



AEROWORKS

INNOVATIVE AEROSPACE PRODUCTS

Company Presentation

Introduction

Aeroworks is a manufacturer and developer of high-quality aircraft components. Quality products are designed and manufactured both as standard and to OEM requirements. Optimized for a wide range of applications in the aviation and related industries.

- Founded on 18 August 2000
- Product portfolio:
 - Aircraft Interior Hardware: Latches, Retainers and Stowing devices
 - Aircraft Interior Composites: Interior panels and Seat parts
 - Built-to-print machining and assembly products
- AS9100 / ISO9001 Quality system & ISO 14001 Environmental certified
- NADCAP certified (Heat treatment)
- EASA part 145 and 21G approvals (Aeroworks Europe)





Aeroworks Design and Production Facilities

Aeroworks (Asia) Ltd.

- Metal hardware

Aeroworks Composites (Asia) Ltd.

- Seats
- Interior panels

Aeroworks Laos Ltd.

- Metal hardware

Aeroworks Europe BV

- Sales & Finance
- Design & Development
- Engineering
- Testing

680 people workforce worldwide

Key management positions in Asia are held by European staff



Aeroworks Headquarters

Aeroworks Europe BV

- Sales
- Finance
- Marketing
- Engineering
- Research & Development
- Tool making capabilities
- Prototyping
- Small batches
- Quick TAT
- Testing

Test Laboratory

- Fire property testing
- Qualification structural composite panel testing
- Hardware qualification testing





Aeroworks Europe

- Aeroworks Europe acts also as the **developing-, tooling- and prototyping** department for Aeroworks Europe- and Asia
- Research and Development located at the same office, enables efficient Engineering and quick turnaround, from sketch to prototype





Aeroworks Europe

- Research & Development
- Additive manufacturing (3D printing)
- Spigot manufacturing and assembly
- Thermoforming
- Hydroforming
- Tool making
- Prototyping
- Small batches
- Testing





Test Laboratory

Fire Property Testing

- Flammability per CS/FAR25.853, App. F, Part I (12 or 60 sec. vertical, horizontal, 45° or 60°)
- Smoke Emission/Density per FAR/CS 25.853, App. F, Part V
- Toxicity per ABD 0031 (Airbus) or BSS 7239 (Boeing)
- Heat Release (OSU) per CS/FAR25.853, App. F, Part IV



Qualification Structural Composite Panel Testing

- Flatwise Tensile Strength ASTM C297/C297M
- Short Beam Flexure ASTM C393/C393M
- Peel or Stripping Strength of Adhesive Bonds ASTM D903
- Long Beam Flexure ASTM D7249 or D7249M
- Climbing Drum Peel ASTM D1781/DIN EN 2243-3

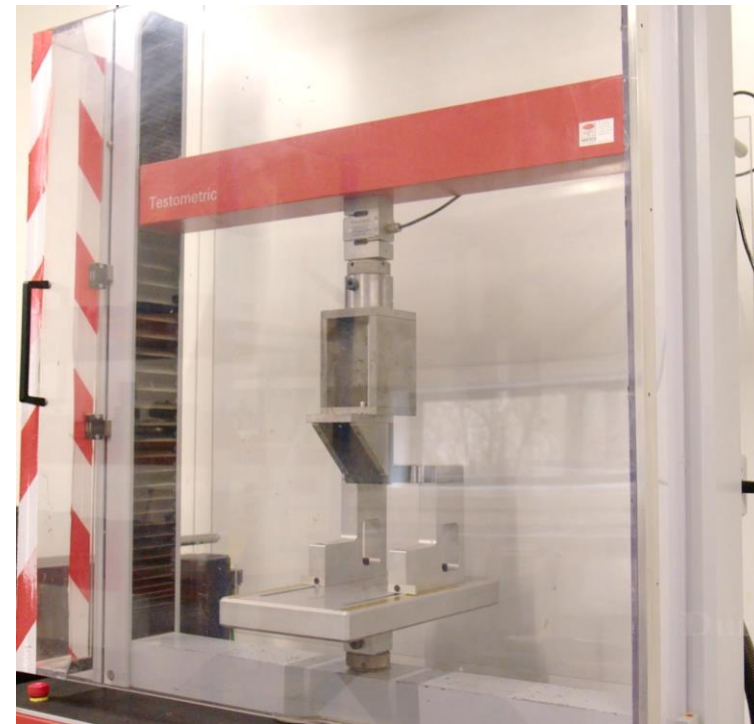
AS9100 Certified and CAA-NL recognized



Test Laboratory

Hardware Qualification Testing

- Tests performed per RTCA/DO-160
- Standard endurance/cycle testing, 100.000 cycles (standard) or requested per customer
- Static load testing per requested loads from Customer



