

Naples, May 25th 2011

ATR PRODUCT OVERVIEW



An Alenia Aeronautica and EADS joint venture

ATR

PROPELLING TOMORROW'S WORLD

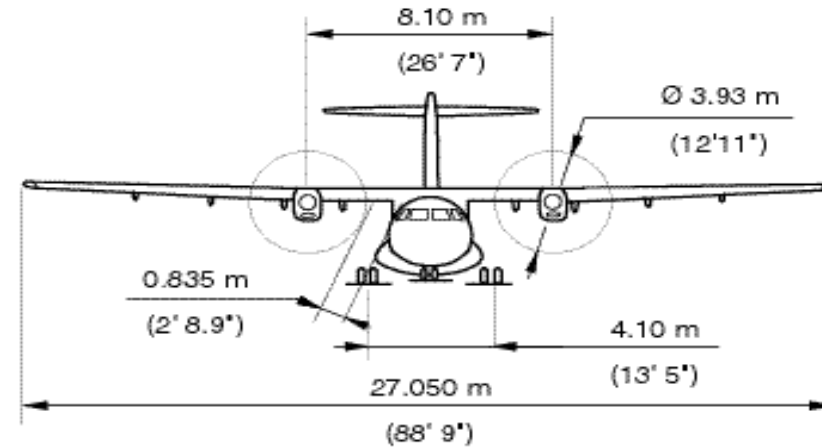
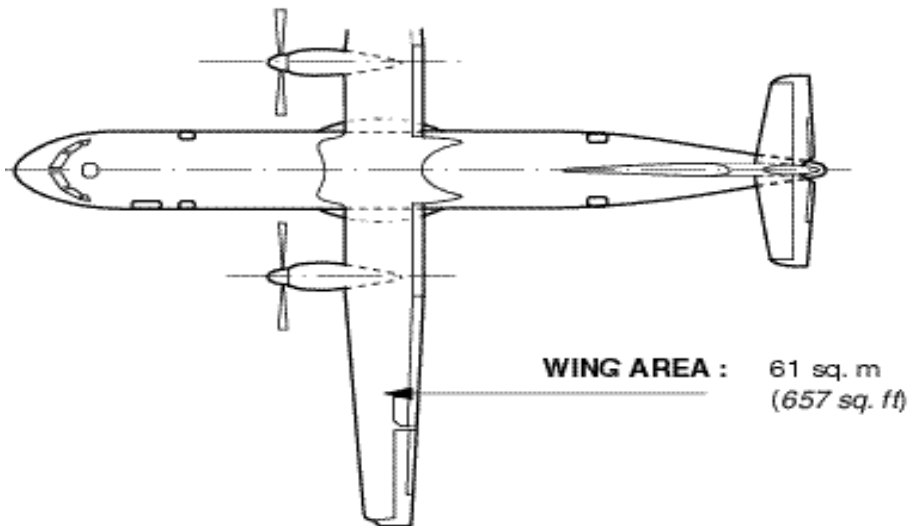
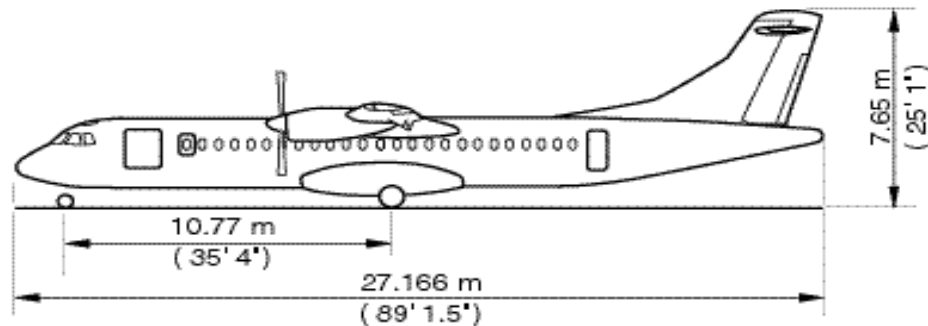


■ ATR Characteristics

■ The -600 Series

■ Future Development

THREE VIEW DRAWING

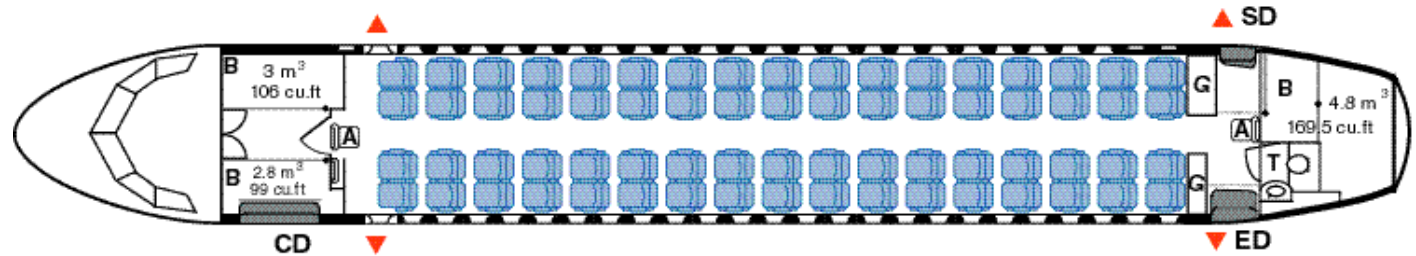


Dimensions

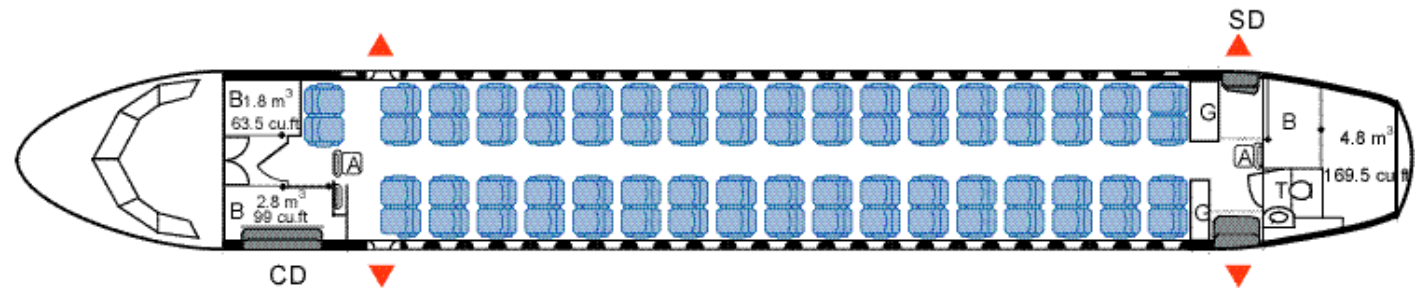
Overall length	27.166 m	89 ft 2 in
Overall height	7.650 m	25 ft 1 in
Wing span	27.050 m	88 ft 9 in
Wing area	61.00 m ²	656.6 sq.ft
Entrance door	0.750 x 1.750 m	29.5 x 68.9 in
Cargo door	1.275 x 1.53 m	50.2 x 60.2 in
Service door	0.610 x 1.220 m	24.0 x 48.0 in
Emer. Type III	0.510 x 0.910 m	20.0 x 36.0 in

