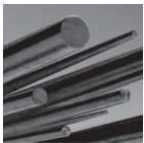


## Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.8519
Description	31CrMoV9
BS	1.8519
AISI/SAE	1.8519
Search for alternatives in the ABRAMS STEEL GUIDE®	<a href="http://www.steel-guide.co.uk/alternatives/1.8519">www.steel-guide.co.uk/alternatives/1.8519</a>

## Specifications



**Round steel [RS]**  
black  
L: 500 mm  
L: 1,000 mm

## Chemical composition BS 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/mm <sup>2</sup>			
Working hardness	max. 64 HRC (nitriding hardness)			
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	12.1	12.7	13.2	13.6
Thermal conductivity $W/(m \cdot K)$	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

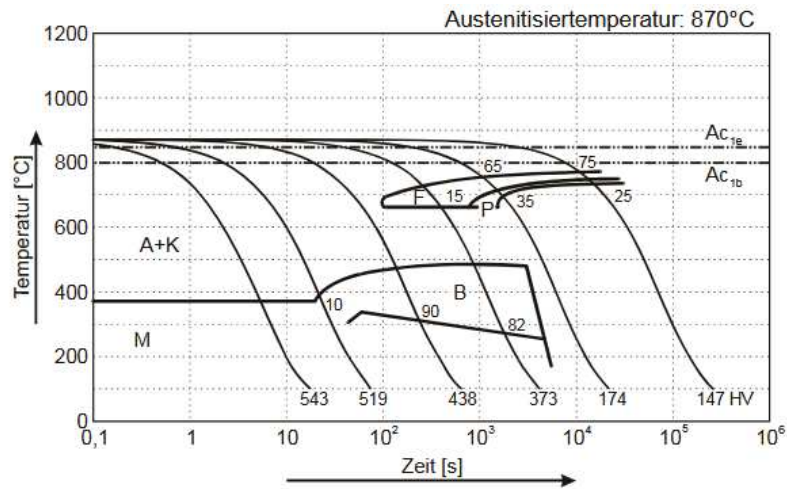
Automotive industry, drive technology, mechanical engineering, valve construction, plant engineering, engine and piston construction.

## Heat treatment

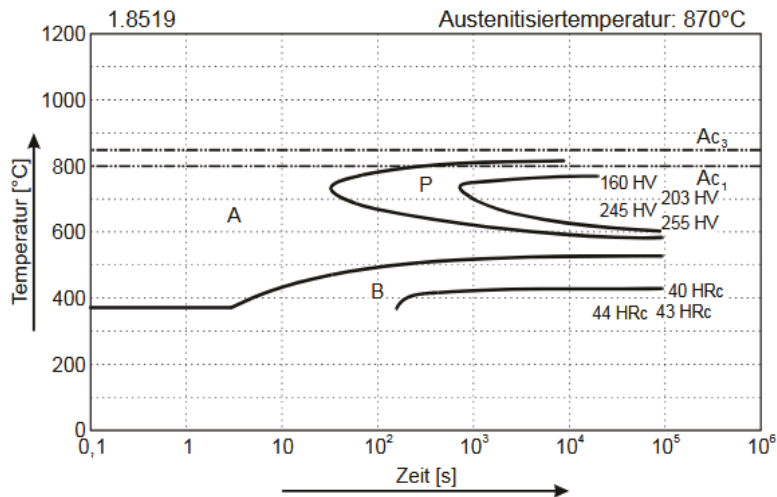
	Temperature	Cooling	Hardness
Soft annealing	680 - 720°C	Furnace	max. 248 HB
Annealing	Temperature	Cooling	
	870 - 900°C	Air	
Hardening	Temperature	Quenching in	
	840 - 880°C	Oil, water	



### Continuous ZTU-diagram



### Isothermal ZTU-diagram



### Tempering diagram

