



Shaping a better future

**PART PRODUCTION
FOR THE AEROSPACE
INDUSTRY**

www.aries-manufacturing.com



ARIES

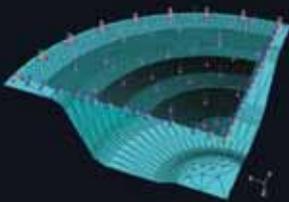
MANUFACTURING

An Aries Alliance Business

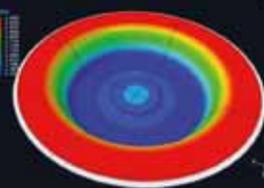
Aries Manufacturing is Aries Alliance international business brand dedicated to the production of complex parts for leading players in the aerospace industry. Part of the group global strategy, Aries Manufacturing benefits from the same expertise chain that allowed us to stand out in the machine manufacturing field: simulation, design and manufacturing.

For all cold forming, hot forming and friction welding processes, Aries Manufacturing is able to control the entire process, from simulation, development of dies, up to the delivery of finished parts to its partners.

Calculation



Simulation



Tool



Tool



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HOT FORMING (HF)
SUPERPLASTIC FORMING (SPF)

5

HOT STRETCH FORMING (HSF[®])

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LINEAR FRICTION WELDING (LFW)

6

MILLING MIRROR SYSTEM (MMS[®])

7

PRODUCTION CAPABILITIES



Certifications



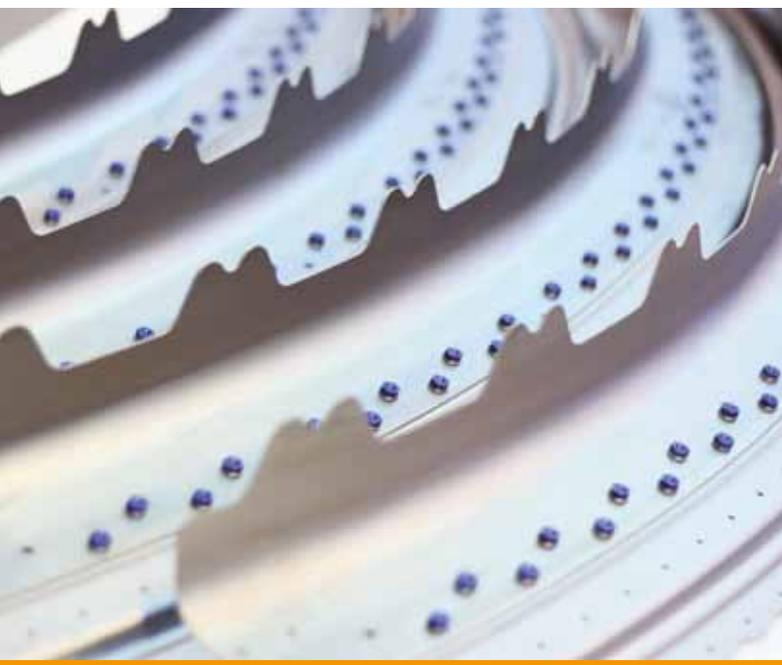
EN 9100

ISO 9001

ISO 14001

HOT FORMING (HF)

Hot Forming is a forming technique with a short cycle time using medium-high temperature to increase the formability of the material being formed. This technology can be used for Titanium, Nickel and Aluminum alloys.



SUPERPLASTIC FORMING (SPF)

Superplastic forming is a process dedicated to sheet material allowing elongation of several hundred percent. SPF is used to form Titanium, Nickel or Aluminum alloy parts at high temperature with either gas or die pressure. SPF allows the forming of very complex shapes.



Typical parts produced with Hot Forming:
Pylon parts, nacelle parts, engine parts, blades.



Typical parts produced with Superplastic Forming:
Pylon panels, nacelle panels, engine parts, fan and OGV blades.

HOT STRETCH FORMING (HSF®)



Aries Manufacturing has developed a very innovative Hot Stretch Forming process to contour titanium profiles for airframe component applications. The HSF® process saves material and machining time, which are two serious cost issues for today's aircraft manufacturers. In addition, the process allows for consistent quality in a productively efficient manner, assuring the sustainable attainment of delivery and build schedules.

HSF® technology is:

- cost effective
- repeatable
- available to be used for immediate production in volumes to meet aircraft build rates



Typical parts produced with Hot Stretch Forming:
Titanium airframe components

LINEAR FRICTION WELDING (LFW)

Linear Friction Welding (LFW) is a solid state joining process as it does not cause melting of the parent material. It produces forge quality, high integrity joints, with a narrow heat affected zone. The material are forged using frictional heat through the controlled, reciprocal linear oscillation movement of two components under high contact load.



PANEL MECHANICAL POCKET MILLING, DRILLING AND TRIMMING (MMS®)

The Milling Mirror System is a world patented fuselage panel production system designed to replace the classic chemical process. The MMS® technology is a proven machining process that secures the production of 3D metal skins. It enables the complete process of milling, drilling and routing of skins in a single setup within a single machining cycle.



