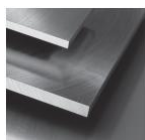


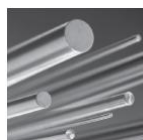
Steel grade

| | |
|--|--|
| Material No. / Werkstoff-Nr. | PREMIUM 1.4021 |
| Description | X20Cr13 |
| AISI/SAE | 420 |
| Search for alternatives in the ABRAMS STEEL GUIDE® | www.steel-guide.eu/alternatives/1.4021 |

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 420 (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_m (as received condition) | approx. 850 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 |
| | 10,5 | 11,0 | 11,5 | 12,0 |
| Thermal conductivity $W/(m \cdot K)$ | 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 | |

ABRAMS PREMIUM STEEL

is a registered trademark of
Abrams Engineering Services GmbH & Co. KG
Hannoversche Str. 38 · 49084 Osnabrueck / Germany
Managing Director: Dipl.-Wi.-Ing. Dr. Juergen Abrams

Amtsgericht Osnabrueck / Germany, HRA 6865
VAT-No.: DE 221940667
General Partner: Abrams Engineering Verwaltungs GmbH
Amtsgericht Osnabrueck / Germany, HRB 20019

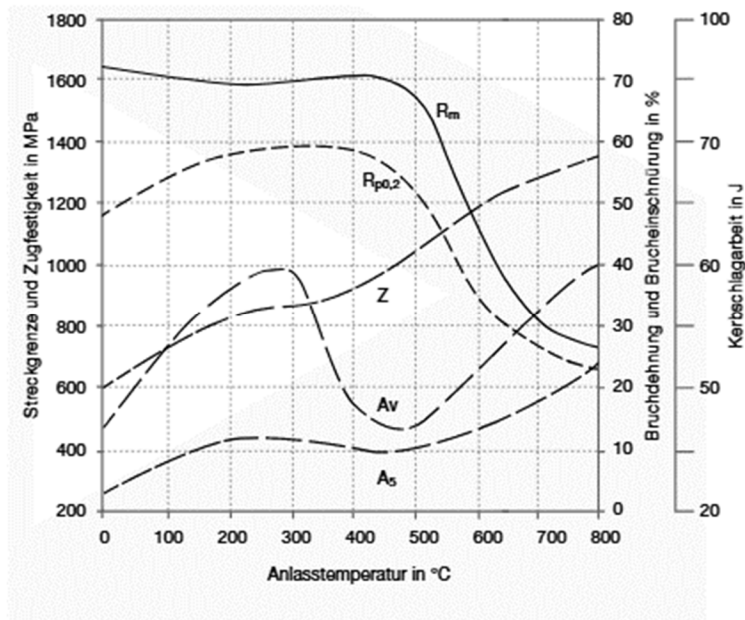
T: +49 (0) 5 41/3 57 39-0
F: +49 (0) 5 41/3 57 39-39

sales@premium-steel.eu
www.premium-steel.eu
www.shop.premium-steel.eu
www.steel-guide.eu

www.premium-steel.eu/news



Tempering diagram



ABRAMS PREMIUM STEEL

is a registered trademark of
 Abrams Engineering Services GmbH & Co. KG
 Hannoversche Str. 38 · 49084 Osnabrueck / Germany
 Managing Director: Dipl.-Wi.-Ing. Dr. Juergen Abrams

Amtsgericht Osnabrueck / Germany, HRA 6865
 VAT-No.: DE 221940667
 General Partner: Abrams Engineering Verwaltungs GmbH
 Amtsgericht Osnabrueck / Germany, HRB 20019

T: +49 (0) 5 41/3 57 39-0
 F: +49 (0) 5 41/3 57 39-39

sales@premium-steel.eu
 www.premium-steel.eu
 www.shop.premium-steel.eu
 www.steel-guide.eu

www.premium-steel.eu/news

