



Quality	X6CrMoS17	Ferritic	<i>Technical card 2018</i>
Number	1.4105	Stainless Steel	<i>Lucefin Group</i>

Chemical composition

C%	Si%	Mn%	P%	S%	Cr%	Mo%	
max	max	max	max				
0,08	1,50	1,50	0,040	0,15-0,35	16,0-18,0	0,20-0,60	EN 10088-3: 2014
± 0.01	± 0.10	± 0.04	+ 0.005	± 0.02	± 0.2	+ 0.03	

Product deviations are allowed

Temperature °C

Melting range	Hot-forming	Recrystallization +RA	Soft annealing +A	MMA welding – AWS electrodes
1500-1490	1150-815	790-710 cooling to 300, then air	850-750 air	<i>pre-heating annealing after w. difficult; address qualified electrodes producers joint with steel</i>
Isothermal annealing +I	Quenching +Q	Tempering +T	Annealing for magnetic properties	carbon CrMo alloyed stainless
not suitable	not suitable	not suitable	825-805 protectet atmosphere cooling 50-100 °C/h to 400, then air	E309 E309 E309 – E308
				<i>cosmetic welding</i> E309

Chemical treatment - Pickling (15 - 25% HNO₃) + (1 – 8% HF) hot or cold

Mechanical properties

Heat-treated material EN 10088-3: 2014 in conditions 1C, 1E, 1D, 1X, 1G, 2D

size		Testing at room temperature					
mm		R	Rp 0.2	A%	Kv ₂ +20 °C	HBW ^{a)}	a) for information only
from	to	N/mm ²	N/mm ² min	min	J min	max	
	100	430-630	250	20	-	200	+A annealed material

Bright bars of heat-treated material EN 10088-3: 2014 in conditions 2H, 2B, 2G, 2P

size		Testing at room temperature					
mm		R	HBW	R	Rp 0.2	A%	Kv ₂ +20 °C
from	to	N/mm ²	max	N/mm ²	N/mm ² min	min	J min
	10 ^{b)}	-	-	530-780	330	7	-
10	16	-	-	500-780	310	7	-
16	40	-	-	430-730	250	12	-
40	63	-	-	430-730	250	12	-
63	100	-	-	430-630	250	20	-

+A materiale ricotto

^{b)} in the range of 1 mm ≤ d < 5 mm, values are valid only for rounds – the mechanical properties of non round bars of < 5 mm of thickness have to be agreed at the time of request and order

Forged

size		Testing at room temperature					
mm		R	Rp 0.2	A%	Kv +20 °C	HB ^{a)}	
from	to	N/mm ²	N/mm ² min	min	J min	max	
		-	-	-	-	200	+A annealed material

a) for information only

Effect of **cold-working** (hot-rolled +RA+C). Approximate values

R	N/mm ²	570	620	690	710	740	780	800	840	880	920
Rp 0.2	N/mm ²	280	510	590	620	650	690	730	760	800	850
A	%	20	10	9	9	8	8	8	8	8	8
Reduction %		0	10	20	30	40	50	60	70	75	80

Minimum values at high temperatures EN 10088-3: 2014

Rp 0.2	N/mm ²	230	220	215	210	205	200	195	+A annealed material
Test at °C		100	150	200	250	300	350	400	

Thermal expansion	$10^{-6} \cdot K^{-1}$	►	10.0	10.5	10.5	10.5	12.0	12.6	
Modulus of elasticity	longitudinal GPa		220	215	210	205	195		
Poisson number	ν		0.27-0,30 ~						
Electrical resistivity	$\Omega \cdot mm^2/m$		0.70						
Electrical conductivity	Siemens•m/mm ²		1.43						
Specific heat	J/(Kg•K)		460						
Density	Kg/dm ³		7.70						
Thermal conductivity	W/(m•K)		25						
Relative magnetic permeability	μ_r		640 ¹⁾						
°C			20	100	200	300	400	600	800

The symbol ► indicates temperature between 20 °C and 100 °C, 20 °C and 200 °C

¹⁾ max 1800 for full annealed material

Corrosion resistance	Atmospheric		Chemical			x steam, food and dairy food, organic products, nitric acid
Fresh water	<i>industrial</i>	<i>marine</i>	<i>medium</i>	<i>oxidizing</i>	<i>reducing</i>	
x	x		x			

Magnetic	yes
Machinability	high
Hardening	cold-drawn and other cold plastic deformations
Service temperature in air	continuous service up to 810 °C; intermittent service up to 860 °C

Europe	USA	USA	China	Russia	Japan	India	Republic of Korea
EN	UNS	ASTM	GB	GOST	JIS	IS	KS
X6CrMoS17	43020	430F					

Mechanical properties behavior at high temperatures (approximate values on cold-drawn material).

