

Quality	34CrNiMo6
According to standards	EN 10083-3: 2006
Number	1.6582

Chemical composition

C%	Si%	Mn%	P%	S%	Cr%	Mo%	Ni%	Deviations allowed for analysis product
	max		max	max				
0,30-0,38	0,40	0,50-0,80	0,025	0,035	1,30-1,70	0,15-0,30	1,30-1,70	
± 0.02	+ 0.03	± 0.04	+ 0.005	+ 0.005	± 0.05	± 0.03	± 0.05	

Temperature °C

Hot-forming	Normalizing +N	Quenching +Q	Quenching +Q	Tempering +T	Stress-relieving +SR			
1100-900	860-870 air	870 oil or polymer	860 water	600-650 air	50° under the temperature of tempering			
Soft annealing +A	Isothermal annealing +I	Full annealing	End quench hardenability test	Pre-heating welding		Stress-relieving after welding		
650-680 air (HB max 248)	850-900 cooling furnace to 500, then air	830-900 cooling furnace to 300	850 water	300		600 furnace cooling		
				Ac1	Ac3	Ms	Mf	
				715	770	320	100	

Mechanical and physical properties

Hot-rolled mechanical properties in **quenched and tempered** condition EN 10083-3: 2006

size d / t		Testing at room temperature (longitudinal)					
mm		R	Rp 0.2	A%	C%	Kv	HB
from	to	N/mm ²	N/mm ² min.	min.	min.	J min.	for information
	16/8	1200-1400	1000	9	40		359-404
16/8	40/20	1100-1300	900	10	45	45	331-380
40/20	100/60	1000-1200	800	11	50	45	298-359
100/60	160/100	900-1100	700	12	55	45	271-331
160/100	250/160	800-950	600	13	55	45	240-286

d = diameter t = thickness

Table of tempering values obtained at room temperature on rounds of Ø 60 mm after quenching at 850 °C in oil

HB		525	500	468	450	371	344	319	271	240
HRC		53	51.5	49	46.5	40	37	34	28	22
R	N/mm ²	1950	1850	1700	1500	1260	1150	1050	900	800
Rp 0.2	N/mm ²	1450	1480	1450	1350	1180	980	950	700	680
A	%	10	10	10	12	13	13.4	18	20	22
C	%	48	50	52	58	62	62	68	68	70
Kv	J	18	18	18	18	45	70	90	110	120
Tempering at °C		100	200	300	400	500	550	600	650	700

Temperature Testing at °C	Mod. of elasticity GPa		Thermal expansion 10 ⁻⁶ · K ⁻¹
	E long.	G tang.	
20	220	88	
100	205	78	11.1
200	195	75	12.1
300	185	70	12.9
400	175	67	13.5
500			13.9
600			14.1

Specific heat capacity J/(Kg·K)	Density Kg/dm ³	Thermal conductivity W/(m·K)	Specific electric resist. Ohm·mm ² /m	Electrical conductivity Siemens·m/mm ²
460	7.85	38	0.19	5.26

Minimum service temperature	Maximum service temperature
from -40°C to max -70°C	from +600 °C to max +650 °C

Corrosion resistance	Cold-working
Poor corrosion resistance; it is suggested to use protective coating	Easily cold-workable in its annealed condition; it has good ductility

EUROPE EN	ITALY UNI	CHINA GB	GERMANY DIN	FRANCE AFNOR	U.K. B.S.	RUSSIA GOST	USA AISI/SAE
34CrNiMo6	35NiCrMo6		34CrNiMo6	35NCD6	817M40	38Ch2N2MA	4340