HPP TRIPLEX PUMP UNIT

MODEL: HPP TRIPLEX PUMP (5 / 11 / 18 / 27)
FUEL: LNG (LIQUEFIED NATURAL GAS)

Description
Skid-mounted, high-pressure reciprocating triplex pump designed for LNG fuel supply systems. Engineered for continuous operation with variable speed control, delivering high-pressure LNG to main and auxiliary engines with high efficiency and reliability.

Benefits
- **BOG-optimized operation:** Temperature-controlled HP bypass based on cold-end conditions
- **Patented active sealing:** Reduced wear and extended service life
- **Patented integrated oil pump:** Crankshaft-driven lubrication system with fewer components
- **Triplex principle:** Improved flow stability and reduced pulsation
- **Optimized flow design:** Reduced pressure losses and backpressure
- **Compact skid solution:** Integrated control system and auxiliaries
- **Reliable continuous operation:** Designed for demanding marine LNG applications

Capacity range:
- Up to 27 m³/h

Discharge pressure:
- Up to 380 bar operation pressure / 420 bar design pressure

Inlet pressure:
- Minimum 4 bar above vapor pressure – max. 16 bar

Media and temperature:
- Media: LNG
- Density: 420 – 546 kg/m³
- Min. operating temperature (LNG): -163°C
- Min. design temperature (LIN): -196°C

Key differentiators:
- BOG control – Reduced vapor formation and improved efficiency
- Patented sealing – Extended lifetime and reduced leakage risk
- Integrated lubrication – Superior performance and reliability
- Triplex stability – Smooth flow and reduced pulsation

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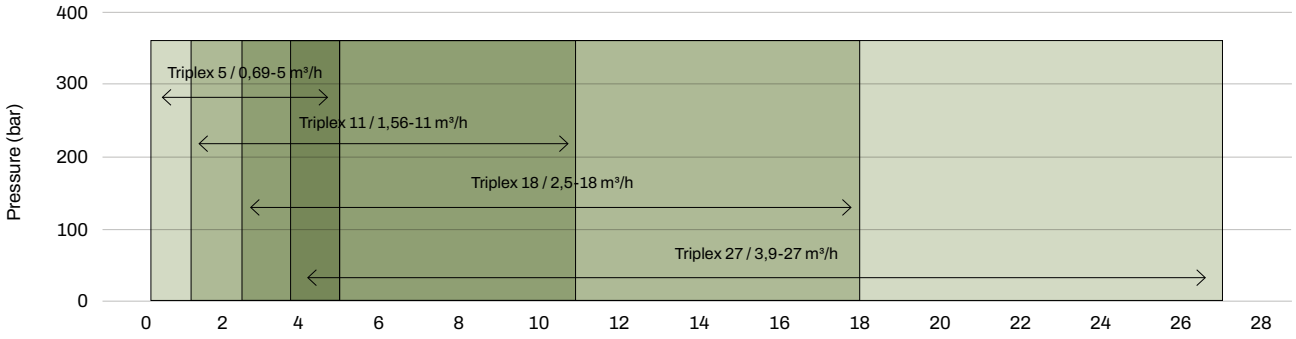
TECHNICAL DESCRIPTION

BOG reduction and flow optimization
The HPP pump is designed to minimize boil-off gas (BOG) through a combination of temperature-controlled HP bypass operation and optimized internal flow paths. The control system continuously monitors the actual temperatures in each of the three cold ends, enabling dynamic adjustment of the HP bypass flow. This ensures stable thermal conditions, reduces the risk of local vapor formation, and minimizes unnecessary recirculation. In addition, the internal flow design is optimized to reduce pressure losses and backpressure, resulting in lower energy input to the fluid and improved overall thermodynamic efficiency.

Patented active sealing system
The pump incorporates a patented sealing concept based on a pressurised sealing arrangement around the piston rod. Pressurised sealing fluid is introduced between sealing elements, forming an active barrier that prevents leakage while simultaneously providing lubrication of the piston rod interface. This solution reduces mechanical wear, supports stable sealing performance over time, thus allowing a simplified sealing system, resulting in extended service intervals and improved operational reliability.

Patented integrated lubrication system
The pump is equipped with a patented lubrication system featuring an integrated oil pump mounted directly on the drive unit and driven by the crankshaft. This design eliminates the need for external lubrication pumps and additional drive motors, enabling a simplified and more compact system architecture. The oil pump draws oil from an internal sump and delivers pressurised lubrication to critical components such as bearings and crossheads. By integrating the lubrication function directly into the drive unit, the system achieves improved reliability, reduced maintenance requirements, and fewer potential failure points, while maintaining controlled and efficient lubrication of all moving parts.

PERFORMANCE



SPECIFICATION VARIANT

Model	Triplex 5	Triplex 11	Triplex 18	Triplex 27
Media	LNG			
Media temperature	Min. -163°C			
Operating pressure	Max. 380 bar			
Design pressure	Max. 420 bar			
Inlet pressure	Min. 4 bar above vapour pressure. Max. 16 bar			
100% flow	0,69-5 m³/h 11,5-83 L/min.	1,56-11 m³/h 26-183 L/min.	2,5-18 m³/h 42-300 L/min.	3,9-27 m³/h 65-450 L/min.
Foot print (wxlxh)	2711 x 1700 x 2112	TBC	TBC	TBC
Weight	1378 kg	TBC	TBC	TBC

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