

Designation	EN	UNS	AISI	LMSA
X11CrNiMn19-8-6	1.4369	-	-	D150

Chemical composition (Weight %)

Fe	C	Cr	Ni	Si	Mn	P	S	N
Balance	0.07-0.15	17.5-19.5	6.8-8.5	0.5-1.0	5.0-7.5	≤ 0.030	≤ 0.030	0.2-0.3

In order to achieve maximum homogeneity and consistent quality, the actual tolerances on both alloy components and impurities are significantly tighter and more precisely defined than the standard composition indicated.

Typical chemical composition for Lamineries MATTHEY stainless steel (Weight %)

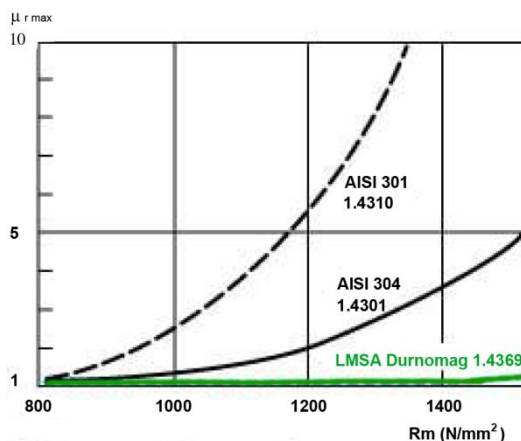
Fe	C	Cr	Ni	Si	Mn	N
Balance	0.11	18.5	7.0	0.8	6.0	0.25

Main technical properties and features

The tensile strengths of austenitic stainless steels are average but can be increased considerably, for certain types, by cold rolling. The 1.4369, X11CrNiMnN19-8-6, is a non-magnetic stainless steel. A high mechanical strength stainless steel combined with a non-magnetic structure is unique. Its resistance to corrosion is similar to that of 1.4310, X10CrNi18-8. The high nitrogen content is known to favorize corrosion resistance by pickling. However, like other austenitic stainless steels of this type, if in contact with high temperature chloride solutions, the 1.4369 can be sensitive to corrosion under tension.

The 1.4369, X11CrNiMnN19-8-6, alloy reaches very high mechanical strength through cold working. Its hardness and its mechanical strength can be increased by tempering at about 480°C for two hours. For mechanical strength over 1400 N/mm² before tempering, an increase of 100 to 200 N/mm² (30 to 70 HV) can be attained. This heat treatment is generally applied to the finished parts. To avoid discoloration, the parts must be thoroughly cleaned before treatment. Tempering without gas-shielding will form a brownish oxide layer on the surface of the parts. The maximum operating temperature is up to approximately 250°C. In general, tempering also has a positive effect on the fatigue strength limit and on the thermal stress relaxation.

The 1.4369, X11CrNiMnN19-8-6, alloy is a stainless steel of which the austenitic microstructure is very stable during cold working. Thus, it is possible to obtain mechanical properties similar to those of 1.4310, AISI 301, while maintaining its non magnetic structure. In addition, the weak magnetic permeability is not influenced by tempering.



The information in this document is informative only. Information provided does not constitute any contractual commitment or warranty of any kind.

Designation	X11CrNiMn19-8-6	EN 1.4369	UNS -	AISI -	LMSA D150
--------------------	------------------------	--------------	----------	-----------	--------------

Typical manufacturing range

		Thickness (mm)	Width (mm)	Length (mm)
Rolled products	Strip in coils ¹⁾	0.010 – 0.400	1.5 - 200.0	-
	Strip as sheets ¹⁾	0.015 – 0.400	10.0 - 200.0	100 - 3000

1) Not all our production possibilities are presented here. Other dimensions or other product forms available upon request.
Certain combinations of thicknesses and widths are not possible.

