

Steel grade

| | |
|--|--|
| Material No. / Werkstoff-Nr. | PREMIUM 1.4034 |
| Description | X46Cr13 |
| AISI/SAE | 1.4034; 420C; S42000 |
| Search for alternatives in the ABRAMS STEEL GUIDE [®] | www.steel-guide.eu/alternatives/1.4034 |

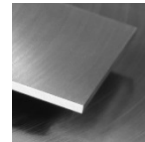
Specifications



Precision flat steel with machining allowance [PFS/BA]
L: 1.000 mm



€co-Präz[®] [€co]
L: 500 mm



Hart-Präz[®] [Hart]
L: 250 mm
L: 500 mm



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



Precision round steel with machining allowance [PRS/BA]
peeled / rough-turned
L: 500 mm
L: 1.000 mm

Chemical composition AISI/SAE 1.4034 (reference value %)

| C | Si | Mn | P | S | Cr |
|------------|---------|---------|----------|-----------|-------------|
| 0,43 - 0,5 | 0 - 1,0 | 0 - 1,0 | 0 - 0,04 | 0 - 0,015 | 12,5 - 14,5 |

Physical properties

| | | | | |
|--|-------------------------------|------------|------------|------------|
| Hardness (delivery condition) | max. 241 HB, annealed | | | |
| Tensile strength R_m (as received condition) | approx. 815 N/mm ² | | | |
| Working hardness | max. 55 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 | | | |

Technical properties

Corrosion resistant cold work and plastic mould steel with good machining properties, hardenable and polishable. Low distortion through-hardening steel with full hardenability and high wear resistance. The material is conditionally acid resistant.

Applications

Mechanical engineering, medical technology, plastic moulds, synthetic resin mould tools, die casting tools, light metal die casting, cutting tools, machine knives, kitchen knives, razors, shears, scraper blades, surgical instruments, measuring tools, roller bearings, ball bearings, ice-skates, pump parts, valves.

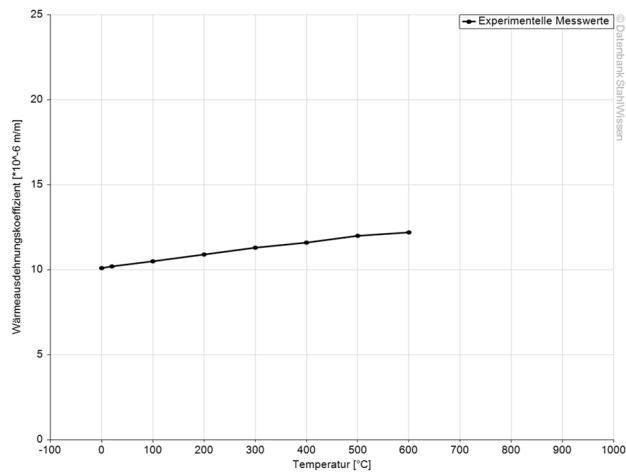


Heat treatment

| | Temperature | Cooling | Hardness |
|-------------------------|---------------|-------------------------------|-------------|
| Soft annealing | 760 - 800°C | Furnace | max. 241 HB |
| Stress relief annealing | 600 - 650°C | Furnace | |
| Hardening | Temperature | Quenching in | |
| | 1000 - 1050°C | Air, oil, basin (500 - 550°C) | |

