



Reliable... Reactive... Trusted... and Ready



ASG Group Overview

ASG Group provides end to end capabilities through Design / tooling / manufacturing / Hard & Soft Metal treatments all controlled and managed through ASG sources

- Formed **May 2019**
- \$60m annual turnover (FY22) and EBITDA \$7.4m
- European business with **over 350 employees**
- Strategic suppliers to **Aerospace, Defence, Space and Medical** sectors
- Headquartered in **Manchester**
- **Two Divisions** – Aerospace and Tooling
- **Eight manufacturing locations** – UK and Germany
- Wide range of **manufacturing and process capabilities**
- **>150** CNC machine tools
- **Core competencies** 5-axis prismatic, Long & Short Bed Milling, Hard & Soft metal turning, Assembly
- NDT, Hard & Soft metal surface treatments, paint systems – **NADCAP Approved**
- Numerous Aerospace & OEM accreditations held, including **AS9100 SC21 Cyber Essentials**
- **£3m investment** in plant and machinery within the last 18 months

ASG is globally compliant and flexible to both strategic and tactical requirements. Ongoing investment all sites access to capex to keep each site on the forefront of manufacturing technology



Overview



>150

More than **150 CNC machine tools & Capabilities** within **hard & soft metal treatments**



>350

European businesses with over **300 employees**



>\$60m

More than **\$60 million annual turnover (FY22)**

8/2/1

ASG

8 Locations
2 Divisions-Aero & Tooling
1 Group



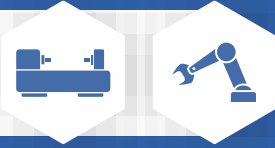
>65

More than **65 approvals attained**

Global Footprint

ASG Arrowsmith

Multi Axis Turning <500mm
Sub Assy Capable



ASG AMF

<1m dia Turning, Clean Room Assy & Weld
Hard & Soft Metal



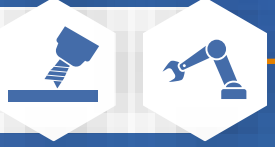
ASG King & Fowler

Surface treatment & NDT <4.5m
Hard, Soft & Exotic Metal



ASG Ludolph- Gmbh

Short Bed Machining <1m
Hard & Soft Metal-Sub Assy Capable



ASG Phoenix

Long Bed Machining <4.5m
Hard & Soft Metal-Sub Assy & AOG Service



ASG TGM

Long Bed Machining <4.5m
Hard & Soft Metal-Sub Assy Capable



ASG Tooling

Design Capable - Long Bed M/c <18m
Hard & Soft Metal – Heavy Fabs



Global Footprint



UK

290+ employees

7 Business units

Capabilities design, manufacturing, assembly, treatments & tooling offering a full turnkey solution



Germany

80+ employees

1 Business unit (currently in process of acquiring 3 manufacturing facilities in Northern Germany)

Capabilities Manufacturing / assembly of detail parts / sub assemblies



France

ADS Toulouse Office



India

32,000² ft facility (manufacturing area)
55 employees

Located adjacent to Bangalore International Airport
AS9100D Certified & Airbus Approved
Core capabilities in precision CNC milling and turning of hard and exotic metal components
Sub assembly capable

Global Footprint



 **asg** |  **Arrowsmith**

22,000² ft facility
55 employees

Precision CNC machining of hard and exotic metal components to major aircraft engine OEMs
Sub assembly capable
APQP methodology deployed on New Product Introduction



 **asg** |  **King & Fowler**

20,000² ft facility
50 employees

Hard and exotic metal surface treatments and NADCAP approved NDT
Investing in environmentally friendly surface treatment processes: PVD and Thermal Spray



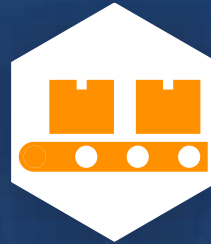
Indian Partner

32,000² ft facility (manufacturing area)
55 employees

Located adjacent to Bangalore International Airport
AS9100D Certified
Core capabilities in precision CNC milling and turning of hard and exotic metal components
Sub assembly capable

Multi Discipline Capabilities

Assembly
<5 meter
Structural & Sub Assy



3+2 Axis Milling
<18 meters
Hard & Soft Metal



Short Bed Machining
<1 meter
Hard & Soft Metal



Automation
5 ax Mill & Turn
Lights out technology



Long Bed Machining
<4.5 meter
Hard & Soft Metal



Surface Treatment
NDT- Plating- Spraying
Hard & Soft Metal



Turning
<1 meter
Three / Five / Twelve Axis



Speed Shop
Best In Class AOG Service

Project Management

Projects & NPI Strategic work packages will be in loaded into **ASG** closely following the principles of **APQP**- Both at a **site** and **Group** level.