AS9100 Certified and CAA-NL recognized



Interior Hardware Facilities

Aeroworks Thailand

- 1 facility of 3,875 m² workspace
- 265 people workforce



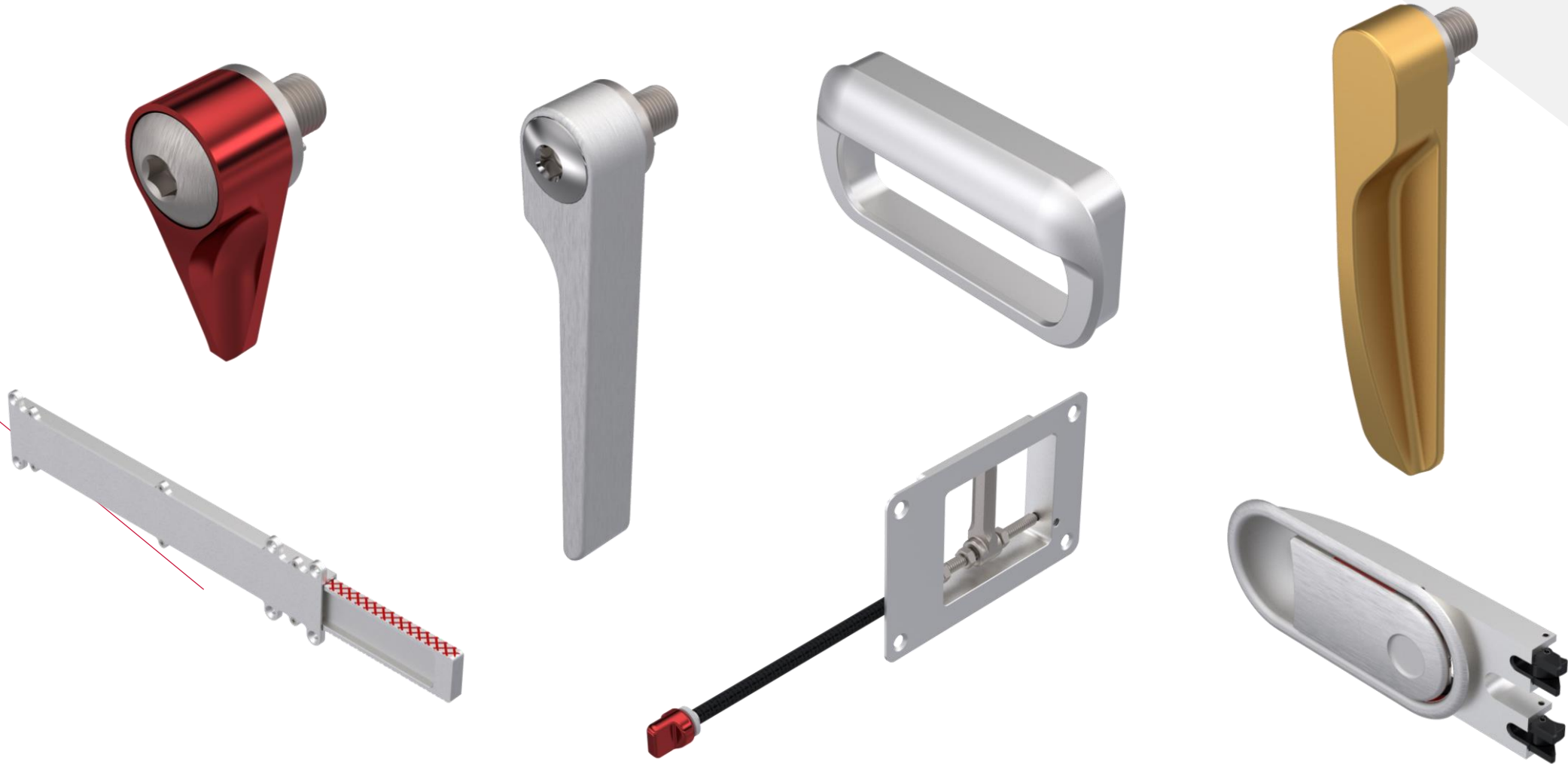
Aeroworks PDR Laos

- 2 facilities combined workspace of 4,230 m²
- 100 people workforce
- Free import-export agreement with China





Galley Interior Hardware Portfolio





Lavatory Interior Hardware Portfolio





Cabin Interface Hardware Portfolio





Interior Hardware Equipment

Equipment

- 82 CNC Milling Machines
 - 53x 3-axis milling machines
 - 26x 4-axis milling machines
 - 1x 5-axis milling machine
 - 2x Horizontal milling machines
- 30 CNC Lathes
 - 11 x Dual spindle (Turning/Milling)
- 1x Sheet Metal Laser Cutter





Interior Hardware Finishes & Capabilities



Finishes

- Surface grinding; manual & automated
- Shot peening
- Automated Heat Treatment (NADCAP)
- Polish / Brush finish
- Chromating and Passivating
- Anodizing (Type II Class 1 and Class 2)
- Wet paint, Powder coat, Plasti-coat, Dry film lube

