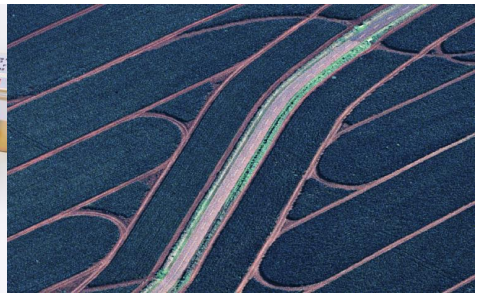
Lantal Transportation Fashion

Fact Sheet

Lantal's Pneumatic Comfort System
Facts: More Comfort – Less Weight – High Reliability





Pneumatic seat cushions – replacing conventional foams in seat cushions and mattresses with much lighter air cushions – offer an unprecedented seating and sleeping comfort. The light weight Pneumatic Comfort Systems are available for first, business and premium economy class seats, mattresses for crew rests and VIP jets. Having acquired over 1 million PAX flight hours since 2009, the system proves to be highly reliable. System availability is at 99.997%.

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 30'000 flight hrs
Fireblocker, Puncture Protection Layer:	
Material	Nomex – Kevlar felt, fitted to pneumatic cushion
Production	Sewn with Nomex thread
Cleaning	Dry clean
Comfort Layer:	
Purpose	Enhances touch-and-feel and vapor transport
Material	3D-mesh, sewn to FBL layer
Cleaning	Dry clean
Pump BP-18:	by Dornier Technologie Systems for Lantal
Performance	18 liters/min, max pressure 500 mbar, < 55 dB(A)
Deflation	Active (pump reverses direction), e.g. for massage
Construction	Rotary vane type, brushless DC motor (by Maxon)
Noise reduction kit	Mounting kit, silencers available < 48 dB(A)
Electrical input, power consumption	20-35 V, peak 30W (1.2A @28V), typical 20W@2000rpm
Durability	Warranted for 30'000 flight hrs
Valve Block (C5.1 and derivatives):	By Dornier Technologie Systems for Lantal
Performance	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)

Lantal Textiles AG, Switzerland/USA/France
www.lantal.com

Certified quality system
EN 9100 / ISO 9001:2000

Construction	Normally closed, option: normally open
Pressure sensors	One per chamber, 1 ambient (cabin), all +/- 2 mbar
Electrical connection, power consumption	24 V, peak 10 W (0.35A @28V), typical 5 W
Durability	Warranted for 30'000 flight hrs
Software, Interfaces :	
Software	Controls components, pressure in all chambers
Interface to ECU, PCU	RS 485, RS 232, CAN BUS, adapted per application
Diagnostics	Built-in diagnostics, error code read out
Qualification Tests fulfilled:	
Qualified for OEMs	Airbus: yes, Boeing: in progress, expected 3Q2010
Flammability	CS 25.853, App F, Part I and II, 14CFR 25.853 (a), ABD0031, Issue F
Environmental and rapid decompression	RTCA DO 160
Electrical, Software	RTCA DO 160 E and F, RTCA 178
Dynamic testing, 14 g down	Very good results, inflated or deflated, often better than high end foams
Dynamic testing, 16 g fwd	Very good results, comparable to high end foams
Reliability, Lifecycles, Durability:	
Typical MTBF, dependent on design/layout	Cushions: 60'000 flight hrs, Electrical components: 60'000 flight hrs Per mid May 2010: over 1 million Pax flight hrs acquired on 6 SWISS A333. System availability is 99.997%
Weight Savings:	
First class seats:	4 to 5 kg/PAX vs. comparable systems (w/lumbar)
Business class seats:	2 to 3 kg/PAX vs. comparable systems (w/lumbar)
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
References, projects completed/in progress:	Communicated, as of May 2010:
Airlines	SWISS Int'l Air Lines 11 a/c A333 (F/C, B/C) and 15 a/c A343 (B/C), Eurofly 1 a/c A319CJ (B/C only)
Seat manufacturers	B/E Aerospace (B/C and F/C), Contour (B/C and F/C), ZIM Flugsitz (Premium Economy), Recaro (B/C)
ECU manufacturers (interfaces to)	Enivate, PGA, PL Porter (DeCrane), Précilec, Recaro
Completion Centers	Jet Aviation Basel, Switzerland, VIP twin aisle a/c

Contact

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