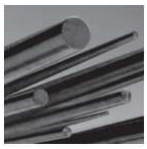
Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.8519
Description	31CrMoV9
AISI/SAE	1.8519
Search for alternatives in the ABRAMS STEEL GUIDE®	**www.steel-guide.eu/alternatives/1.8519**

Specifications



Round steel [RS]
black
L: 500 mm
L: 1.000 mm

Chemical composition AISI/SAE 1.8519 (reference value %)

C	Si	Mn	P	S	Cr	Mo	V
0,27 - 0,34	0 - 0,4	0,4 - 0,7	0 - 0,025	0 - 0,035	2,3 - 2,7	0,15 - 0,25	0,10 - 0,25

Physical properties

Hardness (delivery condition)	max. 352 HB, tempered			
Tensile strength R_m (as received condition)	approx. 1100 N/mm²			
Working hardness	max. 64 HRC (nitiring hardness)			
Thermal expansion coefficient 10^{-6}m/(m • K)	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	12,1	12,7	13,2	13,6
Thermal conductivity W/(m • K)	20°C			
	25,7			

Technical properties

CrMoV alloyed nitriding steel (tempered condition), which is used for automotive engineering and propulsion techniques due to its high wear resistance.

Applications

Automotive industry, drive technology, mechanical engineering, valve construction, plant engineering, engine and piston construction.

Heat treatment

Soft annealing	**Temperature**	**Cooling**	**Hardness**
	680 - 720°C	Furnace	max. 248 HB
Annealing	**Temperature**	**Cooling**	
	870 - 900°C	Air	
Hardening	**Temperature**	**Quenching in**	
	840 - 880°C	Oil, water	

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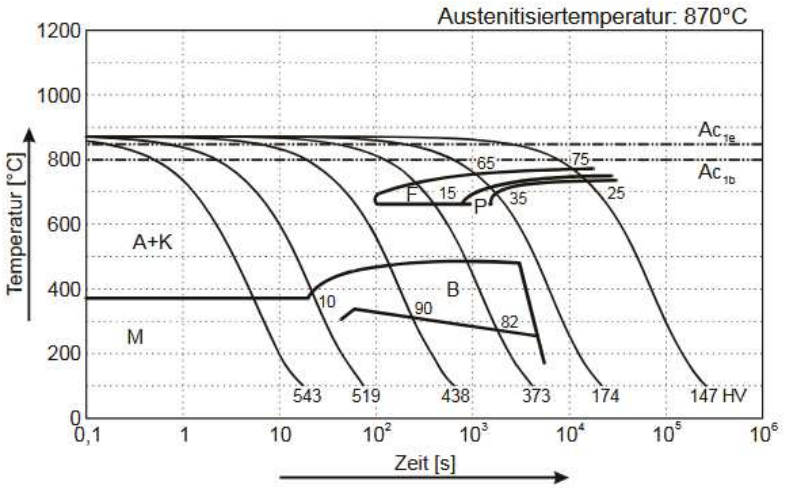
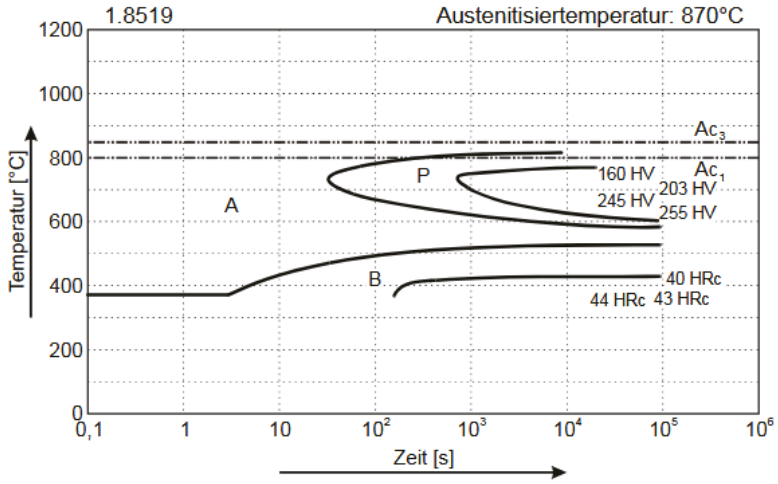
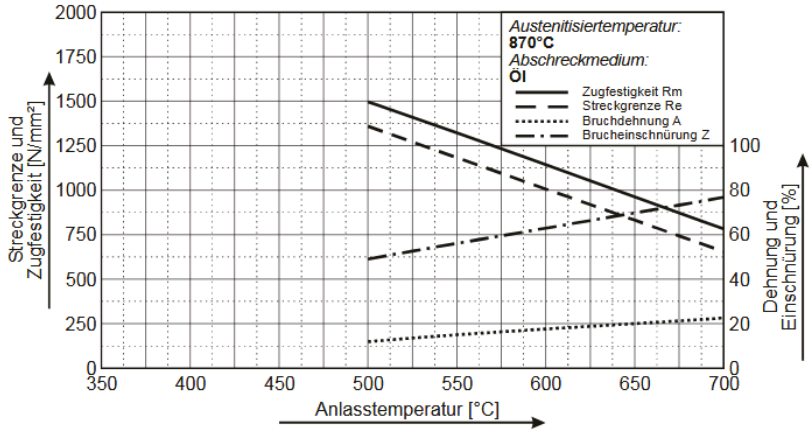
Continuous ZTU-diagram



Isothermical ZTU-diagram



Tempering diagram



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