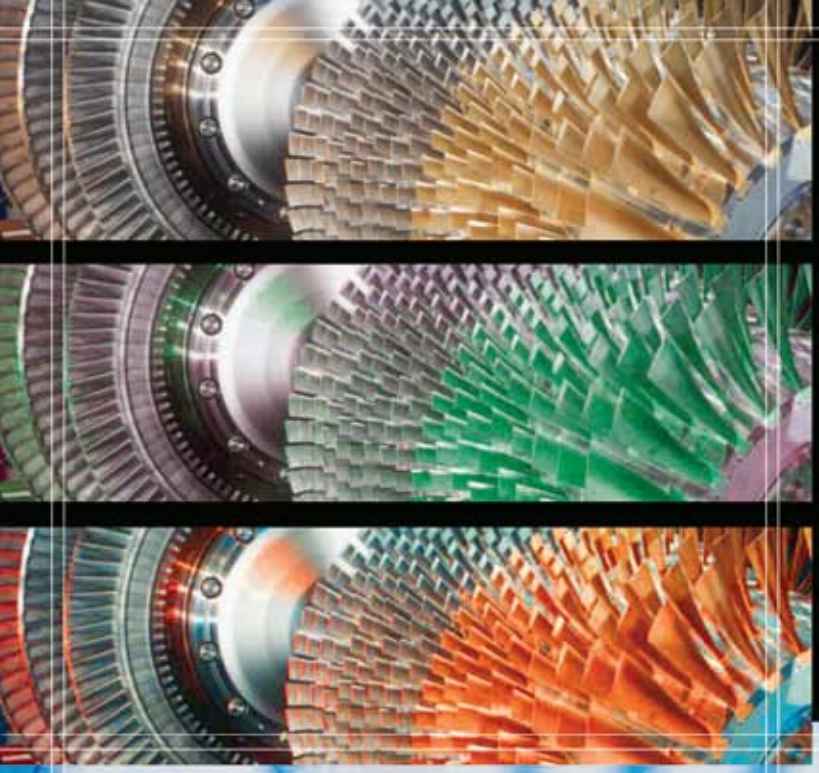


ATI Stellram
Allegheny Technologies

POWER GENERATION SOLUTIONS

ADVANCED POWER GENERATION MACHINING SOLUTIONS

Power Generation Materials Require New Approaches In Machining

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

The use of these new materials changes the cutting tool requirements. Metal removal rates, tool life, product quality and machining security 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 power generation industry. And, we can prove it with example after example.

Powerful Challenge

High temperature and corrosion resistant materials, such as nickel-based alloys and stainless steels, present unique machining challenges for those serving the power generation industry.

No matter the power source—hydroelectric, gas turbine, steam, nuclear, or wind—the need for high performance components is vast. Yet we must meet those challenges today if we are to meet the needs for power generation capacity tomorrow.

We're confident we can.
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.

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 power generation industry that are not available from any other resource.

COMPONENT

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

To machine many components, as much as 75% of the metal must be removed. For materials such as 300 and 400 series stainless steels and 600 series high temperature nickel-based alloys, this is a difficult productivity challenge. But ATI Stellram, by using new ideas, imaginative design, and unique carbide structures, has developed 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 4-E
TURNING GEOMETRY

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

B X-GRADE
INSERTS

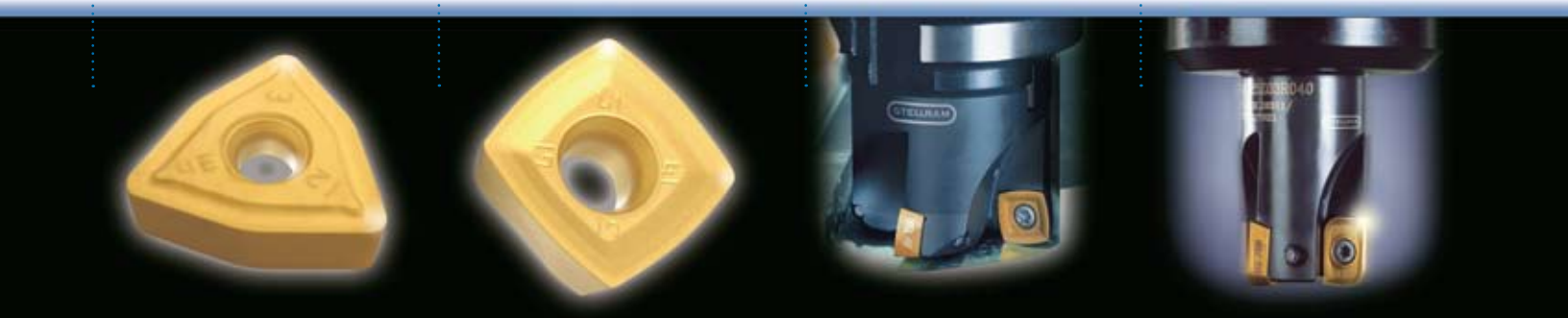
Designed for tough materials high performance stainless and nickel-based alloys. By adding ruthenium to cobalt, we create a stronger bonding matrix for the carbide in our X-grade inserts. They last longer, and production speeds can be three times faster.

