

4032 Aluminium Alloy

Smiths High Performance



Revision: SHP/english/datasheets/4032/11.02.2025

Page: 1 of 2

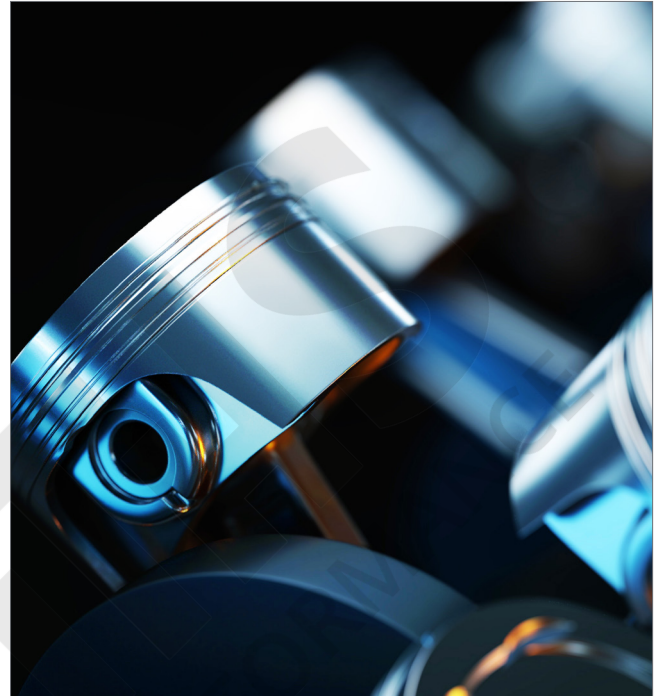
Motorsport Pistons

4032 Aluminium has numerous motorsport applications, including racing engine pistons.

4032 aluminium is a wrought alloy product which offers superior service in both low and high temperature. Motorsport applications for 4032 include racing pistons, engine components and chassis components.

The addition of silicon increases the strength of the alloy at the expense of overall ductility. Adding nickel reduces thermal expansion while increasing mechanical strength, although susceptibility to corrosive pitting is possible. 4032 offers the highest tensile strength of all aluminium alloys in the 4000 series.

The grade offers fair to good machinability, and we recommend an oil lubricant when the material is machined. Alloy 4032 is weldable using arc welding or inert gas methods.



Benefits:

- Strongest 4000 series aluminium
- Fair to good machinability
- Weldable
- Suitable for low and high-temperature applications
- More durable and lighter than 2618A

Typical Applications:

- Racing pistons
- Engine components
- Chassis components

Stock Availability:

We stock 4032 aluminium in bar and tube.

Delivery Condition:

We supply 4032 aluminium alloy in the F temper. Other tempers are available on request.

About Smiths High Performance

Smiths High Performance is a leading stockholder and supplier of high-performance engineering materials. We are material supply chain partners supporting high-technology market sectors.



SCAN ME

Further technical data available on the reverse of this Datasheet

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Revision: SHP/english/datasheets/4032/11.02.2025

Page: 2 of 2

*Chemical Composition (weight, %)

Aluminium	Balance
Chromium	0.10 max
Copper	0.50 - 1.30
Iron	1.00 max
Magnesium	0.80 - 1.30
Nickel	0.50 - 1.30
Remainder Each	0.05 max
Remainder Total	0.15 max
Silicon	11.00 - 13.50
Zinc	0.25 max

*Properties as per BS EN 573-3

Physical Characteristics:

Density (lb / cu. in.)	0.097
Specific Gravity	2.68
Melting Point (Deg F)	995
Poissons Ratio	0.33
Modulus of Elasticity	11.4
Modulus of Elasticity	4.3

Comparisons with 2618A

2618A aluminium, with a lower silicon content, offers greater malleability, making it ideal for applications under high load and stress. However, with reduced silicon content, linear expansion is far more significant than 4032, and therefore greater clearance will be required if used in piston design.

4032 aluminium has a much higher silicon content (around 12%), making manufactured pistons more durable and lighter than if produced in 2618A. The high silicon content reduces overall ductility – this reduces the resistance of the piston to high-impact loads.

Curiously to the naked eye, it is challenging to differentiate between the two products, but each offers unique benefits.

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When you purchase high-performance materials from **Smiths High Performance**, you will join 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 allow us to offer services otherwise unavailable in this market sector.

www.smithshp.com
info@smithshp.com


Unit 3, Juno Place
Stratton Business Park
Biggleswade SG18 8XP

Tel: +44 (0)1767 604 708



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