

Lantal's Pneumatic Comfort System PCS

Facts: Highest reliability – Less weight – More comfort



Pneumatic seat cushions are replacing conventional foams in seats and mattresses with much lighter air cushions and offer unprecedented seating and sleeping comfort. The lightweight Pneumatic Comfort System is available for first, business and premium economy class seats, pilot seats, mattresses for crew rests and VIP jets. Having acquired over 250 million flight hours since 2009, the system has proved to be highly reliable. System availability >99.7%.

Technical Data

Pneumatic cushions, mattresses:

Material	Polyurethane film, 250 microns
Tubing	Polyurethane tubing, 6 mm o.d., 4 mm i.d.
Construction	Catia V5, to fit desired shape
Production	RF welded, Swiss made, 100% tested
Prototypes	Available within 3-4 weeks, from 3D model data
Cleaning	Wipe with damp cloth
Durability	Warranted for four years

Fireblocker, puncture protection layer:

Material	Nomex – Kevlar felt, fitted to pneumatic cushion
Production	Sewn with Nomex thread
Cleaning	Dry clean

Comfort layer (part of fire blocker):

Purpose	Enhances touch-and-feel and vapor transport
Material	3D mesh, sewn to fireblocker layer
Cleaning	Dry clean

Pump BP-18:

Performance	By Dornier Technologie Systems for Lantal 18 liters/min, max. pressure 500 mbar, < 50 dB(A)
Deflation	Active e.g. for massage
Construction	Rotary vane type, brushless DC motor (by Maxon)
Noise reduction kit	Mounting kit, silencers < 45 dB(A)
Electrical input, power consumption	20-35 V, peak 30 W, typical 20 W @2000 rpm (0.7 A)
Durability	Warranted for 4 years

Software, interfaces:

Software	Controls components, firmness in all cushions
Interface to ECU, PCU	RS 485, RS 232, CAN BUS, adapted per application
Diagnostics	Built-in diagnostics, BITE code readout to ECU or port

Valve block C5.1, C6.2, or M5.0:

Performance	By Dornier Technologie Systems for Lantal 6 liters/minute/valve, Swiss made high precision valves
Number of valves and pneumatic BUS	2 to 10 valves, 1 or 2 pneum. BUS (air transfer possible)
Valve construction	Normally closed, option: normally open
Pressure sensors	One per chamber, 1 ambient (cabin), all ±2 mbar
Electrical connection, power consumption	20-35 V, peak 10 W, typical 5 W (0.2 A)
Inclination sensor (optional)	If recline angle not provided by ECU
Durability	Warranted for four years

Qualification tests fulfilled:															
Qualified for OEMs	Airbus: A320, A330, A340, A380, A350 in progress Boeing: B777, B787 (B747-400 and B767 per STC)														
Flammability	CS 25.853, App F, Part I and II, 14CFR 25.853 (a), ABD0031, Issue F, Boeing BSS 7238 & 7239														
Environmental	RTCA DO 160														
Electrical	RTCA DO 160 E and F														
Software	RTCA 178														
Dynamic testing, 14 g down	Very good results, inflated and deflated, often better than high end foams														
Dynamic testing, 16 g fwd	Very good results, comparable to high end foams														
Reliability, lifecycle, durability:															
MTBF, dependent on design/layout	Cushions: 60'000 flight hrs Electrical components: 60'000 flight hrs														
Reliability data from the installed base (approx. 10'000 PAX)	Per April 2016: over 250 million PAX flight hrs acquired on A330, A340, A321, A380, B787, B777 and B767. System availability >99.7%														
Weight savings:															
First class seats	3 to 5 kg/PAX vs. comparable systems (w/lumbar)														
Business class seats	1.5 to 3 kg/PAX vs. comparable systems (w/lumbar)														
Premium Economy class seats	0.5 to 1 kg/PAX depending on system (w/lumbar)														
King size mattresses for VIP jets	10-15 kg/PAX saved														
Crew rest mattresses	3-6 kg/PAX saved														
Functionality:															
<ul style="list-style-type: none"> - Individually adjustable firmness, - Lumbar support, - Lumbar Massage 															
References, projects completed/in progress:															
Airlines	Communicated, as of April 2016:														
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Seat manufacturers	B/E Aerospace (B/C), B/E Aerospace (SFC) Thompson Aero Seating (B/C) Zodiac Seats UK (B/C and F/C) Stelia (Sogerma) (B/C) Recaro Aircraft Seating (B/C)														
ECU manufacturers (interfaces to seat)	Enivate, PGA, Crane, Zodiac Actuation Systems (Précilec), PL Porter, Recaro														
Completion centers	Jet Aviation Basel, Switzerland, VIP twin aisle a/c														
Data given here are for information purposes only.															

Contact

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