Kennametal Stellite™ is a global provider of solutions for wear, heat, and corrosion applications, and a world-class manufacturer of components and materials for the aerospace market. Decades of experience and knowledge with Cobalt and Nickel alloys have produced a comprehensive portfolio of materials that have become industry standard in many critical applications.

Kennametal Stellite offers its proven solutions for the aerospace market in a broad range of products.

- Cobalt & Nickel Alloys
- Stellite alloy 6B (AMS 5894)
- Cast & PM Components
- Hardfacing Consumables

stellite.com
Kennametal Stellite materials expertise can be traced back over a century when Stellite alloys were invented. Our expert team of metallurgists and engineers focus on delivering material solutions for challenging applications.

Our experience with the development and processing of cobalt alloys is unique.

Materials Expertise

Kennametal Stellite materials expertise can be traced back over a century when Stellite alloys were invented. Our expert team of metallurgists and engineers focus on delivering material solutions for challenging applications.

Our experience with the development and processing of cobalt alloys is unique.

Why Kennametal Stellite™?

Quality Systems & Certifications

We have been a supplier to the aerospace industry for over 60 years and maintain numerous certifications, including AS9100D, ISO 9001:2015, and NADCAP™ for NDT, along with many customer and industry-specific approvals.

Alloys

Kennametal Stellite pioneered many industry standard alloy families, each with a full range of grades and available with AMS certification. Stellite and Tribaloy™ alloys, in particular, are used in many key aerospace high temperature wear applications.

We are the exclusive supplier of Stellite alloy 6B per AMS 5694, and maintain the most comprehensive inventory available.

Full Service Provider

Materials are produced and fully processed at one facility with a singular focus on quality. Components are available from multiple casting, powder metallurgy, and wrought processes, according to the required specification. Additional in-house services ensure total product control:

- Comprehensive finishing capabilities
- Full inspection
- Certification

We take responsibility for component production from end to end.

Aerospace Capability Summary
Alloys

Kennametal Stellite™ offers a comprehensive range of material options to meet specific application needs. Our portfolio of alloys continues to grow as our metallurgists develop grades targeting specific wear conditions.

Although dozens of material grades are available, a short list of alloys form the foundation for many wear applications in both aerospace and general industry. Most alloys have been developed to perform in environments where at least 2 modes of failure are present.

Stellite Alloy 6B (AMS 5894)

When it comes to tough, wear-resistant materials with certified mechanical properties, Stellite alloy 6B is in a class by itself. Unlike many other materials that sacrifice toughness for wear resistance, Stellite alloy 6B offers both. With its excellent wear characteristics, hot hardness, corrosion resistance, and superior mechanical properties, Stellite alloy 6B is the material of choice for many demanding aerospace wear applications.

We maintain an extensive inventory of Stellite alloy 6B bar and sheet. Our service, product availability, size range, and bar lengths are unparalleled. Kennametal Stellite can also provide finished components made to your exact specifications.

- DFARS compliant
- PWA 1196 certified
- Boeing BMS7-338 certified
- Ultrasonically inspected
- Certified mechanical properties

**Stellite Alloy 6B Size Range**

<table>
<thead>
<tr>
<th>Type</th>
<th>Diameter/Thickness</th>
<th>Length/Sheet Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round Bar</td>
<td>.312-.6.000”</td>
<td>Up to 160”</td>
</tr>
<tr>
<td>Flat Stock</td>
<td>.031-.1.000”</td>
<td>Up to 36”x 96”</td>
</tr>
</tbody>
</table>

*Custom sizes upon request*
Processing Methods

As a full-service provider, we offer components manufactured from a range of processes to suit part geometry, size, specification, and quantity. All aspects of production are controlled within our facility; from raw materials to fully finished, inspected, and certified components.

**Investment & Vacuum Casting**
Investment and vacuum castings offer clean as-cast surface finishes and near net-shape geometries of complex components. A full range of Cobalt, Nickel, and stainless steel alloys can be poured.

**Rapid Prototyping**
With a 3D model file, stereolithography (SLA) patterns can be quickly produced to create the patterns needed as the starting point for investment or vacuum castings. This removes the need for hard tooling, resulting in faster lead times and lower prototyping costs.

