

ALUMINIUM ALLOYS

| AEROSPACE | CHEMICAL COMPOSITION, % | | | | | | | | | | | | COND- ITION | MECHANICAL PROPERTIES | | | COMPARABLE SPECIFICATIONS | CHARACTERISTICS AND USES |
|----------------------------------|-------------------------|-----------|-----------|---------|-----------|---------|---------|------|------|-----------|---|-------------|----------------------|--------------------------|-----------------------------|--------------------|--|---|
| | SPECIFICATION | Cu | Mg | Si | Fe | Mn | Ni | Zn | Pb | Sn | Ti | OTHERS | | UTS N/MM ² | 0.2%PS N/MM ² | ELONG % | | |
| | | | | | | | | | | | | | | | | | | |
| BS L99 | 0.10 | 0.20/0.45 | 6.5/7.5 | 0.20 | 0.10 | 0.10 | 0.10 | 0.05 | 0.05 | 0.05 | 0.20 | | TF | MIN 230 | MIN 185 | MIN 2 | A356 (USA) A-S7G03 (FRANCE) G-A1S17Mg (GERMANY) Al-Si7Mg (I.S.O.) | GOOD MECHANICAL PROPERTIES. EXCELLENT FOUNDRY CHARACTERISTICS ENSURE A HIGH DEGREE OF SOUNDNESS. |
| BS L119 | 4.5/5.5 | 0.10 | 0.30 | 0.50 | 0.20/0.30 | 1.3/1.7 | 0.10 | 0.05 | 0.05 | 0.15/0.25 | sb0.10/0.30 Co0.10/0.30 Zr0.10/0.30 | | TF | 215 | 190 | 1 | MSRR8009/RR350 (UK) | RETAINS MECHANICAL PROPERTIES UP TO 350°C. DIFFICULT FOUNDRY ALLOY, REQUIRES SPECIAL FOUNDRY TECHNIQUES. |
| BS L51 | 0.8/2.0 | 0.05/0.20 | 1.5/2.8 | 0.8/1.4 | 0.1 | 0.8/1.7 | 0.1 | 0.05 | 0.05 | 0.25 | | | TE | 160 | 125 | 2 | MSRR8041/RR50 (UK) A-S2U (FRANCE) | RETAINS MECHANICAL PROPERTIES UP TO 200°C. |
| DTD 5008 | 0.1 | 0.5/0.75 | 0.25 | 0.5 | 0.1 | | 4.8/5.7 | 0.05 | 0.05 | 0.25 | Cr0.4/0.6 | | M | 215 | 170* | 4 | 40E (USA) Al-Zn5Mg (I.S.O.) A-Z5G (FRANCE) | BRAZEABLE ALLOY, DIFFICULT FOUNDRY ALLOY - SUITABLE FOR SIMPLE SHAPES ONLY. MATERIAL FULLY AGE HARDENS TO OPTIMUM PROPERTIES AFTER 21 DAYS AT ROOM TEMPERATURE. |
| BS L78 | 1.0/1.5 | 0.4/0.6 | 4.5/5.5 | 0.6 | 0.5 | 0.25 | 0.10 | 0.05 | 0.05 | 0.25 | | | TF | 250 | 220 | - | G-AlSi5Cu1 (GERMANY) 3600 (ITALY) 355 (USA) | GOOD TENSILE STRENGTH. GOOD CASTABILITY. |
| BS L169 | 0.10 | 0.50/0.75 | 6.5/7.5 | 0.20 | 0.10 | 0.05 | 0.10 | 0.05 | 0.05 | 0.10/0.20 | Be0.07 | | TF | 300 | 240 | 3.5 | A357 (USA) EN 3125 A-S7G06 (FRANCE) | HIGH MECHANICAL PROPERTIES USED IN CRITICAL AEROSPACE APPLICATIONS. |
| GENERAL ENGINEERING (U.K.) | BS 1490 LM25 | 0.20 | 0.20/0.6 | 6.5/7.5 | 0.5 | 0.3 | 0.1 | 0.1 | 0.1 | 0.05 | 0.2 | | M TE TB7 TF | 130 150 160 230 | 80* 120* 80* 185* | 2 1 2.5 - | 356 (USA) A-S7G (FRANCE) G-A1S17Mg (GERMANY) Al-Si7Mg (I.S.O.) | OUTSTANDING GENERAL PURPOSE HIGH STRENGTH ALLOY. EXCELLENT CASTING PROPERTIES, GOOD CORROSION RESISTANCE, GOOD PRESSURE-TIGHT PROPERTIES, HEAT TREATMENT VARIATIONS PROVIDE A WIDE RANGE OF MECHANICAL PROPERTIES TO COVER MOST APPLICATIONS. |
| | BS 1490 LM0 | 0.03 | 0.03 | 0.30 | 0.40 | 0.03 | 0.03 | 0.07 | 0.03 | 0.03 | - | | M | - | - | - | A5 (FRANCE) | PURE ALUMINIUM. HIGH CONDUCTIVITY. GOOD COLOUR ANODISING. CAN BE BRAZED. |
| | BS 1490 LM5 | 0.1 | 3.0/6.0 | 0.3 | 0.6 | 0.3/0.7 | 0.1 | 0.1 | 0.1 | 0.05 | 0.2 | | M | 140 | 90* | 3 | | HIGH CORROSION RESISTANCE, ACCEPTS A HIGH POLISH. |
| U.S.A. | 356 | 0.25 | 0.20/0.45 | 6.5/7.5 | 0.6 | 0.35 | | 0.35 | | | 0.25 | | T51 T6 | 158 206 | - 137 | - 3 | BS 1490 LM25 (UK) | MOST WIDELY USED. IT HAS HIGH STRENGTH AND GOOD CORROSION RESISTANCE. |
| | A356 | 0.20 | 0.20/0.45 | 6.5/7.5 | 0.20 | 0.10 | | 0.10 | | | 0.20 | | T6 | 220 | 151 | 3 | BS L99 (UK) | HIGH PURITY 356 FOR AEROSPACE USE. SEE BS L99 FOR COMMENTS. |
| | A357 | 0.20 | 0.40/0.7 | 6.5/7.5 | 0.20 | 0.10 | | 0.10 | | | 0.04-0.2 | Be0.04/0.07 | T6 | 280 | 210 | 3 | ABM 5-5049 (UK) S-07-1306 (UK) L169 (UK) | HIGH MECHANICAL PROPERTIES. STRUCTURAL APPLICATIONS. |

