

Corrodur® 4418 Mod

The special steel for the oil
and gas industry



Deutsche
Edelstahlwerke

Corrodur[®] 4418 Mod

Chemical composition in weight-%

	C	Cr	Ni	Mo	Mn	Si	P	S	Ti	V
Min	-	11.5	4.5	1.5	-	-	-	-	0.01	-
Max	0.03	13.5	6.5	3.0	0.5	0.5	0.02	0.005	0.5	0.5

Additional designations: Super 13Cr, UNS S41426

Application: Completion tools

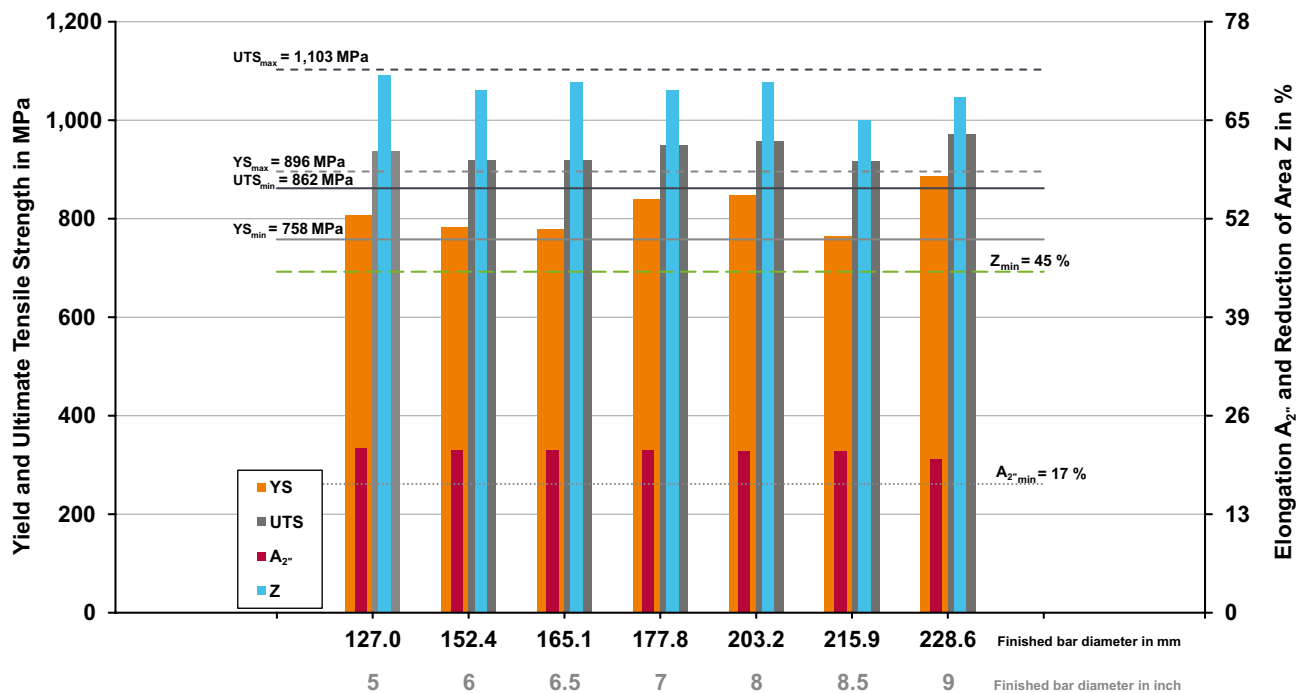
Properties: high strength, excellent toughness, good resistance to pitting and stress corrosion cracking

Qualification: according NACE MR0175 Annex B 2.3. and NORSOK M-650

Delivery conditions: Ø 50 - 311,15 mm (2 - 12 1/4 in), l = 3 - 12 m (10 - 40 ft) in rolled or forged and peeled condition

Other dimensions outside the scope of qualification upon request

Mechanical properties depending on final diameter



Mechanical properties relevant for approval

	Temperature in °C (°F)	Specimen orientation	655 MPa (95 ksi)	758 MPa (110 ksi) (rolled)	758 MPa (110 ksi) (forged)
Yield strength $R_{p0.2}$ in MPa (ksi)	20 (70)	longitudinal	655 - 758 (95 - 110)	758 - 896 (110 - 130)	
Tensile strength R_m in MPa (ksi)			724 - 964 (105 - 140)	862 - 1,103 (125 - 160)	
Elongation $A_{2\%}$ in %			≥ 19	≥ 17	
Reduction of area Z in %			≥ 50	≥ 45	
Notch impact energy (Charpy-V) in J (ft-lbs)	-10 (14)		≥ 108 (80)	≥ 81 (60)	≥ 68 (50)
Hardness in BHN (HRC)			≤ 300 (27)	≤ 310 (32)	
Reduction ratio			≥ 3.5:1		≥ 4:1

