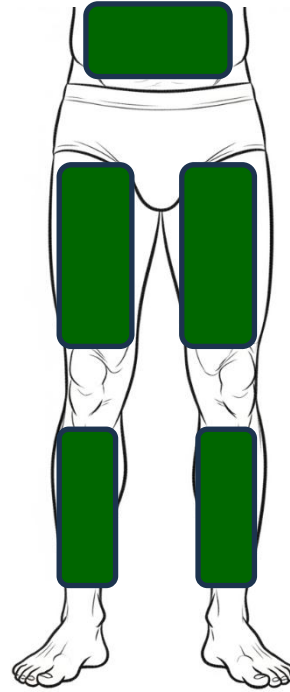


Atheris: A Revolutionary Anti-G Suit System

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Traditional/Contemporary Anti-G Suits



System of pressurized double-walled bladders external to the body



Traditional/Contemporary Anti-G Suits

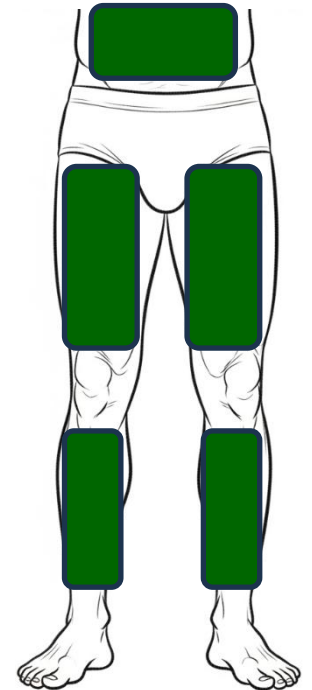


- Design improvements since the 1940s:
 - Shape and size of bladders
 - % coverage
 - New materials and construction techniques
 - Size/geometry of abdominal bladder
- Fundamentally the architecture has remained unchanged for over 80 years
- Further improvements are possible, but will be minimal

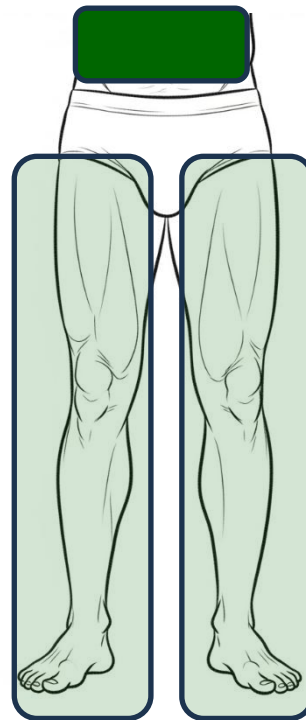


Anti-G Suit Layers

- *Skin/Undergarments*
- **Coverall**
- **Restraint fabric**
- **Pressure wall**
- *air*
- **Pressure wall**
- **Restraint fabric**



Atheris



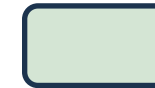
Atheris is a revolutionary anti-g suit architecture
Enclosing the lower body **inside** the pressure envelope



Atheris

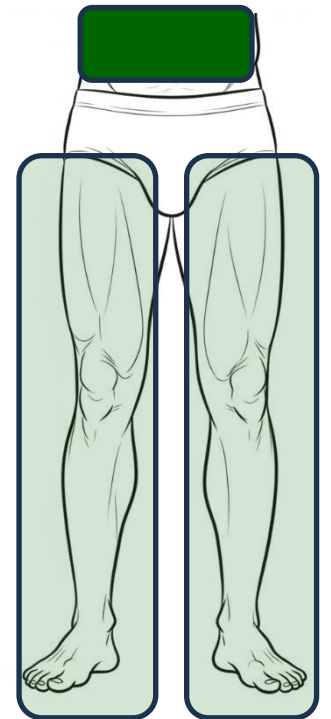


- Fundamental characteristics of this architecture:
 - Fewer layers
 - Less bulk
 - Lower thermal burden
 - 100% coverage
 - Greater G protection
 - Inherent air cooling in lower body
 - Air flows over the legs