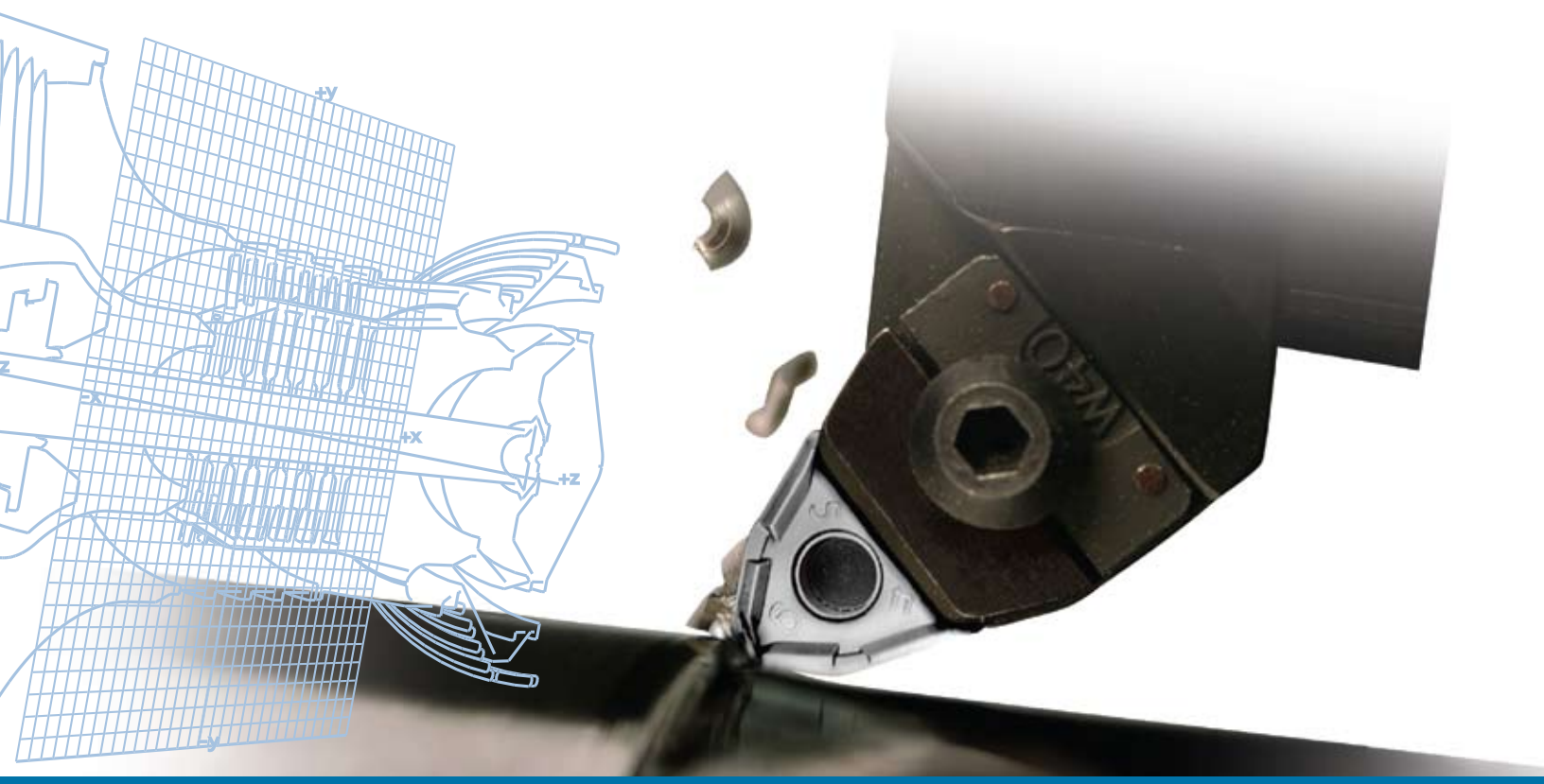
C 7792VXD
HIGH FEED MILL

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 security. Through-coolant design for optimum chip evacuation. Grades and geometries for milling all alloys.





E 5315

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 turbine blades.

F 7791VS

PLUNGE MILL

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

G 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.

H RAPIDE™

SOLID CARBIDE ENDMILLS

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.

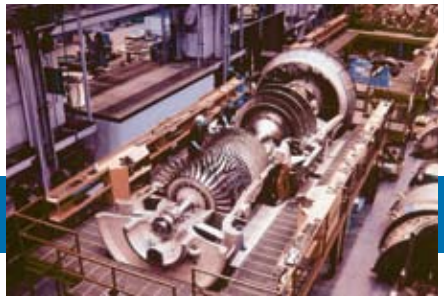
BLADE

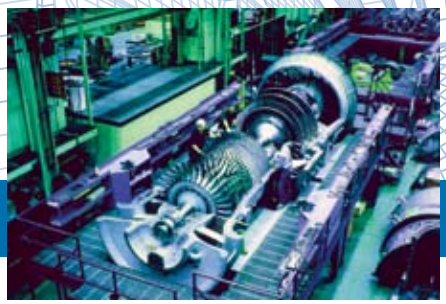
The Power For Speed. The Precision For Detail.

Precision is critical for power generation components. 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 rely on ATI Stellram's cutting tool solutions for safe, secure and efficient machining of critical turbine components.





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B X-GRADE
INSERTS

Designed for tough materials high performance stainless and nickel-based alloys. 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 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 rhomboidal turbine blade blanks in stable and marginal conditions with high feed rates. Unique insert geometries and grades for difficult-to-machine materials.

D 7792VXD
HIGH FEED MILL

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.

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 security. Used for semi-finishing of turbine blade form 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 5315
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 turbine blades.

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 ENDMILLS

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.

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