

1.7707, 30CRMov9, 1.8519, 31CRMov9

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	Chemical composition WT %							
	C	Si	Mn	P	S	Cr	Mo	V
1.7707, 30CrMoV9	0.26-0.34	0.15-0.40	0.40-0.70	max 0.035	max 0.035	2.30-2.70	0.15-0.25	0.10-0.20
1.8519, 31CrMoV9	0.27-0.34	max 0.40	0.40-0.70	max 0.025	max 0.035	2.30-2.70	0.15-0.25	0.10-0.20

Mechanical Properties

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

1.8519, 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/mm²]: 210

Density [g/cm³]: 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

<https://longhaisteel.com>