ATI Stellram
Allegheny Technologies

ADVANCED AEROSPACE METALWORKING SOLUTIONS

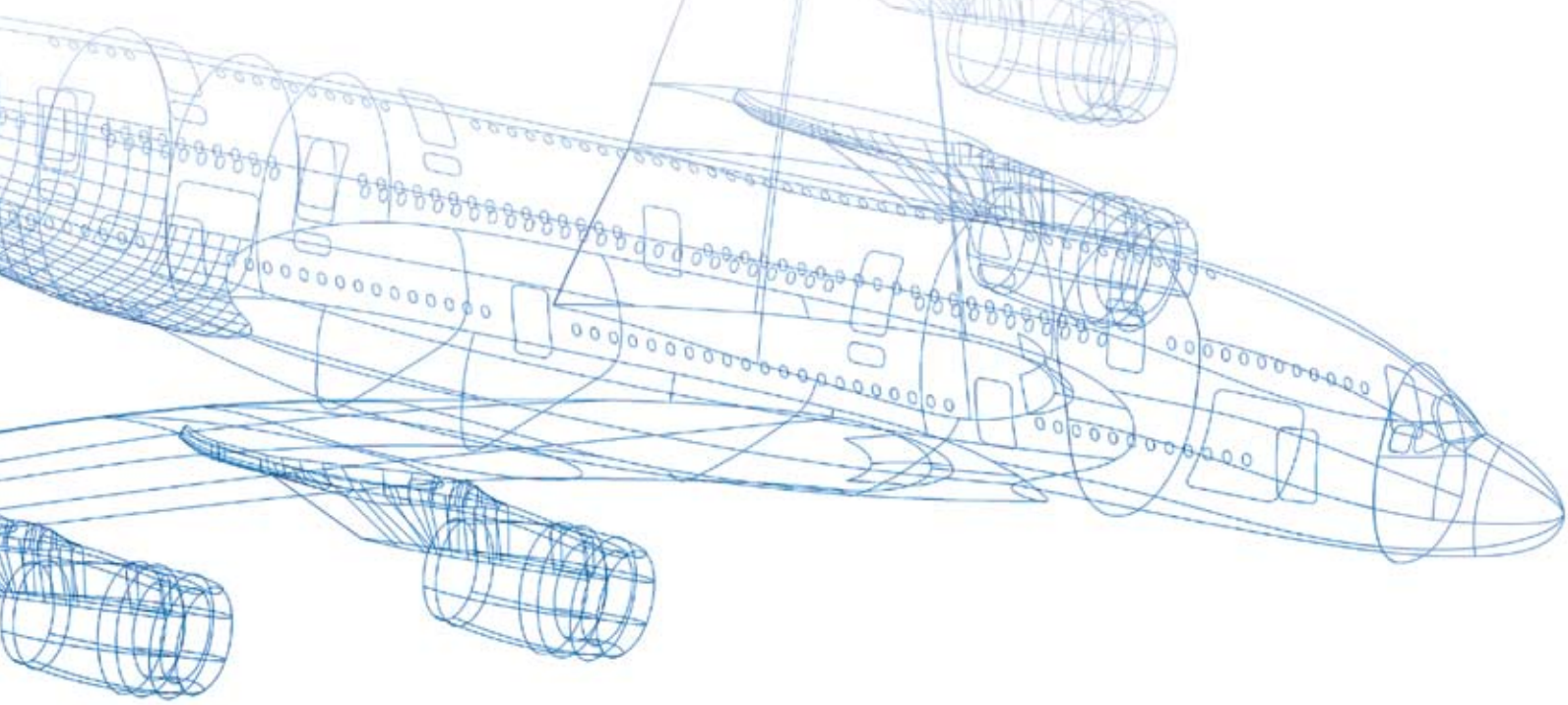
New Aircraft Materials Require New Approaches In Machining