Atheris Layers

- *Skin/undergarments*
- *air*
- *Pressure wall*
- *Restraint fabric (coverall)*



Inner Half-Suit



- Inner half-suit encloses the pressurized gas around the lower body
- Includes a traditional double-walled abdominal bladder
- Thigh seals separate the lower volume
 - Comfortable neoprene seals against skin or nominal flight undergarments
- Selectively permeable fabric retains air, but allows water vapor to escape, improving thermal comfort



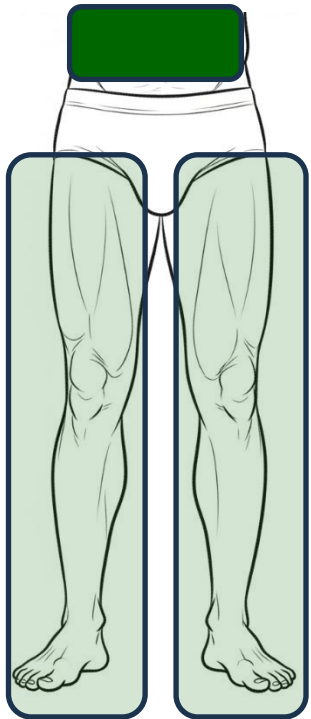


Outer Suit

- Designed to look, feel and function like a standard flyer's coverall
- Serves two additional primary functions:
 - Fire retardant outer protective layer
 - Restraint layer for lower body pressure suit
 - Designed to work in concert with the inner suit
 - The lower half of the outer suit is lined with high-strength, low-elongation fabric
 - This fabric bears the pressure load of the anti-g suit
- Multiple versions available to satisfy different requirements
 - Outer garment may include:
 - Flail restraint
 - Pockets
 - Molle
 - Lanyards
 - LPU attachments
 - Or Flight Jacket may be worn over the outer suit as needed



Total Layer Comparison



Atheris Layers

- Skin/undergarments
- *air*
- Pressure wall
- Restraint fabric (coverall)

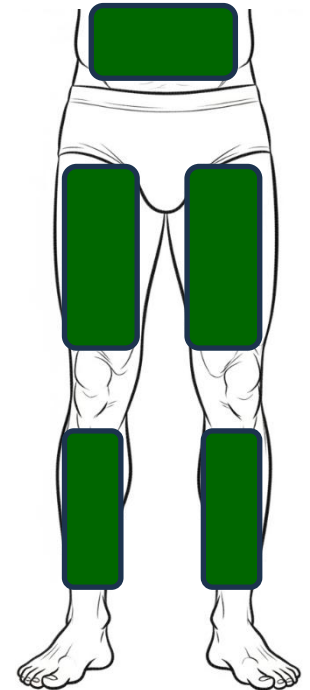
Fabric layers:

2 vs 5



Anti-G Suit Layers

- Skin/Undergarments
- Coverall
- Restraint fabric
- Pressure wall
- *air*
- Pressure wall
- Restraint fabric



Significant reduction in layers enables dramatic reductions in bulk and thermal burden



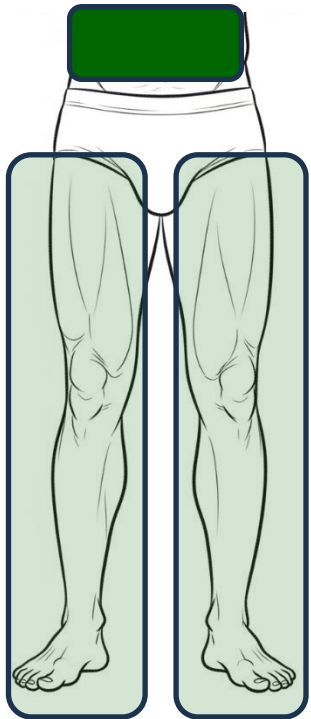
Immersion Garment Version



- For scenarios requiring immersion protection, the inner half suit can be replaced with a full immersion suit
- This full inner layer replaces the inner half-suit
- Worn underneath the same outer layer
- Immersion protection and g protection combined into one suit, further reduces bulk and thermal burden
- Air cooling of the upper torso is possible for aircraft that can provide an air source



Total Layer Comparison (with IPG)



