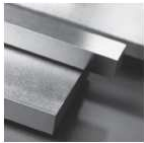


Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.2767
Description	45NiCrMo16
BS	1.2767
AISI/SAE	6F7
Search for alternatives in the ABRAMS STEEL GUIDE®	www.steel-guide.co.uk/alternatives/1.2767

Specifications



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

Chemical composition BS 1.2767 (reference value %)

C	Si	Mn	P	S	Cr	Mo	Ni
0.4 – 0.5	0.1 – 0.4	0.2 – 0.5	0 – 0.03	0 – 0.03	1.2 – 1.5	0.15 – 0.35	3.8 – 4.3

Physical properties

Hardness (delivery condition)	max. 260 HB, annealed						
Tensile strength R_m (as received condition)	approx. 880 N/mm ²						
Working hardness	max. 54 HRC						
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	20 - 100°C	20 - 200°C	20 - 300°C	20 - 350°C	20 - 400°C	20 - 450°C	20 - 500°C
	11.3	11.9	12.5	12.2	12.0	12.1	12.4
Thermal conductivity $W/(m \cdot K)$	23°C	150°C	300°C	350°C	400°C	500°C	
	31.0	34.0	33.9	34.1	33.2	31.2	

Technical properties

Steel grade with focus on cold work, high toughness (nickel content), good through-hardening (even for large cross-sections), as well as high impact strength and pressure resistance. Polishable, etchable and erodible. For very special purity and homogeneity we recommend BS 1.2767 ESR.

Applications

Cutting tools, cutlery punches, embossing tools, bending tools, cold hobbing tools, pressure bars, billet shear knives, cold shear knives, plastic moulds, hot press tools, light metal processing, heavy metal processing, drawing jaws, reinforcements.

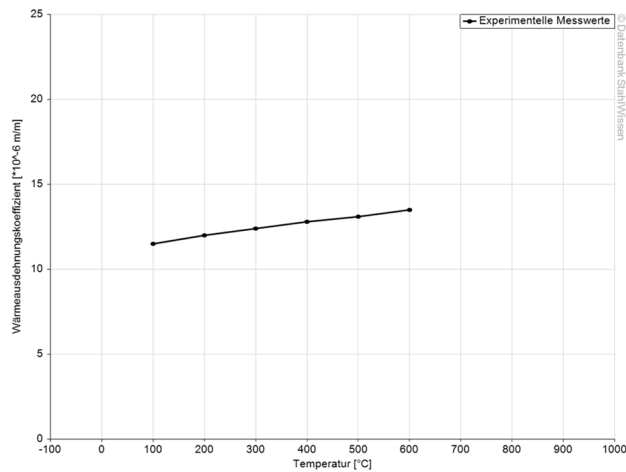


Heat treatment

	Temperature	Cooling	Hardness			
Soft annealing	610 - 650°C	Furnace	max. 260 HB			
	Temperature	Cooling				
Stress relief annealing	approx. 600 - 650°C	Furnace				
	Temperature	Quenching in	Hardness after quenching			
Hardening	840 - 870°C	Air, oil, hot basin (180 - 220°C)	56 HRC			
	100°C	200°C	300°C	400°C	500°C	600°C
Tempering	56 HRC	54 HRC	50 HRC	46 HRC	42 HRC	38 HRC

