



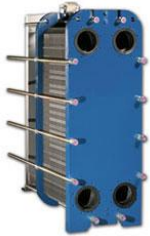
Vahterus heat exchangers in  
LNG- and gas applications

# COMPANY

- Established in 1990
- Located in Kalanti, Finland
- Approx. 250 people, annual turnover 40M€
- Privately owned
- Subsidiary companies in UK, Germany, USA and China
- Over 45 000 units in operation worldwide
- Global distributor network in over 50 countries
- Over 95% products exported from Finland



# Developer of the Plate & Shell Heat Exchanger



## Plate and Frame

- + Compact
- + Low Fouling
- + Small temperature difference
- Low pressure
- Low temperature
- Gasket



## Shell and Tube

- + High temperature
- + High pressure
- + No gasket
- Large size and weight
- Fouls easy



## Vahterus PSHE

- High pressure
- High temperature
- No gasket
- Compact
- Low fouling
- Small temperature difference





# Power Plants

Feed Water pre heater



# Oil & Gas

Gas Cooler



# Refrigeration

Flooded NH3 evaporators



# LNG

Vent Gas Heater



# Marine

Dumping Condensers



# Chemical & Process

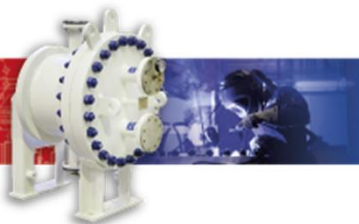
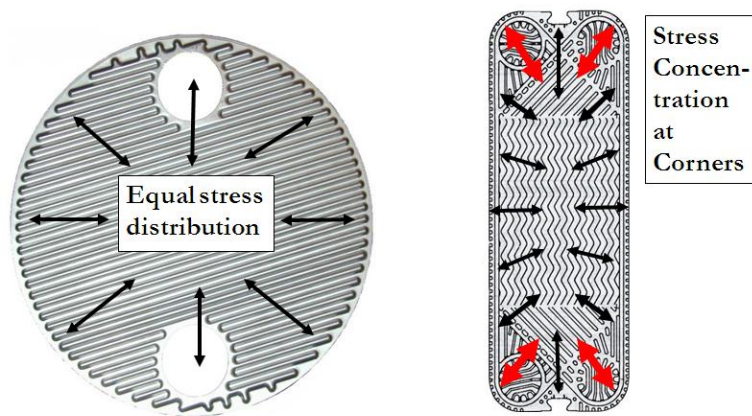
Thermal Control Unit





# PSHE well suited for cryogenic use

- Round plate highly resistant to thermal stresses
- Allowed temperature difference  $>250^{\circ}\text{C}$  between cold and hot media
- LNG vaporizer and superheating of gas in one single unit.



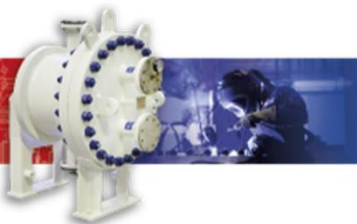
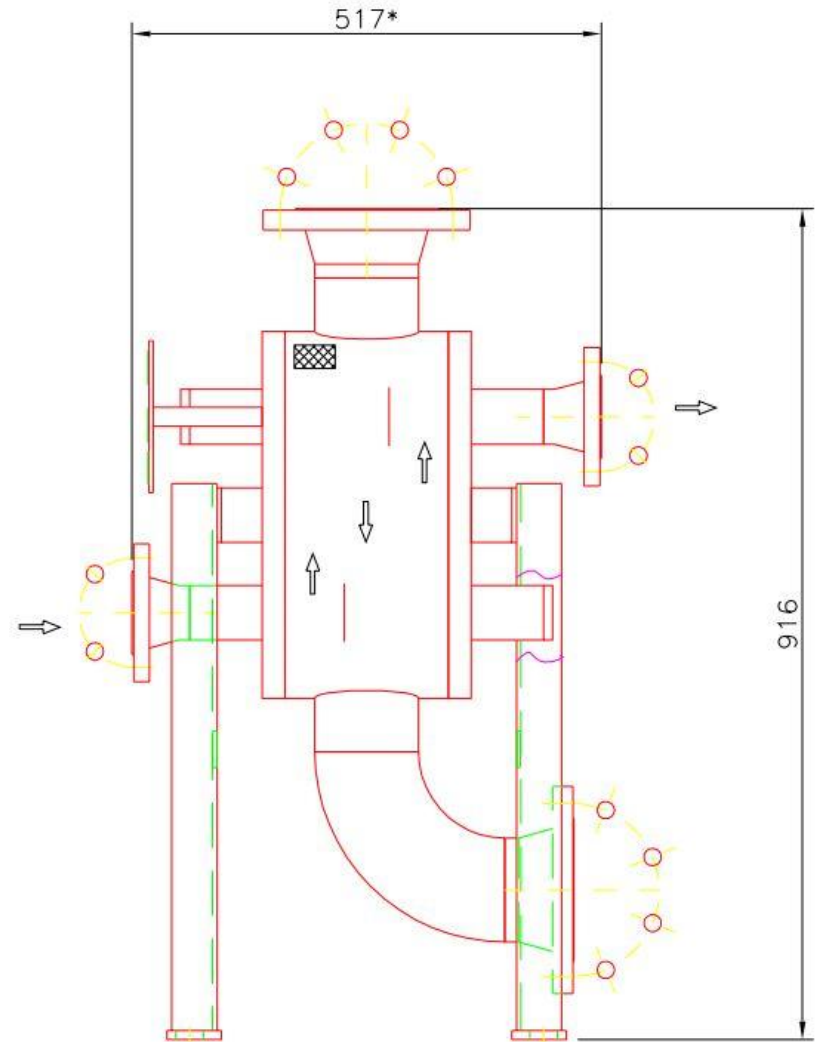
# QUALITY

