

Quality	X6CrNiCuS18-9-2	Austenitic	<i>Technical card 2018</i>
Number	1.4570	Stainless Steel	<i>Lucefin Group</i>

Chemical composition

C%	Si%	Mn%	P%	S%	Cr%	Ni%	N%	Cu% ^{b)}	Mo%
max	max	max	max				max		max
0,08	1,00	2,00	0,045	0,15-0,35	17,0-19,0	8,0-10,0	0,10	1,40-1,80	0,60
± 0.01	+ 0.05	+ 0.04	+ 0.005	± 0.02	± 0.2	± 0.1	+ 0.01	± 0.1	+ 0.03

Product deviations are allowed

^{b)} for steels intended to cold-work hardening and extrusion, it is allowed a Cu content of max 1,0 %

EN 10088-3: 2014

Temperature °C

Melting range	Hot-forming	Solution annealing (Solubilization) +AT	Stabilizing	Soft annealing +A	MMA welding – AWS electrodes
1460-1450	1150-900	1100-1050 water	not necessary	not suitable	<i>pre-heating</i> <i>post welding</i> not welded
Sensitization	Quenching +Q	Tempering +T			<i>joint with steel</i> carbon CrMo alloyed stainless
sensitization test at 800-450	not suitable	not suitable			<i>cosmetic welding</i>

Chemical treatment - Pickling (6 - 25% HNO₃) + (0.5 - 8% HF) hot or cold. Passivation 20 - 45% HNO₃ 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%	A%	Kv ₂ +20 °C	Kv ₂ +20 °C	HBW ^{a)}
from	to	N/mm ²	N/mm ² min	min (L)	min (T)	J min (L)	J min (T)	max
	160	500-710	185	35	-	-	-	215

^{a)} for information only.

(L) = longitudinal (T) = transversal

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

size		Testing at room temperature						
mm		R	Rp 0.2	A%	A%	Kv ₂ +20 °C	Kv ₂ +20 °C	
from	to	N/mm ²	N/mm ² min	min (L)	min (T)	J min (L)	J min (T)	
	10 ^{b)}	600-950	400	15	-	-	-	
10	16	600-950	400	15	-	-	-	+AT solubilization
16	40	500-910	185	20	-	-	-	
40	63	500-910	185	20	-	-	-	
63	160	500-710	185	35	-	-	-	

^{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.

(L) = longitudinal (T) = transversal

Forged

size		Testing at room temperature						
mm		R	Rp 0.2	A%	A%	Kv +20 °C	HB ^{a)}	
from	to	N/mm ²	N/mm ² min	min (L)	min (T)	J min (L)	max	
		-	-	-	-	-	215	+AT solubilization

^{a)} for information only

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

R	N/mm ²	600	680	800	960	1100	1180	1220
A	%	50	30	20	10	8	8	8
Reduction	%	0	10	20	30	40	50	60

Thermal expansion	$10^{-6} \cdot K^{-1}$	►	18.0	18.5	19.2		
Modulus of elasticity	longitudinal GPa	200	194	186	179	172	127
Poisson number	ν	0,28 ~					
Electrical resistivity	$\Omega \cdot mm^2/m$	0.73					
Electrical conductivity	Siemens·m/mm ²	1.37					
Specific heat	J/(Kg·K)	500					
Density	Kg/dm ³	7.90					
Thermal conductivity	W/(m·K)	14.6					
Relative magnetic permeability	μ_r	1.005 ~					
°C		20	100	200	300	400	600 800

The symbol ► indicates temperature between 20 °C and 200 °C, 20 °C and 400 °C

Corrosion resistance	Atmospheric		Chemical			x chemical and organic products
Fresh water	<i>industrial</i>	<i>marine</i>	<i>medium</i>	<i>oxidizing</i>	<i>reducing</i>	
x	x		x			

Magnetic	no
Machinability	high
Hardening	cold-drawn and other cold plastic deformations
Service temperature in air	continuous service up to 820 °C; intermittent service and up to 750 °C

Europe	USA	USA	China	Russia	Japan	India	Republic of Korea
EN	UNS	ASTM	GB	GOST	JIS	IS	KS
X6CrNiCuS18-9-2	S30331						

Comparison of traction diagrams