ATR 72 Cabin Layout

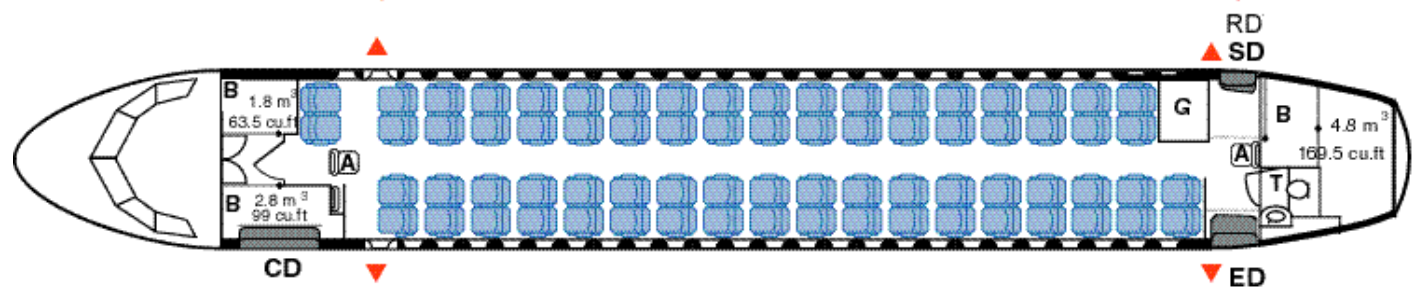
68 seats at 31" pitch
with A & E type galleys



70 seats at 31" pitch



72 seats at 30" pitch
With a RH bayonet partition
and A + D type galley configuration



- A Attendant seat
- B Baggage compartment
- CD Cargo door
- ED Entrance door
- G Galley
- Emergency exit
- SD Service door
- T Toilet

Volumes	68 pax @ 31"	72 pax @ 30"
Baggage compartment	10.6 m ³ (374.5 cu.ft)	9.4 m ³ (332 cu.ft)
Baggage per pax	0.156 m ³ (5.51 cu.ft)	0.131 m ³ (4.61 cu.ft)
Total baggage	13.75 m ³ (485.4 cu.ft)	12.65 m ³ (446.5 cu.ft)
Total baggage/pax	0.202 m ³ (7.14 cu.ft)	0.176 m ³ (6.20 cu.ft)

Cabin Cross Section

■ Noise suppression treatments

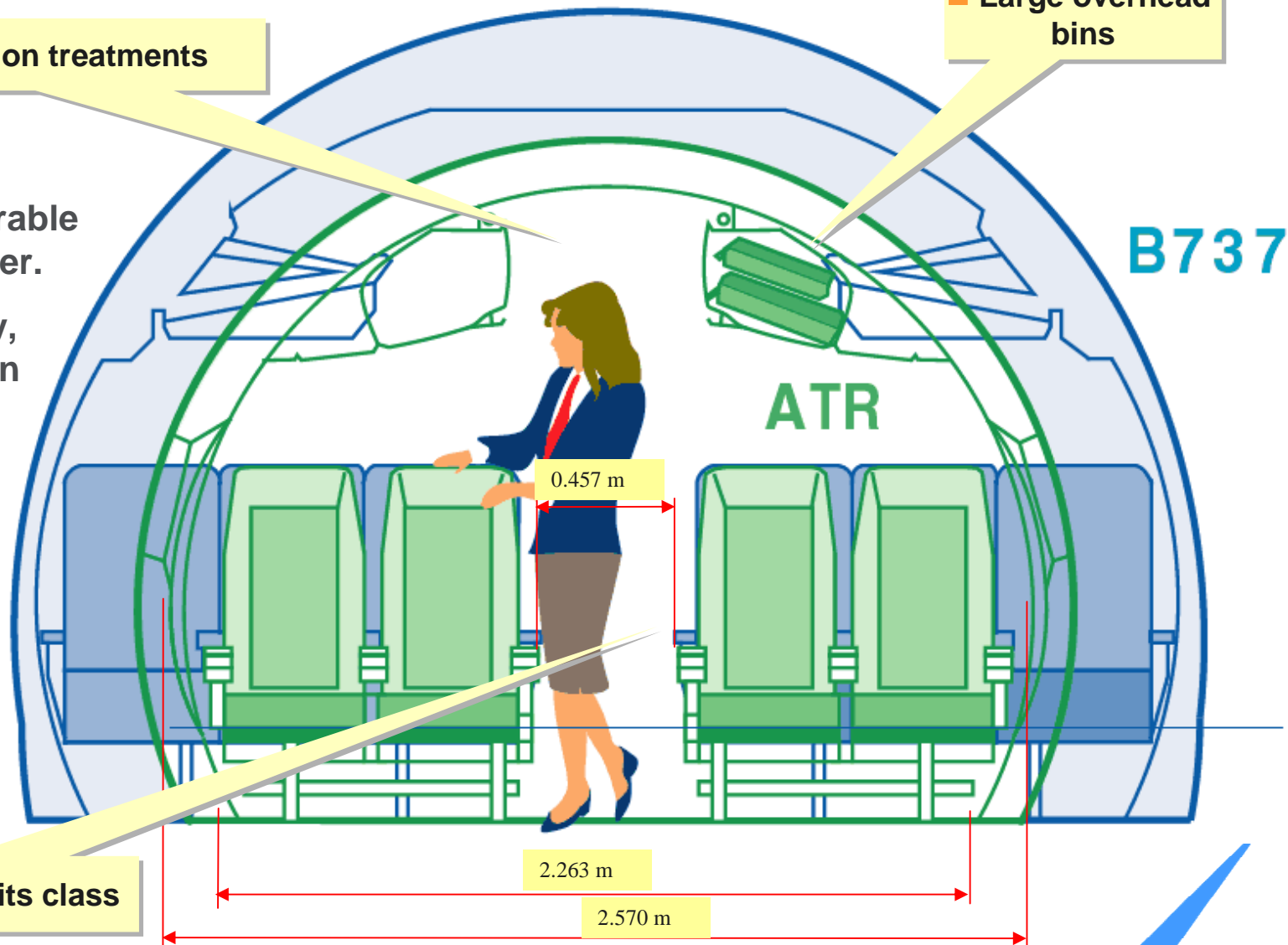
■ Large overhead bins

- comfort level comparable to narrow body airliner.
- Large aisle for trolley, passengers and cabin attendant clearance.