**Centrifugal Casting**
Tubular products, such as bushings and sleeves, can be efficiently manufactured as centrifugal castings. This process produces a high quality and dense component with a fine uniform grain structure.

**Powder Metallurgy**
A comprehensive range of Stellite grades can be produced as fully dense P/M components. This is often the process of choice for smaller, high volume parts such as balls, spacers, or bearing components.

**Additive Manufacturing**
Kennametal has developed multiple processing techniques for producing Stellite™ alloy components through additive manufacturing. Our technical experts work closely with you to maximize the benefit of this technology, ultimately providing finished components.

**Precision Machining**
We finish castings, Stellite alloy 6B, and P/M components to your specifications in our fully equipped machine shop. High volume programs can be accommodated with dedicated equipment and cellular manufacturing.

**Powder & Wire**
Powder and wire are available in many grades and sizes for hardfacing and repair applications. Solid fine wires are also available for turbine repair applications.
Quality Systems & Certifications

Extensive quality systems and process controls ensure Stellite components continue to meet the highest expectations. Our facilities maintain ISO 9001:2015 and AS9100D certifications, as well as numerous aerospace qualifications, both industry and customer specific.

- ISO Certified since 1995.
- NADCAP™ for NDT since 2006.
- Aerospace experience at OEM and sub-tier levels since 1956.

<table>
<thead>
<tr>
<th>QUALITY CERTIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS9100D</td>
</tr>
<tr>
<td>ISO 9001:2015</td>
</tr>
<tr>
<td>NADCAP Approval for NDT — Penetrant &amp; Radiography</td>
</tr>
<tr>
<td>GE Aviation S-1000</td>
</tr>
<tr>
<td>Pratt &amp; Whitney Canada &amp; USA – ASQR-01</td>
</tr>
<tr>
<td>PWA LCS Certified for Pratt &amp; Whitney Canada &amp; USA</td>
</tr>
<tr>
<td>DQR (3 in-house)</td>
</tr>
<tr>
<td>ASQR-01</td>
</tr>
<tr>
<td>ASME Section III NCA 3800 – Nuclear</td>
</tr>
<tr>
<td>10 CFR Part 21 – Nuclear Safety</td>
</tr>
<tr>
<td>10 CFR 50 Appendix B – Nuclear</td>
</tr>
<tr>
<td>Controlled Goods Program Registered</td>
</tr>
<tr>
<td>Numerous Customer Specific Approvals</td>
</tr>
</tbody>
</table>
Inspection Capability

In accordance with customer requirements, we verify and document a wide variety of features through measurement, chemical analysis, radiography, and fluorescent penetrant crack detection. We perform destructive tests as required, and also work with independent testing firms capable of performing third-party inspections and over-checks.

Our certification, qualification, and testing capabilities are continuously expanding. Feel free to discuss your requirements with our staff.

- Large team of dedicated inspection employees.
- Decades of combined inspector experience.
- Extensive in-house inspection equipment.

ON-SITE CAPABILITIES

<table>
<thead>
<tr>
<th>Full Dimensional Metrology</th>
<th>Fluorescent Penetrant Testing</th>
<th>Radiographic Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• CMM (In-Process &amp; Final Inspection)</td>
<td>• Level III in-house</td>
<td>• Level III in-house</td>
</tr>
<tr>
<td>• Vision System</td>
<td>• Level II (5 in-house)</td>
<td>• Level II (3 in-house)</td>
</tr>
<tr>
<td>• Traditional Measuring Methods</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Kennametal, the stylized K, Nistelle, Stellite, and Tribaloy are trademarks of Kennametal, Inc. and are used as such herein. The absence of a product, service name, or logo from this list does not constitute a waiver of the Kennametal trademark or other intellectual property rights concerning that name or logo.

NADCAP™ is a trademark of Leech Tishman Fuscaldo & Lampt. INCONEL® is a registered trademark of Huntington Alloys Corporation

© Copyright 2019 by Kennametal Inc., Latrobe, PA. All rights reserved.