

Datasheet: EN 1.4307/304L – Austenite Round Bars - Stainless Steel Alumeco ApS 14-02-2025				Internal alloy name: 1.4307 Alloy type: Austenite Chemical Symbol: X2CrNi18-9 EN: EN 1.4307 AISI: 304L UNS: S30403 SS: 2352 JIS: SUS304L GB: S30403																									
Main usage: - Food and beverage industry equipment - Chemical and pharmaceutical industry equipment - Heat exchangers - Storage tanks and containers - Pipes - Flanges and valves				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 10060: Hot rolled round steel bars for general purposes – Dimensions and tolerances on shape and dimensions. EN 10278: Dimensions & tolerances of bright steel products																									
Main properties: - Excellent weldability - Good stability against corrosion - Good formability, both cold and hot - Resistance to intergranular corrosion (EN 10088-3)																													
Chemical composition in %: EN 10088-1 <table><tr><td>C</td><td>Si</td><td>Mn</td><td>P</td><td>S</td><td>Cr</td><td>Cu</td><td>Ni</td><td>Remarks</td><td>Rest</td></tr><tr><td>≤ 0,030</td><td>≤ 1,00</td><td>≤ 2,00</td><td>≤ 0,045</td><td>≤ 0,030*</td><td>17,5 – 19,5</td><td>-</td><td>8,0 – 10,5</td><td>N ≤ 0,10</td><td>Fe</td></tr></table> * 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.										C	Si	Mn	P	S	Cr	Cu	Ni	Remarks	Rest	≤ 0,030	≤ 1,00	≤ 2,00	≤ 0,045	≤ 0,030*	17,5 – 19,5	-	8,0 – 10,5	N ≤ 0,10	Fe
C	Si	Mn	P	S	Cr	Cu	Ni	Remarks	Rest																				
≤ 0,030	≤ 1,00	≤ 2,00	≤ 0,045	≤ 0,030*	17,5 – 19,5	-	8,0 – 10,5	N ≤ 0,10	Fe																				
Mechanical properties: EN 10088-3 <table><tr><td>Diameter mm</td><td>R_m MPa</td><td>R_{p0,2} MPa</td><td>R_{p1,0} MPa</td><td>Hardness* HBW</td></tr><tr><td>≤ 160</td><td rowspan="2">500 - 700</td><td rowspan="2">Min. 175</td><td rowspan="2">Min. 210</td><td rowspan="2">Max. 215</td></tr><tr><td>160 < d ≤ 250</td></tr></table> * Information values only;										Diameter mm	R _m MPa	R _{p0,2} MPa	R _{p1,0} MPa	Hardness* HBW	≤ 160	500 - 700	Min. 175	Min. 210	Max. 215	160 < d ≤ 250									
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Physical properties: <table><tr><td>Density g/cm³</td><td>Electrical resistivity Ω mm² / m</td><td>Thermal conductivity W/m K</td><td>Thermal expansion (µm m⁻¹ K⁻¹)</td><td>Specific heat (J kg⁻¹ K⁻¹)</td><td>E - modulus (N / mm²)</td><td>Magnetizable</td><td>PREN (Min.)</td></tr><tr><td>7,9</td><td>0,73</td><td>15</td><td>16,0</td><td>500</td><td>200.000</td><td>No</td><td>17,5</td></tr></table>										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.)	7,9	0,73	15	16,0	500	200.000	No	17,5				
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.)																						
7,9	0,73	15	16,0	500	200.000	No	17,5																						

Tolerances for rounded bars for EN 1.4305:

Tolerances classes				
Diameter d (mm)	Tolerance classes to ISO 286-2			
	H9	H10	H11	H12
$6 < d \leq 10$	+0 -0,036	+0 -0,058	+0 -0,090	+0 -0,150
$10 < d \leq 18$	+0 -0,043	+0 -0,070	+0 -0,110	+0 -0,180
$18 < d \leq 30$	+0 -0,052	+0 -0,084	+0 -0,130	+0 -0,210
$30 < d \leq 50$	+0 -0,062	+0 -0,100	+0 -0,160	+0 -0,250
$50 < d \leq 80$	+0 -0,074	+0 -0,120	+0 -0,190	+0 -0,300
$80 < d \leq 120$	+0 -0,087	+0 -0,140	+0 -0,220	+0 -0,350
$120 < d \leq 180$	+0 -0,100	+0 -0,160	+0 -0,250	+0 -0,400
$180 < d \leq 200$	+0 -0,115	+0 -0,185	+0 -0,290	+0 -0,460

* Values are referred from Table 2 of EN 10278:1999

Preferred dimensions, mass and dimensional tolerances of hot rolled round steel bars for general and precision purposes		
Diameters** d (mm)	Limit deviation Normal (mm)	Limit deviation Precision (P) (mm)
10	± 0,4	± 0,15
12		
13		
14		
15		
16	± 0,5	± 0,20
18		
19		
20		
22		
24	± 0,6	± 0,25
25		
26		
27		
28		
30	± 0,6	± 0,30
32		
35		
36		
38		
40	± 0,8	± 0,40
42		
45		
48		
50		
52	± 1	± 0,50
55		
60		
63		
65		
70	± 1,3	Not Applicable
73		
75		
80		
85		
90	± 1,5	
95		
100		
105		
110		
115	± 2	
120		
125		
130		
135		
140	± 2,5	
145		
150		
155		
160		
165	± 3	
170		
175		
180		
190		
200		
220		

250	± 4
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* Values are referred from Table 1 of EN 10060:2003

** Diameters greater than 250 mm may be delivered with the limit deviation of ± 6,0 mm

Tolerance deviation k (for shafts)	
Specified length d (mm)	ISO K Tolerances (mm) k11
$25 < d \leq 30$	+0,130 0
$30 < d \leq 50$	+0,160 0
$50 < d \leq 80$	+0,190 0
$80 < d \leq 120$	+0,220 0
$120 < d \leq 180$	+0,250 0
$180 < d \leq 250$	+0,290 0
$250 < d \leq 300$	+0,320 0

Deviation from straightness			
Product form	Steel group	Nominal dimension	Deviation max. (mm)
Rounds	< 0,25% C	-	1,0
	≥ 0,25% C, alloy steels, quenched and tempered steels	-	1,5
	Stainless steels, ball and roller bearing steels, tool steels	-	1,0

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

Types of length and length tolerances		
Type of length	Range (mm)	Limit deviation
Manufacturing length (M)	$3000 < L \leq 13000$, with a range of 2000 per order item	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 – 13000	± 100 mm
Exact length (E)	< 6000	± 25 mm
	$6000 \leq L \leq 13000$	± 50 mm

* Values are referred from Table 4 of EN 10060:2003