Contribution ID: **72** Type: **Oral**

Demaco's contribution to the LH2 CMS System at ESS

Thursday 30 October 2025 12:15 (15 minutes)

The European Spallation Source (ESS) is a European Research Infrastructure Consortium based in Lund (Sweden), committed to the goal of building and operating the world's leading facility for research by use of neutrons. The facility includes two sub-systems: the Target Moderator Cryogenic Plant (TMCP) and the Cryogenic Moderator System (CMS). Demaco's contribution to this project is related to the CMS system, which includes two cryogenic hydrogen moderators. The CMS cools down the produced neutrons through subcooled liquid hydrogen, which is led to the moderators by the Hydrogen Cryogenic Transfer Lines (HTL) system. Demaco was responsible for designing, manufacturing, testing and installing the HTL system part of the CMS. This includes approximately 180 meters of single vacuum insulated piping, a Distribution Valve Box, including the vacuum chamber for the Ortho-Para hydrogen measurement system (OPMS); and warm piping related to the conditioning of the system. The safety concept and hydraulic requirements were the main attention points during the design phase. Furthermore, the ATEX Zone 2 environment at the location of the Distribution Valve Box and the radiation environment at connection to the moderators (Monolith area), represent the main challenges of this project. This talk provides an overview of the Demaco's scope of supply, challenges and solutions for this project.

Submitters Country

Are you a student?

Author Affiliations & Email Addresses

Co-Author Affirmation

Presenter: BROERSEN, Bart