



Oil
& Gas

Refrigeration in Oil & Gas industry

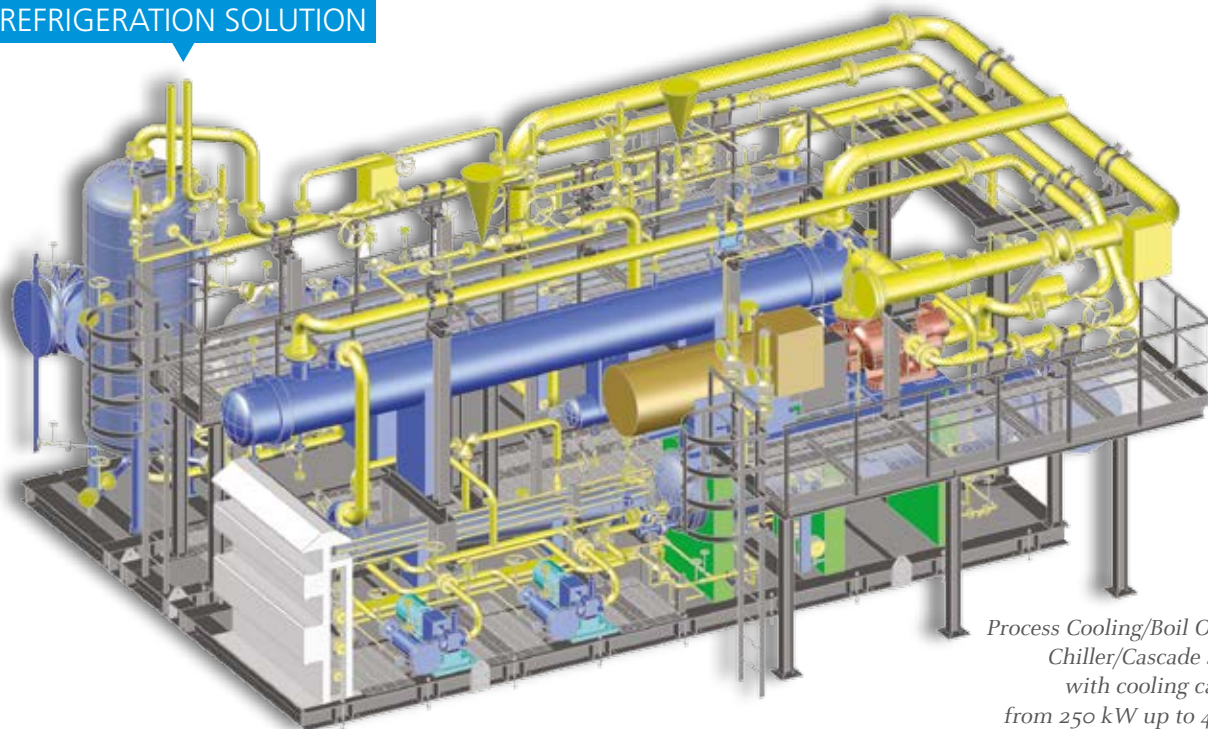
Expertise for maximum performance,
profitability and environmental protection



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Your partner in productivity gains via refrigeration efficiency

REFRIGERATION SOLUTION



Process Cooling/Boil Off Gas/Chiller/Cascade system with cooling capacity from 250 kW up to 40 MW



Complete set of Refrigerants / Process fluids:

- Freon (Hydrofluorocarbons [R134a, R410a etc.])
- Ammonia
- Hydrocarbons (Propane, Ethane, Ethylene, Propylene, Butane etc.)
- CO₂
- Mixed refrigerant



Hazardous area installation

Zone 1/2

Compressor Technology selection



Screw oil injected / dry



Reciprocating



Centrifugal

as function of application feature via different indicators, e.g.:

- Pressure ratio
- Discharge temperature
- Process fluid composition

Complete Unit String test

from
+25°C

Refrigeration level from ambient to cryogenic range

up to
-170°C

CUSTOMIZED EXECUTION

Studies and Analysis

- Process simulation
- HAZOP
- Safety integrity levels
- RAM
- FMECA Analysis

Customers' design & engineering practice

- Shell DEP
- PETRONAS
- SAUDI ARAMCO
- Other

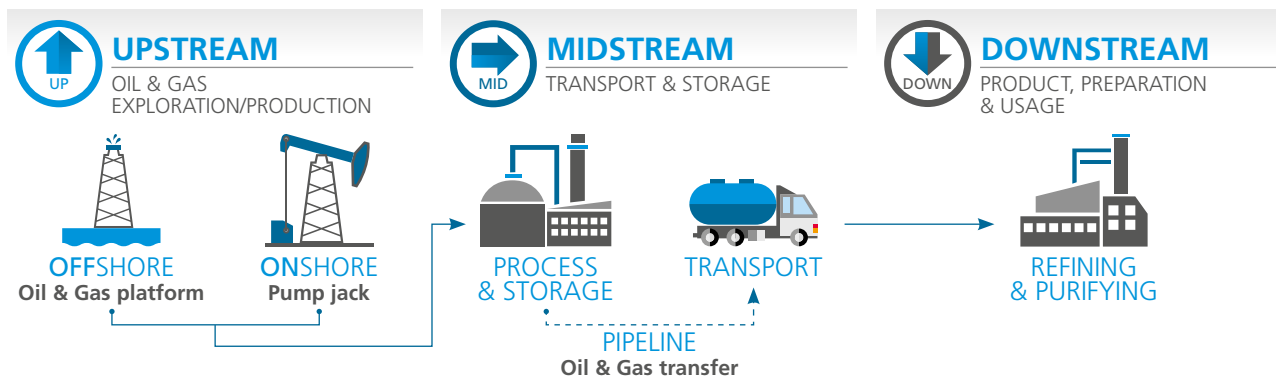
Countries certificates

- PED
- SASO
- TR CU
- Any international local certification

Design codes

- API
- ASME
- TEMA
- GOST
- Other

UPSTREAM, MIDSTREAM, DOWNSTREAM



Application list

UPSTREAM

- Refrigeration solution for Onshore production
- Refrigeration solution for Offshore production
- Gas Dew Point control by refrigeration
- Hydrocarbons recovery

MIDSTREAM

- Refrigeration in Natural gas processing
- Gas to Liquid applications
- Vapor recovery units (VRU)
- Boil Off Gas recovery (ethylene, propylene, propane, butane, LPG etc.)
- Loading/Unloading Refrigeration
- Small scale LNG liquefaction

DOWNSTREAM

- Process cooling
- Hydrocarbons cooling
- Mixed hydrocarbon, compression & liquefaction
- CO₂ processing
- Gas liquefaction
- Light ends separation
- LPG and condensate recovery by turboexpander
- De-ethanizer condenser refrigeration
- Flare gas/vent/vapor recovery
- Chemical reaction temperature control
- Nitrogen chilling
- Gasoline fractionation
- Utility cooling (chilled water, chilled glycol)
- Fertilizers plant, Ammonia BOG & Ammonia refrigeration system



LPG recovery from natural gas by turbo expander cryogenic process. 3,000,000 Nm³/day natural gas processing plant.



Gas Treatment and LPG Production Plant. 1,250,000 Nm³/day natural gas processing and pure Propane, Butane, Gasoline production plant.

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