



BELAC, LLC

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A Chromalloy Joint Venture Company

Your Source for PMA High-Pressure Turbine Blades

BELAC LLC provides the world's commercial air carriers with proven replacement parts that reduce their operating expenses and improve efficiency.

MORE THAN
50,000 ENGINE
BLADES IN
OPERATION
TODAY



A Unique Approach

Based in Oldsmar, Florida, BELAC is a joint venture company owned by Chromalloy — a global engine technology company recognized for its ability to partner with gas turbine operators in an effort to reduce their operating expenses — and several major global airlines.

BELAC is an ISO9001:2000/AS9100B facility providing PMA products and services such as design, tooling development, machining and inspection to customers in an FAA-regulated environment.

The company was formed to provide reliable, high quality HPT blades as an alternative to those produced by the original equipment manufacturers of aircraft engines. BELAC was the first company to achieve FAA Parts Manufacturer Approval (PMA) for HPT blades in engines that power the air transport category aircraft flown by commercial lines.

The People

BELAC employs turbine design professionals, former FAA experts, certified NDT specialists, highly trained inspectors, metallurgists and other top-level scientists. The knowledge base available to BELAC includes not only its highly regarded technical and regulatory staff, but also its Joint Venture Partners who provide operational history and a perspective that can only be provided by an operator/MRO.



The Technology

BELAC provides design, testing, certification and production of FAA-authorized PMA HPT blades. The company is ISO9001:2000/AS9100B certified for design, tooling, machining and inspections.



BELAC relies on Chromalloy's brand new state-of-the-art Casting facility right next door in Tampa, Florida to fulfill their requirement for world-class castings and ceramic cores.

Some of the tools available to our in-house professionals include analytical aids such as scanning electron microscopes, a fully equipped METLAB and software that assists in finite element analysis.

The Equipment

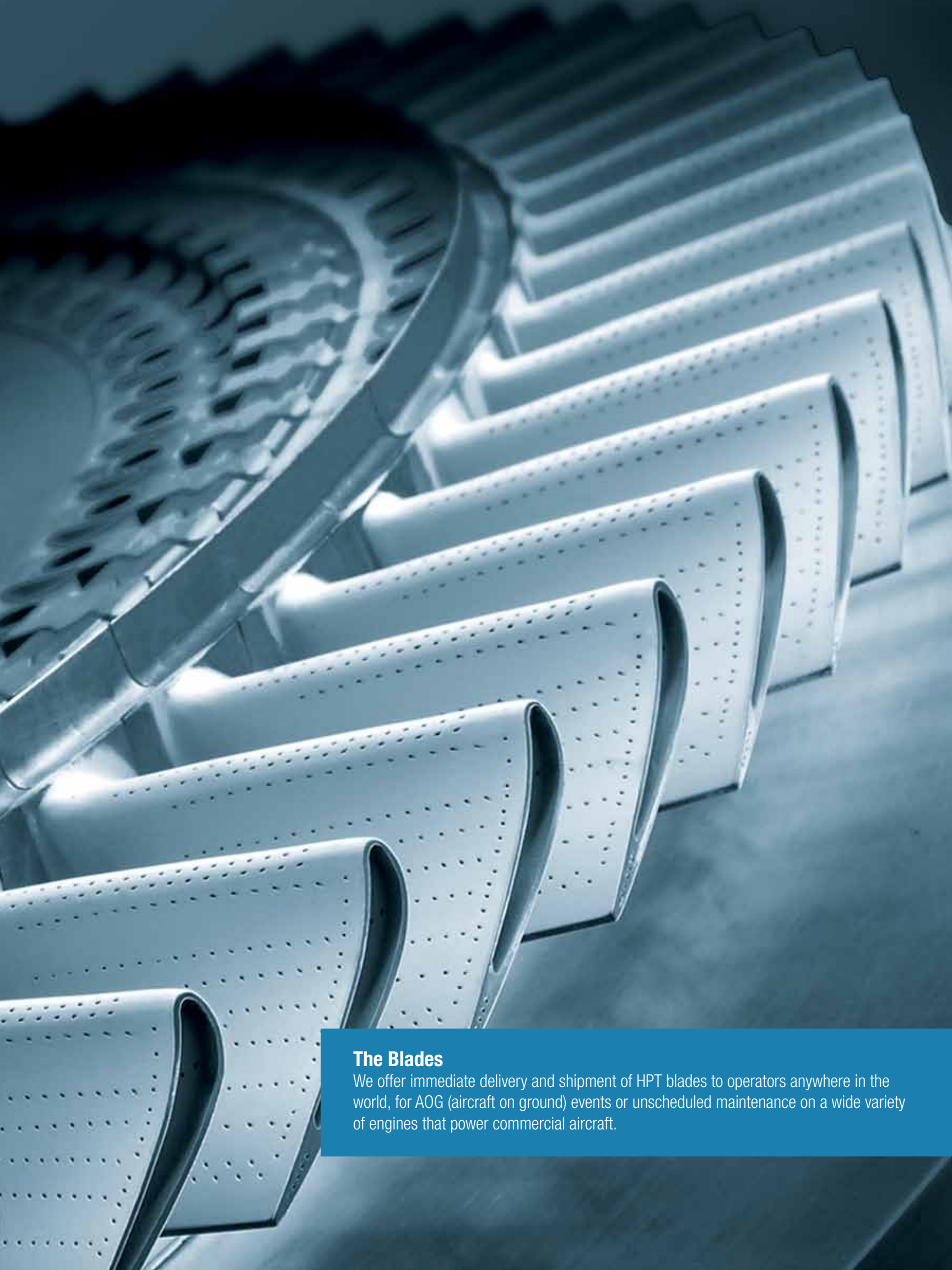
BELAC employs state-of-the-art manufacturing equipment including Continuous Dress/Creep Feed Dual Wheel Grinders, Surface Grinders, Five Axis Laser Drilling Equipment, Five Axis EDM machines, Vacuum Braze and Heat Treat and Shot Peen equipment, in addition to a full-service Tool and Die shop equipped to permit in-house fabrication of casting and machining tooling.

