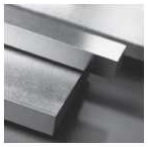
Steel grade

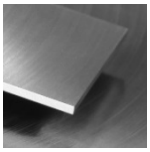
Material No. / Werkstoff-Nr.	PREMIUM 1.2379
Description	X153CrMoV12
BS	BD 2
AISI/SAE	D2; T30402
Search for alternatives in the ABRAMS STEEL GUIDE®	**www.steel-guide.co.uk/alternatives/BD2**

Specifications



Precision flat steel with machining allowance[PFS/BA]
L: 200 mm, 300 mm
L: 400 mm, 500 mm
L: 600 mm, 1,000 mm

€co-Präz® [€co]
L: 500 mm



Hart-Präz® [Hart]
L: 250 mm
L: 500 mm

Precision round steel without machining allowance [PRS]
bright ground, ISO h8
L: 1,000 mm

Precision round steel with machining allowance [PRS/BA]
peeled / rough-turned
L: 500 mm
L: 1,000 mm

Erosion block [EB]
annealed
hardened

Chemical composition BS BD 2 (reference value %)

C	Si	Mn	P	S	Cr	Mo	V
1.45 – 1.6	0.1 – 0.6	0.2 – 0.6	0 – 0.03	0 – 0.03	11.0 – 13.0	0.7 – 1.0	0.7 – 1.0

Physical properties

Hardness (delivery condition)	max. 255 HB, annealed (Erosion block annealed or hardened)			
Tensile strength R_m (as received condition)	approx. 860 N/mm²			
Working hardness	max. 62 HRC			
Thermal expansion coefficient 10^{-6}m/(m • K)	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	10.5	11.5	11.9	12.2
Thermal conductivity W/(m • K)	20°C	350°C	700°C	
	16.7	20.5	24.2	

Technical properties

Secondary-hardening, ledeburitic cold work steel, can be used for a wide range of applications. Low distortion, excellent wear resistance and good toughness. Temper-resistant, even at high hardening temperatures. In addition it can be nitrated without any reduction in hardness – even for cold work steel.

Applications

Blanking tools, precision cutting tools, dies, punches, thread rolling dies, broaches, milling cutters, press tools, shear knives, deep drawing dies, cold rollings, measuring tools, woodworking tools, cold pilger mandrels, plastic moulds.

Divisions of
ABRAMS Industries GmbH & Co. KG
Hannoversche Str. 38 / 46
49084 Osnabrück
Germany

County court Osnabrück / Germany, HRA 6865
General Partner: ABRAMS Industries Verwaltungs GmbH
County court Osnabrück / Germany, HRB 20019
Managing Director: Dipl.-Wi.-Ing. Dr. Jürgen Abrams
VAT-No.: DE221940667

T: +44 (0) 121 368 0910
sales@abrams-industries.co.uk
www.abrams-industries.co.uk
www.abrams-industries.co.uk/shop

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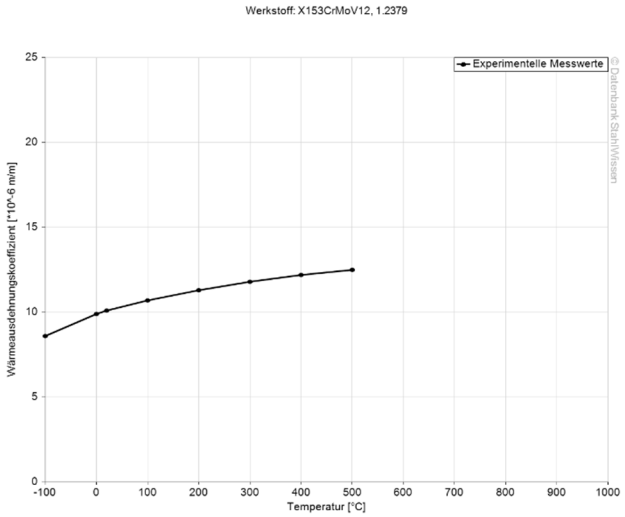
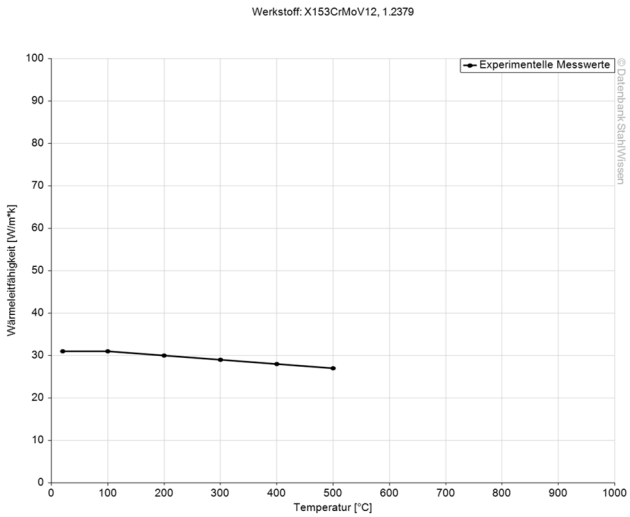
Heat treatment

Soft annealing	**Temperature**		**Cooling**		**Hardness**			
	830 - 860°C		Furnace		max. 255 HB			
Stress relief annealing	**Temperature**		**Cooling**					
	650 - 700°C		Furnace					
Hardening	**Temperature**		**Quenching in**		**Hardness after quenching**			
	1000 - 1050°C		Air, oil, hot basin (500 - 550°C)		63 HRC			
Tempering	100°C	200°C	300°C	400°C	500°C	525°C	550°C	600°C
	63 HRC	61 HRC	58 HRC	58 HRC	58 HRC	60 HRC	56 HRC	50 HRC

