

AUSTENITIC STAINLESS STEEL MATERIAL REFERENCE

AUSTENITIC STAINLESS STEEL MATERIAL DATA SHEET

EN 1.4404 / X2CrNiMo17-12-2

Chemical, mechanical, physical and corrosion reference data

CHEMICAL COMPOSITION

MECHANICAL PROPERTIES

HEAT TREATMENT

HIGH-TEMPERATURE VALUES

CORROSION RESISTANCE

EQUIVALENT GRADES

Technical reference prepared for product and project requirement review.

Confirm final material, dimensions, testing and documentation before ordering.

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Technical data navigation

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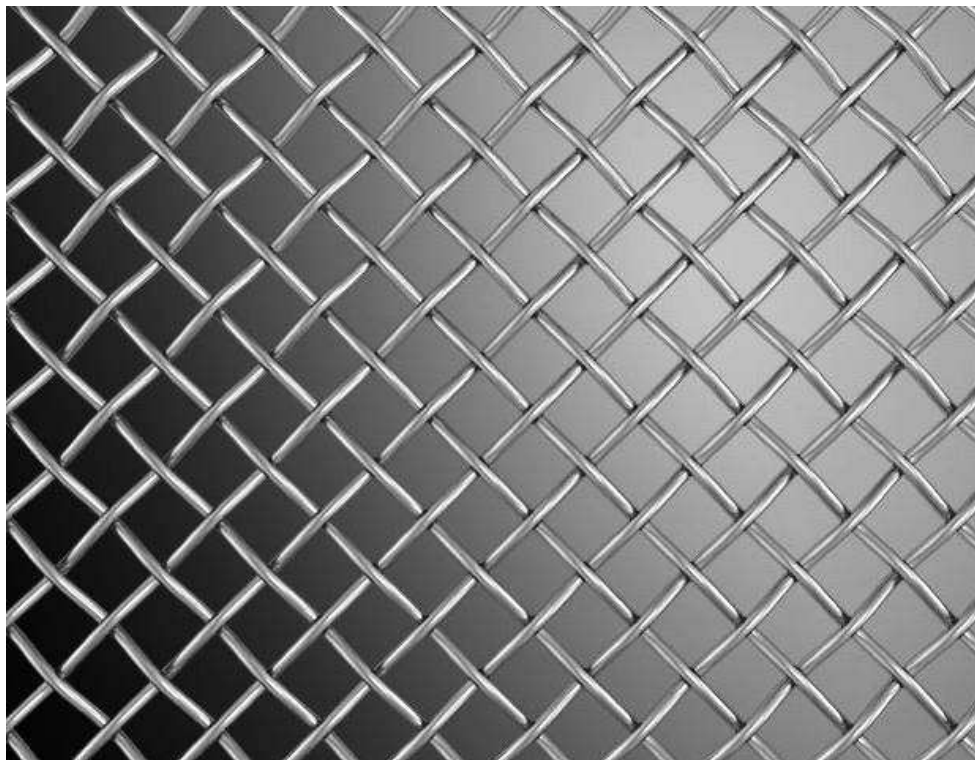
REFERENCE NOTE

Source dimensional values and footnotes are retained. Confirm the applicable material, grade, schedule and project specification before ordering.