BELAC's world-class inspection equipment provides assurance that each manufactured part conforms to FAA-approved design data and is safe for operation.

The Process

BELAC employs a unique re-engineering design approach, fully utilizing innovative techniques to duplicate and improve upon high-cost repair parts for the aerospace industry.

With more than 50,000 blades in operation, BELAC has a flawless track record of product quality to-date.



The Blades

We offer immediate delivery and shipment of HPT blades to operators anywhere in the world, for AOG (aircraft on ground) events or unscheduled maintenance on a wide variety of engines that power commercial aircraft.

CFM56-3



First Stage HPT Blade

Replacement for: P/N 1475M34P02

BELAC Part #: BLC1475M34P02

FAA Approval: 5.2.2002

Operational Experience: >19,900 sold

Hours in Service: Over 170 million hours

Product Features: Superior coating, quality and reliability, proven performance and increased yields, EDM drilled cooling holes

Inspection/Repair: IAW P&W ICAs

Eligibility: CFM56-2, CFM56-2A, CFM56-2B, CFM56-3, CFM56-3B, CFM56-3C

CF6-50



First Stage HPT Blade

Replacement for: P/N 1881M53P01

BELAC Part #: BLC1881M53P01

FAA Approval: 1.5.2004

Operational Experience: >5,000 sold

Hours in Service: Over 16 million hours

Product Features: Superior coating, quality and reliability, proven performance and increased yields, cooling hole upgrade modification available, EDM drilled cooling holes

Inspection/Repair: IAW GE ICAs

Eligibility: CF6-45A, CF6-45A2, CF6-50A, CF6-50C, CF6-50CA, CF6-50C1, CF6-50C2, CF6-50C2B, CF6-50C2D, CF6-50E, CF6-50E1, CF6-50E2, CF6-50E2B



Second Stage HPT Blade

Replacement for: P/N 9315M11G16

BELAC Part #: BLC9315M11G16

FAA Approval: 1.5.2004

Operational Experience: >2,200 sold

Hours in Service: Over 6 million hours

Product Features: Superior coating, quality and reliability, proven performance and increased yields, EDM drilled cooling holes