Typical tools adopted - **PFMEA / FMEA / MSA / PPAP** - managed through our **Q-Pulse** software

Our **experienced** project managers are all APMP certified are empowered as a single point of contact to deliver the project.

The **reporting structure** will contain the following.

- Identification of Key Project **Stakeholders**
- Provides a level 1 **executive** overview of **progress** by operation for the whole project
- Provides a level 2 detailed project **status** report
- Identifies any **special** process requirements
- Holds a **collaborative action plan** / issue management log
- Maintains a **supplier query** note register so you can **monitor & control** outstanding supplier queries

Drum beat **communication** will be delivered through on-site visits, weekly Webex sessions, and monthly high level **performance** reviews



Total Manufacturing Solution

- Simplified ordering process & clear established communication channels
- Leveraging ASG Group Shared Service functions
- Providing a true end 2 end manufacturing service
- Single point of access into wider group capabilities & LC economies
- Completed parts stocked in Group Logistics Company (GLC)





Continuous Improvement

ASG SC21 & Cyber Essentials

The ASG Continuous Improvement philosophy has been strongly linked to the **ADS SC21** programme since 2017.

Utilising both the **SC21 OE and C&G** programmes all the ASG companies have seen significant productivity improvements over this period.

Presently Three of our companies from the Aerospace Division, are at the Silver award level or are about to progress from Bronze.

Two companies are actively involved in the first SC21 Competitiveness and Growth programme, being awarded around £750,000 of training over the programme.

Our remaining Aerospace & Tooling business units are now enrolled for the SC21 journey and will be commencing next year

The **Cyber Essentials** scheme has been welcomed by the ASG group. Protecting our customers intellectual property and delivering customer focused excellence is at the heart of ASG Group. We have recently achieved Cyber Essentials at two facilities and will achieve it at all within 12 months.

Client Base



Arrowsmith Overview

- **2022-2023: £7.7m EBITDA £1.3m**
- **57 Employees**
- **15000 sq ft factory area, 7000 sq ft offices**
- Accreditation: **AS9100, ISO14001, NADCAP**
- 2022-23 Awards: **SC21 Silver (8), Fit4N, Queens Award for International Trade, Cyber Essentials Accredited. NIST 800**
- Customer profile and approvals : **Rolls-Royce (Classified, UK, Singapore, Germany), Incora, GKN USA, ITP Spain, ITP UK, Meggitt, Siemens, Liebherr, Mecachrome.**
- Machining Capability: **16 CNC Machining Centers, 12 CNC Lathes, 5 CNC Turn Mill, 14 Grinding centers, Thread rolling**
- 4 new machines in last 12 months
- Services: NDT, Assembly, Pressure Testing, Fabrication, Inspection, Thread cut up
- **Supported by the ASG Group Shared Service Team for supply chain management / Key Account Management & Sourcing**
- **Automation** – Doosan Cobot; Doosan AWC (8 Pallet System); CMM Automation





Arrowsmith Capabilities

ASG Arrowsmith established in 1967, is situated in Coventry, has a headcount of 65 employees and specialises in hard, soft and exotic metal turning.