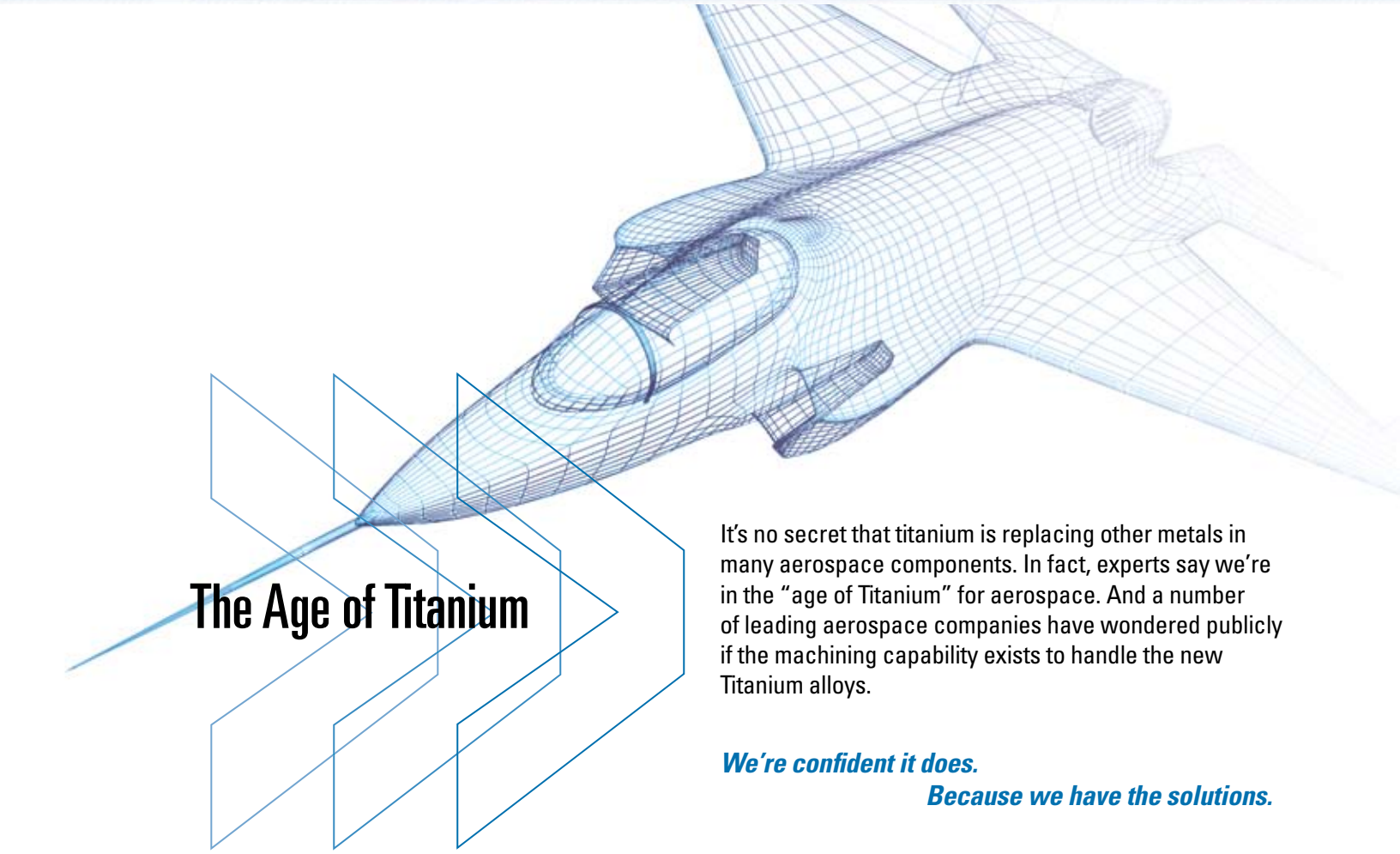
Machining the alloys used in today's aircraft present major challenges to manufacturers. New materials and new design requirements increase the demands on manufacturing teams to meet component costs, product quality, and on-time delivery requirements. No exceptions. No excuses.

The use of these new materials change the cutting tool requirements. Metal removal rates, tool life, product quality and machining integrity are critical to efficient, safe component manufacturing. Today, there is more pressure than ever on cutting tool performance. You must have the right tooling solution for these new component materials. No exceptions. No excuses.

ATI Stellram has been creating innovations in tooling for decades. We specialize in finding solutions for difficult-to-machine materials and production efficiency problems.

We've created many solutions for the aerospace industry. And we can prove it with example after example.





The Age of Titanium

It's no secret that titanium is replacing other metals in many aerospace components. In fact, experts say we're in the "age of Titanium" for aerospace. And a number of leading aerospace companies have wondered publicly if the machining capability exists to handle the new Titanium alloys.

We're confident it does.
Because we have the solutions.

Our Most Important Tool: Knowledge

ATI Stellram is a business unit of ATI Metalworking Products, an operating company of Allegheny Technologies. Allegheny Technologies is a leading producer of specialty metals, including titanium and titanium alloys, nickel-based alloys and superalloys, and stainless and specialty alloys.

We benefit greatly from the technology transfer that comes from engineers working together across Allegheny Technologies Companies. Our metallurgists have a much better understanding of the chemistry of these alloys, and our tooling engineers understand what must be done to machine these metals.

