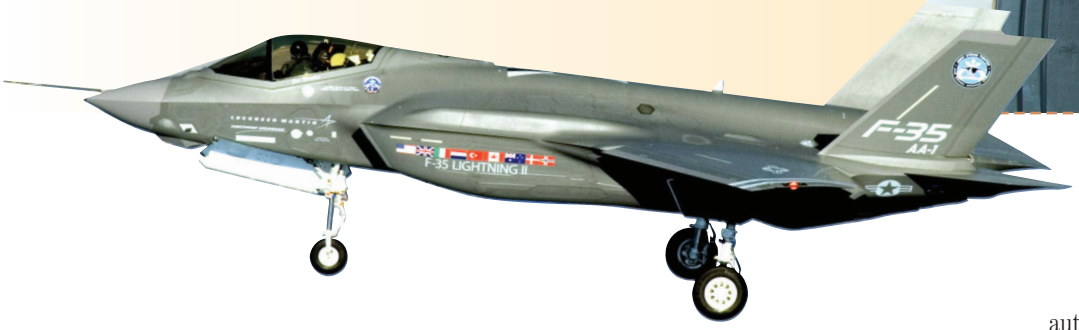
Advanced Materials for Defense Applications

CARPENTER

WHEN YOUR EQUIPMENT NEEDS TO BE MISSION READY, COUNT ON CARPENTER ALLOYS TO PERFORM.



EXPERT MATERIALS FROM MATERIALS EXPERTS

We understand the challenges design engineers servicing the defense industry face. A catastrophic failure could mean a loss of life. You need the highest quality materials that meet the most stringent of specifications. Carpenter materials perform, often combining multiple properties such as high strength, high toughness, and corrosion and wear resistance in a single alloy, resulting in increased readiness and a lower total life cycle cost for mission-critical equipment. What's more, Carpenter metallurgists, research scientists and engineers work closely with the industry's best to continually define and redefine the leading edge of materials technology and find the best solutions to your design and production challenges.

A WIDE RANGE OF ALLOYS AND MATERIALS

Every application presents its own set of challenges. No two conditions are the same, and solutions may require unconventional or out-of-the-box thinking.

At Carpenter, we've spent years manufacturing specialty alloys that helped to advance the aerospace, automotive, energy, industrial and medical industries. The lessons learned have resulted in alloy improvements and one of the broadest ranges of specialty materials solutions available today.

For stainless, specialty and titanium in wrought and MicroMelt® powder metal forms, count on Carpenter to leverage our deep technical expertise and extensive experience to develop new or customized alloys for your application.

For more information on Carpenter Technology (NYSE:CRS), including detailed technical information on hundreds of alloys, visit www.cartech.com or, call 1-800-654-6543 in the United States.

The defense sector is under increased pressure to deliver improved corrosion resistance, wear resistance, lower weight, and smaller component footprint. Demands for faster, lighter, and enhanced life cycle of equipment is a considerable challenge. Carpenter's engineering expertise and alloys will help you work towards achieving these goals.

Carpenter manufactures an exceptional group of specialty alloys, titanium alloys and powder metal alloys. We combine an industry-leading product offering with knowledgeable materials support, lot-to-lot consistency, and responsive, on-time delivery.

Whatever the need—from aerospace applications such as landing gear, engine parts or fasteners; to armor plate for aircraft, land vehicles and personal protection; to vehicle suspension systems including springs and carriage components—you can count on Carpenter to deliver the specialty materials you need.

TOTAL COMMITMENT IN MANUFACTURING, DELIVERY AND CUSTOMER SERVICE

Carpenter products are manufactured to strict standards; Carpenter's quality systems are approved to ISO 9001:2008 and AS9100 standards.

We have strategically located warehouses and operations centers in Asia, Europe, Mexico, Canada and the United States. Our responsive sales and service professionals can quickly and accurately track order status, inventory and other essential delivery data.

DEPENDABLE MATERIALS YOU CAN COUNT ON WHEN MISSION READINESS MATTERS

Carpenter's legacy and continued commitment: Pioneering new materials. Employing state-of-the-art manufacturing. Supporting the innovation and success of the defense industry.

For more information, visit www.cartech.com. In the United States call toll-free 1-800-654-6543.

CARPENTER manufactures hundreds of specialty materials. Mill forms include round and shaped bar, plate, strip, hollow bar, wire and fine wire in wrought and Micro-Melt® powder metals. Below is a listing of some of our alloys that have been used for defense applications.

Ultra High-Strength Alloys

AerMet® 100 alloy

AerMet 310 alloy

AerMet 340 alloy

NiMark® Alloy 250

NiMark Alloy 300

High-Temperature Alloys

Micro-Melt® L.C. Astroloy

Pyromet® Alloy X-750

Pyromet Alloy 901

Pyromet Alloy 909

Pyromet Alloy 41

Pyromet Alloy A-286

Pyromet Alloy 355

Pyromet Alloy 718

Pyrowear® 675 stainless

Waspaloy

Stainless Steels

Ferritic, martensitic and austenitic grades

High-Strength (PH) Stainless

Carpenter 15Cr-5Ni stainless

Carpenter 13-8 stainless

Carpenter Stainless Custom 630

Custom 450® stainless

Custom 455® stainless

Custom 465® stainless

Custom 475® stainless

Magnetic/Electronic Alloys

Carpenter High Permeability "49"® alloy

Hiperco® 50 alloy

Carpenter HyMu "80"® alloy

Kovar® alloy

Titanium Alloys

Ti 6Al-4V

Ti 3Al-8V-6Cr-4Mo-4Zr

Ti 3Al-2.5V

Tool Steels

Micro-Melt® Maxamet® alloy

Micro-Melt T15 alloy

Micro-Melt M4 alloy

Mold Steel

Carpenter No. 158® alloy

Bushing and Bearing Alloys

ACUBE® 100

Gall-Tough® PLUS stainless

Micro-Melt® 440C

Surface Protection and Repair

Micro-Melt® MCrAlY alloys

Micro-Melt braze materials

Micro-Melt weld repair materials

CARPENTER'S SPECIALTY ALLOYS HAVE BEEN USED IN A WIDE VARIETY OF DEFENSE APPLICATIONS

Landing Gear – fixed wing and rotorcraft

Armor – vehicles, helicopters, body armor

Suspension systems – springs, suspension carriages

Bushings and bearings

Helicopters – rotor gear

Unmanned aircraft vehicles (UAVs)

Engine parts

Night vision goggles

Projectile and ordnance components

Gun barrels – mortars, artillery

Fasteners

Aircraft hardware

Firearm components

Turbine engine blades and exhaust ducts

Valve components – ships and other vessels

All shipments must comply with United States DoD, ITAR and other governmental regulations. Cover photo (center) courtesy U.S. Navy.

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