HEAT TREATMENT CONDITION

M = AS CAST

TE = PRECIPITATION TREATED ONLY = T51 (USA)

TB7 = SOLUTION TREATED AND STABILISED

TF = SOLUTION TREATED AND PRECIPITATION TREATED = T6 (USA)

ANALYSIS REQUIREMENTS ARE MAXIMUM UNLESS OTHERWISE STATED.

* PROOF STRESS WHERE INDICATED THIS IS FOR INFORMATION ONLY AND IS NOT A SPECIFICATION REQUIREMENT.

TRITECH TOLERANCES

| FUNCTIONAL DIMENSIONS | | | | GENERAL |
|--------------------------|-----------|--------------------------|-----------|--|
| INCHES | | MILLIMETRES | | WALL THICKNESS TOLERANCE SPECIAL TOLERANCE APPLY TO WALL THICKNESSES. THE NORMAL TOLERANCE TO BE ALLOWED IS ±.008" (±0.20MM). LARGE PLAN WALL SECTIONS, ABOVE 75 SQ. INCHES (500 SQ. CM.), SHOULD INCORPORATE A TOLERANCE OF ±0.012" (±0.3MM). STRAIGHTNESS/FLATNESS TOLERANCE ±0.004" (±0.10MM) PER INCH (PER 25MM), EXCLUDING LOCALISED MAX PATTERN DEPRESSIONS. ANGULAR TOLERANCE ±1/2° SURFACE FINISH TYPICAL SURFACE FINISH - 80/100 MICROINCHES (2.0/2.5 MICROMETRES). A FINER SURFACE FINISH IS GENERALLY ATTAINABLE WHEN SPECIALLY REQUESTED. GEOMETRIC TOLERANCES ARE DEPENDENT ON THE CASTING CONFIGURATION AND/OR ALLOY SPECIFICATION, AND WOULD BE DISCUSSED ON AN INDIVIDUAL BASIS AT THE QUOTATION STAGE. |
| DIMENSION | TOLERANCE | DIMENSION | TOLERANCE | |
| UP TO 0.500 | ±.004" | UP TO 12.0 | ±0.10MM | |
| 0.500+ TO 1.000 | ±.006" | 12.0+ TO 25.0 | ±0.15MM | |
| 1.000+ TO 1.500 | ±.008" | 25.0+ TO 37.0 | ±0.20MM | |
| 1.500+ TO 2.000 | ±.010" | 37.0+ TO 50.0 | ±0.25MM | |
| 2.000+ TO 2.500 | ±.012" | 50.0+ TO 62.0 | ±0.30MM | |
| 2.500+ TO 3.500 | ±.015" | 62.0+ TO 87.0 | ±0.35MM | |
| 3.500+ TO 5.000 | ±.018" | 87.0+ TO 125.0 | ±0.45MM | |
| 5.000+ TO 7.500 | ±.021" | 125.0+ TO 187.0 | ±0.53MM | |
| 7.500+ TO 10.000 | ±.024" | 187.0+ TO 250.0 | ±0.60MM | |
| 10.000+ TO 12.500 | ±.027" | 250.0+ TO 312.0 | ±0.68MM | |
| 12.500+ TO 15.000 | ±.030" | 312.0+ TO 375.0 | ±0.75MM | |
| EACH ADDITIONAL INCH ADD | ±.001" | EACH ADDITIONAL 25MM ADD | ±.025MM | |

CLOSER TOLERANCES ARE GENERALLY ATTAINABLE BY UTILISING ADDITIONAL OPERATIONS. NON-FUNCTIONAL DIMENSIONS WHERE DESIGN PERMITS, THE ABOVE TOLERANCES SHOULD BE INCREASED BY 50%.