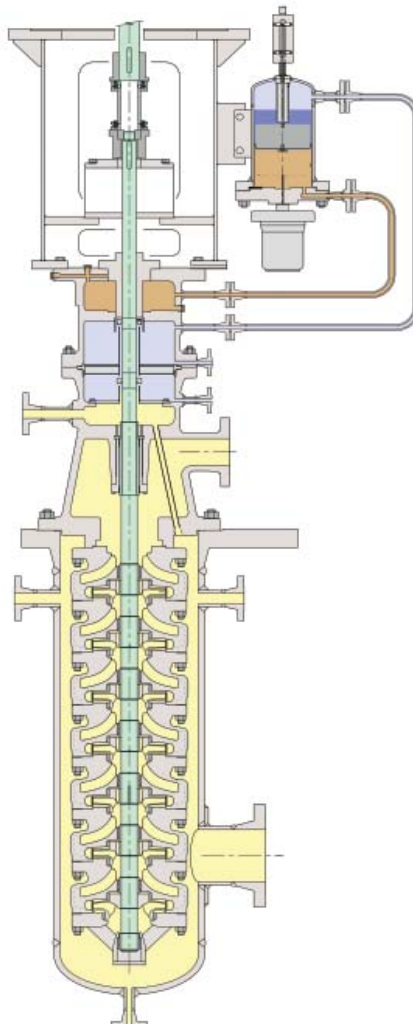


JVCRv High Pressure Canned LNG Loading Pumps



JVCRv HP LNG Loading Pumps

With the Worlds ever increasing demand for LNG, production facilities are being expanded to meet global demand. Part of this investment includes the need for ever larger loading pumps.

Historically LNG duties have been dominated by the use on submersible motor designs. The latest loading applications have increasingly stretched the submersible design to the point where reliability cannot be assured.

Components and a partly assembled pump



Description

The Sulzer JVCR as supplied into high pressure LNG applications is a multi-stage, vertical bowl type enclosed can pump with closed type radial flow impellers. The hydraulics have been selected at a 'specific speed' which offers a minimum number of stages combined with a high operating efficiency and also gives a performance characteristic with an optimum pressure increased between design and minimum flows.

A suction can is provided with an integral suction connection which is located in close proximity to the suction impeller. This ensures cool LNG enters the pump in a manner that affords optimum available NPSH for the suction impeller. In addition the possibility of any thermal distortion of the suction can during the cool down cycle is minimised thus maintaining correct pump alignment.

Design Features

Features of this pump include:- hydraulically and dynamically balanced closed impellers, flanged and gasketed high pressure bowls and positive pumpage lubrication to all internal pump bushings. The metallurgy has been specifically selected to give the optimum physical properties including mechanical strength and low temperature ductility. Other important properties in the materials selection are thermal contraction and thermal conductivity to assure optimum performance and the maintenance of the internal clearance and fits during all modes of operation.

Even though the impellers are hydraulically balanced the pressure distribution within the impeller and volute are such that the resultant thrust can only be balanced for one flow, therefore we have included a self-contained tilting pad thrust bearing assembly which will accept all the unbalanced thrust loads and the rotating element weight with a high margin of safety.

A two piece shaft is included because the normal maximum manufacturing length is approximately 4.5m. The shaft connection will be located at the initial stages of the pump where the stresses are relatively low.

Confidence

The design of this pump has evolved from many years of experience in cryogenic pumping applications and includes technology which is now exclusive to Sulzer Group Companies. The cumulation of this is a cryogenic pump design which gives the highest proven level of performance and reliability.