- Quality systems
  - ISO 9001:2008 Quality
  - ISO 3834-2:2005 Welding
  - OHSAS 18001:2007 Health and Safety
  - ISO 14001:2004 Environment
  - PED Module B + D, D1
  - ASME U-stamp and R-stamp
  - AD-2000-Merkblatt HP0
  - China Manufacturing License
  - KGS Sertificate (South Korea)
- Welding
  - PEDEN ISO 15614-1
  - 2014/68/EU demands
  - ASME IX
- Design
  - PED 2014 / 68 / EU
  - ASME VIII, div. 1
  - AD-2000 Merkblatt
  - PD5500
  - Lloyd's Register
  - ABS Europe Ltd.
  - Bureau Veritas
  - RINA
  - DNV-GL
  - GOST-R ja RTN
  - Other by request



# EcoTug fuel system

- 2x 3LL-54/3/1
- Up to 150kW, 580kg/h vaporized LNG to engines per unit
- Fully stainless steel construction
- Design code: ASME VIII Div.1 + Tasneef Marine
- Design temperature  $-170^{\circ}\text{C}$  /  $+110^{\circ}\text{C}$
- Units delivered in 2015



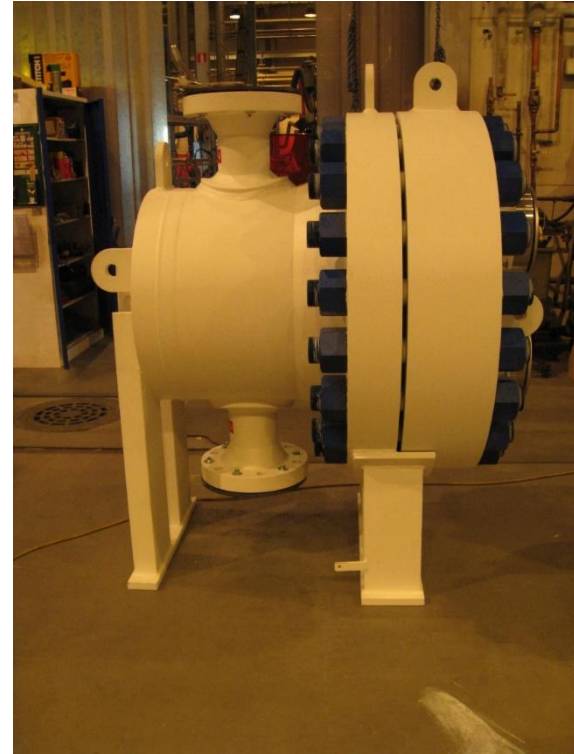


# GAS COOLER

Type: 5LL-208/1/1

- Design pressure: 115 barg
- Design temperature: -20 / 210°C
- Plate material: Hastelloy
- Shell material: SA516-Gr
- Cooling media: Sea water
- Duty: 3335kW

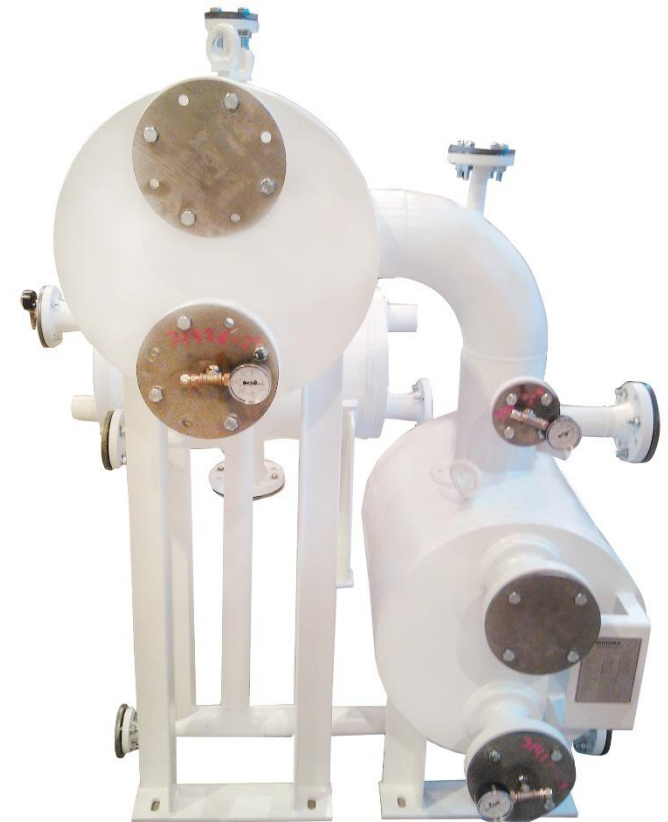
Installation on floating platform



# ETHYLENE VAPORIZER

## 4HH-132/1/1 ethylene vaporizer 163 kW

- Mediums: Ethylene - R404A (inside intermediate circuit)
- Plate material: SA240-316L
- Shell material: SA312/Tp3
- Design temperature: -104/45 C°
- Design pressure: 0/35 barg
- Design code/Classification: BV Marine



# LNG VENT GAS HEATER

Type: 2HH-44/1/1

- End Customer: Qatar Gas
- Design pressure: -1/16 bar
- Operating temperature: 170/135 and -159/40
- Application: Vent gas Heater
- (Steam/Nitrogen+Methane)



# References

- To date over 50.000 delivered heat exchangers
- Present annual production is > 3500 units.

*For application specific references please contact Vahterus Sales Office*

