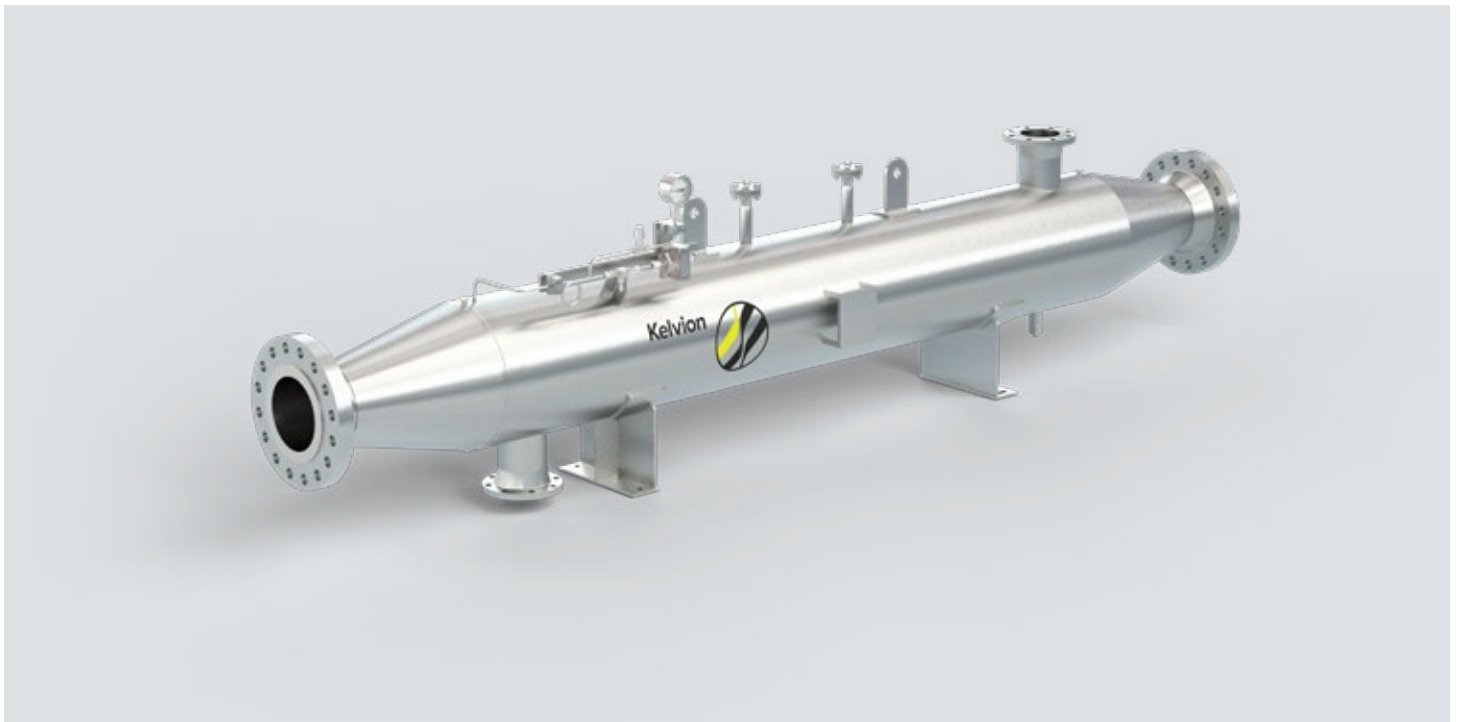


Kelvion Shell & Tube Double Safety

SAFE BY DESIGN



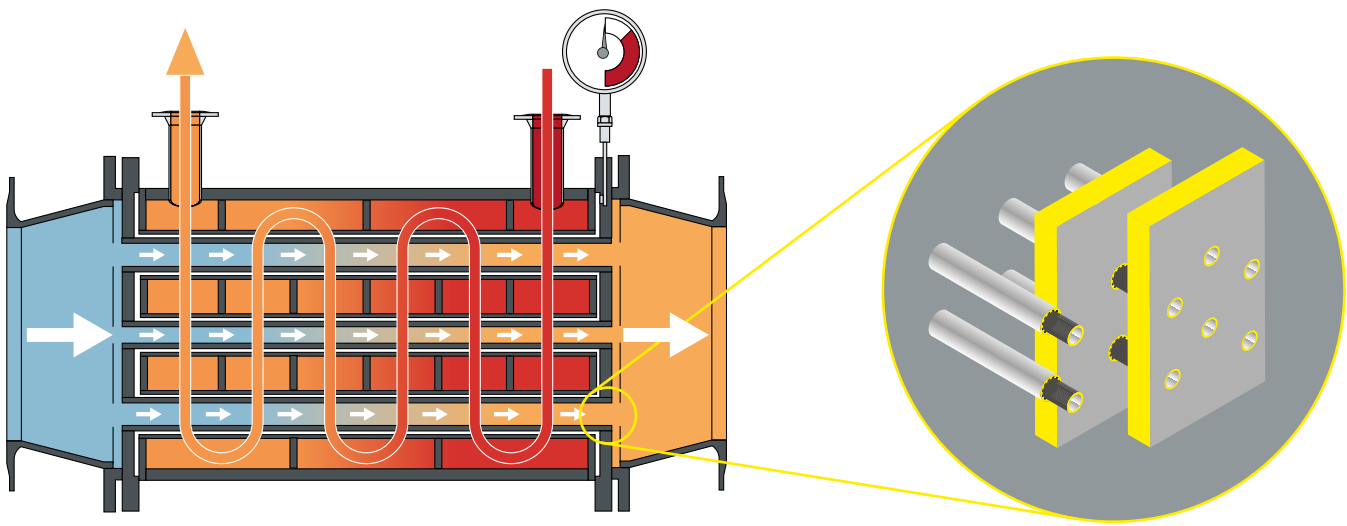
DESIGN & FUNCTION

Double tube safety heat exchangers play an important role in applications where preventing media mixing in the event of a leak is paramount. They are widely used and accepted as standard in the chemical industry, power, heavy and light industry, oil & gas, marine, transportation, refrigeration and food & beverage sectors.

Unlike a standard shell & tube heat exchanger with a single wall design, the tubes in double safety models have two walls, consisting of an inner and outer tube. They also have two tube sheets at each end. If a tube wall is damaged, the product flows through small channels arranged between the double tubes into a leakage collection space and triggers an alarm in the leak detection device. Because the second tube wall remains undamaged, the media are kept separate. This means that the plant operator can continue to run the heat exchanger until the next maintenance, avoiding costly unplanned downtimes, as well as contamination of the process and its equipment.

ADVANTAGES

- ▶ **DOUBLE TUBE SAFETY TECHNOLOGY ENSURES SAFE AND COST-EFFICIENT OPERATION**
- ▶ **MORE ECONOMICAL AND ENVIRONMENTAL COMPLIANT**
- ▶ **SAFE MEDIA SEPARATION AND LEAK MONITORING ENSURED**
- ▶ **SIMPLIFIES PROCESSES AND INCREASES PLANT AVAILABILITY**
- ▶ **INCREASES PROCESS EFFICIENCY**



PRODUCT LINE OVERVIEW