Other mechanical properties*

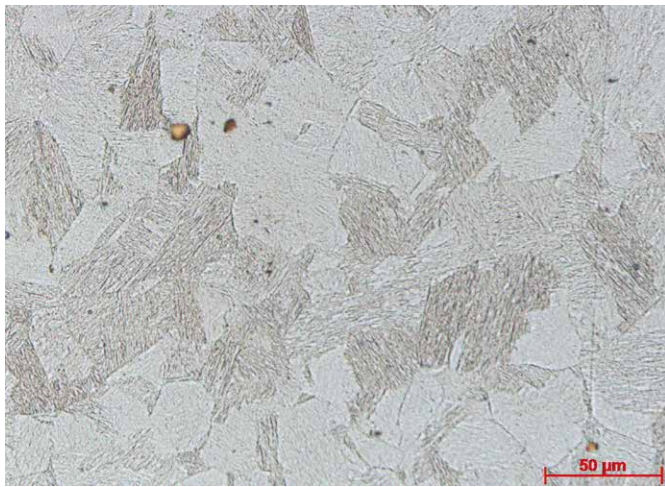
	Temperature in °C (°F)	Specimen orientation	655 MPa (95 ksi)	758 MPa (110 ksi) (rolled)
Yield strength $R_{p0.2}$ in MPa (ksi)	20 (70)	transversal	≥ 586 (85)	≥ 758 (110)
Tensile strength R_m in MPa (ksi)			≥ 758 (110)	≥ 897 (130)
Yield strength $R_{p0.2}$ in MPa (ksi)	200 (392)	longitudinal /transversal	≥ 586 (85)	≥ 689 (100)
Tensile strength R_m in MPa (ksi)			≥ 621 (90)	≥ 793 (115)
Yield strength $R_{p0.2}$ in MPa (ksi)	300 (572)	longitudinal /transversal	≥ 517 (75)	≥ 655 (95)
Tensile strength R_m in MPa (ksi)			≥ 586 (85)	≥ 758 (110)
Notch impact energy (Charpy-V) in J (ft-lbs)	-10	transversal	≥ 81 (60)	≥ 61 (45)
	≥ -60 (-76)	longitudinal	≥ 95 (70)	≥ 34 (25)
	< -60 (-76)		≥ 41 (30)	≥ 7 (5)

*for information purposes only

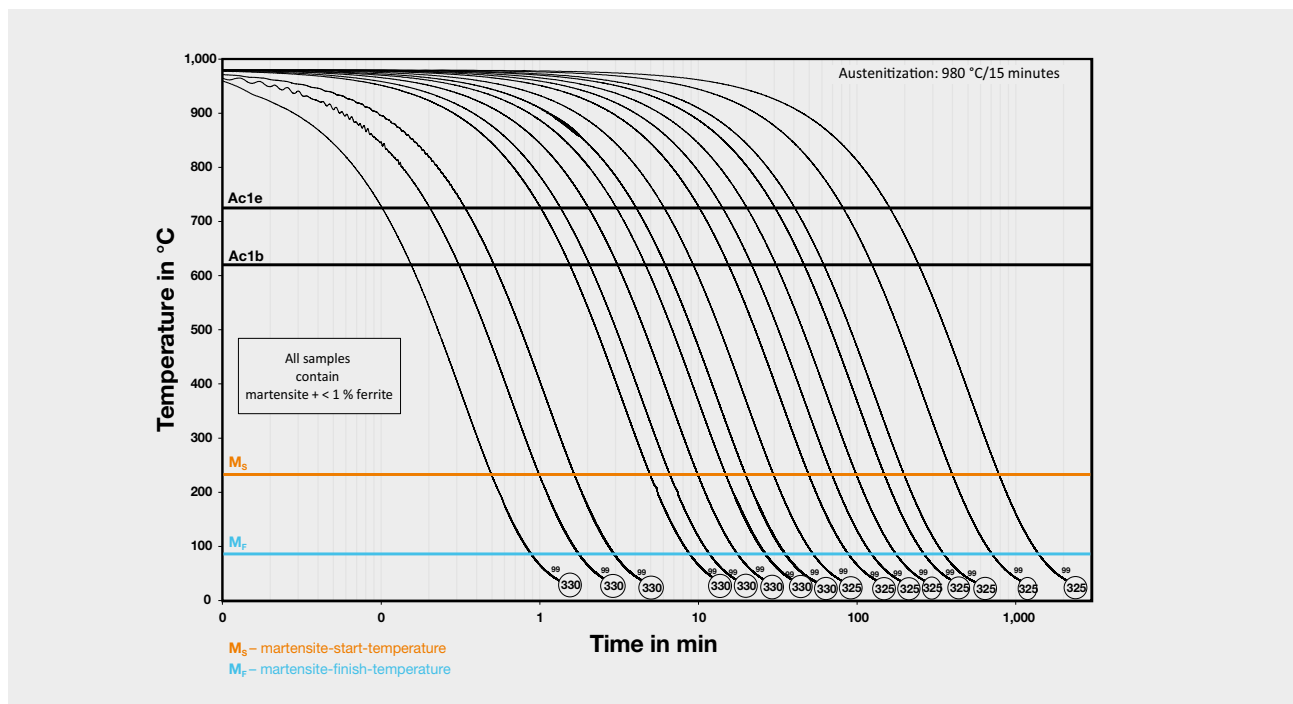
Corrosion properties

No signs of intergranular corrosion acc. to ASTM A 262 Prac. A (left) and Prac. E (right). The Oxalic Acid Etch Test carried out acc. for Prac. A showed no step, ditch or dual structure.

