



Mission Critical Metallics



ATI Jet Engine Applications

Rich Jeniski

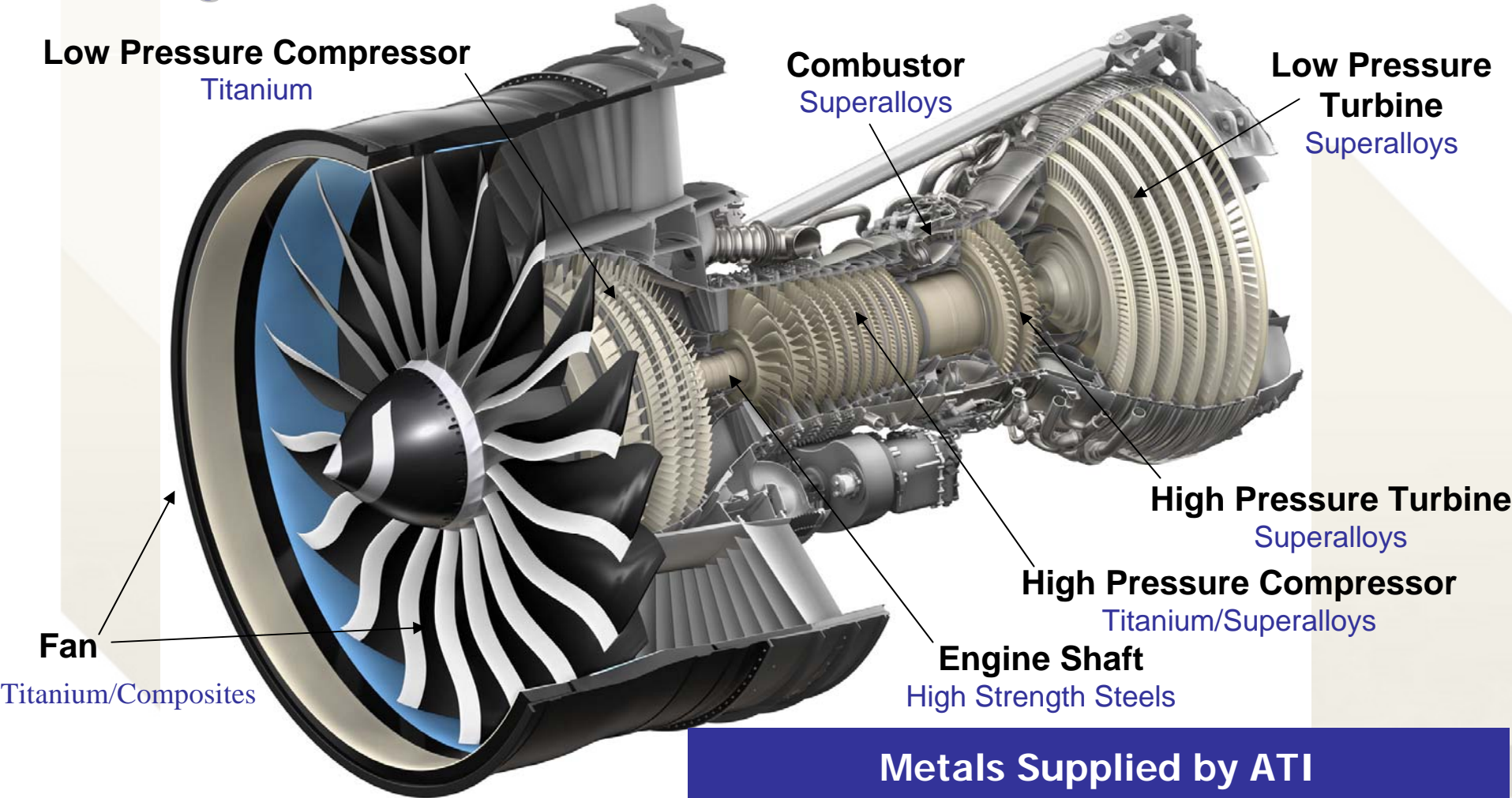
Director, Marketing & Business Development

April 29, 2008



Jet Engine Materials

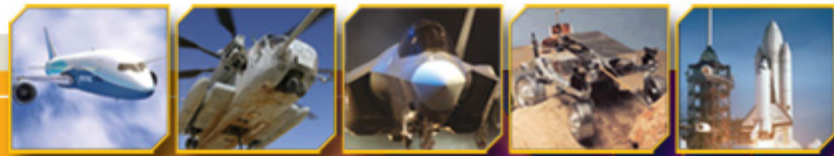
Mission Critical Metallics





Engine Development Trends

- Demand for “Green” engines
 - Reduced noise
 - Reduced emissions (SO₂, CO₂, NO₂)
- Improved fuel efficiency
 - Higher operating temperatures
 - **Higher temperature capable materials**
 - **Lighter materials**
- Lower operating costs for airlines
 - Reduced maintenance intervals
 - Reduced part count