B737

ATR

■ Widest aisle in its class





The ATR Versatility

■ Passengers



■ Corporate



■ Large Cargo Door

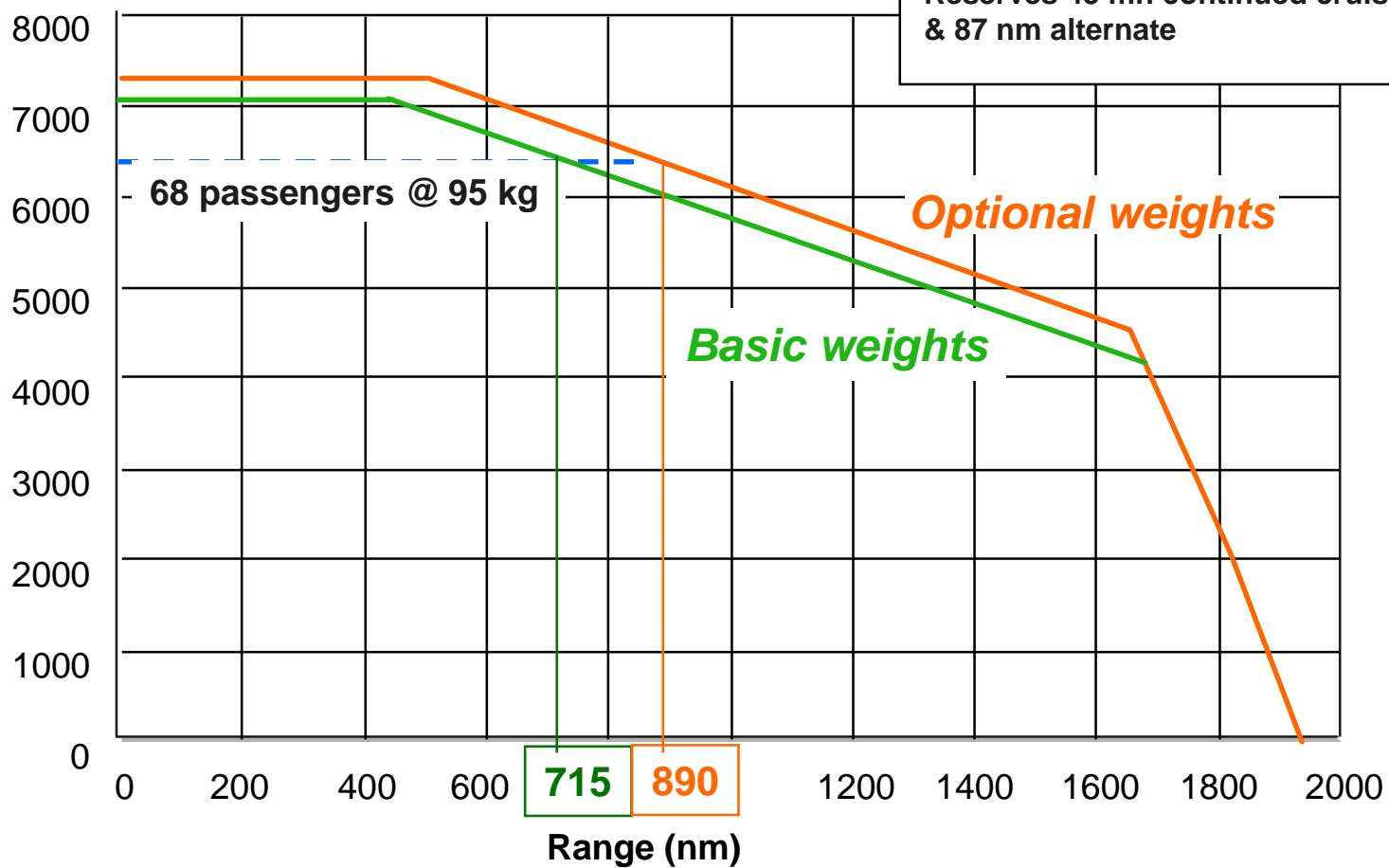


■ Maritime Patrol



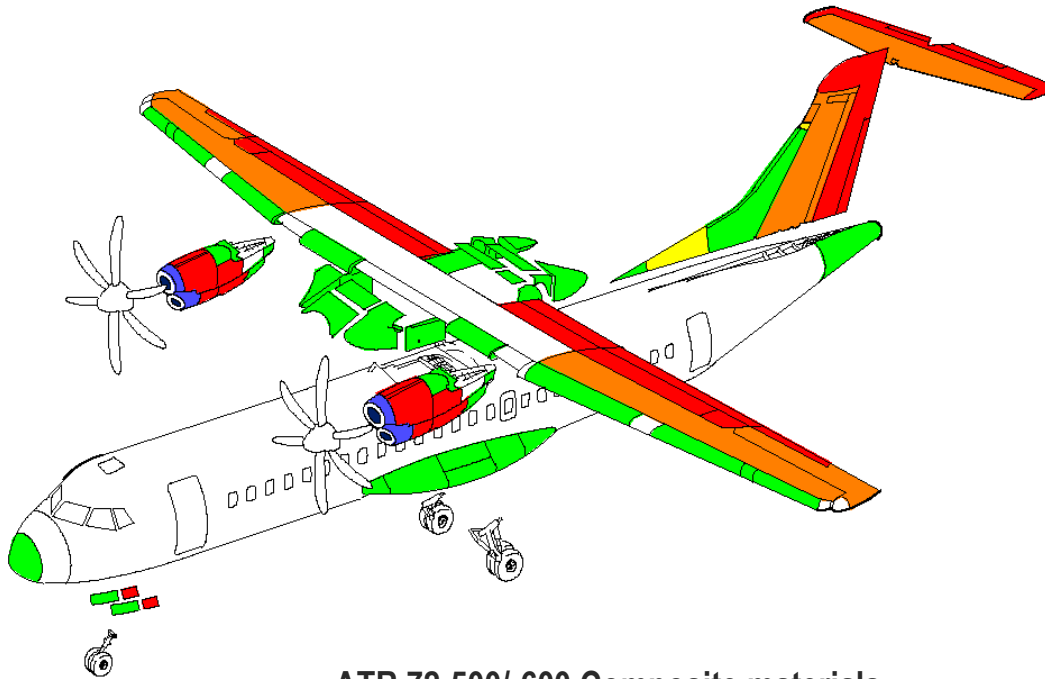
Payload/Range

Payload (kg)



