Datasheet:

EN 1.4404/316L – Austenite Flat Bars - Stainless Steel

Alumeco ApS
05-12-2024

Internal alloy name:	**1.4404**
Alloy type:	**Acid-resistance Austenite**
Chemical Symbol:	**X2CrNiMo17-12-2**
EN:	**EN 1.4404**
AISI:	**316L**
UNS:	**S31603**
SS:	**2348**
JIS:	**SUS316L**
GB:	**S31603**

Main usage:

- Food processing industry.
- Brewery, chemical & petrochemical equipment.
- Boat fittings, nuts & bolts, springs.
- Building and Construction sector
- Overland transport tankers

Main properties:

- Great weldability
- High corrosion resistance to non-oxidising acids and chlorine-containing materials
- Good formability, both cold and hot
- Higher thermal expansion and lower heat conductivity compared to other carbon steels

Important norms and literature:

General Standards:
EN 10088-1: List of stainless Steel

Product standards:
EN 10088-3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes

Geometric Tolerance:
EN 10058: Hot rolled flat steel bars & steel wide flats for general purposes - Dimensions & tolerances on shape & dimensions.

EN 10278: Dimensions & tolerances of bright steel products

Chemical composition in %: EN 10088-1

C	Si	Mn	P	S	Cr	Mo	Ni	Remarks	Rest
≤ 0,030	≤ 1,00	≤ 2,00	≤ 0,045	≤ 0,030*	16,5-18,5	2,0-2,5	10,0-13,0	N ≤ 0,10	Fe

*** For machinability, a controlled sulfur content of 0,015%-0,030% is recommended & permitted. For weldability a controlled sulfur content of 0,008%- 0,030% is recommended & permitted. For polishability, a controlled sulfur content of 0,015% is recommended.**

Mechanical properties: EN 10088-3

Width/ Thickness Range (mm)	Temper	Rm MPa	$Rp_{0,2}$ MPa	$Rp_{1,0}$ MPa	Elongation (Longitudinal) A%	Impact energy (Longitudinal) KV_2	Hardness* HB
W: 20 - 100 T: 3 - 10	Hot rolled	500 - 700	Min. 200	Min. 235	40	100	Max. 215

*** Information values only;**

Physical properties:

Density g/cm³	Electrical resistivity Ω mm² / m	Thermal conductivity W/m K	Thermal expansion (µm m^{-1} K^{-1})	Specific heat (J kg^{-1} K^{-1})	E - modulus (N / mm²)	Magnetizable	PREN (Min.)
8,0	0,75	15	16,0	500	200.000	No	16,5

Typical Alumeco products with this alloy

- **Flat bars - Dim: Width 20-100 mm x Thickness 3-10 mm**

Tolerances for flat bars for EN 1.4404:

Tolerances on drawn flats		
Width *w* (mm)	**Tolerance on Width**	
	Deviation (mm)	ISO 286-2 Class
w ≤ 18	+0 -0,110	h11
18 < *w* ≤ 30	+0 -0,130	h11
30 < *w* ≤ 50	+0 -0,160	h11
50 < *w* ≤ 80	+0 -0,190	h11
80 < *w* ≤ 100	+0 -0,220	h11

* Values are referred from Table 3 of EN 10278:1999

Tolerances on drawn flats		
Thickness *t* (mm)	**Tolerance on Thickness**	
	Deviation (mm)	ISO 286-2 Class
3 < *t* ≤ 6	-0,075	h11
6 < *t* ≤ 10	-0,090	h11

* Values are referred from Table 3 of EN 10278:1999

Deviation from straightness				
Product form	**Steel group**	**Nominal dimension**	**Deviation max. (mm)**	
			Width	Thickness
Flats	< 0,25% C	*w* < 120 mm	1,5	1,5
	≥ 0,25% C, alloy steels, quenched and tempered steels		1,5	2,0
	Stainless steels, ball and roller bearing steels, tool steels		1,5	2,0
	< 0,25% C	*w* ≥ 120 mm *w/t* < 10:1	1,5	2,0
	≥ 0,25% C, alloy steels, quenched and tempered steels		2,0	2,5
	Stainless steels, ball and roller bearing steels, tool steels		2,0	2,5
	< 0,25% C	*w* ≥ 120 mm *w/t* ≥ 10:1	2,0	2,5
	≥ 0,25% C, alloy steels, quenched and tempered steels		2,5	3,0
	Stainless steels, ball and roller bearing steels, tool steels		2,5	3,0

* Values are referred from Table 4 of EN 10278:1999

Types of length and length tolerances		
Type of length	**Length range (mm)**	**Limit deviation (mm)**
Manufacturing length (M)	3000 < *L* ≤ 13000	10% of bars supplied may be below the minimum for the ordered range but not less than 75% of the minimum of the range.
Fixed length (F)	3000 < *L* ≤ 13000	±100
Exact length (E)	< 6000 6000 ≤ *L* ≤ 13000	±25 ±50

* Values are referred from EN 10058