

Quality	ASTM A 350 LF3	Low-Alloy Steel	<i>Technical card</i>
According to standards	ASTM A 350/A350M – 17		Lucefin Group
Number	Classes 1 and Classes 2		rev. 2018

Chemical composition

C%	Si%	Mn%	P%	S%	Cu%	Ni%	Cr%	Mo%	V%	Nb%
max		max	max	max	max		max	max	max	max
0,20	0,20-0,35	0,90	0,035	0,040	0,40	3,30-3,70	0,30	0,12	0,03	0,02

The sum of chromium (Cr) and molybdenum (Mo) should not exceed 0,32%
Steels to which lead has been added shall not be used

Temperature °C

Hot-forming	Normalizing +N	Quenching +Q	Tempering +T	Stress-relieving +SR			
1100-850	830-880 air cooling	820-870 oil / polymer water	580-640 air cooling	50 under the temperature of tempering			
Soft annealing +A	Normalizing and tempering +NT	Isothermal annealing +I		Pre-heating welding		Stress-relieving after welding (PWHT)	
-	830-880 air 580-640 air, water	-		200		590 furnace cooling	
				Ac1	Ac3	Ms	Mf
				-	-	-	-

Mechanical properties

Forged values as reference Heat treatments must **guarantee** the reported values ASTM A 350M - 17

all dimension mm	Testing at room temperature (longitudinal)						
	R	Rp 0.2	A%	Z%	Kv -101°C cl. 1	Kv -101 °C cl. 2	HBW
	N/mm ²	N/mm ² min.	min.	min.	J average / minimum		max
T	485-655	260	22	30	20 / 16	27 / 20	197

T= max heat-treated thickness Test specimen should correspond to the 1/4 T

Properties according to SEW 310 steel: 12Ni14

Thermal Expansion	10 ⁻⁶ • K ⁻¹ ►	10.2	11.1	11.3	11.8	12.3	12.7	13.1
Mod. of Elasticity long.	GPa	214	208	207	202	196	189	181
Specific Heat Capacity	J/(Kg•K)		441	459	464	479	496	513
Thermal Conductivity	W/(m•K)	28.9	35	35.8	38.1	38.9	38	36.8
Density	Kg/dm ³			7.85				
Specific Electric Resist.	Ohm•mm ² /m	0.2	0.253	0.265	0.314	0.379	0.461	0.551
Electrical Conductivity	Siemens•m/mm ²	5.0	3.95	3.77	3.18	2.64	2.17	1.81
°C		-100	-70	0	20	100	200	300

The symbol ► indicates temperature between -100 °C and 20 °C, -70 °C and 20 °C, 20 °C and 100 °C

EUROPE	ITALY	SPIN	GERMANY	FRANCE	UK	SWEDEN	USA
EN	UNI	UNE	DIN	AFNOR	B.S.	SS	AISI/SAE
12Ni14	12Ni14	F.152	10Ni14	12N14	503		A350 LF3 cl. 1 – cl. 2