GE Aerospace

Today, tomorrow and future: innovation at GE Aerospace

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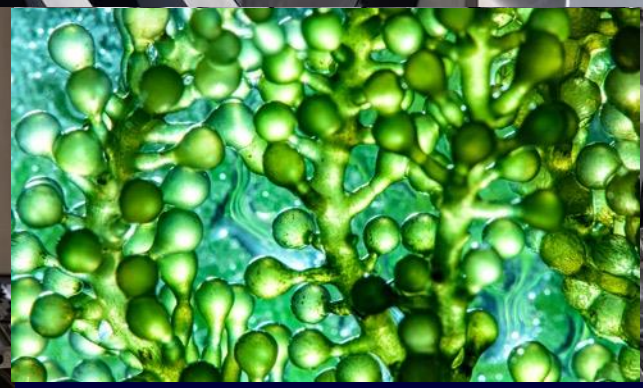


Innovation is in our product DNA

ADVANCED AERODYNAMICS

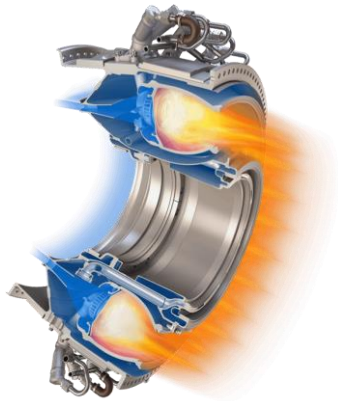
Lighter, thinner composite fan blades improve efficiencies

GE90-94B composite fan blade introduced 1995

GE9X composite fan blade certified 2020

CERAMIC MATRIX COMPOSITES

Lighter & increased durability through higher heat resistance than alloys



Combustor

MANUFACTURING TECHNOLOGIES

Additive simplifies architecture, reduces weight & improves fuel efficiency

Additive Catalyst engine inlet frame

OUR INDUSTRY FIRSTS

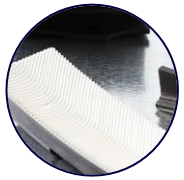
- US jet engine
- US turboprop engine
- Mach 2 engine
- High bypass engine
- 120,000 lb thrust engine
- Composite fan blade … only to date
- Ceramic matrix composite in a flying engine … only to date
- FAA approved additive parts … only to date

Current generation of more fuel-efficient aircraft engines in every thrust class made possible by breakthrough technologies and materials

45,000 engines powering airlines … underpinned by differentiated technologies

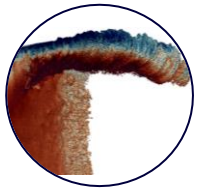
Platforms	FOUNDATIONAL 1980s → 2050s	NEXT GENERATION 2010s → 2070s	FUTURE 2030s → 2090+
Narrowbody	 **CFM56** >1B flight hours	 **LEAP** 15% better fuel efficiency vs. CFM56	 **CFM RISE program**
Widebody	 **CF6** Most produced widebody engine	 **GEnx** 15% better fuel efficiency vs. CF6	▪ Open Fan and other tech targeting >20% better fuel efficiency vs. LEAP ... key to helping improve efficiency, meet durability expectations for customers ▪ Supercomputing capability helping target lower noise levels ▪ Uncompromising commitment to safety
	 **GE90** 1st for composite fan	 **GE9X** 10% better fuel efficiency vs. GE90	

Enabling technologies


Material science


System architecture


Advanced manufacturing


Supercomputing


Validation testing

RISE is a program of CFM International, a 50-50 joint company between GE Aerospace and Safran Aircraft Engines. CFM LEAP and CFM56 engines are products of CFM.

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A history of innovation that withstands industry ups and downs

1918: Turbosupercharger

- Technology proven at altitude
- Same time as Spanish flu, end of WWI
- Leads to GE Aerospace founding

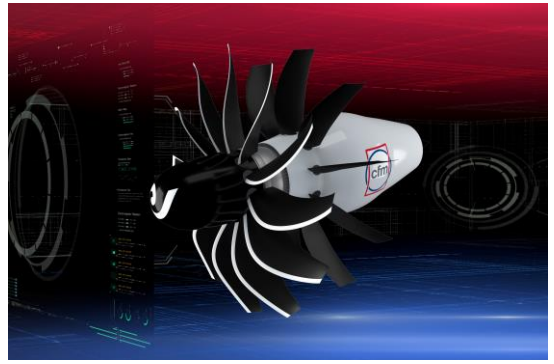
1973: QCSEE demonstration

- Quiet Clean Short-Haul Experimental Engine
- Advanced during oil crisis and embargo
- Leads to GE36, GE90 carbon fiber fan blade

Early 2000s: TECH56, GEnx & LEAP-X programs

- TECH56 demo commitment despite impact of 9/11 attack, advances TAPS combustor
- GEnx program launch in 2002
- LEAP-X 2008 launch amidst Great Recession

2021: RISE program



- Single largest demo in company history
- Launched during COVID-19
- To define engine tech for decades to come

Unique moment, with unique opportunity to fulfill our purpose statement

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