Quality		X2CrNiMo17-12-2				Austenitic				1 C ALL I
Number		1.4404				Stainless Steel				
Chemical composition										
C%	Si%	Mn%	P%	S% a)	Cr%	Ni%	N%	Mo%	EN 10088-1: 2014	
max	max	max	max	max			max			
0,03	1,00	2,00	0,045	0,015	16,5-18,5	10,0-13,0	0,11	2,0-2,5		
± 0.005	+ 0.05	± 0.04	+ 0.005	+ 0.003	± 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 %; for polishability, it is suggested a controlled sulphur content of max 0,015 %										
Temperature °C										
Melting range		Hot-forming	Solution annealing (Solubilization) +AT		Stabilizing	Soft annealing +A	MMA welding – AWS electrodes			
1400-1380		1200-925	1110-1040 water		885 calm air	not suitable	pre-heating post welding not necessary slow cooling			
Sensitization		Quenching +Q	Tempering +T		Stress-relieving +SR		joint with steel			
sensitization test at 700-450		not suitable	not suitable		450-200 furnace		carbon CrMo alloyed stainless E309-E308 E309-E308 E308 cosmetic welding E 316L			
Chemical treatment • Pickling (6 - 25% HNO ₃) + (0.5 - 8% HF) hot • Passivation 20 - 50% HNO ₃ hot										
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 +20 °C	Kv +20 °C	HB a)		
from	to	N/mm ²	N/mm ² min	min (L)	min (T)	J min (L)	J min (T)	max		
	160	500-700	200	40		100		215 +AT solubilization		
160	250	500-700	200		30		60	215 +AT solubilization		
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 +20 °C	Kv +20 °C			
from	to	N/mm ²	N/mm ² min	min (L)	min (T)	J min (L)	J min (T)			
	10 b)	600-930	400	25						
10	16	580-930	380	25				+AT solubilization		
16	40	500-830	200	30		100				
40	63	500-830	200	30		100				
63	160	500-700	200	40		100				
160	250	500-700	200		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 +AT solubilization										
size		Testing at room temperature								
mm		R	Rp 0.2	A%	A%	Kv +20 °C	Kv +20 °C	Kv -196 °C		
from	to	N/mm ²	N/mm ² min	min (L)	min (T)	J min (L)	J min (T)	J min (T)		
	250	500-700	200		30	100	60		EN 10250-4	
	250	490-690	190	45	35	100	60	60	EN 10222-5	
Work-hardened by cold-drawing EN 10088-3: 2014 in condition 2H (es. +AT+C)										
size		Testing at room temperature								
mm		R	Rp 0.2	A%						
from	to	N/mm ²	N/mm ² min	min						
	35	700-850	350	20	+AT+C700 cold-drawn material					
	25	800-1000	500	12	+AT+C800 cold-drawn material					
Effect of cold-working (hot-rolled +AT+C). Approximate values										
R	N/mm ²	500	650	790	850	940	1030	1100	1200	+AT material – Approximate values
Rp 0.2	N/mm ²	200	520	700	760	830	920	1000	1080	°C
										R
										Rp 0.2
										A
										%

X2CrNiMo17-12-2 n° 1.4404 austenitic stainless steel											Lt
Minimum yield stress and tensile strength values at high temperatures on material +AT, EN 10088-3: 2014/EN 102											
Rp 0.2	N/mm ²	165	150	137	127	119	113	108	103	100	
R	N/mm ²	430	410	390	385	380	380	380	375	360	
Test at	°C	100	150	200	250	300	350	400	450	500	550
Thermal expansion		10 ⁻⁶ . K ⁻¹ ▶		16.0	16.5	17.0	17.5				
Modulus of elasticity	longitudinal	GPa	200	194	186	179	172	127			
Poisson number		ν	0.256	0.280							
Electrical resistivity		Ω . mm ² /m	0.75								
Electrical conductivity		Siemens.m/mm ²	1.33								
Specific heat		J/(Kg.K)	500								
Density		Kg/dm ³	8.00								
Thermal conductivity		W/(m.K)	15.0								
Relative magnetic permeability		μ _r	1.02								
Temperature	°C	20	100	200	300	400	600	800			
The symbol ▶ indicates temperature between 20 °C and 100 °C, 20 °C and 200 °C											
Corrosion resistance		Atmospheric			Chemical			x intercrystalline c. pitting from chlorides, salts, organic acids			
Fresh water		industrial marine		medium oxidizing reducing							
x		x x		x x x							
Magnetic		no									
Machinability		high									
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	USA	USA	China	Russia	Japan	India	R. Corea				
EN	UNS	ASTM	GB	GOST	JIS	IS	KS				
X2CrNiMo17-12-2	S31603	316L	022Cr17Ni12Mo2	03Ch17N13M2	SUS 316L	X02Cr17Ni12Mo2	STS 316L				

Stainless steel wire mesh - AISI 316L steel



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Send your requirement

Send a drawing, product list, size, material grade, standard, schedule or wall thickness, testing and project document requirements.

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RESPONSE AND DOCUMENT COORDINATION

Initial enquiries are answered within 24 hours, including weekends, by email or WhatsApp. Drawing review, material/standard matching and project document requirements can be discussed and organized with the buyer. Third-party inspection can be buyer-nominated or coordinated on request.

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