Thermal expansion coefficient diagram



Thermal conductivity diagram



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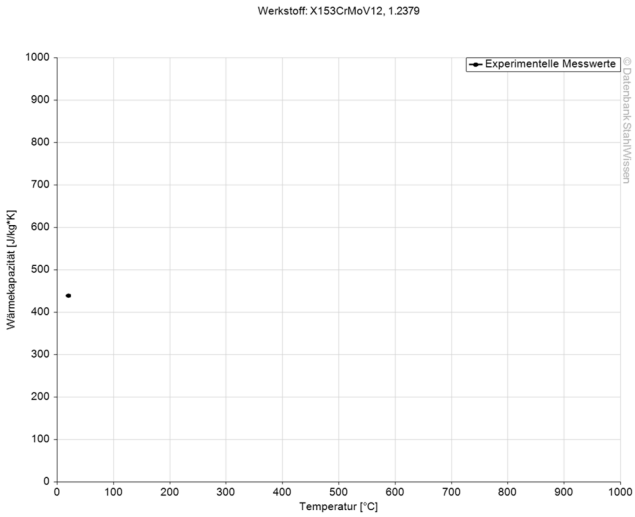
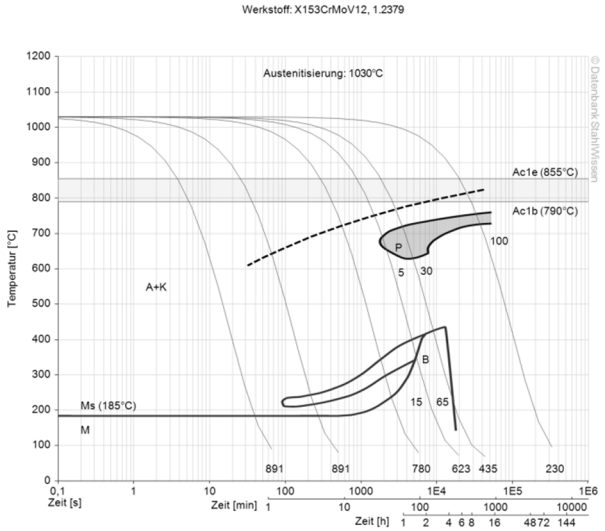
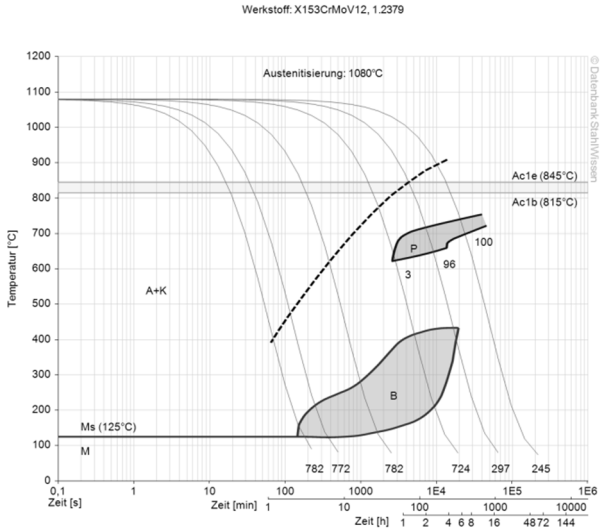
Thermal capacity diagram



Continuous ZTU-diagrams





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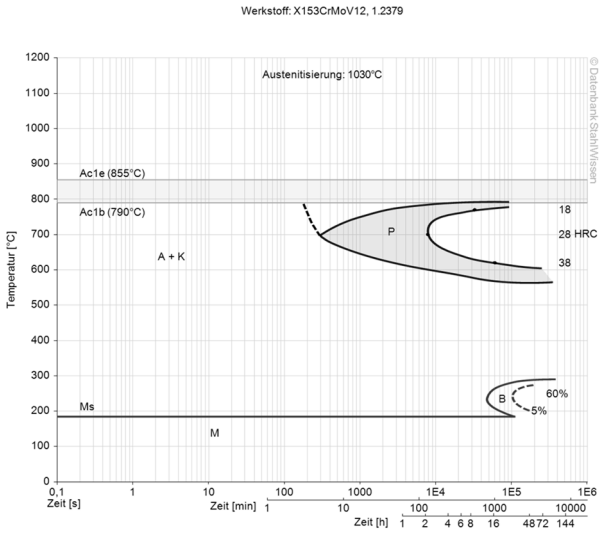
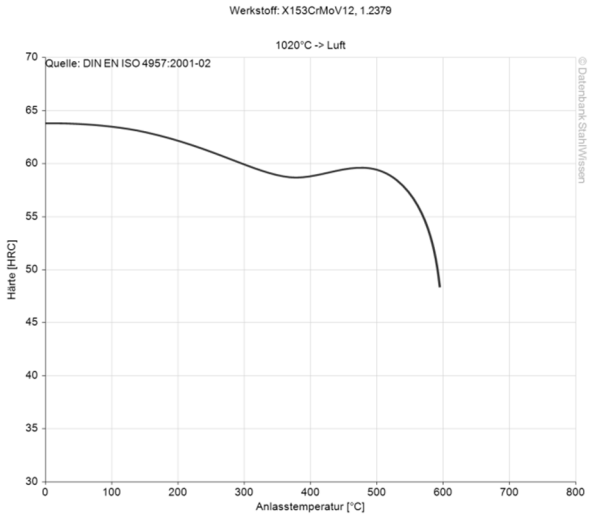
Isothermical ZTU-diagram



Tempering diagram



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