Composite Structural Components

Light weight for structural efficiency



ATR 72-500/-600 Composite materials

- Carbon/Nomex sandwich
- Carbon monolithic structure
- Kevlar/Nomex sandwich
- Kevlar/Nomex sandwich with stiffening carbon plies
- Fibreglass/Nomex sandwich

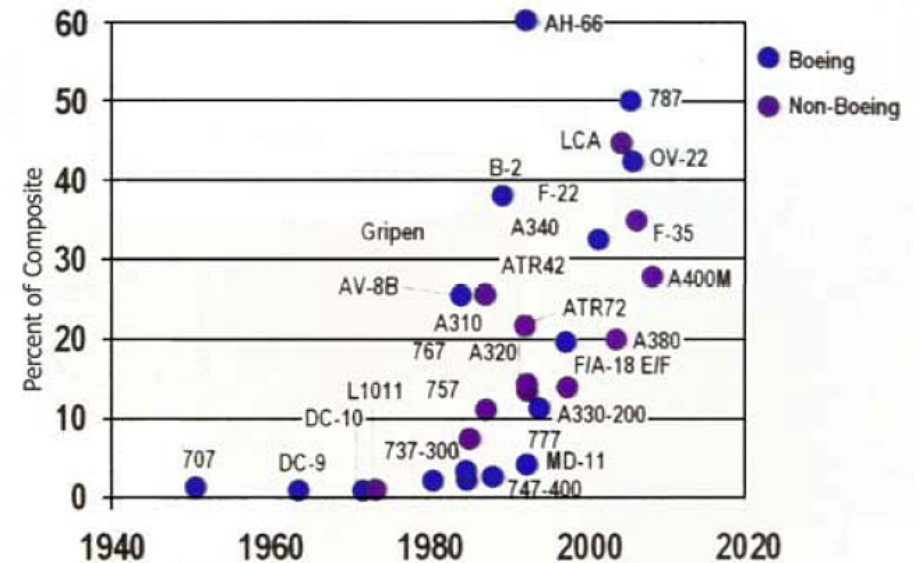
Cabin Floor Panels:

Carbon/Nomex sandwich

Propeller Blades: Fibreglass /
polyurethane foam / Carbon
spar

Brakes: Carbon

Large use of composite



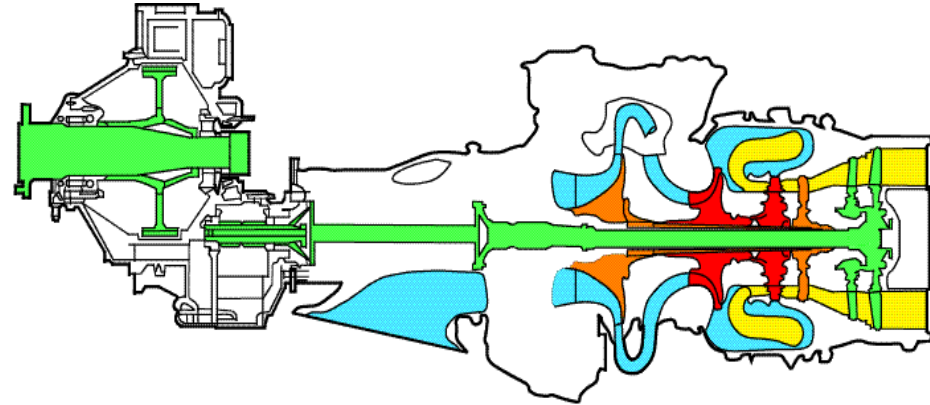
More than 20% of the OEW

ATR72 Powerplant

6 Composites Blades HS 568F



PWC - PW127F



New PEC (Propeller Electronic Control)

- Propeller speed and phase control (± 1 RPM speed and $\pm 1^\circ$ phase holding)
- Optimum synchronization between the two propellers,

**Normal Take-off
Max Take-off**

**2,475 SHP
2,750 SHP**

**Two centrifugal compressors
Free turbine, three concentric shafts
Electronic and hydro-mechanical controls**

ATR 72-500 Weights and Performance

Weights	Basic		Optional	
	<i>kg</i>	<i>lb</i>	<i>kg</i>	<i>lb</i>
MTOW	22,800	50,625	23,000	50,705
MLW	22,350	49,272	22,350	49,272
MZFW	20,800	45,856	21,000	46,296
Basic OEW	13,010	28,682	13,010	28,682
Max. payload	7,790	13,174	7,990	17,614
Max. fuel load	5,000	11,023	5,000	11,023

ATR 72-600 performance	Basic		Optional	
Take-off field Length				
• <i>ISA - SL - MTOW</i>	1,333 m	4,373 ft	1,367 m	4,485 ft
• <i>ISA - SL - MTOW - 100% RTO</i>	1,265 m	4,150 ft	1,290 m	4,232 ft
Landing field Length (FAR Rules)				
• <i>SL - MLW</i>	1,067 m	3,500 ft	1,067 m	3,500 ft
Max Cruise speed (97%, MTOW, 17,000 ft)	276 kts (510 km/h)			

Operational capability



- 120 min ETOPS
- Narrow runway (14 m width)
- Short runways (850 – 1,000 m)
- Unpaved runways (laterite, soil, gravel, grass)
- Steep slope landing approach
- High Crosswind capability (up to 45kts)
- Extreme cold weather certification (-54°C)



■ ATR Characteristics

■ The New -600 Series

■ Future Development

Technology Enhancement

1985

▶ **ATR 42-300**
PW120
4 blades 14SF5

1987

▶ **ATR 42-320**
PW121
4 blades 14SF5
« Hot & high »

1995

▶ **ATR 42-500**
New 6 blades
propeller – New interior
Enhanced comfort



1989

▶ **ATR 72-200**
PW124B
4 blades 14SF11

1992

▶ **ATR 72-210**
PW127
4 blades 247F - « Hot &
high » - Short runway

1997

▶ **ATR 72-500**
New 6 blades
propeller – New interior
Enhanced comfort

CONTINUOUS IMPROVEMENT



**ATR -600
Series**

CERTIFICATION ON MAY 2011

ATR-600 Series: Increased strength

Product

Commonality

The unique turboprop family

Advanced

Technology

reinforcing leadership

The ultimate cabin ***Comfort***
Space, appeal and efficiency

Enhanced

Performance

and expanded operational
versatility





ATR-600 Series: The new Turboprop Standard

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1 product: 2 models

ATR 42

- Unique in the world 50-seat aircraft still being manufactured
- High market potential to handle growth & replacement of 30-seat aircraft