Mechanical properties of strips

Temper		R _{p0.2} (N/mm ²)	R _m (N/mm ²)	A ₅₀ ²⁾ %	Hardness HV
C750	Soft	300 - 600	750 - 950	40	170 - 290
C1000	Soft + skin pass	800 - 1100	1000 - 1200	10	250 - 375
C1200 ¹⁾	½ hard	900 - 1200	1200 - 1400	7	310 - 440
C1300 ¹⁾	Hard	1050 - 1350	1300 - 1600	2	410 - 500
C1600 ¹⁾	Spring	≥ 1300	≥ 1600		≥ 480

1) Additional mill tempering can be ordered for these tempers

2) Valid only for a strip thickness ≥ 0.1mm

Physical properties

Modulus of elasticity	KN/mm ²	190
Poisson ratio		0.29
Density	kg/dm ³	7.90
Melting point / Melting range	°C	1400-1450
Linear dilatation coefficient (20-300°C)	10 ⁻⁶ / °C	18.0
Thermal conductivity at 20°C	W/m °K	15.0
Electrical resistivity	μΩcm	70
Electrical conductivity	MS/m	1.4
Specific heat at 20°C	J/(kg K)	460
Magnetic properties		Non-magnetic in soft and cold worked tempers
Permeability		μ = 1.002 - 1.2 (annealed - cold worked temper)

Typical uses

Its combination of high mechanical strength and non-magnetic structure makes this alloy very desirable for the manufacturing of springs or other parts requiring high mechanical strength, such as those used in electronics and in the watch industry. It can also be used in the manufacturing of instruments to be exposed to magnetic fields, e.g. surgery under MRI. Further uses include spring components in generators or non-magnetic housing in measuring instruments.

The information in this document is informative only. Information provided does not constitute any contractual commitment or warranty of any kind.



Lamineries
MATTHEY SA

Edition 2013/01

Steel 1.4369 Durnomag

Page 3/4

Designation	X11CrNiMn19-8-6	EN 1.4369	UNS -	AISI -	LMSA D150
--------------------	------------------------	--------------	----------	-----------	--------------

The information in this document is informative only. Information provided does not constitute any contractual commitment or warranty of any kind.

Lamineries MATTHEY SA
Montagu 38
CH - 2520 La Neuveville

Tél +41 (0)32 752 32 32
Fax +41 (0)32 752 32 00

E-mail: sales@matthey.ch

www.matthey.ch

Designation	X11CrNiMn19-8-6	EN 1.4369	UNS -	AISI -	LMSA D150
--------------------	------------------------	--------------	----------	-----------	--------------

Tolerances

Thickness	Thickness (mm)		Lamineries MATTHEY SA		
	≥	<	LMSA Standard	LMSA Precision	LMSA Extreme
<p>The table shown is an outline of our typical thickness tolerances available, which are tighter than industry standards.</p> <p>Our "Precision" and "Extreme" tolerances are available upon request.</p>		0.025	-	-	± 0.001
	0.025	0.050	± 0.003	± 0.002	± 0.0015
	0.050	0.065	± 0.004	± 0.003	± 0.002
	0.065	0.100	± 0.006	± 0.004	± 0.003
	0.100	0.125	± 0.008	± 0.006	± 0.003
	0.125	0.150	± 0.008	± 0.006	± 0.004
	0.150	0.250	± 0.010	± 0.008	± 0.004
	0.250	0.300	± 0.012	± 0.008	± 0.005
	0.300	0.400	± 0.012	± 0.009	± 0.005
	0.400	0.500	± 0.015	± 0.010	± 0.006
	0.500	0.600	± 0.020	± 0.012	± 0.007
	0.600	0.800	± 0.020	± 0.014	± 0.007
	0.800	1.000	± 0.025	± 0.015	± 0.009
	1.000	1.200	± 0.025	± 0.018	± 0.012
	1.200	1.250	± 0.030	± 0.020	± 0.012
1.250	1.500	± 0.035	± 0.025	± 0.014	

Width

Our width tolerance is + 0.2 -0.0 mm (or ± 0.1 mm upon request). They are available for slit widths < 125 mm and thicknesses < 1.00 mm. Special tolerances upon request.

Camber	Width (mm)		Camber max. (mm/m)			
	>	≤	LMSA standard		LMSA extreme	
			≤ 0.5 mm	> 0.5 mm	≤ 0.5 mm	> 0.5 mm
<p>Our tolerance "standard" respects the EN Standard 1654 (Length of measurement 1000 mm). Other tolerances upon request.</p>	3	6	12	-	6	-
	6	10	8	10	4	5
	10	20	4	6	2	3
	20	250	2	3	1	1.5

Surface

Special surface qualities upon request

Flatness

Special requirement on the longitudinal or transversal flatness upon request

The information in this document is informative only. Information provided does not constitute any contractual commitment or warranty of any kind.