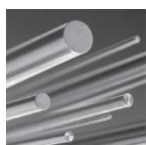


Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.4418
Description	X4CrNiMo16-5-1
BS	1.4418
AISI/SAE	S 165 M
Search for alternatives in the ABRAMS STEEL GUIDE*	www.steel-guide.co.uk/alternatives/1.4418

Specifications



Precision round steel with machining allowance [PRS/BA]
 peeled / rough-turned
 L: 500 mm
 L: 1.000 mm

Chemical composition BS 1.4418 (reference value %)

C	Si	Mn	P	S	Cr	Mo	Ni	N
0 - 0,06	0 - 0,7	0 - 1,5	0 - 0,04	0 - 0,03	15,0 - 17,0	0,8 - 1,5	4,0 - 6,0	≥ 0,02

Physical properties

Hardness (delivery condition)	max. 323 HB, tempered			
Tensile strength R _m (as received condition)	ca. 1095 N/mm ²			
Working hardness	max. 39 HRC			
Thermal expansion coefficient 10 ⁻⁶ m/(m • K)	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	10,3	10,8	11,2	11,6
Thermal conductivity W/(m • K)	20°C			
	15,0			

Technical properties

Stainless, martensitic steel (tempered condition). Excellent combination of high strength, good toughness and a very good corrosion resistance in aggressive substances (acids). The material is polishable, has good weldability and is suitable to use at temperatures from -30 °C up to 300 °C.

Applications

Automotive industry, chemical industry, aviation and aerospace industry, mechanical engineering, plant engineering, ship building industry, shafts, axes, environmental engineering, centrifuge and pump components, energy technique, onshore and offshore.

Heat treatment

Soft annealing	Temperature	Cooling
	600 - 650°C	Furnace, air
Hardening	Temperature	Cooling
	950 - 1050 C	Polymer, oil, air

ABRAMS PREMIUM STEEL

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 Abrams Engineering Services GmbH & Co. KG
 Hannoversche Str. 38 · 49084 Osnabrueck / Germany
 Managing Director: Dipl.-Wi.-Ing. Dr. Juergen Abrams

Amtsgericht Osnabrueck / Germany, HRA 6865
 VAT-No.: DE 221940667
 General Partner: Abrams Engineering Verwaltungs GmbH
 Amtsgericht Osnabrueck / Germany, HRB 20019

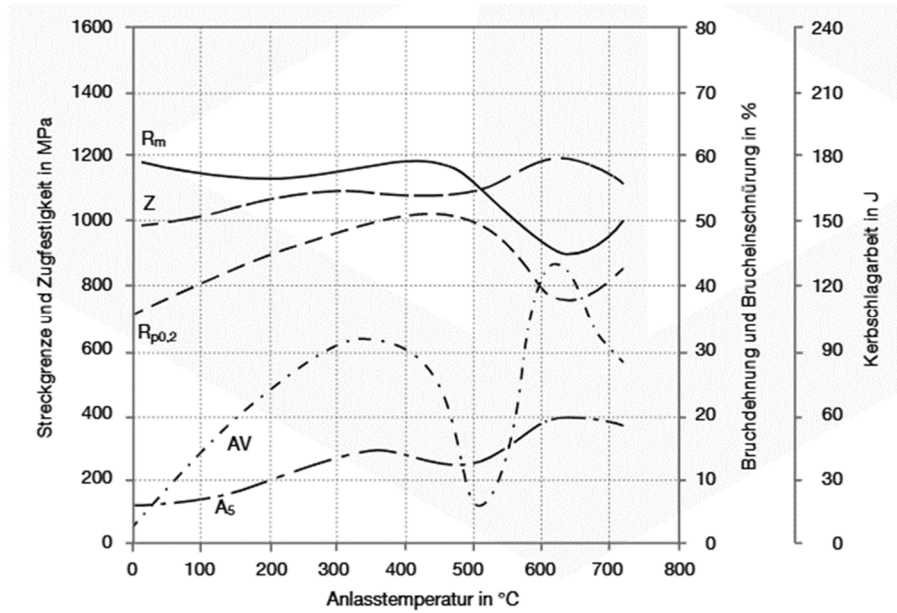
T: +44 (0) 121 368 0910
 F: +44 (0) 121 368 0911
 E: sales@premium-steel.co.uk

www.premium-steel.co.uk
www.steel-guide.co.uk
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Hardening and tempering diagram



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