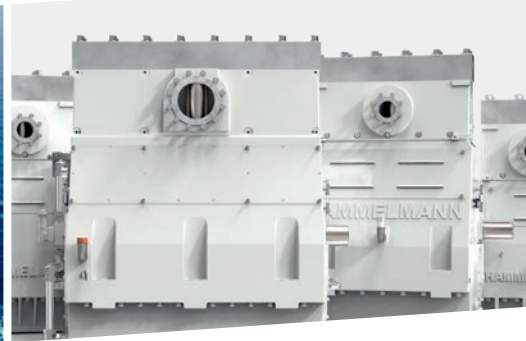




HAMMELMANN®

PROCESS PUMPS



INJECTION PUMPS FOR LIQUID GREEN FUELS

The efficient substitution of fossil fuels

High-pressure injection technology

Zero-Emission® provided

Substitution of fossil fuels

Wide power range

For new combustion engines

Modifications of existing engines

SUBSTITUTION OF FOSSIL FUELS

Marine propulsion systems are mainly driven by fossil fuels. This leads to the global marine industry contributing to climate change and global warming with large amounts of CO₂.

In 2018, the International Maritime Organization (IMO) decreed that international shipping should become CO₂ neutral by 2100.

The currently best proven and immediately available technology is the replacement of fossil fuels with CO₂ neutral green fuels such as methanol. New combustion engines can be equipped with this technology, existing ones can be converted.

Green fuels include the following fuels, which can be pumped with Hammelmann injection pumps:

- **METHANOL** (MeOH, CH₃OH, CH₄O)
- **ETHANOL** (C₂H₆O)
- **AMMONIA** (NH₃)

BUILT ON PROVEN TECHNOLOGY

The materials used and the system design are optimized for continuous operation. The upright design minimizes the mechanical stress on the components in combination with the pump head made of stainless steel with no alternating pressure loads to ensure low wear and extremely smooth running. The plungers move the conveyed medium with almost no pulsation and an efficiency of up to 95%.