Our product line Shell & Tube Double Safety contains various types and materials, all designed and precision-engineered to the highest standards to suit your application and process media.

STANDARD

The standardized and cost efficient solution



ADVANCED

Welded shell design for demanding requirements



CUSTOMIZED

Sustainable solutions for special applications



Typical Media

- ▶ Water
- ▶ Steam
- ▶ Oil
- ▶ Refrigerants and glycol
- ▶ Natural gas
- ▶ Solvents
- ▶ Chemical and toxic media

Typical Applications

- ▶ Machine Cooling
- ▶ Thermal oil heating/cooling
- ▶ Natural gas heating and cooling
- ▶ LNG treatment
- ▶ Chlorine liquefaction
- ▶ Ammonia evaporation
- ▶ Polysilicon treatment

Design Data

- Pressure
- ▶ up to 100 bar, higher on request (shell side)
 - ▶ up to 320 bar, higher on request (tube side)
- Temperature
- ▶ -200 to 550°C (tube side and shell side)

Materials

- ▶ Carbon steel
- ▶ Stainless steel
- ▶ Copper
- ▶ Non-ferrous metals (CuNi)
- ▶ Titanium
- ▶ Hastelloy
- ▶ Super Duplex

Classification societies and institutions

- ▶ Det Norske Veritas - Germanischer Lloyd (DNV-GL)
- ▶ American Bureau of Shipping (ABS)
- ▶ Lloyds Register of Shipping (LRS)
- ▶ Bureau Veritas (BV)
- ▶ Registro Italiano Navale (RINA)
- ▶ Russian Maritime Register of Shipping (RS)
- ▶ China Classification Society (CCS)
- ▶ TÜV

Design Codes

- ▶ AD 2000
- ▶ EN 13445
- ▶ ASME
- ▶ TEMA

Regulations and certifications

- ▶ PED
- ▶ ASME Code Stamp (U)
- ▶ KTA - Certificate
- ▶ EAC - Certificate (TR-TS)
- ▶ SELO (China)
- ▶ CRN (Canada)
- ▶ DIN 2303 Q2
- ▶ Euro Chlor
- ▶ DVGW