Datasheet:

EN 1.4401/316 – Austenite Welded Tubes - Stainless Steel

Alumeco ApS
05-12-2024

Internal alloy name:	**1.4401**
Alloy type:	**Acid-resistance Austenite**
Chemical Symbol:	**X5CrNiMo17-12-2**
EN:	**EN1.4401**
AISI:	**316**
UNS:	**S31600**
SS:	**2347**
JIS:	**SUS316**
GB:	**S31608**

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 10217-7: Welded steel tubes for pressure purposes- Technical delivery conditions-Part 7: Stainless steel tubes

Geometric Tolerance:
EN 1127 D3/T3: Stainless steel tubes- Dimensions, tolerances and conventional masses per unit length

ASTM A554-98E1: Standard specification for welded stainless steel mechanical tubing

Chemical composition in %: EN 10217-7

C	Si	Mn	P	S	Cr	Mo	Ni	Remarks	Rest
≤ 0,07	≤ 1,00	≤ 2,00	≤ 0,045	≤ 0,030*	16,5-18,5	2,0-2,5	10,0-13,5	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 10217-7

Outer diameter (mm)	Wall thickness (mm)	Rm MPa	$Rp_{0,2}$ MPa	$Rp_{1,0}$ MPa	Elongation (Longitudinal) A%	Impact energy (Longitudinal) KV_2	Hardness* HB
21,3 - 600	1,3 - 3	530 - 680	Min. 240	Min. 270	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

- **Outer Dia: 21.3 (3.5´´)-606 mm (21.3´´) ; Wall Thickness: 1.6-3 mm**

Tolerances for welded steel tubes for EN 1.4401:

Tolerances on outside diameter	
Tolerance class	**Tolerance on outside diameter**
D_1	± 1,5% with min. ± 0,75 mm
D_2	± 1% with min. ± 0,5 mm
D_3	± 0,75% with min. ± 0,3 mm
D_4	± 0,5% with min. ± 0,1 mm

* Values are referred from Table 1 of EN 1127:1992

Tolerances on thickness	
Tolerance class	**Tolerance on thickness**
T_1	± 15% with min. ± 0,6 mm
T_2	± 12,5% with min. ± 0,4 mm
T_3	± 10% with min. ± 0,2 mm
T_4	± 7,5% with min. ± 0,15 mm
T_5	± 5% with min. ± 0,1 mm

* Values are referred from Table 2 of EN 1127:1992

Tolerances on exact lengths	
Length *L* (mm)	**Tolerance on exact length (mm)**
$L \leq 6000$	+ 5 0
$6000 < L \leq 12000$	+10 0
$L > 12000$	+ by agreement 0

* Values are referred from Table 12 of EN 10217-7:2014