Aluminium Metal Specifications

Mechanical Properties

Metal	UTS N/mm²	UTS TPSI	0.2% Proof N/mm²	0.2% Proof TPSI	Elong %	BH	Density
LM25M	130 150	8.0 10.0	80 100	5.0 6.5	2.0 3.0	55 65	2.68
LM25TF	230 280	15.0 18.0	200 250	13.0 16.0	0.0 2.0	90 100	2.68
LM25TB7	160	10.0	80 110	5.0 7.0	2.5	65 75	2.68
EN1706 ENAC 42000 T6	220	13.4	180	11.1	1.0	75	2.68
EN1706 ENAC 42000 F	140	8.6	80	4.9	2.0	50	2.68
2L99	230	14.8	185	12.0	2.0	80	2.68
A356T6	234	15.0	166	10.8	5.0	70 100	2.68
356F	130	8.4	120	8.0	2.0	55	2.68
356T6	207	13.3	138	8.9	3.0	70	2.68
356T7	214	13.8	126	8.1	3.0	75	2.68
356T51	159	10.2	110	7.1	3.0	60	2.68
356T71	172	11.1	124	8.0	3.0	60	2.68
C355.0 T6	240	14.8	175	10.8	3.0	80	2.71
40E	215	13.9	170	11.0	4.0	60 100	2.80
712	224	14.4	172	11.1	4.0	75	2.80
LM31	215	13.9	170	11.0	4.0	60 100	2.80

Comparison with International Specifications

BSI1490	ISO	France	Germany	USA	Aerospace
LM25	AlSi7Mg	A-S7g	G-AlSi7Mg	A356	BS2L99 / BSL173 / BSL174

Comparison of LM25 physical properties with 6061 & 6082 wrought aluminium

	LM25	6061	6082
Thermal conductivity (% IACS)	38.4	39.6	43.7
Coefficient of linear expansion (20-100° C)	$22x10^{-6}$	$24x10^{-6}$	$23x10^{-6}$
Electrical conductivity (% IACS @ 20° C)	39	43.1	43.7
Hardness (Brinell)	60 - 105	60 - 100	60 - 100
Modulus of elasticity	71	69	69

Aluminium Metal Specifications

Silicon Magnesium series

These alloys are the best general purpose high-strength cast alloys available and can be supplied with a variety of heat treatments. They also have good salt water corrosion resistance. They can also be anodised to produce a thick black colour. Decorative anodising is not possible due to metallic silicon content.

A356 - An American specification introduced into the UK by Micro Metalsmiths (now Sylatech) in 1964. It is generally made available for American Military specifications.

LM25 - Our most commonly used cast aluminium alloy and can be supplied as cast or heat-treated.

2L99 - This is a more tightly controlled version of LM25 for aerospace applications.

Zinc Magnesium series

These alloys are less easy to cast because of their viscosity in the liquid state.

40E - This alloy is particularly suitable for castings which require flame or dip-brazing. Components using this material should have uniform wall sections. To achieve corrosion resistance an additional surface treatment such as anodising or chromatic conversion is necessary. The material machines very well is self-ageing at room temperature over about three weeks.

712/LM31 - These alloys are similar to 40E but specific to defence and approved for certain space applications.