ATR 72

- Lowest cost in the 70 seat segment
- Good performances from short airfield

High commonality between both models allowing operator to adapt seat capacity and traffic demand



68 to 74 seats

"the lowest seat mile cost in its category"

48 to 50 seats

"the only 50-seater still produced"



ATR Family Commonality

- ✓ Cockpit Layout
- ✓ Avionics
- ✓ **Engines**
- ✓ Propellers
- ✓ Hydraulic systems
- ✓ Electric systems
- ✓ Fuel system
- ✓ Air Conditioning Packs
- ✓ Flight Controls
- ✓ Passenger Cabin
- ✓ **Nose Landing Gear**

90% common spares
42-600 / 72-600



Common Type Rating (CTR)



Pilots: the difference course between ATR 42-600
& ATR 72-600 is only few hours ground course.



ATR-600 Series: The new Turboprop Standard

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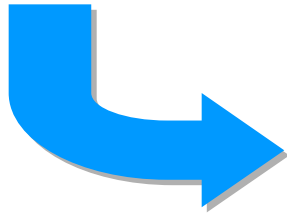
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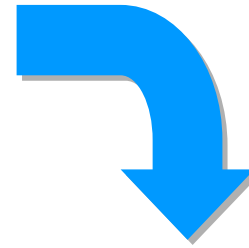




From ANALOG



New Avionic Suite



To DIGITAL



Flight Deck Architecture

- Five 6x8" Liquid Crystal Display Units



- **Primary Flight Display (PFD):**

- EFIS functions (EADI/EHSI)

- **Engine&Warning Display (EWD):**

- A/C status
- Engine primary parameters
- Crew Alerting System
- Check-lists / Procedures management

- **Multi-Function Display (MFD):**

- Navigation/Communication
- Aircraft systems synoptic
- Manage route & systems

TECHNOLOGY UPGRADE



- New Avionics Suite
- Avionic Standard Specification Enhancement
 - MPC (Multi-Purpose Computer)
 - VHF 8.33 KHz
 - GPS (2 MCDU and 1 GPS receiver)
 - T²CAS (Providing TCAS & EGPWS)
 - Enhanced Surveillance Capability
 - Cat II Autopilot
- Avionic Options
 - ACARS
 - HF and double HF
 - EFB Class II
 - Cabin Video Surveillance
 - Cat III Autopilot
 - ADS-B Out



ATR-600 Series: The new Turboprop Standard

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ATR - 600 SERIES

ARMONIA

THE NEW ATR CABIN CONCEPT
DESIGNED BY GIUGIARO

- **New light and slim seats**
- **New Wider Overhead Bins**
- **Upgraded Furnishing**
- **LED cabin Lighting & IFE**
- **Dual class configuration (Optional)**
- **Forward passenger door for jetway capability (Optional)**

Larger Overhead Bins

- Increased volume
- 30% more standard bags stowage (55 X 42 X 25 cm)
- Optimize bin length to maximize roller bag storage



LED Lighting and IFE



■ LED lighting system providing:

