

## Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.4021
Description	X20Cr13
BS	420 S 29
AISI/SAE	~420
Search for alternatives in the ABRAMS STEEL GUIDE®	<a href="http://www.steel-guide.co.uk/alternatives/420S29">www.steel-guide.co.uk/alternatives/420S29</a>

## 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 BS 420 S 29 (reference value %)

C	Si	Mn	P	S	Cr
0.16 – 0.25	0 – 1.0	0 – 1.5	0 – 0.04	0 – 0.015	12.0 – 14.0

## Physical properties

Hardness (delivery condition)	max. 252 HB, tempered				
Tensile strength R <sub>m</sub> (as received condition)	approx. 850 N/mm <sup>2</sup>				
Working hardness	max. 47 HRC				
Thermal expansion coefficient 10 <sup>-6</sup> m/(m • K)	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C	
	10.5	11.0	11.5	12.0	
Thermal conductivity W/(m • K)	20°C				
	30.0				

## Technical properties

Martensitic chromium steel with good mechanical properties (tempered condition). With the ability to polish this material to a high gloss finish it is ideally suited as knife steel. Good forgeability, medium weldability and is conditionally acid resistant.

## Applications

Automotive industry, power engineering, turbine and power plant construction, medical technology, mechanical engineering, petrochemical industry, cutting tool industry, knives, fasteners, architecture and decoration.

## Heat treatment

Soft annealing	Temperature	Cooling	Hardness
	745 - 825°C	Furnace, air	max. 228 HB
Hardening	Temperature	Quenching in	
	950 - 1050°C	Air, oil, polymer	



Tempering diagram

