



## Conforming to ELV (2000/53/EC) and RoHS III (2018/740/EU)

Alloy AA 2011 LF conforming to RoHS III is developed specifically for machining applications. It is renowned for its excellent machining characteristics and short chips. **Alloy 2011 LF does not contain Sn and Pb.** Modified alloy is a direct replacement for 2011 alloy and retains all the high quality properties and is a technical equivalent to the original 2011 alloy.



### Chemical Composition 2011 LF

Alloy	Si	Fe	Cu	Mn	Mg	Zn	Ti	Pb*	Bi	Sn*	Each	Total
2011 LF	max. 0.4	max. 0.70	5.0 6.0	max. 0.05	max. 0.05	max. 0.30	max. 0.05	max. 0.10	0.50- 1.00	max. 0.05	max. 0.05	max. 0.15

\*No intentional Pb and Sn additions.

### Mechanical properties 2011 LF

#### Cold Drawn

Temper	Dimension		Rm min.		Rp <sub>0.2</sub> min.		A	A (2")	HB min.
	mm	inch (")	MPa	ksi	MPa	ksi	% min.		
T3	2.5 to 40	0.098 to 1.575	320	45	270	40	10	10	90
	40 to 50	1.575 to 1.969	300	43	250	36	10	12	90
	50 to 76.2	1.969 to 3	280	40	210	30	10	14	90
T8	2.5 to 76.20	0.098 to 3	370	54	270	40	8	12	110

#### Extruded

Temper	Dimension		Rm min.		Rp <sub>0.2</sub> min.		A	A (2")	HB min.
	mm	inch (")	MPa	ksi	MPa	ksi	% min.		
T4	20 to 180	0.788 to 7.087	275	40	125	18	14	14	80
T6	20 to 75	0.788 to 2.953	310	45	230	33	8	10	90
	75 to 180	2.953 to 7.087	295	43	195	28	6	10	90

### Comparative Characteristics 2011 LF

Temper	Corrosion resistance		Cold workability	Anodizing Response	Brazability	Weldability	
	General	Stress				Gas	Arc
T3	●	●	●●●●	●●	●	●	●●●
T8	●	●●●	●●●●	●●	●	●	●
T4	●	●	●●●●	●●	●	●	●●●
T6	●	●●●	●●●●	●●	●	●	●

Rating: ●●●● - Excellent | ●●● - Good | ●● - Fair | ● - Poor



### Physical Properties 2011 LF

Density (g/cm <sup>3</sup> )	2.84
Modulus of elasticity (MPa)	74100
Thermal conductivity (W/m K)	200-210
Coefficient of thermal expansion (25-100° ) 10 <sup>-6</sup> /K	22.3-23.0
Electrical conductivity at 20°C (MS/m)	19-23 (32.7%-39.6% IACS)