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YO62 6PX

## METAL SPECIFICATIONS ALUMINIUM

### *Mechanical Properties*

Metal	UTS N/mm2		0.2% Proof		Elong %	BH	Density
		TPSI	N/mm2	>TPSI			
LM25M	130	8.0	80	5.0	2.0	55	2.68
	150	10.0	100	6.5	3.0	65	
LM25TF	230	15.0	200	13.0	0.0	90	2.68
	280	18.0	250	16.0	2.0	100	
LM25TB7	160	10.0	80	5.0	2.5	65	2.68
			110	7.0		75	
2L99	230	14.8	185	12.0	2.0	80	2.68
A356T6	234	15.0	166	10.8	5.0	70	2.68
						100	
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
40E	215	13.9	170	11.0	4.0	60	2.80
						100	
712	224	14.4	172	11.1	4.0	75	2.80
LM31	215	13.9	170	11.0	4.0	60	2.80
						100	
Vanasil	170	11.0	140	9.0	0.5	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)	22×10-6	24×10-6	23×10-6
Electrical Conductivity (%IACS @ 20°C)	39	43.1	43.7
Hardness (Brinell)	60 – 105	60 – 100	60 -100
Modulus of Elasticity	71	69	69



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### ***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 be anodised to produce a thick black colour. Decorative anodising is not possible due to the metallic silicon content.

A356 – An American specification introduced into the UK by Micro Metalsmiths 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 high 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 and 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.