

Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.4057
Description	X17CrNi16-2
AISI/SAE	431
Search for alternatives in the ABRAMS STEEL GUIDE®	www.steel-guide.eu/alternatives/431

Specifications



€co-Präz® [€co]
L: 500 mm



Precision round steel
without machining
allowance [PRS]
bright drawn / ground, ISO h9
L: 1.000 mm

Chemical composition AISI/SAE 431 (reference value %)

C	Si	Mn	P	S	Cr	Ni
0,12 - 0,22	0 - 1,0	0 - 1,5	0 - 0,04	0 - 0,03	15,0 - 17,0	1,5 - 2,5

Physical properties

Hardness (delivery condition)	max. 331 HB, tempered			
Tensile strength R_m (as received condition)	approx. 1050 N/mm ²			
Working hardness	max. 47 HRC			
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	10,0	10,5	10,5	10,6
Thermal conductivity $W/(m \cdot K)$	20°C			
	25,0			

Technical properties

Martensitic chromium steel with high strength (tempered condition) and good corrosion resistance (added nickel). It is easy to weld and is conditionally acid resistant. The material has poor forgeability.

Applications

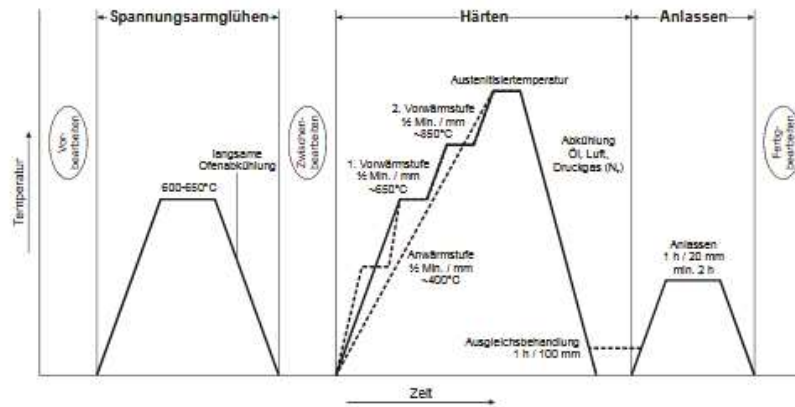
Mechanical engineering, automotive industry, oil and petrochemical industry, aviation, food industry, soap industry, acetic acid industry, shafts, pump parts, perforated plates, spindles, piston rods, valve cones, turbine blades.

Heat treatment

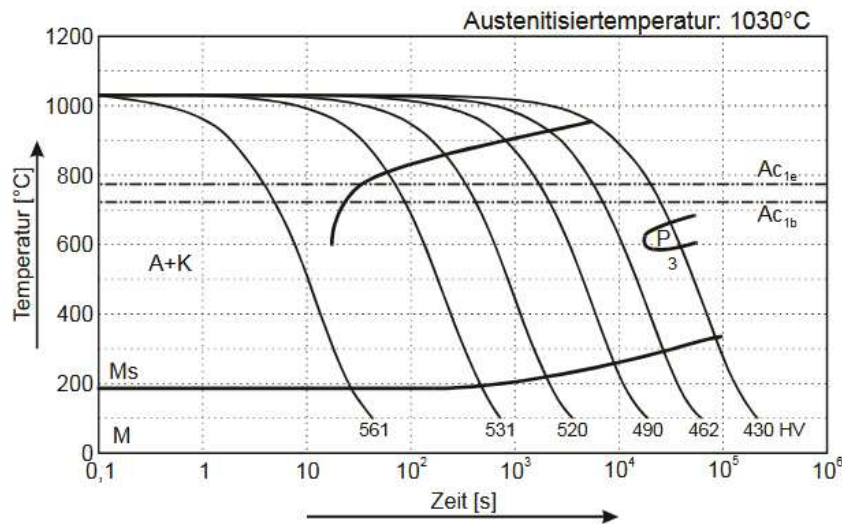
	Temperature	Cooling	Hardness
Soft annealing	680 - 800°C	Furnace, air	max. 295 HB
	Temperature	Quenching in	
Hardening	950 - 1050°C	Air, oil, compressed gas (N ₂)	



Heat treatment scheme



Continuous ZTU-diagram



Tempering diagram