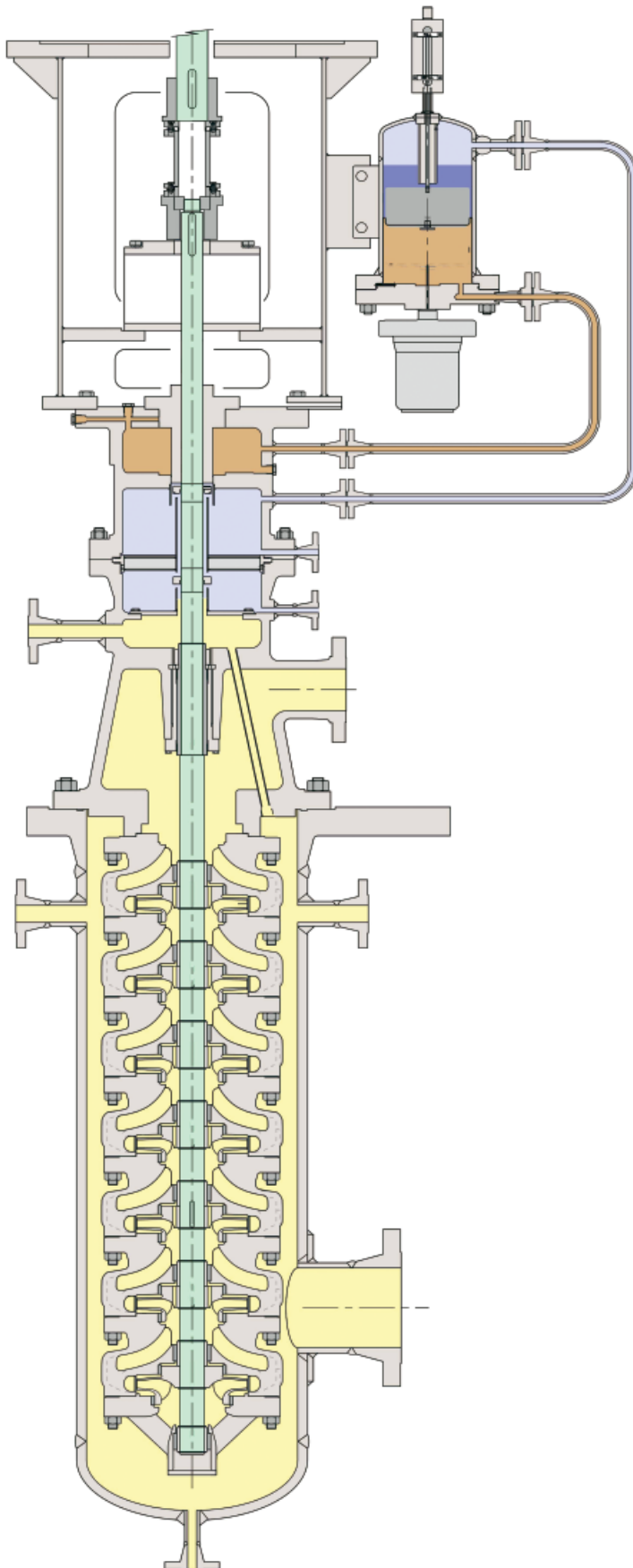


Liquid nitrogen cold spin test



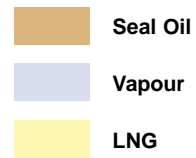
LNG investment is increasing

Features and Benefits

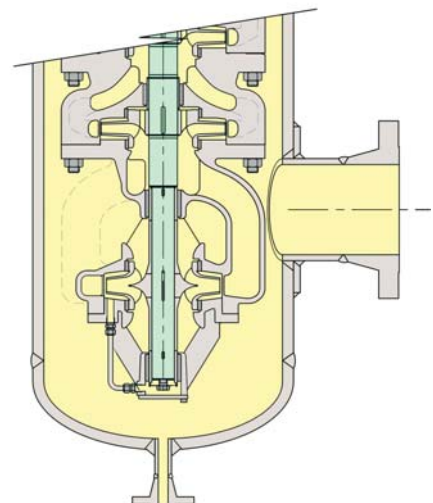


The JVCR has a number of key advantages over other designs;

- Ease of maintenance
- Accessibility
- Oil lubricated thrust bearing
- No inducer required
- High pump & motor efficiency
- Uses cryogenic materials
- Proven reliability record



Optional Double Suction Construction



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