Typical parts produced with Linear Friction Welding: Blisks, IBR, IBF for jet engines, thick joints, aircraft structural parts.



Typical parts produced with MMS®: fuselage aluminum 3D skins to perform pocketing, drilling & routing in a single setup.

PRODUCTION CAPABILITIES

Aries Manufacturing has invested massively in the latest technology and state-of-the-art equipment to make sure the three company production sites can deliver high quality parts to its customers.

Our production means include hot forming, superplastic forming and hot stretch forming presses with various tonnage as well as panel mechanical pocket milling machines of different sizes.



Finishing capabilities

Complex products often have to be processed further. Here are the different steps Aries Manufacturing offers to provide a finished product.

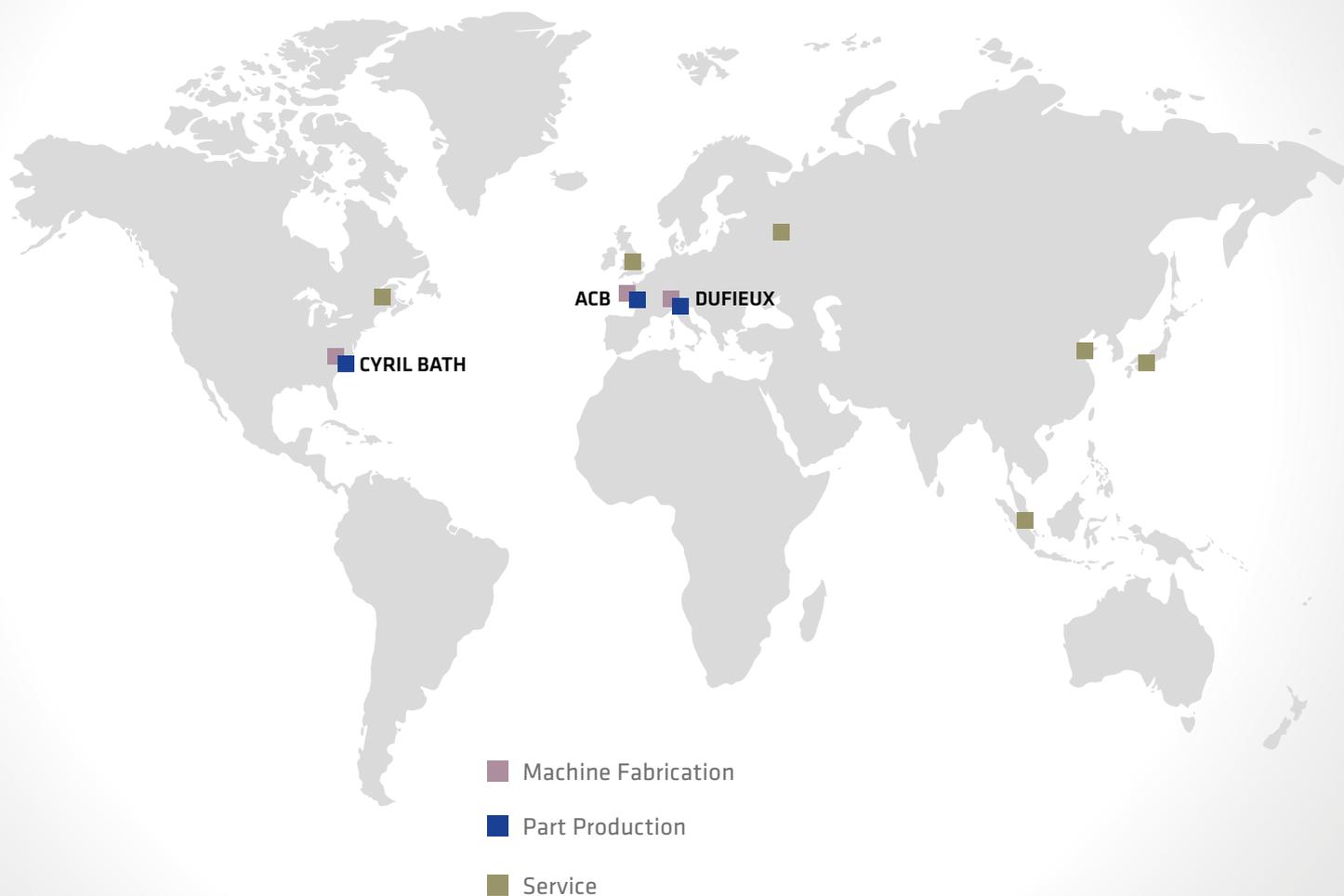
- 2D and 3D trimming
- Spot Welding
- Riveting and TIG Welding
- Metal Working
- Heat Treatment
- Part Assembly



REFERENCES

AIRBUS AIRBUS HELICOPTERS ATR BOEING BOMBARDIER DAHER
DASSAULT AVIATION EMBRAER LEONARDO SABCA SAFRAN AERO ENGINE
SAFRAN NACELLES SPIRIT AEROSYSTEMS STELIA

LOCATIONS



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