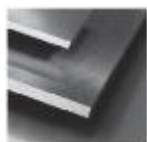


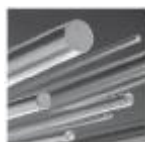
Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.2316
Description	X38CrMo16
AISI/SAE	1.2316
Search for alternatives in the ABRAMS STEEL GUIDE®	www.steel-guide.eu/alternatives/1.2316

Specifications



€co-Präz® [€co]
L: 300 mm
L: 500 mm



Precision round steel
without machining allowance [PRS]
bright drawn / ground, ISO h9
L: 1.000 mm
with machining allowance [PRS/BA]
peeled / rough-turned
L: 500 mm
L: 1.000 mm

Chemical composition AISI/SAE 1.2316 (reference value %)

C	Si	Mn	P	S	Cr	Mo	Ni
0,33 - 0,45	0 - 1,0	0 - 1,5	0 - 0,03	0 - 0,03	15,5 - 17,5	0,8 - 1,3	0 - 1,0

Physical properties

Hardness (delivery condition)	max. 325 HB, tempered						
Tensile strength R _m (as received condition)	approx. 1.100 N/mm ²						
Working hardness	max. 48 HRC						
Thermal expansion coefficient 10 ⁻⁶ m/(m • K)	20 - 100°C	20 - 200°C	20 - 300°C	20 - 350°C	20 - 400°C	20 - 450°C	20 - 500°C
	10,5	10,8	11,1	11,3	11,5	11,6	11,7
Thermal conductivity W/(m • K)	23°C	150°C	300°C	350°C	400°C	500°C	
	23,5	24,2	24,3	24,4	24,1	23,2	

Technical properties

Tempered, corrosion resistant, polishable chromium steel. Heat and resistant to wear. Often used for tools for processing chemically aggressive plastic materials (e.g. PVC).

Applications

Machine construction, marine engineering, apparatus engineering, plastic processing, plastic moulds, extrusion tools, press moulds, fitting tools, shafts, spindles, bolts, pistons, valves, steam valves, water valves, beater bars, fittings parts, pump construction, pump rods, compressor construction, compressor parts, surgical instruments.

Heat treatment

	Temperature	Cooling	Hardness
Soft annealing	760 - 800°C	Furnace	max. 325 HB
	Temperature	Cooling	
Stress relief annealing	600 - 650°C	Furnace	
	Temperature	Quenching in	Hardness after quenching
Hardening	1020 - 1050°C	Oil, hot basin (500 - 550°C)	49 HRC
Tempering	100°C	200°C	300°C
	49 HRC	47 HRC	46 HRC
	400°C	500°C	600°C
	46 HRC	47 HRC	32 HRC

ABRAMS PREMIUM STEEL

is a registered trademark of
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

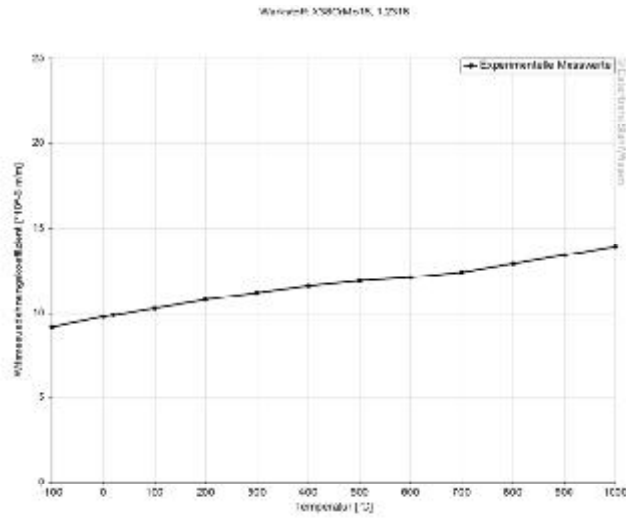
T: +49 (0) 5 41/3 57 39-0
F: +49 (0) 5 41/3 57 39-39

sales@premium-steel.eu
www.premium-steel.eu
www.shop.premium-steel.eu
www.steel-guide.eu

