

TB-NIIGATA

OVER 70 YEARS OF EXCELLENCE IN ENERGY TRANSFER

FIELD PROVEN MARINE LOADING ARM FOR LIQUEFIED HYDROGEN (LH2)

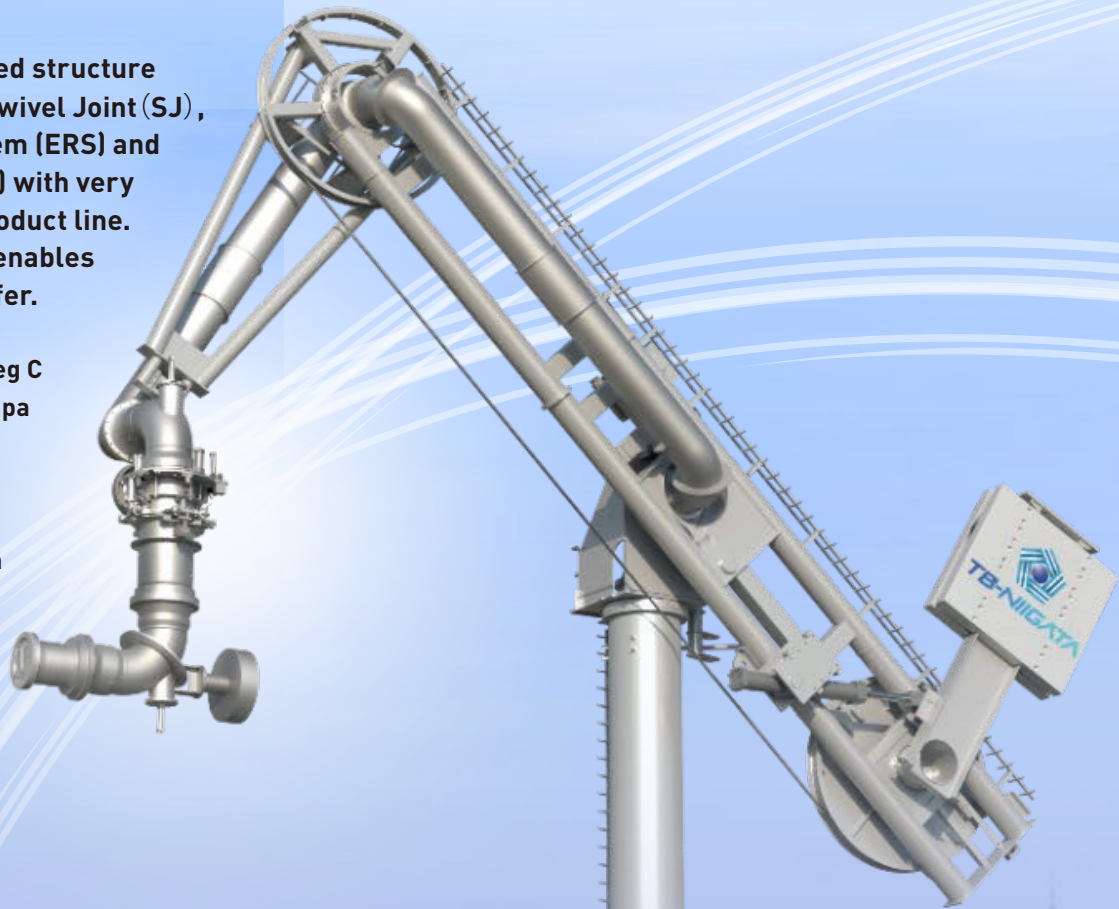
Dual wall vacuum insulated structure including piping, elbow, Swivel Joint (SJ), Emergency Release System (ERS) and Ship-Shore-Coupler (SSC) with very limited heat ingress to product line. This marine loading arm enables stable and fast LH2 transfer.

Design temperature: -253 Deg C
Design pressure : Up to 1.8Mpa

Designed in compliance with
ISO24132



"Design and testing of
marine transfer arms
for liquefied hydrogen"



Field Proven Technology

Loading and unloading operations have been conducted with Suiso Frontier (World's first LH2 carrier) in Hy Touch Kobe LH2 demonstration terminal in Japan.

