

SIQUAL[™] 7335

CHROMIUM-MOLYBDENUM ALLOY STEEL

SIQUAL 7335 is a chromium-molybdenum alloy steel primarily intended for welded boilers and pressure vessels designed for elevated temperature service.

STANDARDS

SIQUAL 7335 is designated as 13CrMo4-5 according to EN EN 10028-2, W.Nr. 1.7335 and SA 387 GR 12 CL 2 according to ASME/ASTM and conforms to the following standards:

- EN 10028-2: Non-alloy and alloy steels with specified elevated temperature properties
- ASME SA 387/SA 387M BPVC.II.A-2019: Pressure Vessel Plates, Alloy Steel, Chromium-Molybdenum
- ASTM A 387/A387M: 2011/2017: Standard Specification for Pressure Vessel Plates, Alloy Steel, Chromium-Molybdenum

CHEMICAL COMPOSITION

	C	Si	Mn	P	S	Al tot.	N	Cr	Cu	Mo	Nb	Ni	Ti	V
EN 10028-2 and EN 10020	0.08	-	0.40	-	-	-	-	0.70	-	0.40	-	-	-	-
	0.18	0.35	1.00	0.025	0.010	0.30	0.012	1.15	0.30	0.60	0.06	0.30	0.05	0.10
ASTM A/ASME SA 387 GR 12 and (S)A 20	0.05	0.15	0.40	-	-	0.020	-	0.80	-	0.45	-	-	-	-
	0.17	0.40	0.65	0.035	0.035	-	-	1.15	0.40	0.60	0.02	0.40	-	0.03

MECHANICAL PROPERTIES

According to EN 10028-2

Delivery condition	Tensile properties	
	Thickness [mm]	R _{el} (R _{p0.2}) [MPa]
NT (normalized + tempered)	≤ 16	min. 300
	16.01–60	min. 290
	60.01–100	min. 270

Delivery condition	Tensile properties	
	Thickness [mm]	R _m [MPa]
NT (normalized + tempered) / QT (quenched + tempered)	≤ 60	450–600
	60.01–100	440–590

Delivery condition	Impact toughness			
	Testing direction	Thickness [mm]	Temperature [°C]	KV ₂ [J]
NT (normalized + tempered) / QT (quenched + tempered)	transverse*	≤ 60 mm	20	min. 31
		> 60 mm	20	min. 27

*In the case of nominal thickness greater than 40 mm, the impact test piece shall be taken at quarter of the product thickness.

According to ASME SA 387 Grade 12 Class 2

Delivery condition	Tensile properties		
	R _{eL} (R _{p0.2}) [MPa]	R _m [MPa]	A ₅ [%]
NT (normalized + tempered) / QT (quenched + tempered)	min. 275	450–585	min. 22

DIMENSIONS

Hot-rolled quarto plates	
Thickness [mm]	8–*
Width [mm]	1000–2500*
Length [mm]	up to 12000

*Max. thickness shall be discussed at the time of inquiry.

*Max. width for primed quarto plates is 2000 mm.

TOLERANCES ON DIMENSIONS

- EN 10029
- ASTM A/ASME SA 20

SURFACE CONDITION

- EN 10163-2
- ASTM A/ASME SA 20

DELIVERY CONDITION

Hot-rolled quarto plates	
normalized + tempered + shot-blasted	normalized + tempered + shot-blasted + primed

INSPECTION DOCUMENTS

The type of document shall be agreed upon at the time of enquiry and order. A test certificate according to EN 10204/3.1 is issued mandatorily.

The information and data in this product data sheet are intended for informative purpose only and may be revised at any time without notice. Presented typical properties of the materials are described only to help readers make their own evaluations and decisions. They are not guaranteed.