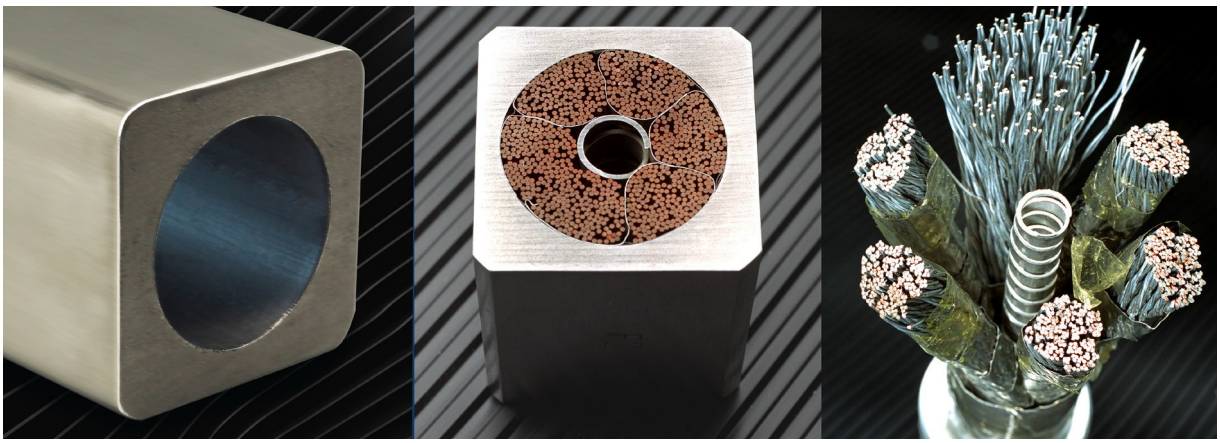
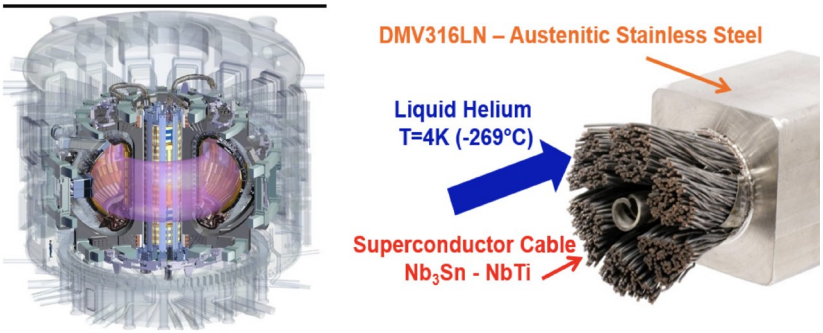
# Case Study: ITER

MANNESMANN
STAINLESS TUBES
A Member of the Salzgitter Group



Fusion, the nuclear reaction that powers the Sun and the stars, is a potential source of safe, non-carbon emitting and virtually limitless energy. Harnessing fusion's power is the goal of ITER. Establishing close technical and commercial relationships with manufacturers such as Mannesmann Stainless Tubes is a critical element in the development and supply of unique and high specification tubular products.

The ITER Tokamak will be the largest and most powerful fusion device in the world. It is designed to produce 500 MW of fusion power for 50 MW of input heating power.




Credit © ITER Organization, http://www.iter.org/

ITER members in China, the European Union (through Euratom), India, Japan, Korea, Russia and the United States have entered into a 35-year collaboration to build and operate the ITER device.

Working with the ITER consortium, set up in order to carry out the mission critical task of producing superconducting conductors for the ITER and the JT-60SA tokamak experimental reactors, Mannesmann Stainless Tubes established a very close partnership.

Development included the testing and production of both the individual square jacket profile that was required and the modified grade of stainless steel that was able to operate in the extremes of the required process parameters.

Touching our lives: whilst the development of such individual specification products may feel distant from our everyday lives, we should consider the benefits that such technological developments have in applications based upon material superconductivity such as Medical MRI.

Product form: Alongside the challenges of the unique stainless-steel analysis that was required, were the challenges of producing a square external profile tube with a circular inside profile. One of the reasons for selecting to work with a partner such as Mannesmann Stainless Tubes is its integrated product production, from hot extrusion where the defining quality characteristics are created, to cold production where the option of pilgering or drawing processes gives us the ultimate control over mechanical properties, tolerances, and surface finish. Extensive final laboratory and non-destructive testing equipment and qualification gives our customers the full assurance on final product integrity.

Which aspects of dealing with Mannesmann Stainless Tubes (MST) were important when choosing your supplier?

'Production capability and technical expertise are an important aspect' states ITER, but collaboration, friendship and flexibility become equally important when developing a project of this nature which can take extended periods of time with many iterations in product design requirements.

Nuclear pedigree: whilst fusion presents exciting prospects for the future, MST's experience, qualification and references demonstrate it is well placed to support the needs of today's fusion technologies.

From the historical development of PWR power generation for the French (RCC-M) and US (ASME III) programs, MST's knowledge and skills have developed across the global technologies: CANDU, VVER Rosatom, China CPR's and India PHWR's.

- ASME III certified
- HAF 604- NNSA certified
- RCC-M compliant
- Label Fournisseur AREVA (Framatome)
- ISO 19443


Applying its skills to the latest generation of EPR power plants whilst partnering with developing technologies and sciences such as CERN, Small Modular Reactors, and marine vessels.

The team at MST look forward to the next successful step in the ITER project, and the exciting prospects for Nuclear fusion development.



**Mannesmann Stainless Tubes**
info@mst.mannesmann.com
Tel. +49 208 458 01
www.mannesmann-stainless-tubes.com

MANNESMANN
STAINLESS TUBES
A Member of the Salzgitter Group

DS ICAS EN 09/2022