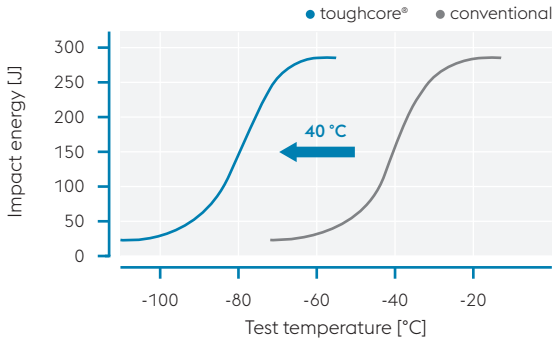
S355/420/460 MLO toughcore

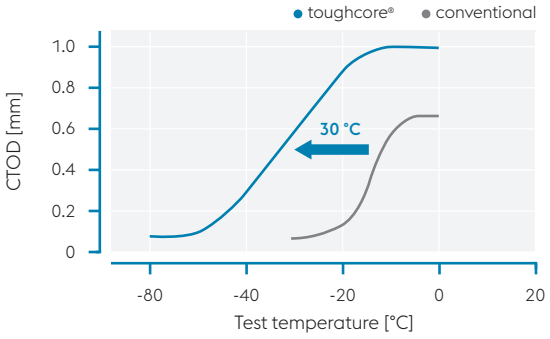
Fracture mechanic – heat affected zone qualification up to 135 mm plate thickness to assure highest safety for offshore application

The new generation of thermomechanically rolled (TMCP) steel is manufactured in a completely new and patented process that enables unique combinations of properties with respect to thickness, strength, excellent toughness even at lowest temperatures as well as best weldability.

Charpy V-notch toughness (CVN) of plate*
Conventional vs. toughcore®
values in ½ thickness
S420 MLO, t = 80 mm



Crack tip opening displacement (CTOD) of plate*
Conventional vs. toughcore®
values in HAZ
S420 MLO, t = 80 mm



*) material properties shown on basis of 80 mm thickness and for reference – values for other thicknesses upon request.

voestalpine Grobblech GmbH
www.voestalpine.com/grobblech

voestalpine
ONE STEP AHEAD.

Pre-qualified acc. to EN 10225 and NORSOK

toughcore® heavy plates are pre-qualified acc. to EN 10225 (2019) Annex F (Option 17) and NORSOK. We supply up to S460G2+M / NORSOK MDS Y40 in the delivery condition as well as after simulated post weld heat treatment and fulfill requirements of Arctic Class I to Arctic Class III up to 100 mm.

Furthermore, we are able to deliver up to S460G2+M/ NORSOK MDS Y40 pre-qualified up to 135 mm / CVN @ -40 °C and CTOD @ -10 °C.

Exploration of arctic regions – Johan Castberg FPSO - A Track Record

voestalpine Grobblech, as a worldwide supplier of high-quality niche products in the energy business, successfully supplied toughcore® heavy plates in grade S420G2+M, Norsok M120.

Convincing advantages of toughcore®

Superior toughness to the core
Shift of CVN transition temperature down to -80 °C
CTOD transition temperature of -35 °C

Assuring highest safety levels
Homogeneous properties over the entire cross-section enhance the potential for the use of heavy plates for offshore construction for arctic applications.

Enhanced weldability
Welding Pre-qualification acc. EN 10225
Pushing the limits of TMCP up to 135 mm

OUR PATH TO A GREENER FUTURE

Premium products in the greentec steel Edition

With greentec steel, voestalpine is pursuing an ambitious step-by-step plan in the long-term decarbonization of steel production. The declared objective is to achieve carbon-neutral production by 2050, and the initial steps have already been taken. Process-optimized production operations already prevent up to 10% of the direct CO_2 emissions at the Linz site. The material and processing properties of the steel are not affected in any way in this production route. Each voestalpine heavy plate product is available in premium quality in the greentec steel Edition with a reduced carbon footprint and unique benefits.

greentec steel

Premium quality with reduced carbon footprint

toughcore®

greentec steel

Heavy plates (excl. heads and clad plates) – greentec steel Edition
Max. carbon footprint 2.21 kg CO_2e per kg of steel [1]

[1] per EN 15804+A2 (EPD methodology) cradle to gate

Please find further information about toughcore® and downloadable files at **www.voestalpine.com/toughcore/en**

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voestalpine
ONE STEP AHEAD.