The result is that ATI Stellram has cutting tools for the aerospace industry that are not available from any other resource.

High Metal Removal Rates, Even With Today's New High Temperature Heat Resistant Alloys

In machining many components, as much as 75% of the metal must be removed. For materials like Ti 5553 and Ti 1023, this is an unprecedented challenge. But ATI Stellram, by using new ideas, imaginative design, and even unique carbide structures, has tools that manage this task.

In fact, proven field results show we can cut difficult-to-machine materials as much as three times faster than the competition.

A X-GRADE™ INSERTS

Designed for tough alloys like Ti 5553 and Ti 1023. By adding Ruthenium to Cobalt, we create a stronger bonding matrix for the carbide in our X-grade inserts. They last longer, and production speeds can be three times faster.

B 7791VS PLUNGE MILL

High metal removal rate and excellent chip evacuation. Ideal for stepover plunge slotting and core plunging in aerospace applications. Extremely effective in all roughing operations and deep cavities.

C 7792VX HIGH FEED MILL

Patents pending for specific geometry for difficult-to-machine alloys. High volume metal removal—up to 3mm (.118 in) feed per tooth. Cutting forces directed through the spindle allow higher feed rates—and extremely fast production speeds.

D 7690VA12 POWER MILL 90™

90-degree approach angle for accurate shoulder, slot, and pocket milling, plus 11mm (.433 in) cutting depth for high feed rate and metal removal. Thicker inserts for high feed rate integrity. Through-coolant design for optimum chip evacuation. Grades and geometries for milling all alloys.

MACHINING

E 5315VA

POWER MILL 90™ LONG EDGE

Long edge milling cutter ideal for profiling, slotting, and shoulder milling. Full effective flutes allow higher feed rates. Utilized for roughing and semi-finishing of the airfoil.

F HARDCORE™

ULTRA HIGH PERFORMANCE DRILLS

Patented dual carbide technology cuts hole making costs by up to 50%. High accuracy edge preparation for better hole quality at twice the production speed. Specially designed flute profile for best chip evacuation. TiAlN structure Nano coating for exceptional wear resistance and temperature diffusion.

G 5702VZ

HIGH SPEED ALUMINUM MACHINING

For extreme metal removal—up to 45,000 RPM and 12M/M (470 IPM). Excellent for thin-wall machining. Low cutting forces due to insert geometry. Cutter design ensures security during high speed machining. Balanced at G2.5.

H RAPIDE™

SOLID CARBIDE END MILLS

ATI Stellram's true micrograin carbide not only means more reliable performance, but also 50% greater material removal over the life of the tool—without sacrificing tool life.

ENGINE

The Power For Speed. The Finesse For Detail.

Precision is critical for engine components. ATI Stellram's tools not only remove metal faster, they provide the quality finishes and detail needed for optimum balance and component strength.

We've developed specialty tooling solutions for applications such as turbine blade milling, where there is component complexity and a variety of difficult to machine materials.

That's why manufacturers around the world are reliant on ATI Stellram's cutting tool solutions for safe and efficient machining of critical aircraft components.

A 4-E
TURNING GEOMETRY

Specifically designed to meet the demands of machining aerospace components made from Nickel and Titanium based alloys. Available in new grade SP0819 which utilizes a proven aerospace substrate for unmatched performance—faster cycle time, longer tool life, and greater component integrity.

B X-GRADE™
INSERTS

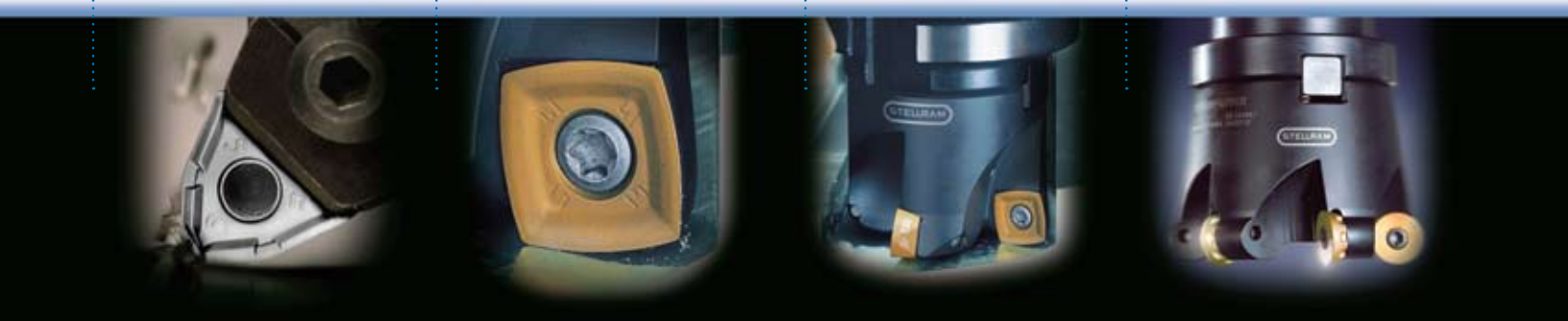
Designed for tough alloys like Ti 5553 and Ti 1023. By adding Ruthenium to Cobalt, we create a stronger bonding matrix for the carbide in our X-grade inserts. They last longer, and production speeds can be three times faster.

