

CASE STUDY



Maritime KR certified High-pressure LNG valves



MARINE

Inspired By Challenge

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As of 2015, all ships operating in northern EU waters must comply with strict new Sulphur emission limits. The tighter norms aim to reduce air pollution from the maritime industry in order to protect human health and the environment. Ship operators must opt between more expensive, cleaner fuel or an approved abatement technology. The cleaner fuel option means switching from high-Sulphur fuel (HSF) to liquefied natural gas (LNG).

The Challenge:

An integrator of high pressure pumps and skids was building a skid for a MEGI system (i.e., a dual fuel motor that uses heavy oil and LNG) to be mounted on an LNG ship in Korea. The integrator was using top entry globe ball valves across all piping on the skid, including one very critical valve with a removable orifice plate. The orifice had to be fine-tuned (by changing its size) when the valve, along with the skid, was installed on the ship.

Another challenge was that the LNG service media had to be pumped at up to 370 Bar, using a high-pressure pump. This was a cause for concern as all the valves, fittings and piping to be mounted on the skid had to be certified to Class 2500 pressure. In addition, the LNG had to be gasified to feed the motor.

The integrator needed an easier and better valve solution -- preferably a three-piece design with a removable central orifice plate that would facilitate easy hydraulic pressure testing of the skid. The valves needed to be supplied by a reliable manufacturer at an affordable price point. Also, all materials used to build the skid had to comply with maritime standards as well as with the requirements of the Korean standards authority.

The Solution:

Habonim came up with a modified design of its high-pressure Class 2500 cryogenic floating ball valve, with the following benefits:

- Designed for easy operation, removal and installation while mounted on the skid, taking into account the skid piping isometrics and space constraints.
- It included a removable orifice plate that facilitated not only FAT testing and maintenance, but more specifically, the on-board commissioning. By granting easy removal and exchange between different sizes of orifice plates, the purpose being achieved was the fine-tuning at commissioning to the minimum possible gasification time between HSF to LNG switching operations, while preventing hammer effects.
- A dual certificate was obtained from the Korean regulatory authority for the SS 316/316L stock bar material, as dictated by the end customer.
- After manufacturing the valve, the design engineers at Habonim faced yet another challenge: a customized high pressure Class2500 test bench had to be built to accommodate the non-standard design of the valve. Given the high standards that Habonim sets for the valve industry, this task too was achieved with ease.

Why HABONIM?

The integrator approached Habonim because it is a global leader in the design and manufacture of mission-critical high-pressure cryogenic valves for the maritime industry. Habonim has a proven track record of providing tailored, end to end valve solutions for critical applications such as LNG. Habonim customizes its solutions to comply with its customers' most stringent accreditation and regulatory requirements.



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