

# 1.7707, 30CrMoV9, 1.8519, 31CrMoV9 - Fasteners Datasheet

1.7707, 30CrMoV9 steel is low-alloyed, used in the energy industry for the parts working in high temperatures below 540°C. used in the manufacture of screws, nuts, parts of turbines and other equipment for the energy industry

## Chemical Composition

Grade
1.7707, 30CrMoV9
1.8519, 31CrMoV9

## Mechanical Properties

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### 1.7707, 30CrMoV9 +QT Mechanical properties - TLV 813802001

- Dia.40mm to 100mm
  - Tensile strength  $R_m$  MPa: Min 1080-1270
  - Yield Strength  $R_p$  MPa: Min 880
  - Elongtion after fracture (l=5d)A %: min 10
  - Necking: min 40 %
  - Absorbed energy: min 41 J
- Dia.100mm to 600mm
  - Tensile strength  $R_m$  MPa: Min 980-1180
  - Yield Strength  $R_p$  MPa: Min 780
  - Elongtion after fracture (l=5d)A %: min 11
  - Necking: min 45 %
  - Absorbed energy: min 48 J



1.7707, 30CrMoV9, 1.8519, 31CrMoV9

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## 1.8519, 31CrMoV9 QT Mechanical properties

- **Condition +A(Annealed)**
  - Hardness, HB: max 248
- **Condition +QT**
  - Tensile strength,  $R_m$ : 850 - 1300 MPa
  - The yield point,  $R_e$ : min 650 MPa
  - Elongation, A: min 9%
  - Impact resistance, KV: min 25J

## Physical Properties

Modulus of elasticity [103 x N/mm<sup>2</sup>]: 210

Density [g/cm<sup>3</sup>]: 7.85

## Heat Treatment

### Soft Annealing

Heat to 680-720°C, cool slowly. This will produce a maximum Brinell hardness of 248.

### Hardening

Harden from a temperature of 850-880°C followed by oil quenching.

### Tempering

Tempering temperature: 570-680°C.

### Nitriding

Gas/plasma nitriding temperature (gas, salt bath): 570-580°C

Gas/plasma nitriding temperature (powder, plasma): 580°C

Surface hardness after nitriding: 800 HV

## Welding Properties

not suitable for welding

## Machining Properties

## Similar or Equivalent Steel Grade

30CrMoV9, 31CrMoV9, 31CrMoV9, 30CrMoV9, 1.7707, 1.8519, 30Ch3MF, 30H2MF, 30Kh3MF, 30X3MΦ, 4340

