Contribution ID: **273** Type: **Poster**

C3Po1D-03: Top Load Cryogenic Large Size Ball Valves With Focus on Liquified Hydrogen and Helium

Wednesday 21 May 2025 09:15 (1h 45m)

Angle globe valves have been traditionally used in all cryogenic systems. The energy sector is transitioning towards environmentally sustainable technological facilities. Hydrogen represents a key value chain within this sector's focus. Nevertheless, the expansion of these plants presents certain inherent techno-economic challenges.
Ball valves can offer significant advantages to this emerging field by providing superior flow capacity performance, resulting in improved Kv flow coefficient values. These enhancements are particularly valuable to process engineers aiming to boost efficiency and, consequently, optimize the hydrogen liquefaction value chain. Competitiveness and process efficiency are paramount objectives for innovative solutions in large-scale systems.
The main motivations of this new thinking are:
-Large-sized valves require flow Kv coefficient values that render ball valve suitable.
-Majority of the big Energy Players are considering the actual LNG value chain and business model for the projected LH2 supply chain with cargo vessels are the drives to design the large-scale value chain.
-Low-pressure distribution for storage and transportation cargo processes conditions are at ambient temperature.
-High-pressure processes demand a higher differential Temperature in the inlet at cryogenic plant.
Throught this poster paper, AMPO POYAM VALVES will present a large top load-valve with the following focus:
-Vacuum jacketed top-load cryogenic ball for G/LNG and G/LH2 as well as also for L/GHe
-Low heat load attributed to the innovative design and jacket design configuration.
-Double-jacket concept aimed at reducing operating cost by maintaining the vacuum within pipeline.
- Comparison with angle globe cryogenic designs of equivalent Kv values.
A novel approach grounded in an innovative solution concept that addresses the challenges of cryogenic service conditions across the full temperature and pressure spectrum. This modern valve concept, incorporating the latest manufacturing technologies, enhances the efficiency of cryogenic processes and delivers added value to the market.

Keywords: Top Load Ball Valves, Big size, Liquid Helium, Liquid Hydrogen, Low Heat Load, Low Maintenance.

Authors: Mr GABIRONDO, Ander (AMPO POYAM VALVES); COLOMO ZULAICA, Leire (AMPO POYAM VALVES)

Presenter: Mr GABIRONDO, Ander (AMPO POYAM VALVES)

Session Classification: C3Po1D - Liquid Hydrogen Transfer Components