- Higher efficiency & reliability
- Lower maintenance cost



■ In-Flight Entertainment System

- 5" screens every two rows
- Fold/unfold automatically



ARMONIA: the new ATR -600 Cabin



Optiona Dual Class Cabin Layout



Solutions adapted to more demanding markets



ATR-600 Series: The new Turboprop Standard

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Enhanced

Performance

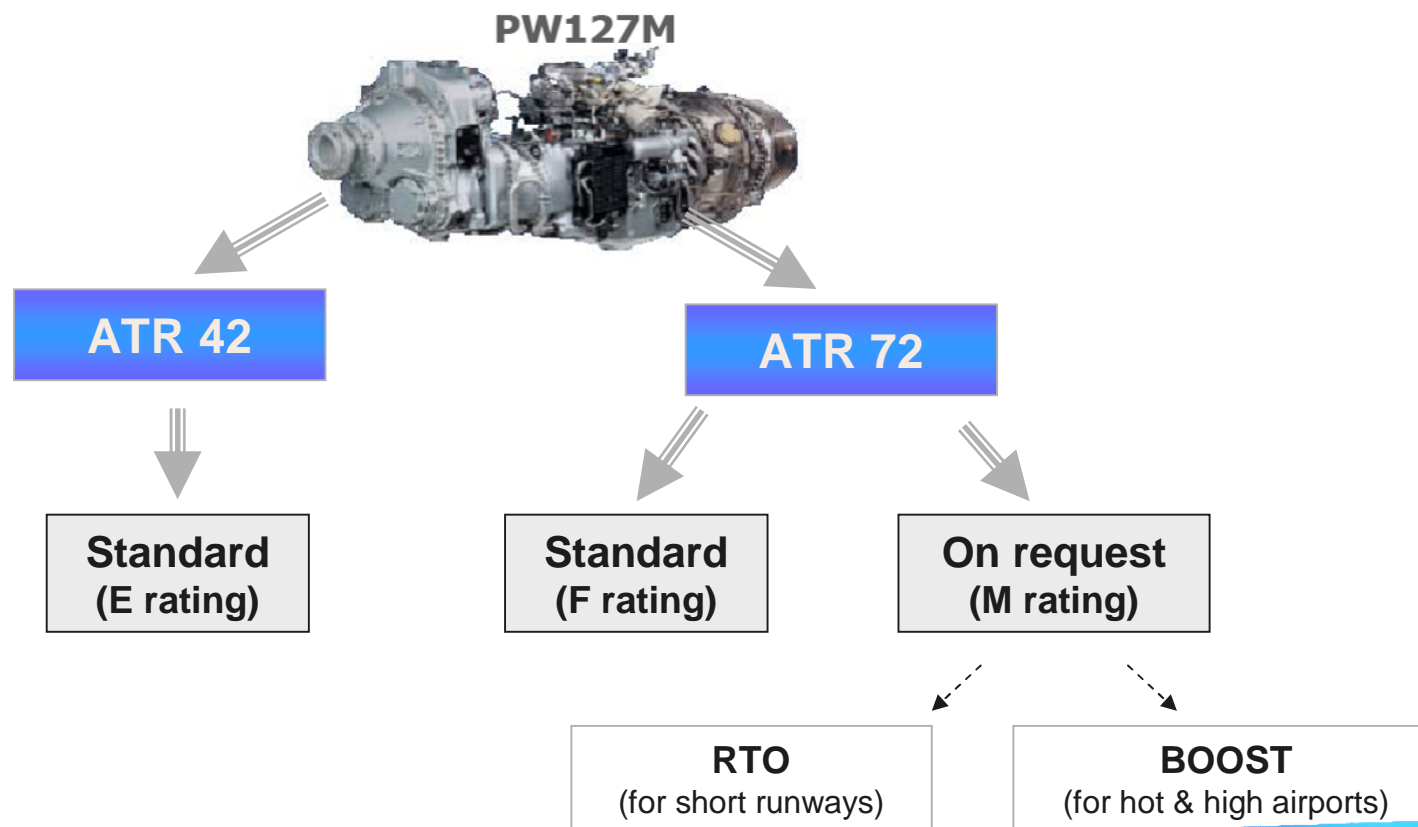
and expanded operational
versatility



PW127M - The common engine

A new multi rated engine PW127M common to ATR42 and ATR72:

- ❑ One engine hardware PW127 for 3 power settings: E, F and M
- ❑ Smart Card to account for cycles relevant to each model rating
- ❑ Higher rating only on request => better control of maintenance costs



Performance Enhancement in “Hot & High” Airfields

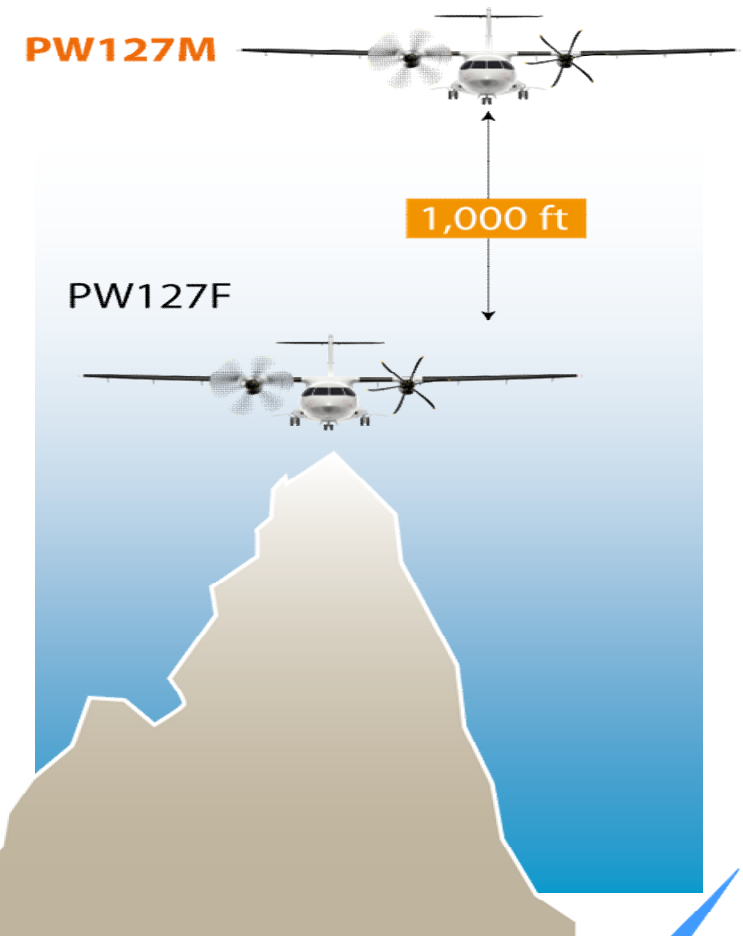
■ Boost Option

- 4.5 % higher thermodynamic rating on request

☐ Increased climb gradient in hot and high conditions resulting in take off weight improvement around 500 Kg

Example: + 500 kg from Bogota airport (8,360 ft and ISA+20°C)

☐ + 1,000 ft higher one engine out net ceiling





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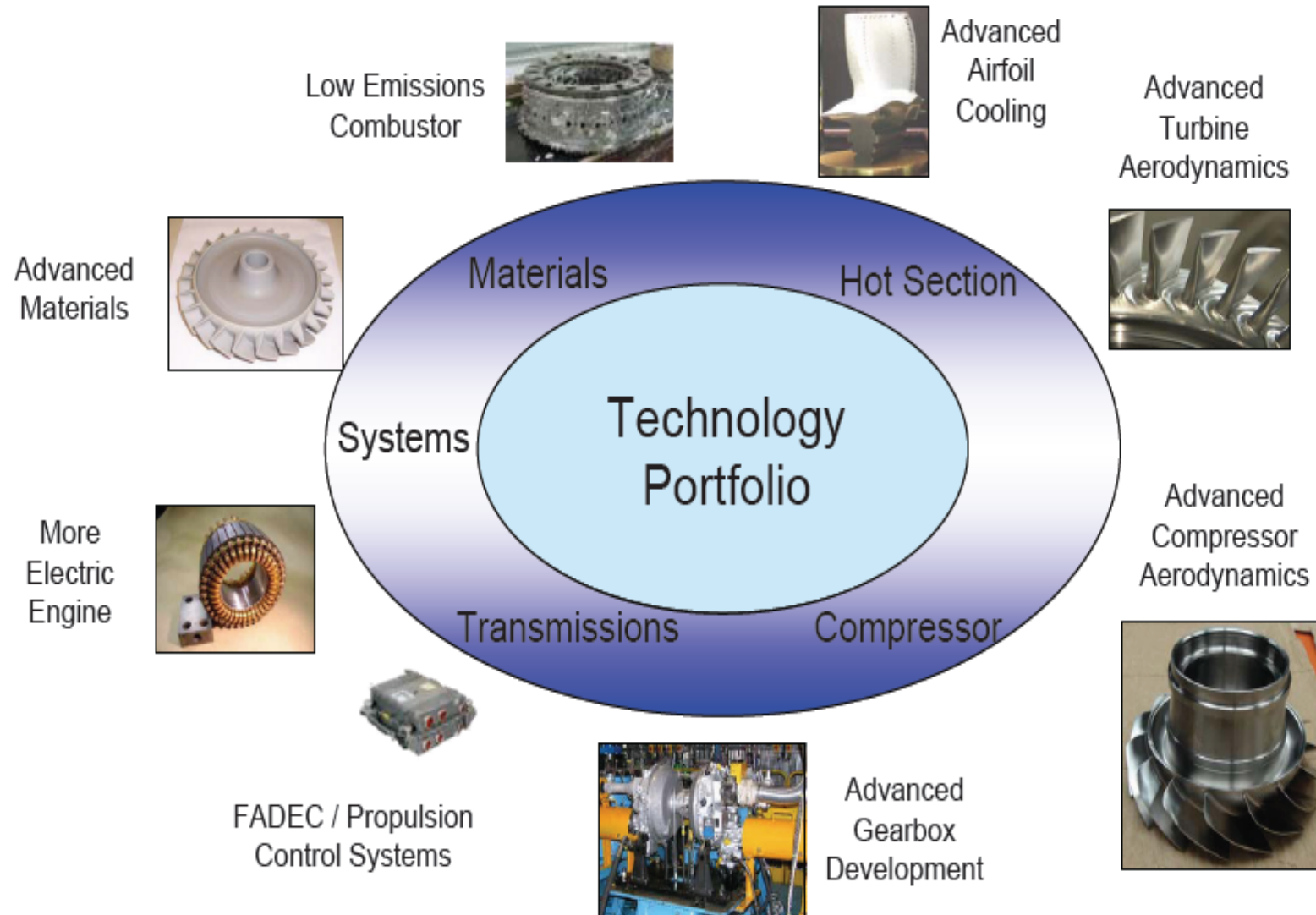
The Next Generation Turboprop

