Quality	**X2CrNiMo18-14-3**	**Austenitic Stainless Steel**	*Technical card*
Number	**1.4435**		*Lucefin Group*

Chemical composition

C% max	**Si%** max	**Mn%** max	**P%** max	**S%** [a] max	**Cr%**	**Ni%**	**N%** max	**Mo%**	
0,03	1,00	2,00	0,045	0,030	17,0-19,0	12,5-15,0	0,11	2,5-3,0	EN 10088-1: 2005
± 0.005	+ 0.05	± 0.04	+ 0.005	± 0.005	± 0.2	± 0.15	± 0.01	± 0.1	

Product deviations are allowed

[a] for improving machinability, it is allowed a controlled sulphur content of 0,015 % - 0,030 %

Temperature °C

Melting range	**Hot-forming**	**Solution annealing** (Solubilization)	**Stabilizing**	**Soft annealing**
1450-1400	1150-980	1180-1120 water	not required	not suitable

Sensitization	**Quenching**	**Tempering**
not required	not suitable	not suitable

MMA **welding –** AWS electrodes

pre-heating	*post welding*
not required	slow cooling

joint with steel

carbon	CrMo alloyed	stainless
E309-E308	E309-E308	E308

cosmetic welding

E 316L

Mechanical properties

Hot-formed EN 10088-3: 2005 in conditions 1C, 1E, 1D, 1X, 1G, 2D

size mm		Testing at room temperature							
		R	**Rp** 0.2	**A%** (L)	**A%** (T)	**Kv** +20 °C (L)	**Kv** +20 °C (T)	**HB** [a]	
from	to	N/mm²	N/mm² min	min		J min	J min	max	
	160	500-700	200	40		100		215	+AT solubilization
160	250	500-700	200		30		60	215	+AT solubilization
		660	*320*	*55*		*210*		*200*	*Typical values*

[a] for information only (L) = longitudinal (T) = transversal

Cold-processed EN 10088-3: 2005 in conditions 2H, 2B, 2G, 2P

size mm		Testing at room temperature						
		R	**Rp** 0.2	**A%** (L)	**A%** (T)	**Kv** +20 °C (L)	**Kv** +20 °C (T)	
from	to	N/mm²	N/mm² min	min	min	J min	J min	
	10 [b]	600-950	400	25				
10	16	600-950	400	25				+AT solubilization
16	40	500-850	235	30		100		
40	63	500-850	235	30		100		
63	160	500-700	235	40		100		
160	250	500-700	235		30		60	

[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 EN 10250-4: 2001

size mm		Testing at room temperature						
		R	**Rp** 0.2	**A%**	**A%**	**Kv** +20 °C	**Kv** +20 °C	
from	to	N/mm²	N/mm² min	min (L)	min ((T)	J min (L)	J min (T)	
	250	500-700	200		30	100	60	+AT solubilization

Transition curve determined by Kv impacts. Material solubilized at 1050 °C

Average	J	190	210	215	220	230	240	250
Test at	**°C**	**-160**	**-120**	**-80**	**-40**	**0**	**+40**	**+80**

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

R	N/mm²	640	780	900	1050	1180
Rp 0.2	N/mm²	320	640	800	910	1000
A	%	50	30	18	12	8
Reduction	**%**	**0**	**10**	**20**	**30**	**40**

X2CrNiMo18-14-3 **n° 1.4435** austenitic stainless steel *Lucefin Group*

Minimum values at high temperatures on material +AT											
Rp 0.2 N/mm²	165	150	137	127	119	113	108	103	100	98
R N/mm²	420	400	380	375	370	370				
Test at **°C**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**550**

Thermal expansion	$10^{-6} \cdot K^{-1}$ ►		16.0	16.5	17.0	17.5	18.0	
Modulus of elasticity	GPa	200	194	186	179	172	165	
Poisson number	*v*	0.28						
Electrical resistivity	Ω • mm²/m	0.75						
Electrical conductivity	Siemens•m/mm²	1.33						
Specific heat	J/(Kg•K)	500						
Density	Kg/dm³	8.00						
Thermal conductivity	W/(m•K)	15.0						
Relative magnetic permeability	μr	1.1 ~						
Temperature	**°C**	**20**	**100**	**200**	**300**	**400**	**500**	**600**

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

Corrosion resistance	Atmospheric		Chemical			**x** intergranular, food, acids (organic, sulfuric and phosphoric acids), oil
Fresh water	*industrial*	*marine*	*medium*	*oxidizing*	*reducing*	
x	**x**	**x**	**x**	**x**		

Magnetic	no
Machinability	mean
Hardening	cold-drawn and other cold plastic deformations
Service temperature in air	continuous service up to 850 °C; intermittent service up to 800 °C

Europe EN	**USA** UNS	**USA** ASTM	**China** GB	**Russia** GOST	**Japan** JIS	**India** IS	**R. Corea** KS
X2CrNiMo18-14-2	(S31603)	(**316LMo**)	00Cr18Ni15Mo3	03Ch17N14M3	(SUS 316L)	(X02Cr17Ni12Mo2)	(STS 316L)

Marine sector