C 7792VX
HIGH FEED MILL

Patents pending for specific geometry for difficult-to-machine alloys. High volume metal removal—up to 3mm (.118 in) feed per tooth. Cutting forces directed through the spindle allow higher feed rates—and extremely fast production speeds.

D 7710VR
ANTI-ROTATION BUTTON CUTTER

Features round inserts with a patented locking indexation system to prevent insert movement under heavy feed rates. Ideal for roughing of Rhomboid (blank) and airfoil in stable and marginal conditions with high feed rates. Unique insert geometries and grades for difficult-to-machine materials.



E 7690VA12
POWER MILL 90™

90-degree approach angle for accurate shoulder, slot, and pocket milling, plus 11mm (.433 in) cutting depth for high feed rate and metal removal. Thicker inserts for high feed rate integrity. Used for semi-finishing of blade form (airfoil) and slotting and milling operations on the blade holding section. Through-coolant design for optimum chip evacuation. Grades and geometries for milling all alloys.

F 5315VA
POWER MILL 90™ LONG EDGE

Long edge milling cutter ideal for profiling, slotting, and shoulder milling. Full effective flutes allow higher feed rates. Utilized for roughing and semi-finishing of the airfoil.

G 7745VOD 04
OCTAGON MILLING CUTTER

Economical 8 cutting edges per insert. One tool for multiple operations—face milling, ramp milling, pocket milling, and chamfering. Close pitch cutters for high volume metal removal. The number one choice for high temperature alloy applications.

H RAPIDE™
SOLID CARBIDE END MILLS

ATI Stellram's true micrograin carbide not only means more reliable performance, but also 50% greater material removal over the life of the tool—without sacrificing tool life.

ATI Stellram
Allegheny Technologies

GLOBAL DIVISIONS


Canada

Canada
Customer Service Tel: 800.668.6928
Customer Service Fax: 800.432.6227


China

METALWORKING PRODUCTS
China
Tel: 86.21.50815268
Fax: 86.21.50815278


France

ATI STELLRAM SAS
6, Rue de Parc,
Blue Business Building,
74100 Annemasse
France
Tel: 04.50.38.12.12
Fax: 04.50.38.09.09


Germany

ATI STELLRAM GmbH
Seligenstädter Grund 11,
DE-63150 Heusenstamm
Germany
Tel: 49.6104.682.0
Fax: 49.6104.682.111


Great Britain

ATI STELLRAM LIMITED
Hercules Way,
Bowerhill Industrial Estate,
GB-Melksham, Wilts. SN12 6TS
United Kingdom
Tel: 44.1225.897.100
Fax: 44.1225.897.111


Italy

ATI STELLRAM Srl
Strada Nazionale 71,
10020 Cambiano (Torino)
Italy
Tel: 39.011.9443.111
Fax: 39.011.9443.100


Mexico

Mexico
Customer Service Tel: 011.877.756.0947
Customer Service Fax: 011.877.285.2505


Switzerland

ATI STELLRAM S.A.
Avenue du Mont-Blanc 24,
Case Postale 339
CH-1196 Gland
Switzerland
Tel: 41.22.354.97.11
Fax: 41.22.354.97.01


Spain

Spain
Customer Service Tel: 91.606.43.75
Customer Service Fax: 91.615.01.91


Taiwan

ALLEGHENY TECHNOLOGIES TAIWAN, INC.
No. 6-1, Industrial 2nd Road
Kuan-Yin Industrial Park,
Taoyuan, Taiwan
Tel: 886.3.483.6448
Fax: 886.3.483.2865


USA

ATI STELLRAM U.S.A.
One Teledyne Place,
LaVergne, Tennessee 37086
U.S.A.
Tel: 615.641.4200
Fax: 615.641.4441

ASSOCIATED COUNTRIES

Australia
Austria
Belgium
Denmark
Finland
Holland
Japan
New Zealand
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LITERATURE RE-ORDER NUMBER
409FLYUSA.V3
PRINTED IN THE USA

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