

Flexible Transfer Lines

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Abstract

Nexans is one of the world wide leaders in the supply of flexible transfer lines for cryogenic liquids. We are experienced in design and production of cryogenic transfer lines for more than 25 years. Starting with a special 4-tube design with CERN in 1980 for 50m long LHe transfer lines, there are now several thousand systems delivered around the world. We supply standard products for the industry as well as products for special applications for institutes.

Our Cryoflex transfer lines consist of two or more concentrically arranged, flexible, corrugated tubes. The inner tube is continuously welded and corrugated using the Uniwema (TIG welding) process, after this cleaned in an ultrasonic bath while the super insulation and the spacers are mounted around. The outer tube is then formed, welded and corrugated around the inner tube in a subsequent continuous process.

Due to this process and several testing steps like He leak test, pressure and cold shock tests, these pipe systems are in continuous operation without maintenance for more than 10 years. The vacuum integrity is guaranteed as a result of the high degree of cleanliness observed during production and from the use of a specially selected getter material inside the vacuum space.

The on-site installation work is reduced to a minimum because the Transfer Lines are delivered from the factory completely assembled and evacuated. The flexibility of the line permits to handle it like a cable: it can be uncoiled, passed through holes in the wall and easily positioned. If the line is bent only once during installation, the bending radii may be reduced by 50 %. Possible errors in measurement of line routing can be compensated for by proper positioning of the line and forming of the bends.