Based on most of market forecast for the next 20 years, there is a need for 3000 turboprop aircraft in the seat range from 50 to 90+ seats.

ATR strategy to maintain a major role in the marketplace is based on a new family of aircraft that can further improve the strengths of the current ATR family providing with:

- ☐ HIGH RELIABILITY
- ☐ LOW COST
- ☐ LOW FUEL BURN
- ☐ LOW NOISE AND EMISSIONS

ADVANCED ENGINE TECHNOLOGY

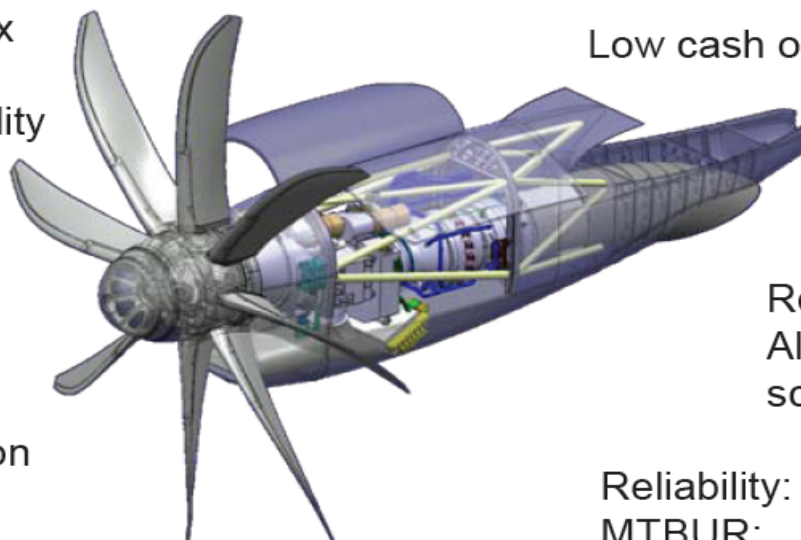


NGRT DESIGN OBJECTIVES

Reduced Noise & Emissions (NOx, CO2)

20% fuel saving vs current fleet
Minimum frontal area / Minimize drag

Platform for 70-100 pax
turboprop application
Built-in Growth Capability



Low cash operating cost

Integrated Powerplant

Reduced Maintenance Tasks
Alignment with aircraft
scheduled maintenance

Leverage Next Generation
Product Family (NGPF)
Technology

Reliability:
MTBUR: 1 event / 50,000 EFH
IFSD: 1 event / 200,000 EFH

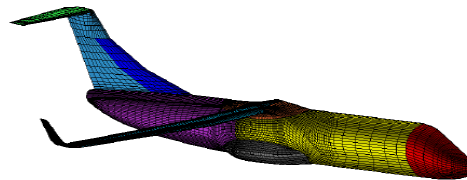
30% improved power/weight vs PW127

Durability :
15,000 hours on wing
>15,000 cycles minimum LCF

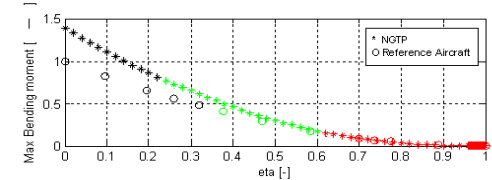
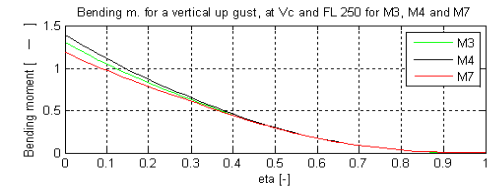
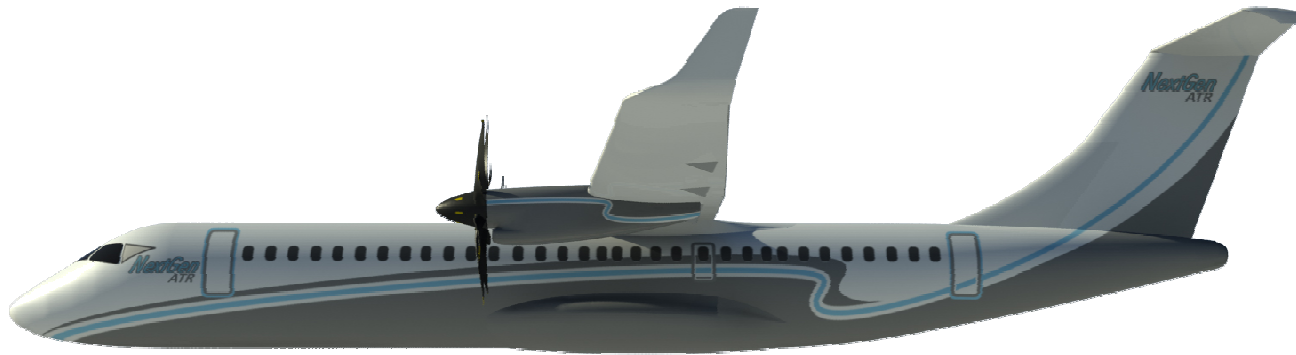
PRELIMINARY DESIGN IN PROGRESS



