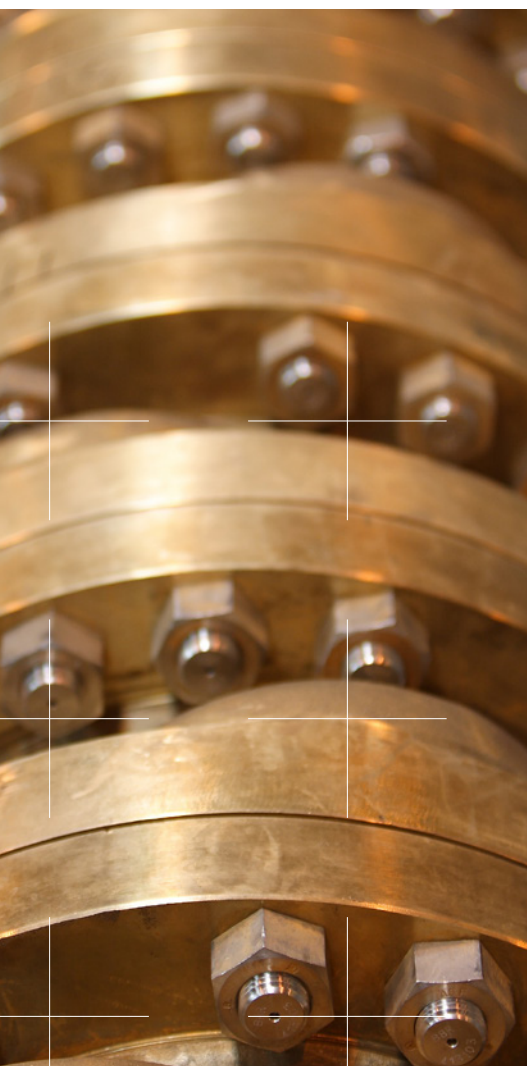


SULZER

LNG pumping

Keeping cool under pressure

Liquefied natural gas (LNG) plays a vital role in ensuring domestic and industrial energy supplies. Operating 365 days per year the pumps must be supremely reliable and efficient. [sulzer.com/lng](https://www.sulzer.com/lng)



API 610 design with no compromise on safety or reliability

External motor arrangement is the only official pump design recognised by API 610 international standard.

Benefits

- Isolation of main heat sources from LNG process fluid to reduce BOG
- Motor according to international standards (IEC, NEMA, ATEX, etc.)
- External thrust bearing according to API 610
- No inducer required, greater flexibility on operating range
- Simplified cooldown procedure and eliminates risk of thermal shock
- Zero emission Sulzer J-Unit isolates LNG from atmosphere
- No external pre-start nitrogen purge required for pump
- Optimized head rise to shut off minimizes downstream pipework pressure ratings and cost
- All major components accessible for inspection and maintenance without pump withdrawal
- External solution permits full instrumentation and condition monitoring of motor winding and all rotating components
- Proven reliability with extensive references



Test facilities such as our site in Leeds (UK) guarantee the highest standards and quality-tested pump equipment.



The best solution for LNG pumping

JVCR / JSJD high pressure LNG loading pumps

Increased demand is driving the expansion of LNG terminals and operators need reliable equipment with highest possible efficiency. Sulzer external motor solution is a multi-stage, vertically suspended, suction vessel mounted pump that has been designed to deliver efficient and reliable service in cryogenic conditions. Fully compliant to API 610, the external motor design ensures the main heat source does not affect the temperature of the LNG. Minimizing the amount of boil-off gas reduces the size and operating cost of the plant BOG compressor, reducing your capital expenditure.

The pump design in combination with the patented Sulzer J-unit ensures full isolation of the cold process fluid and the seal chamber, which enables the use of standard API 682 dual mechanical seals operating with a continuously circulating pressurized seal oil.

The spring-loaded J-unit is connected to an isolation chamber on the pump, which adjusts the seal oil pressure using a piston to ensure a constant differential between the mechanical seal and vapor pressure.



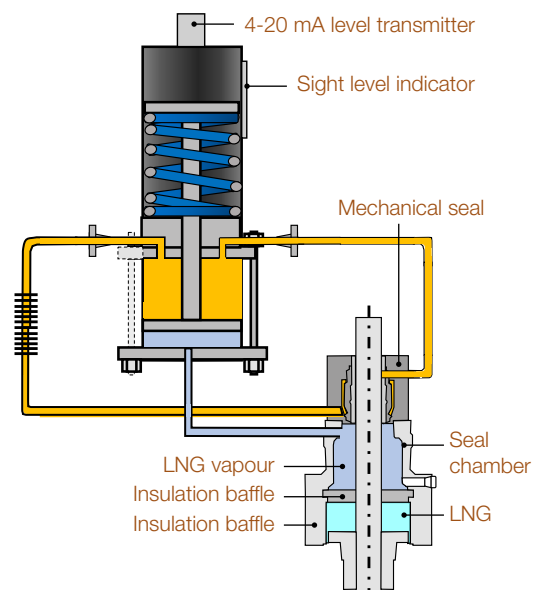
Key characteristics

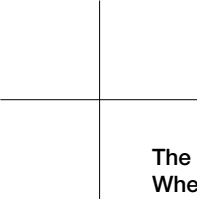
Capacities	up to 4'000 m ³ /h / 17'600 USgpm
Heads	up to 2'450 m / 8'000 ft.
Pressures	up to 100 bar / 1'440 psi
Temperatures	-170°C to 200°C / -280°F to 400°F

Extensive installed references spanning more than 50 years operation.

Sulzer J-unit

- Insulation chamber provides thermal barrier between mechanical seal and pumped product
- Piping from the top of the insulation chamber transmits suction pressure to the bottom of the J-unit, which forces the piston up (if suction pressure drops, the piston moves down slightly to reduce pressure in the seal oil system)
- Upward piston motion pressurizes the sealing fluid (barrier fluid) in the pressure unit and mechanical seal
- Differential pressure between insulation chamber and mechanical seal prevents product from contaminating the seal faces
- Barrier fluid is continuously circulated by a pumping ring in the mechanical seal to dissipate heat
- Seal chamber features coffer dam to guarantee seal oil cannot contaminate LNG process
- Finned tubing or heat exchanger possible depending on customer specification





The Sulzer Flow Equipment division keeps your processes flowing. Wherever fluids are treated, pumped, or mixed, we deliver highly innovative and reliable solutions for the most demanding applications.

The Flow Equipment division specializes in pumping solutions specifically engineered for the processes of our customers. We provide pumps, agitators, compressors, grinders, screens and filters developed through intensive research and development in fluid dynamics and advanced materials. We are a market leader in pumping solutions for water, oil and gas, power, chemicals and most industrial segments.

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