 Low pressure packing

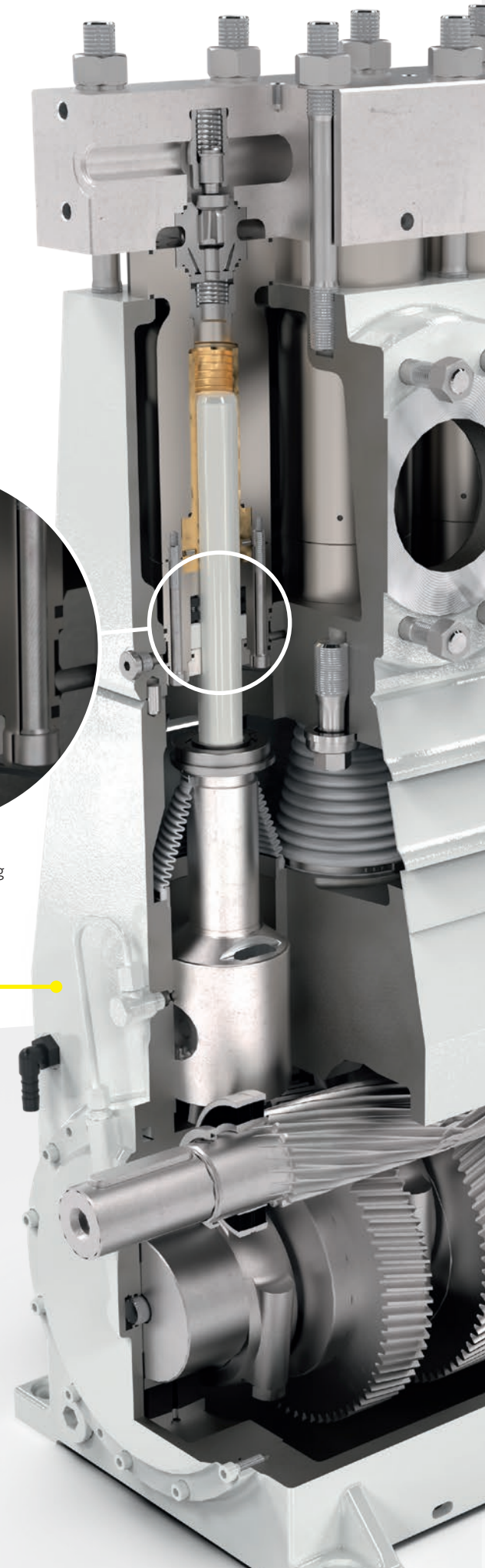
 Lantern ring

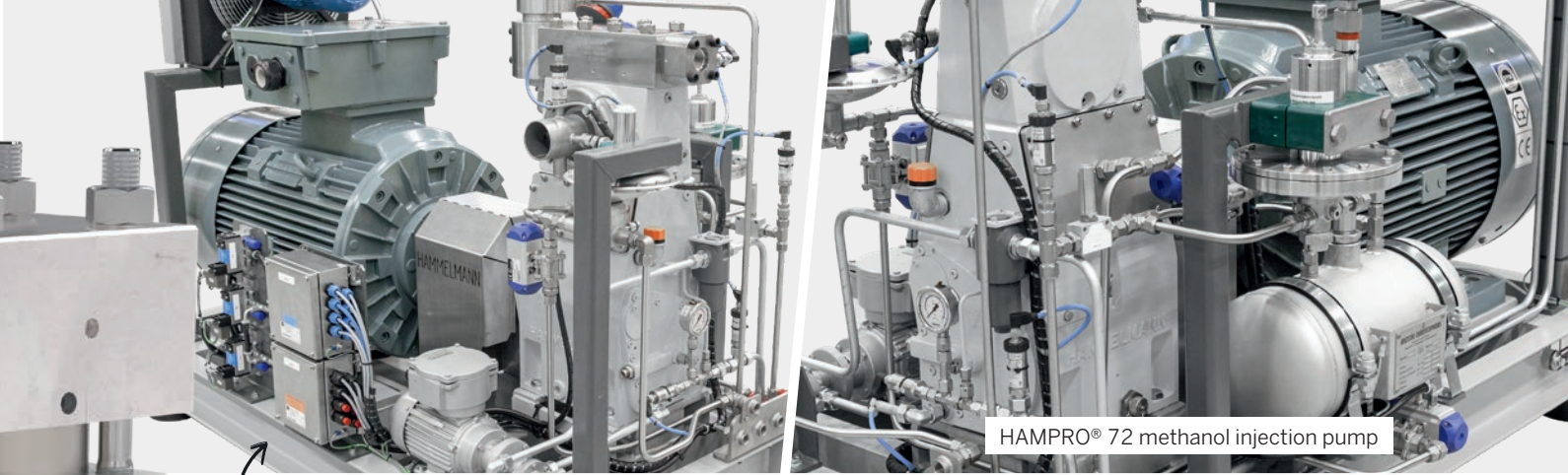
 HAMPRO® 72

TECHNICAL FEATURES

The valve block is not subjected to alternating stress and therefore not sensitive to cracking by low cycle fatigue. A minimum clearance volume (dead area) results in low pulsation and high volumetric efficiency.

- **INVALVE HOUSING**
- **HIGH-PRESSURE LABYRINTH SEAL**
- **PTFE BELLOWS**
- **ZERO EMISSION® DESIGN**
- **ALL HIGH-PRESSURE PARTS ARE ENCAPSULATED WITHIN THE SUCTION CHAMBER**





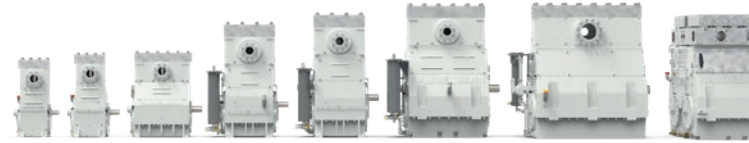
HAMPRO® 72 methanol injection pump

PROJECT: PASSENGER AND CAR FERRY

- The ferry is equipped with 4 powerful HAMPRO® 72 methanol injection pumps, which have an operating pressure of 600 bar and a flow rate of 50 l/min. The pumps have been in operation since 2015.

