

Quality	41CrMo4
According to standard	UNI 7847: 1979
Number	

Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	Deviations allowed for analysis product
0,38-0,44 ± 0.02	0,15-0,40 ± 0.03	0,50-0,80 ± 0.04	0,030 + 0.005	0,030 + 0.005	0,90-1,20 ± 0.05	0,15-0,25 ± 0.03	

Temperature °C

Hot-forming	Normalizing	Quenching	Quenching	Tempering	Stress-relieving
1100-850	870 air	850 oil or polymer		550-650 air	180
Soft annealing	Isothermal annealing	Spheroidizing	End quench hardenability test	Pre-heating welding	Stress-relieving after welding
720 air (HB max 240)	800 furnace cooling to 670, then air (HB 180-240)	730-740 furnace cooling	840 water	not recommended	
				Ac1 745	Ac3 790
				Ms 300	Mf 80

Mechanical and physical properties

Hot-rolled mechanical properties on test blank after **quenching and tempering** (values valid for untreated products)
For quenched and tempered material supply, values must be guaranteed on the product
UNI 7847:1979. Use only as reference.

test blank diameter (mm)		Testing at room temperature (longitudinal)						<i>HB</i> <i>for information</i>
from	to	R N/mm ²	Rp 0.2 N/mm ² min	A% min.	C% min.	Kcu J min		
	16	1080-1280	880	10		25	327-375	
16	40	980-1180	765	11		25	295-354	
40	100	880-1080	640	12		25	263-327	
100	160	780-930	560	13		25	232-278	
160	250	740-890	510	14		25	224-268	

UNI 7847 Jominy test HRC grain size 5 min.															Min. surface hardness after hardening and stress-relieving		
mm distance from quenched extremity																	
	1.5	3	5	7	9	11	13	15	20	25	30	35	40	45	50	HRC	55
min	53	53	52	51	50	48	45	43	38	35	34	33	32	32	32		
max	60	60	60	60	60	59	59	58	56	53	51	48	47	46	45		

Thermal expansion	10 ⁻⁶ · K ⁻¹	11.1	12.1	12.9	13.5	13.9	14.1
Modulus of elasticity longitudinal	GPa	210	205	195	185	175	
Modulus of elasticity tangential	GPa	80	78	75	70	67	
Testing at °C		20	100	200	300	400	500 600

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	42	0.19	5.26

EUROPE EN	ITALY UNI	CHINA GB	GERMANY DIN	FRANCE AFNOR	U.K. B.S.	RUSSIA GOST	USA AISI/SAE
41CrMo4	41CrMo4		41CrMo4			40ChFA	4142

41CrMo4



Transversal sample - Spheroidised - Little segregation



Longitudinal sample – Spheroidised - Strong segregation

Segregation checking must be carried out in longitudinal
Micrographs x100