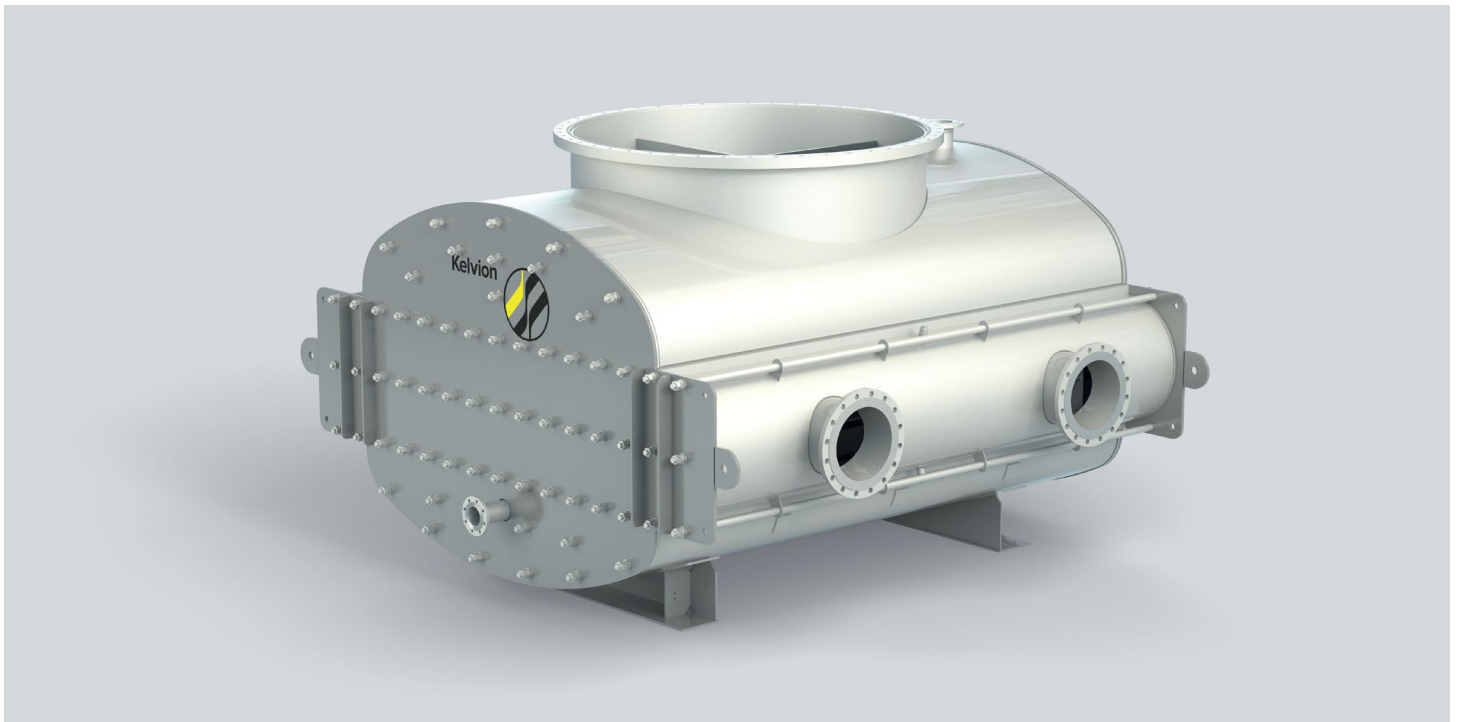


## KTS Wave Exchanger | Fully Welded Heat Exchanger

# A NEW DIMENSION OF EFFICIENCY AND FLEXIBILITY



## DESIGN & FUNCTION

The WAVE EXCHANGER combines the advantages of shell-and-tube and plate heat exchangers in a single apparatus.

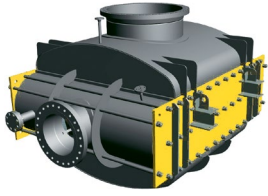
This makes it predestined for the most varied applications: e.g. as a condenser in the power station sector, as a plate-type falling-film evaporator in the sugar industry, as a condenser, evaporator and heat exchanger for the thermal treatment of 2-phase mixtures in the chemical and petrochemical industries as well as in the oil and gas industry.