Atheris Layers with IPG

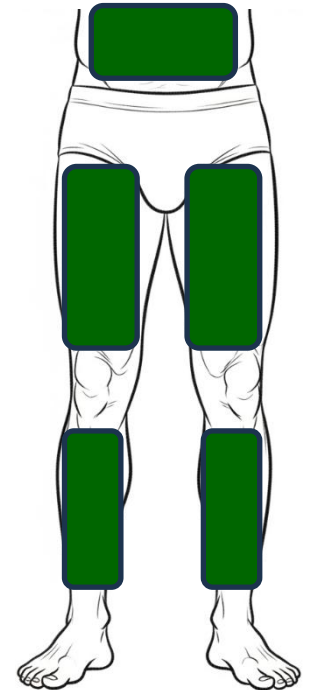
- Skin/undergarments
- *air*
- Pressure wall (serves as IPG)
- Restraint fabric (coverall)

2 vs 6



Anti-G Suit Layers with IPG

- Skin/Undergarments
- Coverall
- IPG
- Restraint fabric
- Pressure wall
- *air*
- Pressure wall
- Restraint fabric



Inner layer serves two functions, further reducing bulk and thermal burden



Flight Jacket



IPG





Outer Suit




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November 2025, Mobile, AL



Configurations




Configuration	Inner Suit Options	Outer Flight Suit	Flight Jacket/ LPU	Photo
Baseline	Half Suit or IPG version	Minimal features Tan or Green	Legacy flight jacket and/or LPUs as needed	



Configurations



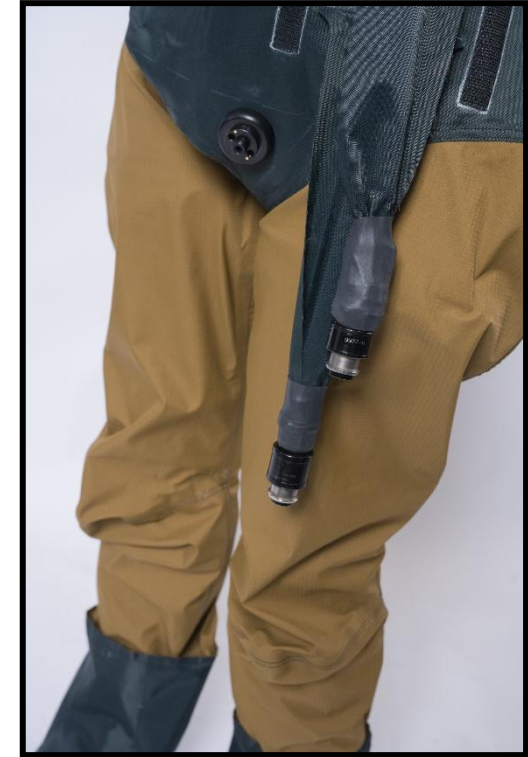
Configuration	Inner Suit Options	Outer Flight Suit	Flight Jacket/ LPU	Photo
Semi Integrated	Half Suit or IPG version	Minimal features Tan or Green	DCCI Flight Jacket with Legacy LPUs or DCCI LPUs as needed	



Compatibility



- Compatible with Existing Air Crew Ensembles & Cockpit Equipment
 - Ensembles
 - Flight Jackets / LPU
 - PBG & CCP
 - Cold weather overgarments
 - CBRN overgarments
 - Under garments¹
 - Boots²
 - Various BRS (Bladder Relief Systems) including Omni Skydrate
 - Cockpits
 - Ejection seats / harnesses
 - Air supply



IPG version with an integrated Omni Skydrate through-suit connector

1 – The thickest cold weather models of lower torso undergarments may need to use DCCI specified designs to assist with proper fitting

2 – Compatible with all flight boots. For optimum comfort and performance, specific COTS boots are specified.



Conclusions



- Atheris is a revolutionary Anti-G Suit architecture with numerous benefits to improve pilot performance:
 - Lower thermal burden
 - Lighter weight
 - Greater G protection
 - Greater comfort
 - Better fit with fewer sizes
 - Integral air cooling
 - Integral IPG version available
 - Reduced AGSM required
 - Compatible with existing flight jackets, bladder relief systems, and other AFE
- Qualification and Flight Testing are the next steps to prove out this new technology



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