Mission Critical Metallics

New Engines

GENx

GP7200

Trent 900

Trent 1000

PW GTF

HF120

GE38

RB282

RB262

PW-10X

LEAP56

Trent XWB

HTF 10000

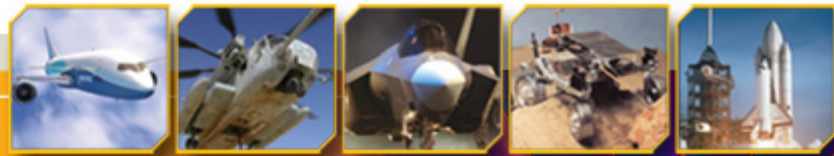
PW61X

SaM146

Silvercrest

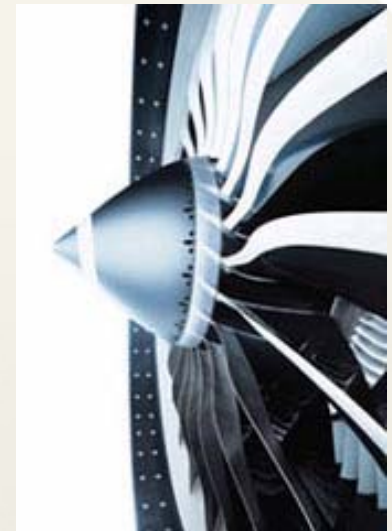
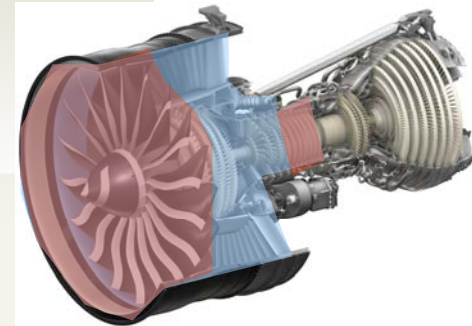
Not a complete list of new engines or engines in development

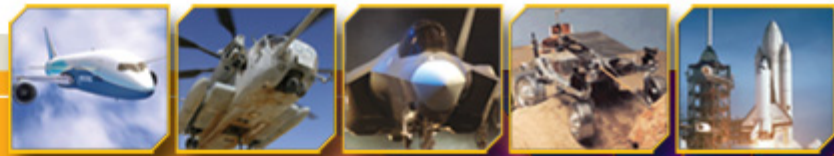
Tremendous Growth & Competition



Changes in Jet Engine Design

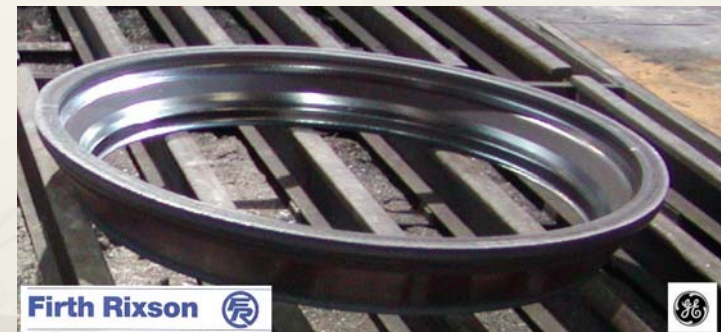
- Limited introduction of composites
- Larger thrust engines
 - Consume more Nickel & Titanium
- Higher engine temperatures
 - Ni content in compressor growing
 - High temp powder/cast & wrought alloys
- New titanium-based materials
 - Gamma TiAl





ATI 718Plus[®] Alloy – The Superalloy for the Next 40 yrs

- A game-changing superalloy
- Greater temperature capability than 718 alloy
 - Each engine is 35-40% 718 by weight
- Applications
 - Cases
 - Discs
 - Structural castings
 - Blades
 - Fasteners
 - Sheet fabrications



New, Patented Alloy



Mission Critical Metallics

OEMs Evaluating ATI 718Plus® Alloy

Jet Engine

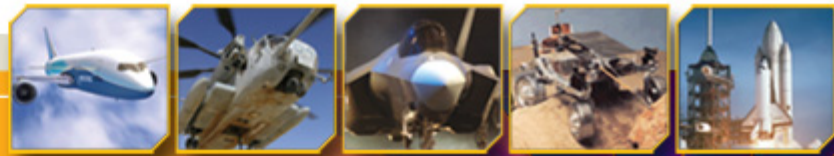
Power Turbine



Industria de Turbo Propulsores, S.A.



Implementation Underway



ATI in the Jet Engine Market

- A partner with OEMs since the beginning
- The premier manufacturer of nickel and titanium premium quality materials
- A leader in process technology
- Investing in new capital
 - Supporting the growth of our customers
 - Unsurpassed capabilities

“ATI is recognized for excellence in delivery and product quality....”

Mike Chanantry
GM, Global Sourcing
GE Aviation