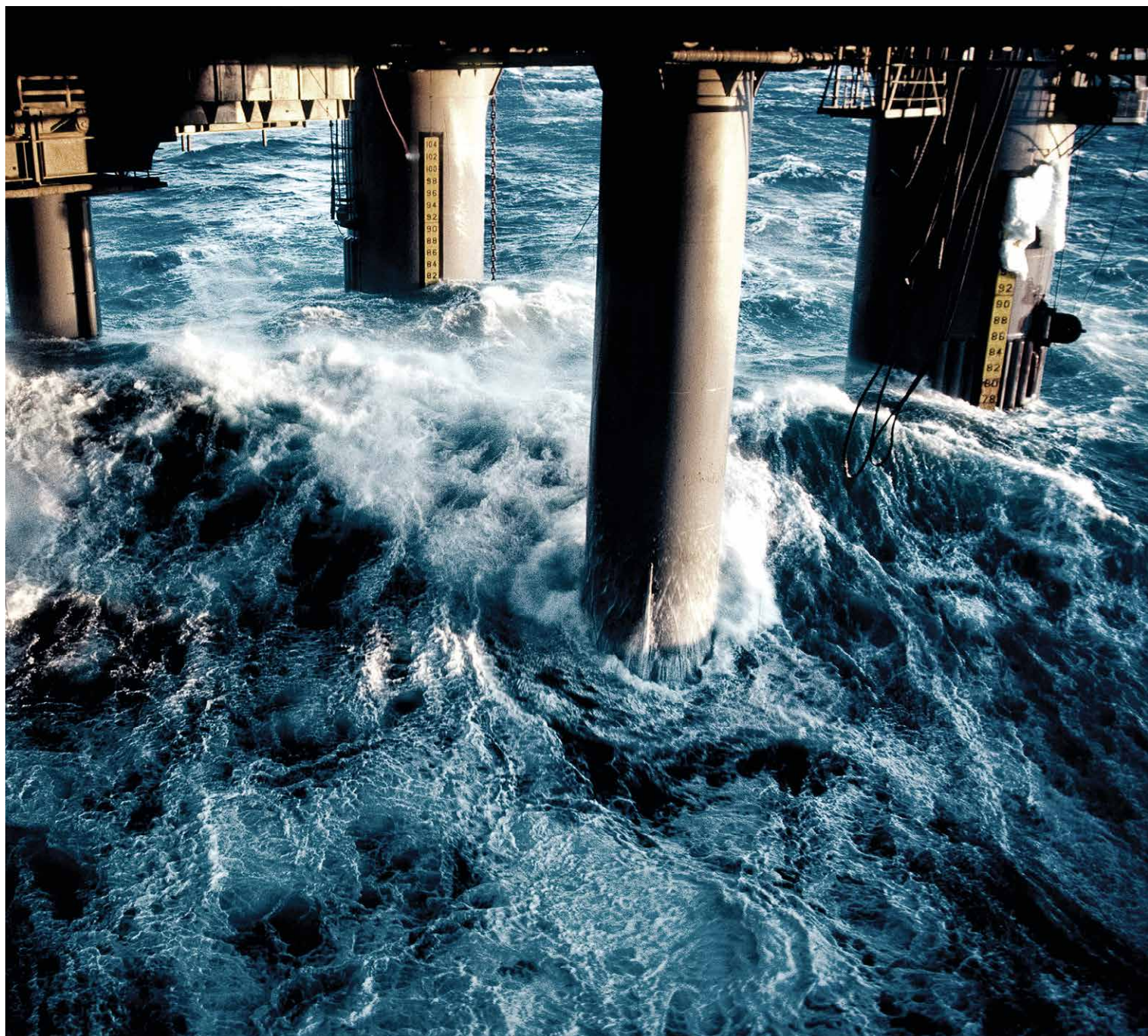
Material for Prac. E was sensitized at 675 °C, kept in boiling, acidified CuSO₄ for 15 h and then bent to 180°. No cracks were visible on the bent area.



Continuous Time-Temperature-Transformation diagram



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General note (liability)

Not liable for printing errors, omissions and/or changes. All statements regarding the properties and/or utilization of the materials or products mentioned are for purpose of description only. Product specific data sheet have priority over the information provided in this brochure. The desired performance characteristics are binding only if exclusively agreed upon in writing at the conclusion of the contract.



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