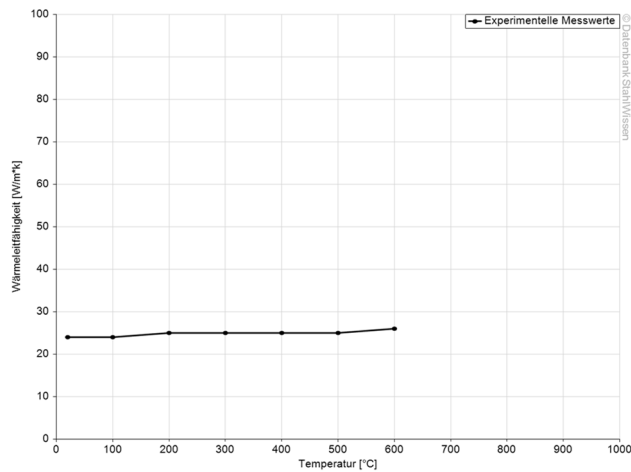
Thermal expansion coefficient diagram

Werkstoff: X46Cr13, 1.4034



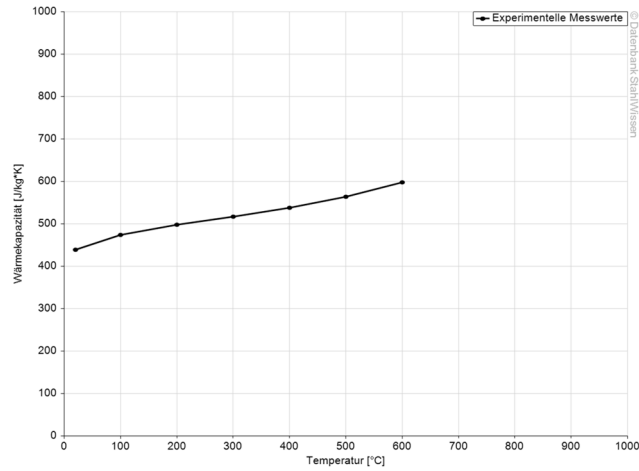
Thermal conductivity diagram

Werkstoff: X46Cr13, 1.4034

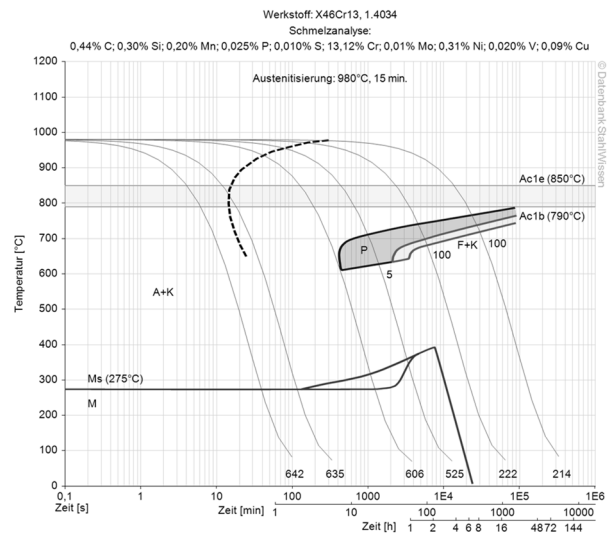
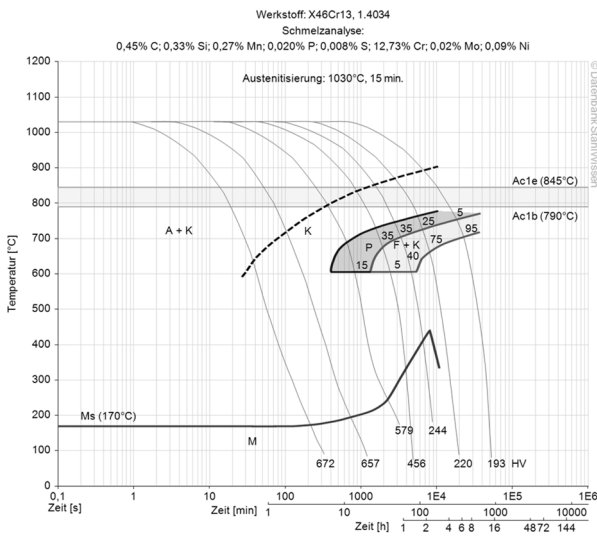


Thermal capacity diagram

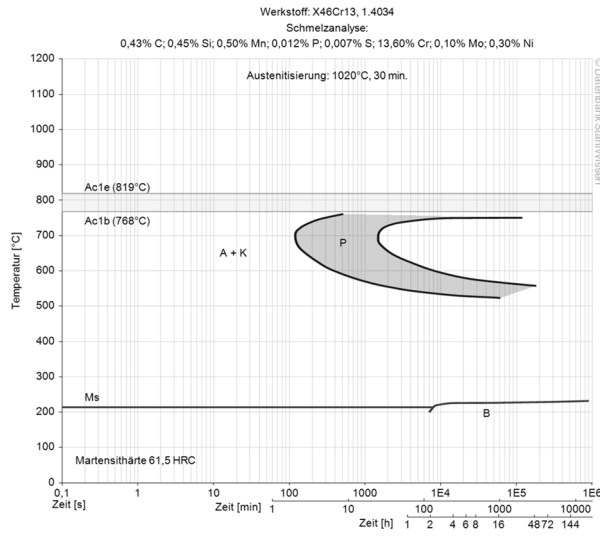
Werkstoff: X46Cr13, 1.4034



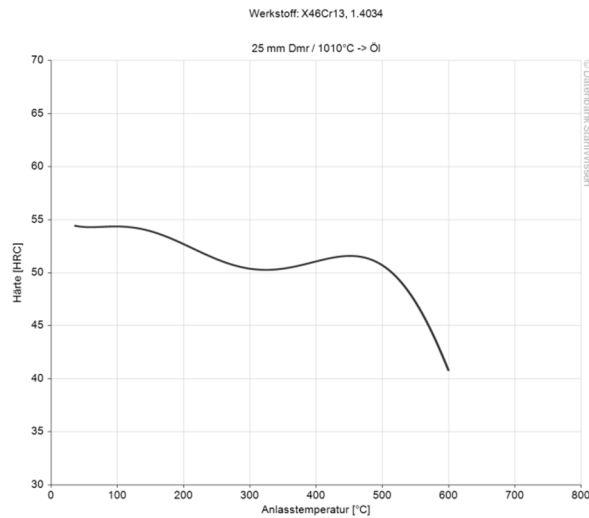
Continuous ZTU-diagrams



Isothermal ZTU-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