Inspection/Repair: IAW GE ICAs

Eligibility: CF6-45A, CF6-45A2, CF6-50A, CF6-50C, CF6-50CA, CF6-50C1, CF6-50C2, CF6-50C2B, CF6-50C2D, CF6-50E, CF6-50E1, CF6-50E2, CF6-50E2B

CF6-80A



First Stage HPT Blade

Replacement for: P/N 1881M53P03

BELAC Part #: BLC1881M53P03

FAA Approval: 11.16.2004

Operational Experience: >9,200 sold

Hours in Service: Over 70 million hours

Product Features: Superior coating, quality and reliability, proven performance and increased yields, EDM drilled cooling holes

Inspection/repair: IAW GE ICAs

Eligibility: GE CF6-80A, GE CF6-80A1, GE CF6-80A2, GE CF6-80A3

CF6-80C2



First Stage HPT Blade

Replacement for: P/N 1538M90P12

BELAC Part #: BLC1538M90P12

FAA Approval: 3.9.2005

Operational Experience: >9,200 sold

Hours in Service: Over 70 million hours

Product Features: Superior coating, quality and reliability, proven performance and increased yields, TBC coating including CrPtAl on underplatform and pockets, EDM drilled cooling holes

Inspection/repair: IAW GE ICAs

Eligibility: GE CF6-80C2-2A1, GE CF6-80C2-2A2, GE CF6-80C2-2A3, GE CF6-80C2-2A5, GE CF6-80C2-2A8, GE CF6-80C2-2B1, GE CF6-80C2-2B2, GE CF6-80C2-2B4, GE CF6-80C2-2B6, GE CF6-80C2-2B1F, GE CF6-80C2-2B4F, GE CF6-80C2-2B5F, GE CF6-80C2-2B6F, GE CF6-80C2-2B6FA, GE CF6-80C2-2B7F, GE CF6-80C2-2B8F, GE CF6-80C2-2A5F, GE CF6-80C2-2D1F



Second Stage HPT Blade

Replacement for: P/N 1881M52G05

BELAC Part #: BLC1881M52G05

FAA Approval: 3.9.2005

Operational Experience: >3,000 sold

Hours in Service: Over 22 million hours

Product Features: Superior coating, quality and reliability, proven performance and increased yields, TBC coating including CrPtAl on underplatform and pockets, EDM drilled cooling holes

Inspection/repair: IAW GE ICAs

Eligibility: CF6-80C2-2A1, GE CF6-80C2-2A2, GE CF6-80C2-2A3, GE CF6-80C2-2A5, GE CF6-80C2-2A8, GE CF6-80C2-2B1, GE CF6-80C2-2B2, GE CF6-80C2-2B4, GE CF6-80C2-2B6, GE CF6-80C2-2B1F, GE CF6-80C2-2B4F, GE CF6-80C2-2B5F, GE CF6-80C2-2B6F, GE CF6-80C2-2B6FA, GE CF6-80C2-2B7F, GE CF6-80C2-2B8F, GE CF6-80C2-2A5F, GE CF6-80C2-2D1F

PW4000



First Stage HPT Blade

Replacement for: P/N 55L201

BELAC Part #: BLC55L201

FAA Approval: 7.10.2009

Operational Experience: >1,100 sold

Hours in Service: Over 2.5 million hours

Product Features: Superior coating, quality and reliability, proven performance and increased yields, EDM drilled cooling holes

Inspection/Repair: IAW P&W ICAs

Eligibility: PW4052-3, PW4056, PW4056-3, PW4060, PW4060-3, PW4060C, PW4062-3, PW4152-3, PW4156A, PW4156A-3, PW4158, PW4158-3, PW4164, PW4168, PW4168A, PW4460-3, PW4462, PW4462-3



World-Class Innovation from Industry Leaders

BELAC is a joint venture company launched and owned by Chromalloy, Lufthansa Technik and United Airlines.

Chromalloy is a global technology company that delivers innovative solutions that reduce the operating expense and extend the life of gas turbine engines. Chromalloy is one of the world's largest non-OEM providers of advanced coatings, repairs and replacement parts for gas turbine engines. And they are the only non-OEM company in the world that provides coatings, repairs, castings, manufacturing and overhauls — all from a single source.

CHROMALLOY



 **UNITED**

