



S355/420/460 ML toughcore alform plate 355/420/460 M toughcore

Outstanding toughness even to the core up to 140 mm plate thickness

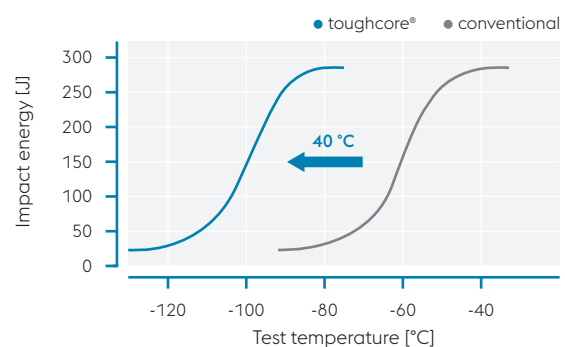
The new generation of thermomechanically rolled (TMCP) steel is manufactured in a completely new and patented process and in accordance to EN 10025-4 that enables unique combinations of properties with respect to thickness, strength, excellent toughness and best weldability. The so produced heavy plates show their remarkable potential particularly in the thickness range from 100 mm to 140 mm. alform® toughcore creates higher safety standards and enhances the potential for the use of heavy plates in steel construction, bridge building and the manufacture of penstocks, vehicles and cranes.

Charpy V-notch toughness (CVN) of plate*

Conventional vs. toughcore®

values in ¼ thickness

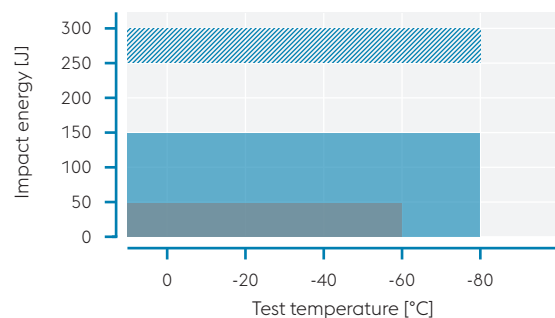
S420 M, t = 80 mm



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

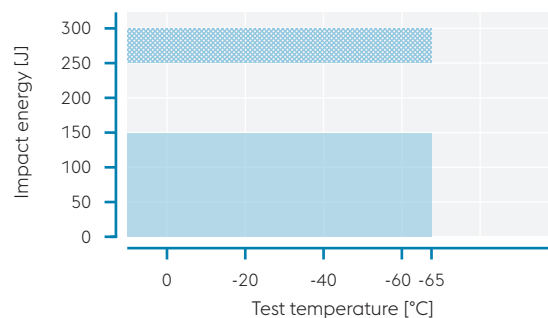
Comparison of guaranteed and typical values of toughness*

Conventional vs. toughcore®
values in ¼ thickness
S355 - 460 M, t up to 100 mm



▨ typical values toughcore® up to 100 mm
 ■ guarantee values toughcore® up to 100 mm
 ■ guarantee values conventional up to 100 mm

toughcore®
values in ¼ thickness
S355 - 460 M, t > 100 mm – 140 mm



▨ typical values toughcore® > 100 – 140 mm
 ■ guarantee values toughcore® > 100 – 140 mm

*) indicative material properties shown for reference – actual values depending on grade, thickness and subject to mutual agreement.

The benefits of TMCP toughcore®

TMCP steels are produced with a lean material analysis combined with the TMCP process and accelerated cooling, which results in a very fine grain-structure and a homogenous surface in combination with extraordinary mechanical values.

Our heavy plates made of very pure steel (low sulphur and phosphorus content) generate a wide cost saving potential in respect to weldability, workability and thickness reduction due to higher yield strength.

Due to the homogenous microstructure over the entire cross-section, we are able to guarantee outstanding strength values even in half plate thickness, especially for high plate thicknesses.

Additionally toughcore® heavy plates are characterized by a higher uniform elongation of $A_g \geq 10\%$, which is not possible with a conventional production.

Convincing advantages of alform® toughcore

Extremely high toughness
Guaranteed impact values down to -80 °C
Higher levels of safety
Significantly lower transition temperature of -100°C
Exploration of arctic regions
Lower risk of brittle fracture
Best weldability
Very low carbon content
Lower sensitivity to cold Cracking
No preheating even for higher wall thickness

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



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voestalpine Grobblech GmbH
voestalpine-Straße 3
4020 Linz, Austria
T. +43/50304/15-9440
grobblech@voestalpine.com
www.voestalpine.com/grobblech

voestalpine
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