Thanks to its customisable design it is equally successful when used as a head condenser. The plate structure enables a high output density. Efficient, turbulent heat transfer is already possible at minimal temperature differentials and varying volume flows. Even in the case of a large volume flow, the loss of pressure at the tube is minimal. In comparison with previous solutions, the effort involved in cleaning is clearly reduced.

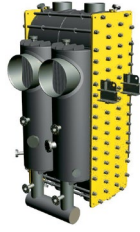
## ADVANTAGES

- ▶ **HIGH CONDENSATION OUTPUT**  
UP TO 200 MW
- ▶ **MINIMAL PRESSURE LOSS**
- ▶ **VARIABLE TEMPERATURE LIMITS**  
UP TO 650°C
- ▶ **VARIABLE PRESSURE LIMITS**  
UP TO 100 BAR

# TECHNICAL FEATURES



DS 1



DS 2-3



DS 4



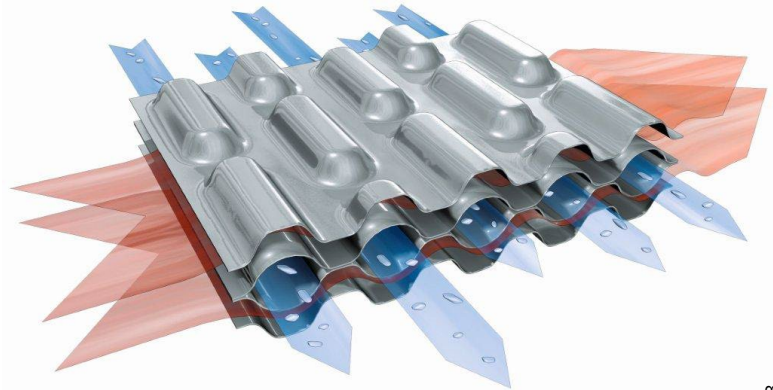
DS 5-7

TYPE	PRESSURE WAVE SIDE	PRESSURE TUBE SIDE Standard / [Flexible Design]	SURFACE AREA Standard / [Flexible Design]	APPLICATION
DS 1	10bar / 145PSI	FV to 0.5bar   7.25PSI	350–2500 m <sup>2</sup> / [100–12500 m <sup>2</sup> ]	vacuum condensation
DS 2	16bar / 230PSI	FV to 6bar   87PSI	350–2500 m <sup>2</sup> / [100–12500 m <sup>2</sup> ]	district heating, condensation / evaporation
DS 3	25bar / 363PSI	16bar   230PSI		
DS 4	45bar / 652PSI	25bar   363PSI		
DS 5	60bar / 870PSI	16bar   230PSI / [60bar   870PSI]	20 – 1000 m <sup>2</sup>	gas treatment, liquifaction, regassification
DS 6	80bar / 1160PSI	16bar   230PSI / [60bar   870PSI]		
DS 7	100bar / 1450PSI	16bar   230PSI / [60bar   870PSI]		

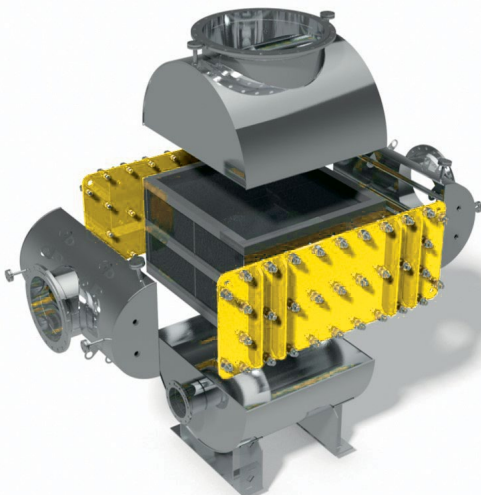
## MODULAR DESIGN

### FROM VACUUM TO 100 BAR

- ▶ Compact size | lower weight
- ▶ Modular design
- ▶ High heat transfer values
- ▶ Low pressure drops
- ▶ High flow rates
- ▶ Designed for high differential pressures on the wave side
- ▶ Fluids with particles can be handled



## WAVE EXCHANGER OVERHEAD CONDENSER



- ▶ Asymmetric plates with tube and wave-shaped channels
- ▶ In the tube channels vapour mixtures can be condensed even under higher vacuum conditions
- ▶ The housing can be designed for full integration into the distillation column or as stand-alone unit
- ▶ Very efficient thermal design based on balanced ratio between heat transfer and pressure loss.