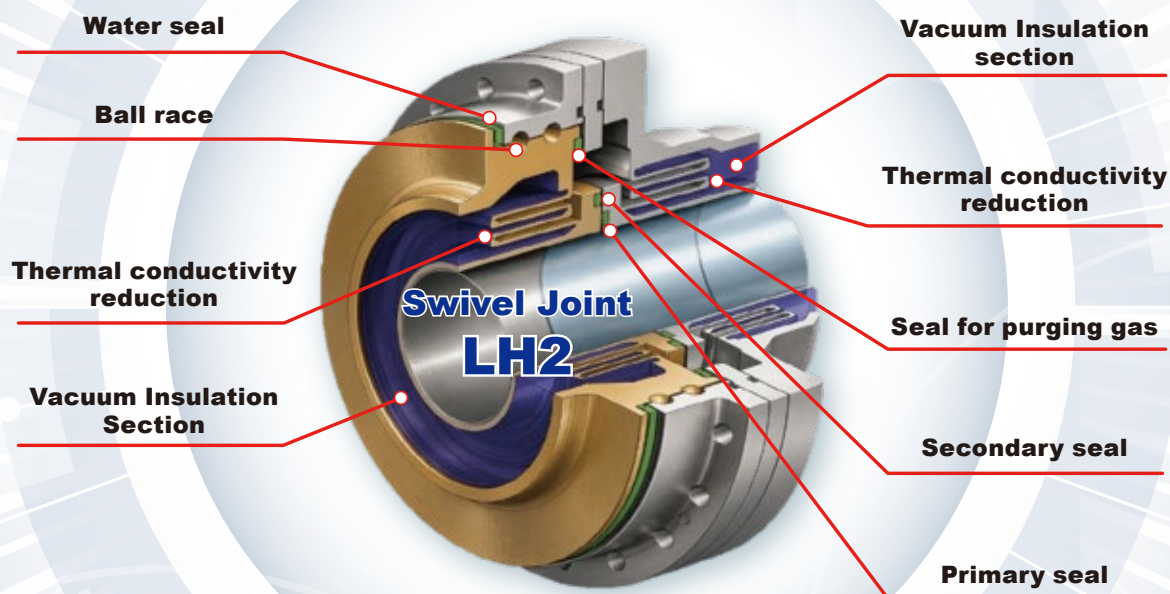
Based on actual LH2 transfer experiences, the improvement for more user friendly operation has been applied.

Photos Courtesy of Hystra

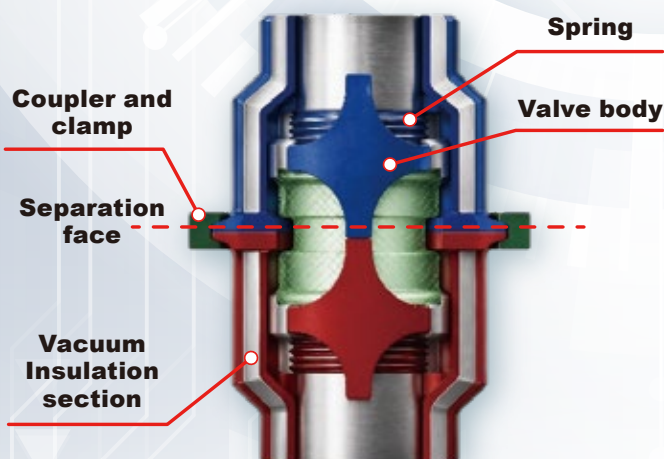


MARINE LOADING ARM FOR LIQUEFIED HYDROGEN (LH2) KEY COMPONENTS

All of them have been tested by LH2.

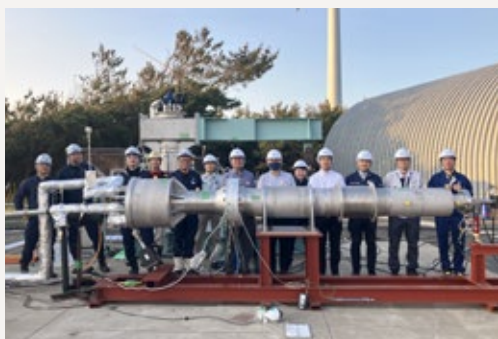
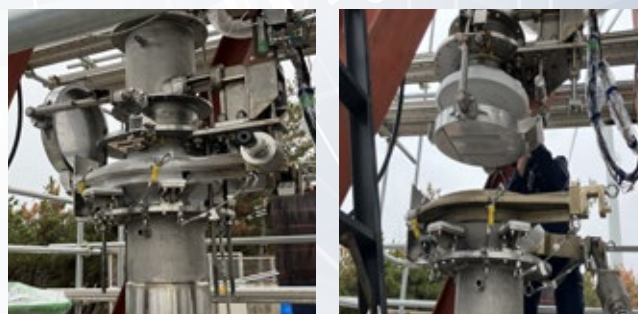


Emergency Release System (ERS)



Flow area is same as piping section.

Release test by LH2



Ship-Shore-Coupler (SSC)

SSC is new flanging method of vacuum insulation piping. Generally, conventional flanges are not suitable for LH2 piping due to big thermal conduction generating liquefied oxygen on outer surface and too much boil off of LH2. For stable and smooth ship-shore connection with acceptable thermal conductivity, SSC, having the same technology as SJ has been developed.

Technology Qualification by Class NK



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