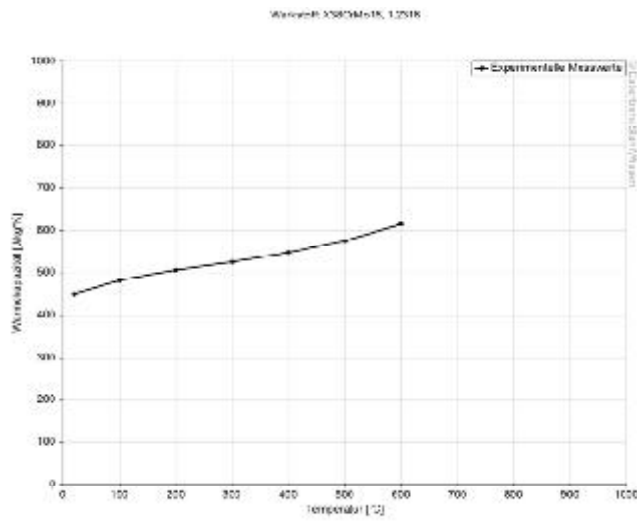
www.premium-steel.eu/news



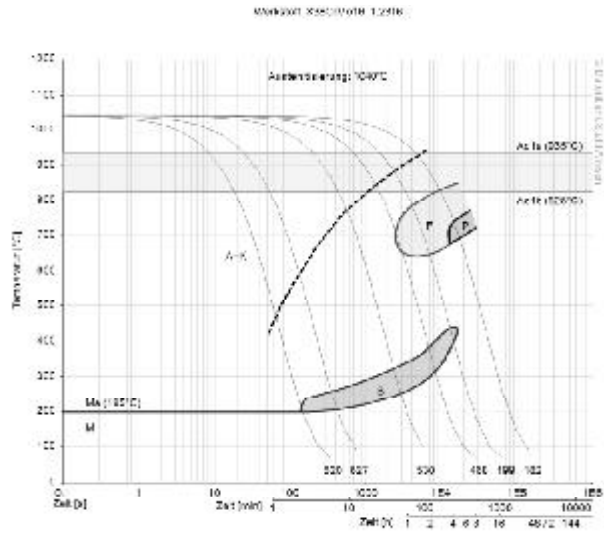
Thermal expansion coefficient diagram



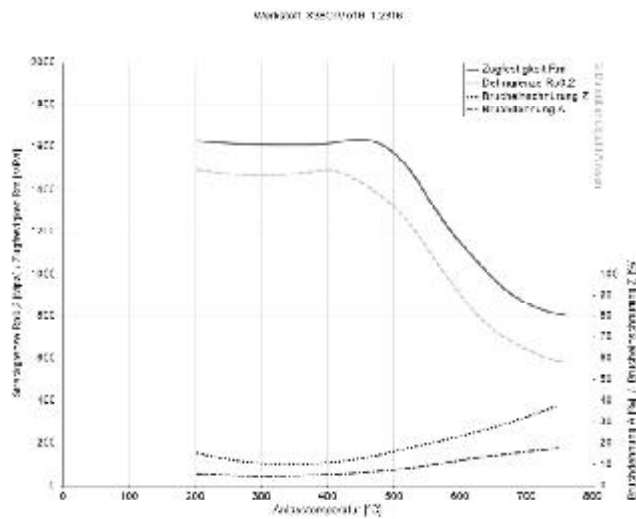
Thermal capacity diagram



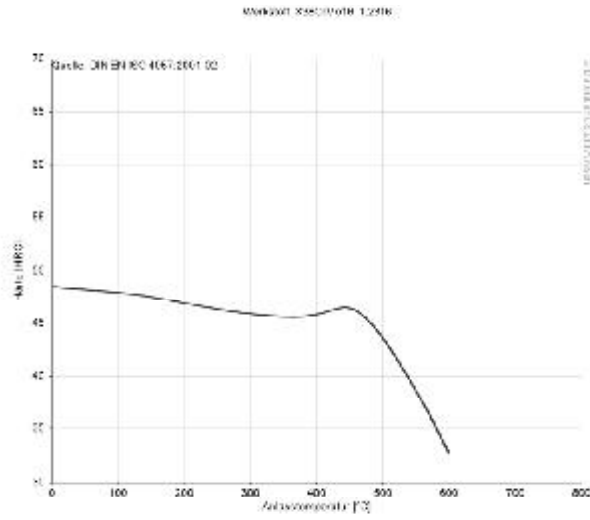
Continuous ZTU-diagram



Hardening and tempering diagram



Tempering diagram



The data shown here is to be used only as an indication of the statistics, thus we accept no liability.
Diagrams are taken from Datenbank StahlWissen Dr. Sommer Werkstofftechnik
Issued: 2012

ABRAMS PREMIUM STEEL

is a registered trademark of
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: +49 (0) 5 41/3 57 39-0
F: +49 (0) 5 41/3 57 39-39

sales@premium-steel.eu
www.premium-steel.eu
www.shop.premium-steel.eu
www.steel-guide.eu

www.premium-steel.eu/news