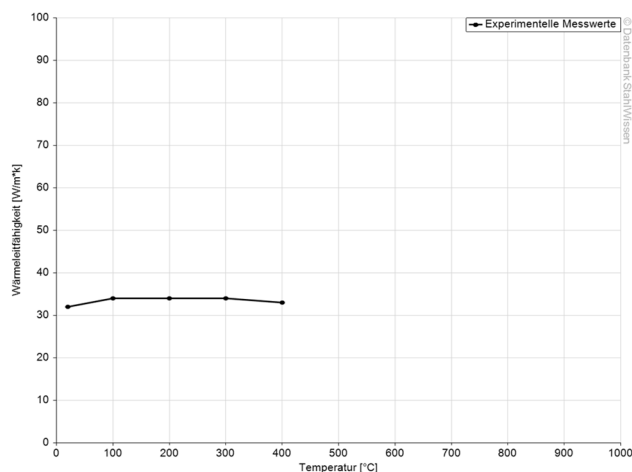
Thermal expansion coefficient diagram

Werkstoff: 45NiCrMo16, 1.2767



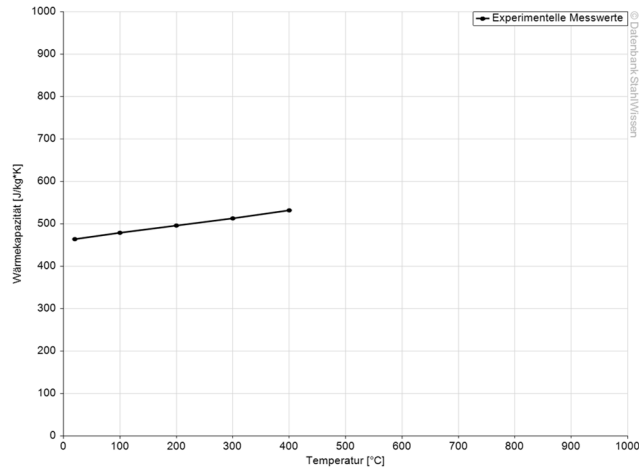
Thermal conductivity diagram

Werkstoff: 45NiCrMo16, 1.2767



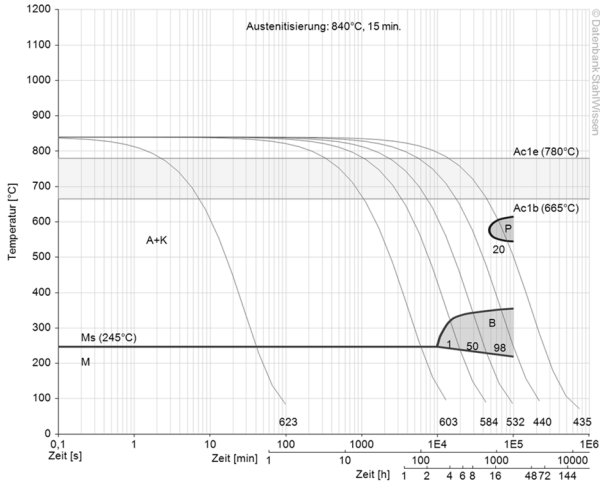
Thermal capacity diagram

Werkstoff: 45NiCrMo16, 1.2767

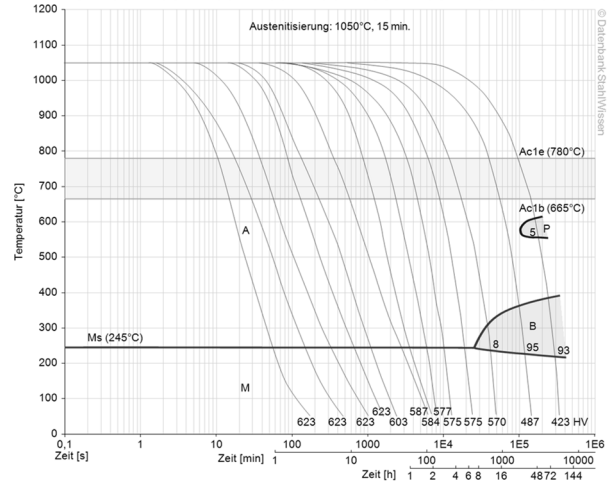


Continuous ZTU-diagrams

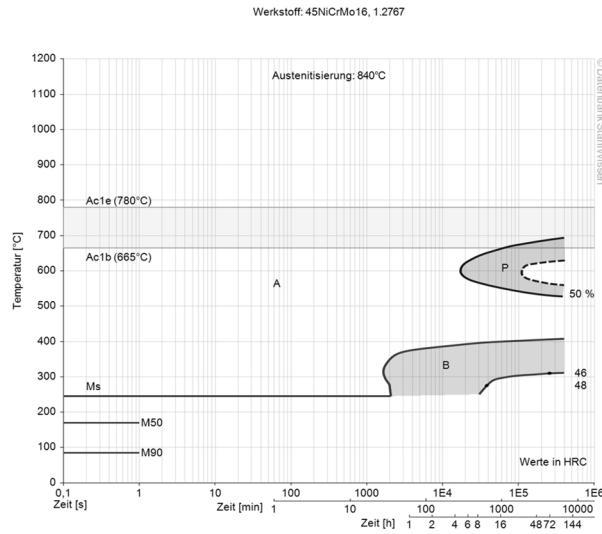
Werkstoff: 45NiCrMo16, 1.2767
Schmelzanalyse:
0,45% C; 0,20% Si; 0,40% Mn; 1,30% Cr; 0,30% Mo; 4,00% Ni



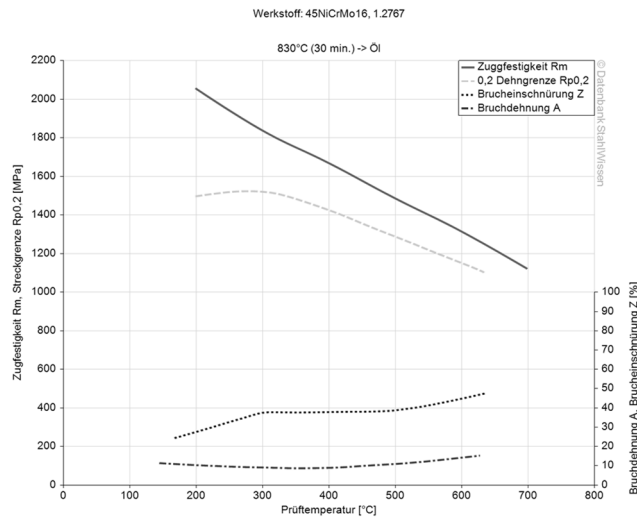
Werkstoff: 45NiCrMo16, 1.2767
Schmelzanalyse:
0,42% C; 0,39% Si; 0,38% Mn; 0,017% P; 0,010% S; 1,61% Cr; 0,23% Mo; 4,40% Ni; 0,060% V; 0,018% Al



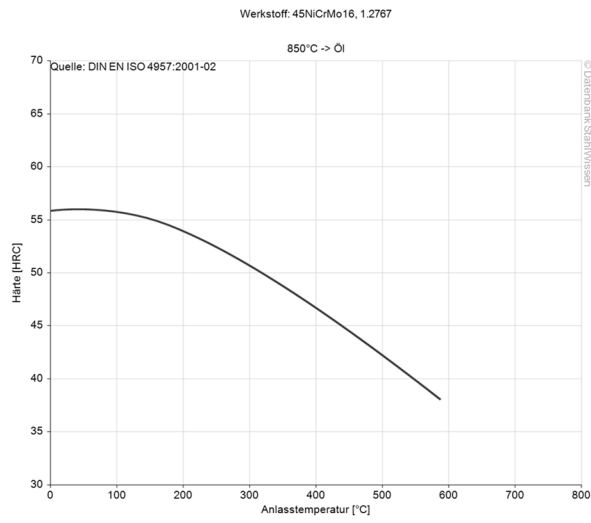
Isothermalal ZTU-diagram



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

