

<b>Quality</b>	<b>X5CrNi18-10</b> AISI 304 <b>Austenitic</b>	
According to standards	<b>EN 10088-3: 2005</b>	<i>Lucefin Group</i>
Number	<b>1.4301</b>	

<b>Chemical composition</b>								
C%	Si%	Mn%	P%	S%	Cr%	N%	Ni%	Permissible deviations on the product
max	max	max	max	max		max		
0,07	1,00	2,00	0,045	0,030	17,5-19,5	0,11	8,0-10,5	
± 0.01	+ 0.05	± 0.04	+ 0.005	± 0.005	± 0.20	± 0.01	± 0.10	

<b>Temperature °C</b>							
Melting range	Hot forming	Solubilization	Stabilization	Hardening	Welding		
1400-1420	1180-950	1000-1120 water	900 air	can be increased only by <b>cold drawing</b>	preheating	stress relieving	
		controlled atmosphere			not demanded	slow cooling	

<b>Mechanical properties</b>									
<b>Hot rolled</b> EN 10088-3: 2005									
size mm		Testing at room temperature							
over	to	<b>R</b>	<b>Rp 0.2</b>	<b>A%</b>	<b>A%</b>	<b>Kv +20 °C</b>	<b>Kv +20 °C</b>	<b>HB a)</b>	
		N/mm <sup>2</sup>	N/mm <sup>2</sup> min	min L	min T	J min L	J min T	max	
	160	500-700	190	45	--	100	--	215	Solubilization
160	250	500-700	190	--	35	--	60	215	Solubilization

a) only for guidance

<b>Cold drawn +C</b> EN 10088-3: 2005 (solubilization of material is recommended before cold drawing)									
size mm		Testing at room temperature							
over	to	<b>R</b>	<b>Rp 0.2</b>	<b>A%</b>	<b>A%</b>	<b>Kv +20 °C</b>	<b>Kv +20 °C</b>		
		N/mm <sup>2</sup>	N/mm <sup>2</sup> min	min L	J min T	J min L	J min T		
	35	700-850	350	20	--	--	--		Tensile strength levels 700
	25	800-1000	500	12	--	--	--		Tensile strength levels 800

<b>Cold processed</b> bright bars EN 10088-3: 2005 in conditions 2H, 2B, 2G, 2P									
size		<b>R</b>	<b>Rp 0.2</b>	<b>A%</b>	<b>A%</b>	<b>Kv +20 °C</b>	<b>Kv +20 °C</b>		
over	to	N/mm <sup>2</sup>	N/mm <sup>2</sup> min	min L	J min T	J min L	J min T		
	10 a)	600-950	400	25	--	--	--		
10	16	600-950	400	25	--	--	--		
16	40	600-850	190	30	--	100	--		
40	63	580-850	190	30	--	100	--		
63	160	500-700	190	45	--	100	--		
160	250	500-700	190	--	35	--	60		

a) In the range 1 mm ≤ d < 5 mm valid only for rounds – the mechanical properties of non round bars with thicknesses < 5 mm have to be agreed upon at the time of enquiry and order.

<b>Work-hardness by Cold drawing</b>										
<b>R</b>	N/mm <sup>2</sup>	600	700	850	960	1100	1200	1340	1480	1650
<b>Rp 0.2</b>	N/mm <sup>2</sup>	300	560	720	850	960	1080	1200	1310	1440
<b>A</b>	%	35.0	25.0	10.0	9.0	8.0	7.0	6.0	5.5	5.0
<b>C</b>	%	72	70	68	60	55	47	44	40	38
<b>Reduction</b>	%	<b>0</b>	<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>	<b>50</b>	<b>60</b>	<b>70</b>	<b>80</b>

<b>Forged</b> EN 10250-4: 2001 Solution-annealing										
Testing at room temperature										
size d / t	<b>R</b>	<b>Rp 0.2</b>	<b>A%</b>	<b>Kv +20 °C</b>	<b>Kv +20 °C</b>	<b>Kv -150 °C</b>		<b>Kv -196 °C</b>		
over to	N/mm <sup>2</sup>	N/mm <sup>2</sup> min	min L	J min L	J min T	J min L		J min L		
	675/450	500-700	190	30	100	60		60		60

d = diameter t = thickness

Min. val. for the 0.2% proof strength at high temperature, properties after solubilization EN 10088-3: 2005 EN 10250-4: 2001													
<b>Rp 0.2</b>	N/mm <sup>2</sup>	--	155	140	127	118	110	104	98	95	92	90	<b>Hot rolled</b>
<b>Rp 0.2</b>	N/mm <sup>2</sup>	--	157	142	127	118	110	104	98	95	92	90	<b>Forged</b>
Testing at °C	<b>50</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>250</b>	<b>300</b>	<b>350</b>	<b>400</b>	<b>450</b>	<b>500</b>	<b>550</b>		

<b>EUROPE</b> EN	<b>ITALY</b> UNI	<b>CHINA</b>	<b>GERMANY</b> DIN	<b>FRANCE</b> AFNOR	<b>U.K.</b> B.S.	<b>RUSSIA</b>	<b>USA</b> AISI
X5CrNi18-10	X5CrNi18-10	0Cr18Ni9	X5CrNi18-10	Z5CN18-09	304S15	07H18Ni10	304

<b>X5CrNi 18-10</b> AISI 304										<i>Lucefin Group</i>	
Thermal expansion	[ m/(m.K) ] •10 <sup>-6</sup>	--	17.2	17.6	17.8	18.0	18.2	18.6	--	--	
Modulus of elasticity	longitudinal N/mm <sup>2</sup>	193000	--	186000	179000	172000	165000	154000	127000	--	
Modulus of elasticity	tangential N/mm <sup>2</sup>	86200	--	83000	80000	76800	73700	60000	50000	--	
Specific electric resist.	Ohm•mm <sup>2</sup> /m	0.72	0.78	0.86	--	1.00	--	1.11	1.21	1.26	
Conductivity	Siemens•m/mm <sup>2</sup>	1.39	1.28	1.16	--	1.00	--	0.90	0.83	0.79	
Specific heat capacity	J/(Kg•K)	500	--	510	--	550	--	585	630	--	
Mean coefficient of linear expansion	10 <sup>-6</sup> /°K	--	16.8	--	--	17.8	--	18.8	20.2	--	
Testing at °C		<b>20</b>	<b>100</b>	<b>200</b>	<b>300</b>	<b>400</b>	<b>500</b>	<b>600</b>	<b>800</b>	<b>900</b>	
Density	Thermal conductivity							Magnetic permeability		Resist. to intergranular corrosion	
Kg/dm <sup>3</sup>	W/(m.K)	20 °C	100 °C	200 °C	400 °C	500 °C	600 °C	800 °C	μ <sub>r</sub>	in the	
										delivery cond.	sensitized cond.
7.93	15	16.3	17.5	19.9	21.5	22.5	25.1	1.008		yes	no