Capabilities

- Metal working
- In-house R&D
- Engineering
- Prototyping
- Testing
- Measuring
- Assembling





Interior Composites Facilities

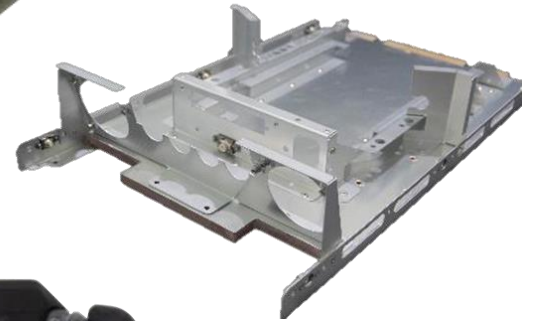
Aeroworks Composites Thailand

- Composites (Asia) Cabin
 - 1 facility of 2,400 m² workspace
 - 125 people workforce
- Composites (Asia) Seating
 - 2 facilities combined workspace of 3,050 m²
 - 165 people workforce





Interior Composites Portfolio





Interior Composites Equipment

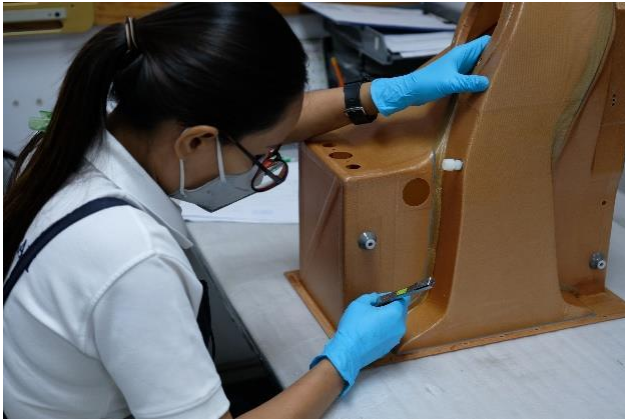
Equipment

- 15x CNC Milling Machines
 - 8x 3-axis milling machines
 - 7x 5-axis milling machine
- 5x CNC Prepreg cutter
- 30x Press (small & large)
- 6x Vacuum curing oven





Interior Composites Finishes & Capabilities



Finishes

- Heat laminating for decorative materials
- Paint shop



Capabilities

- Manual Lay-up
- Hot-press and oven curing
- Honeycomb core panel press (hot/cold)
- Vacuum forming of plastic parts
- In-house tooling design and manufacturing
- Filament winding
- Testing
- Measuring
- Assembling



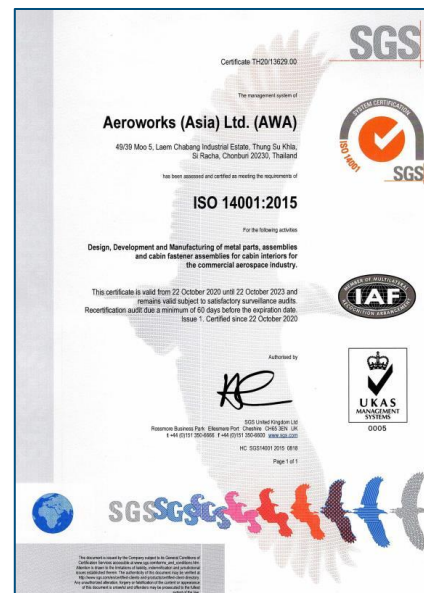
In house tool manufacturing

Manufacturing of molds & jigs in house

- Shorter lead times
- Better control over design and quality
- Reduced breakdown for repairs and maintenance of tooling



Quality



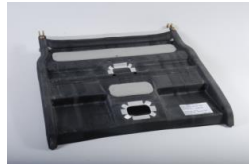


Aeroworks Milestones and History



2000

Aeroworks founding



2006

Establishment of
Aeroworks Composites



2013

AS9100 certification
for all Asian facilities



2016

PDR Laos 2nd facility
and ACA-3 in
operation; Ready for
industry ramp-up and
future expansion



2020

Preferred supplier and
development partner
for interior parts on all
new build aircraft types

New company
headquarters with
additional capacity to
support prototypes,
small series, et cetera



Aeroworks supplies to aircraft interior manufactures. Our products can be found on a width range of aircraft types such as:

A380 / B747, A350 / B787, A340 / B777, A330_{neo}, A320_{neo} / B737_{max}, SSJ-100, A220 / C-series, E-jet / E2, ATR



Product and Service focus



Source: Safran Cabin Inc.



Source: Airbus Group



Source: Airbus Group



Source: Fokker Techniek B.V.



Customers





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Aeroworks



Aeroworks Europe BV