ZERO EMISSION® SYSTEM

- The „Zero Emission®“ design completely separates the medium from the environment, so that the pumped medium cannot escape to the outside in any operating state.

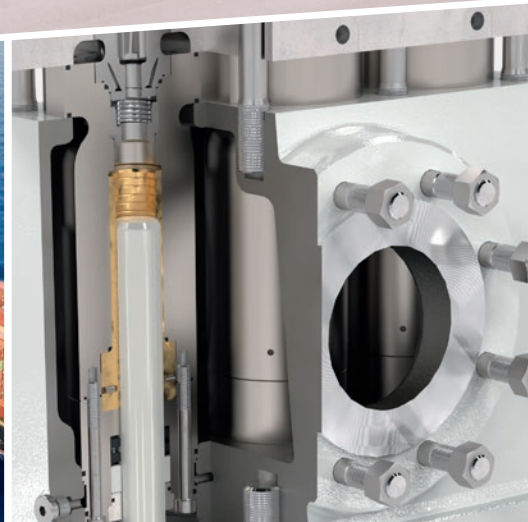
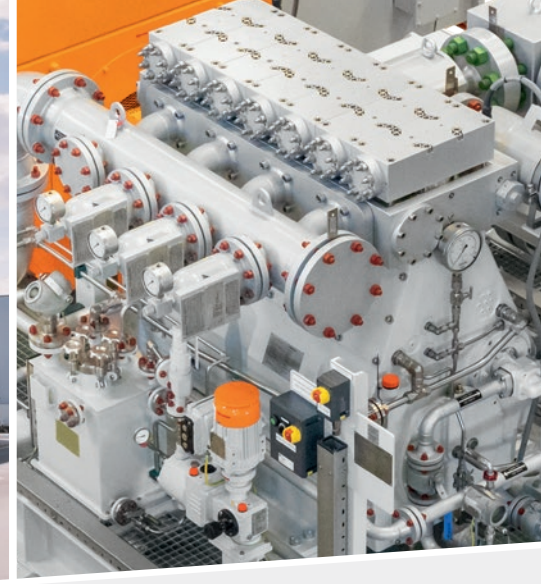


HAMPRO® OVERVIEW

Model	Flow rate	Operating pressure
HAMPRO® 10	up to 6.2 m ³ /h	up to 2,300 bar
HAMPRO® 20	up to 6.2 m ³ /h	up to 3,800 bar
HAMPRO® 40	up to 9.3 m ³ /h	up to 3,400 bar
HAMPRO® 70	up to 12.1 m ³ /h	up to 3,500 bar
HAMPRO® 140	up to 20.6 m ³ /h	up to 3,600 bar
HAMPRO® 200	up to 29.3 m ³ /h	up to 3,200 bar
HAMPRO® 300	up to 64 m ³ /h	up to 3,200 bar
HAMPRO® 400	up to 77 m ³ /h	up to 3,200 bar
HAMPRO® 500	up to 77 m ³ /h	up to 3,000 bar
HAMPRO® 800	up to 128 m ³ /h	up to 3,000 bar
HAMPRO® 1200	up to 179 m ³ /h	up to 3,000 bar
HAMPRO® 1600	up to 256 m ³ /h	up to 3,000 bar



Learn more about our HAMPRO® process pumps



CERTIFICATES

- EC Machinery Directive 2006/42/EC.
- ATEX 2014/34/EU
- API 674, API 675
- Class approvals:
 - DNV, ABS
- Others



The free-of-charge Hammelmann app

For iOS, Android and your browser

Water Jetting Calculator: hammelmann.com/app

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