AERODYNAMIC ANALYSIS

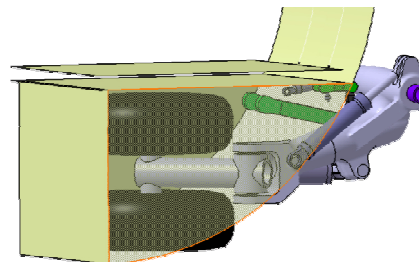


CFD MODEL

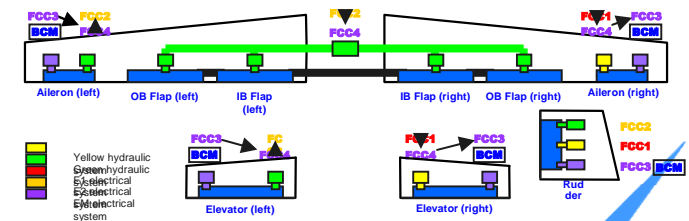


EXTERNAL LOADS

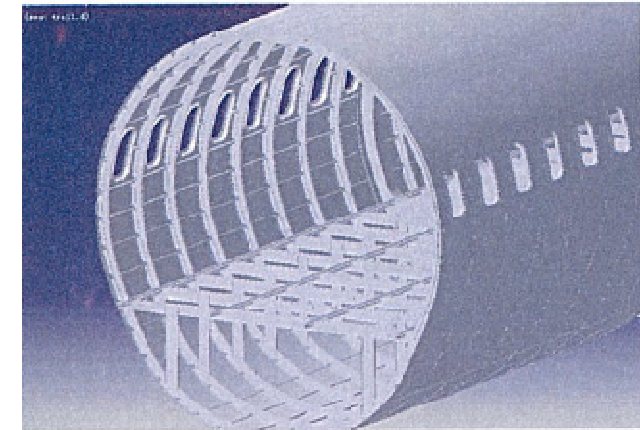
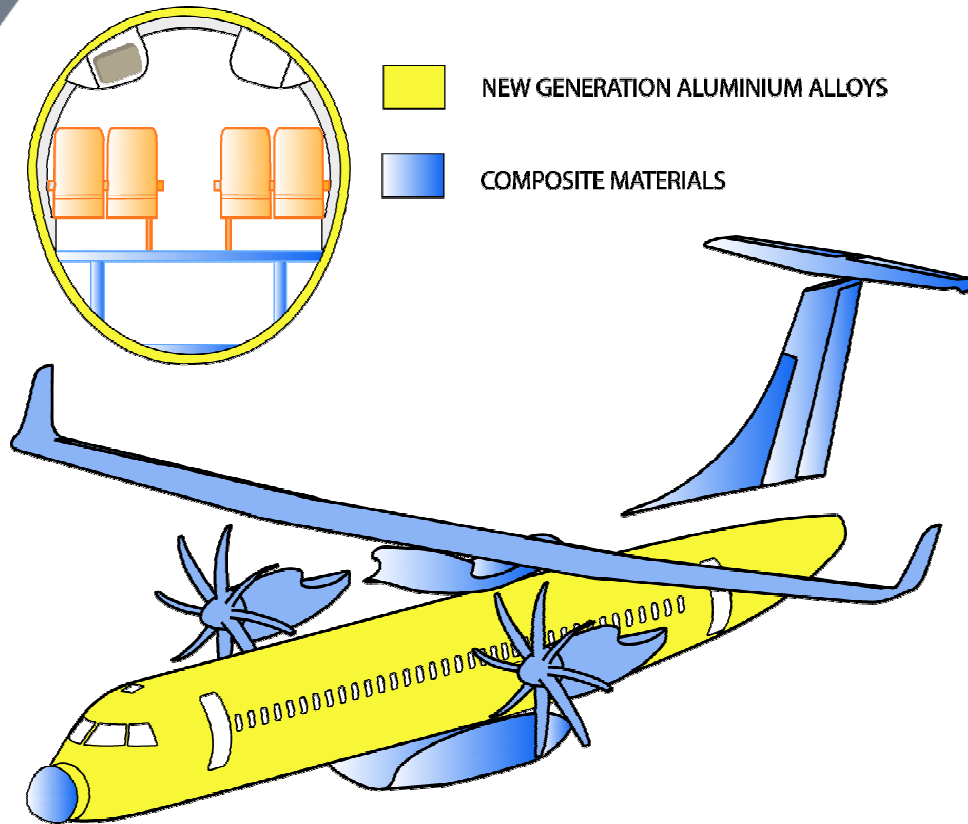
STRUCTURAL CRITERIA



systems

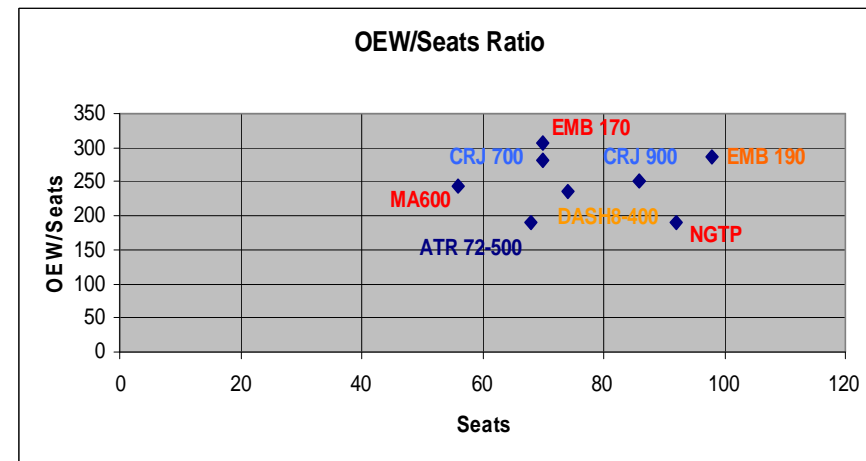


STRUCTURAL EFFICIENCY



High strength Aluminium Alloys
Composite Floor Beams for corrosion control

Wing and empennages of composite materials
(approximately 30% OEW in composites).



SYSTEMS TECHNOLOGY

Fly by wire concept

- Modern technology systems such as electrical flight control and simplified independent hydraulics shall provide a lightweight airframe as well as reliable and efficient systems.



Hydraulics pipeline free

EHA (Electro Hydrostatic Actuator)

The principle of a hydraulic power generation centralized and common to all systems is replaced by a decentralized hydraulics

Lower operational costs

Safety enhancement resulting from redundancy and better segregation of the circuits.

Future steps

Architecture and Technologies applicable to the NGTP are under evaluation at ATR taking into account the market requirement and the objective to further develop the strengths of the current product family.

Thank You