

# SHP 2099 Ultimate

## Product Data Sheet



Revision: SHP/2099/6/2021

...where performance matters

## 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:

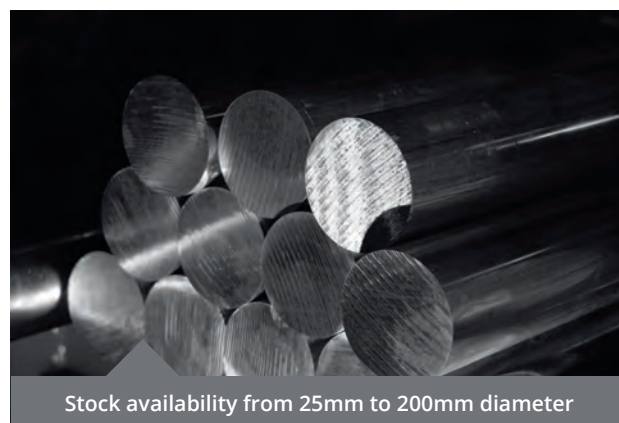
- motorsport components
- statically and dynamically loaded fuselage structures
- lower wing stringers
- stiffness dominated designs

### 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.



### 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.

Further technical data available on the reverse of this Datasheet

## Purchase Specification for: SHP-2099 Rev 6 Bar

This specification gives the requirements for Extruded 2099 aluminium lithium bar. The requirements given below are specific to Smiths Metal Centres Ltd needs and the material shall comply with. Released to BS L100 sec 1&5 latest issue.

## Chemical Composition (in accordance with AMS 4287 latest issue)

Weight %	Al	Cu	Li	ZN	Mg	Mn	Zr	Ti	Fe	Si	Be	Each	Other
Min:	Bal	2.40	1.60	0.40	0.10	0.10	0.05						
Max:		3.00	2.00	1.00	0.50	0.50	0.12	0.10	0.07	0.05	0.0001	0.05	0.15

Chemical analysis shall be conducted on products from each heat and shall comply with the above requirements.

## Mechanical Requirements

Alloy / Temper	Round Bar (mm)	Long Direction Rm in MPa	Long Direction Rp 0.2 MPa	Long Direction A5	Traverse Direction Rm in MPa	Traverse Direction Rp 0.2 MPa	Traverse Direction A5 (%)
2099 T83	20 - 84	560 min	520 min	5% min			
2099 T83	85 - 160	560 min	520 min	5% min	460 min	360 min	1.5% min
2099 T8	161 - 200	500 min	390 min	5% min	420 min	320 min	1.5% min

Alloy / Temper	Flat Bar (mm)	Long Direction Rm in MPa	Long Direction Rp 0.2 MPa	Long Direction A5
2099 T83	20 - 110	560 min	510 min	4.5% min

Note: for Flat Bar T83 temper is limited to a cross sectional area of 20200mm<sup>2</sup>

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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.