

SHP 2099 Ultimate

Product Data Sheet

Aluminium Lithium

For high strength applications

Developed for use in motorsport, aerospace and high strength applications requiring low density, high stiffness, superior damage tolerance & excellent corrosion resistance.

Lithium additions increase the strength and modulus of Al alloys while lowering their density. Alloy 2099 extrusions are available in three tempers from 0.5 to 3.00 inch in T83 and 160mm to 200mm in T8 temper.

Alloy 2099-T83 offers strength and excellent corrosion resistance with moderate fracture toughness.

Typical Applications:

Alloy 2099 extrusions can replace 2xxx, 6xxx, and 7xxx, aluminium alloys in applications such as:

- motorsport components
- statically and dynamically loaded fuselage structures
- lower wing stringers
- stiffness dominated designs

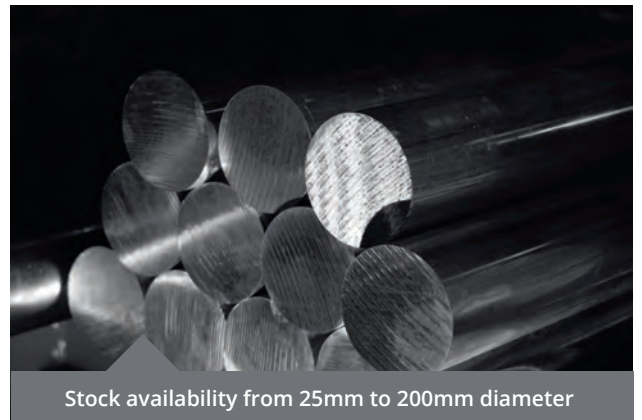
Toughness & Fatigue

Fatigue crack growth resistance and S/N fatigue performance also show improvement vs 2024-T3511, which has been a standard product for applications considered fatigue critical. The alloy shows significant improvement when compared to 2219 in elevated temperature.

About Smiths High Performance

Smiths High Performance is a leading stockholder and supplier of high-performance engineering materials to the global motorsport sector. We are supply partners in a range of specialist motorsport markets including Formula 1, Formula E, NASCAR, MOTO GP, WEC & WRC.

Further technical data available on the reverse of this Datasheet



Corrosion Resistance

The corrosion resistance of Alloy 2099 is much better than 7075-T6511 and 2024-T3511 with both the T8E67 and T83 tempers receiving EA (mild exfoliation) or better exfoliation ratings compared to the conventional alloys ED (very severe exfoliation). The stress-corrosion cracking performance is also much improved.

Chemical Composition

Weight %	Al	Cu	Li	ZN	Mg	Mn	Zr	Ti	Fe	Si	Be	Other
Min:		2.4	1.6	0.4	0.10	0.10	0.05					
Max:	BAL	3.0	2.0	1.0	0.50	0.50	0.12	0.10	0.07	0.05	0.0001	0.15

Minimum Mechanical Properties for AMS 4287

Temper	Round Bar Dia (")	Longitudinal Direction		Elong. A5 in %	Traverse Direction		Elong. A5 in %
		Rm in MPa	Rp 0.2 Mpa		Rm in MPa	Rp 0.2 MPa	
2099 T83	0.50-0.99	560	525	9	525	485	9
2099 T83	1.00-2.5	595	505	9	520	470	9

Minimum Guaranteed Mechanical Properties for SHP 2099 Ultimate

Temper	Round Bar Dia (mm)	Longitudinal Direction		Elong. A5 in %	Traverse Direction		Elong. A5 in %
		Rm in MPa	Rp 0.2 Mpa		Rm in MPa	Rp 0.2 MPa	
2099 T83	20-84	560	510	4.5			
2099 T83	85-160	560	510	4.5	460	360	1.5
2099 T8	161-200	500	350	4.5	420	320	1.5
Temper	Flat Bar Thk (mm)	Longitudinal Direction		Elong. A5 in %			
		Rm in MPa	Rp 0.2 Mpa				
2099 T83	20-100	560	510	4			

...where performance matters...

When you purchase high-performance materials from **Smiths High Performance**, you will be joining some of the biggest and best global engineering companies. We are a Tier 1 supply chain partner to the world's leading motorsport companies. Our unique business structure and ethos allows us to offer services which are otherwise unavailable in this market sector.