APQP methodology is within the DNA of Arrowsmith, which is adopted on all NPI programmes that are deployed. Arrowsmith have attained and maintained SC21 Silver for 8 consecutive years running, outlining their continued focus on business excellence

Services

- Supply chain management
- New product introduction
- Strategic and tactical contracts
- Engineering
- Programming
- Machining
- Sub-assembly
- Material buffer stock provision
- APQP
- Development programmes

Capabilities

- 4 New Machines: DVF5000 plus 8 pallet loading system
- 2x Lynx Sub spinal Turn Mill CNC + bar feed.
- In addition to,,,,,,,,,,,,,
- 4 axis CNC turning
- 5 axis CNC milling
- Cylindrical grinding
- Centreless grinding
- Internal / external grinding
- Surface grinding
- Honing
- Thread rolling and lab testing
- Pressure testing
- MFD and PFD – (NADCAP)

Approvals

- SC21 Silver (6 years running)
- AS9100 Rev D
- BS EN ISO 14001
- BS EN ISO 9001:2015
- Rolls Royce
- Incora
- Meggitt
- Siemens
- Liebherr
- ITP
- Mecachrome
- GKN (USA)
- Nadcap NDT
- F4N
- Queen's award for International trade

Arrowsmith Capacity & SC Management



2 year load and capacity – capacity hours against hours sold



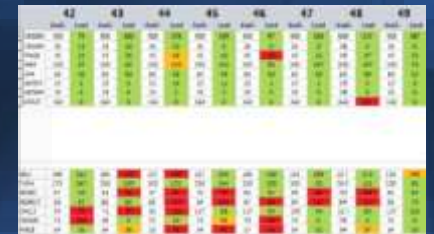
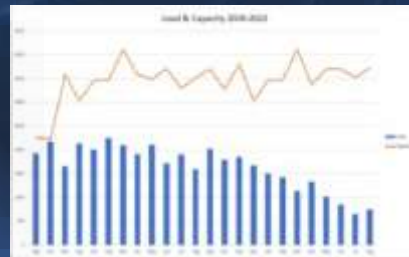
8 week infinite capacity planning



Weekly 10 leads (OTIF, Quality, Scrap, Job start, Planned / actual supplier performance)



Supply chain management scorecards, audit LTA's monthly reviews



Advanced Process Quality Planning

- Arrowsmith Proficient within APQP Processes
- Adoption of Q-Pulse software to manage key areas of APQP
- All PPAP elements covered
- Part specific PFMEAs
- Part specific Process Flow Diagrams [PFD's]
- Part specific Control Plans
- AS13004 compliant

 **Q-Pulse®**

FAIR, PPAP and NPI

 **APQP**

KH53634 (BLOCK, ANTI-ROTATI

	Attachment	Template
(legible?)	Action	
	Action	
	Action	Arrowsmith Process
Scrot (19/Jul/2017 15:50:10)	View	Edit
	Action	Arrowsmith - Mater
Review	Action	Arrowsmith - Sub C
Review	Action	Arrowsmith - Engn
Key Characteristics	Action	Arrowsmith KEY Fe
Review - Stage Drawings	Action	
Rev - Operation Inspection Plans	Action	Arrowsmith Operat
Quality Review	Action	Arrowsmith - Quali
Review	Action	Arrowsmith - Kitth
Review	Action	Arrowsmith Routin
	Action	Arrowsmith PFMEA
Plan	Action	Arrowsmith Process
Plan	Action	Arrowsmith Final In
Matrix	Action	RR Characteristics
	Action	
Sign Off (RR AF 13)	Action	
	Action	
	Action	
	Action	

Arrowsmith - Approval Certification

- AS9100 Rev D Approved
- ISO14001 Approved
- NADCAP approved (2 year merit award) magnetic & fluorescent penetrant
- R-R Classified/Critical parts status
- R-R approved Turning, Thread rolling, Milling and Grinding
- AS13100 compliance.



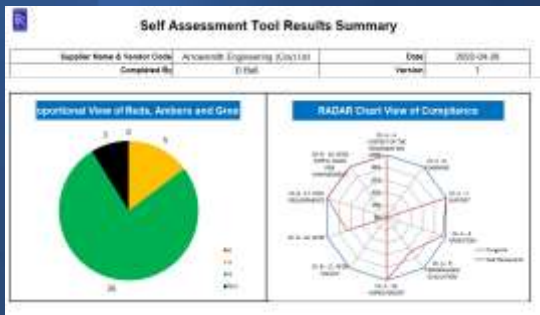
Arrowsmith - Rolls Royce Approvals

- R-R Delegated FAIR.
- R-R certified Thread cut up Laboratory
- R-R and RRCS approved magnetic & fluorescent penetrant
- R-R Classified/Critical parts status
- R-R approved Turning, Thread rolling, Milling and Grinding



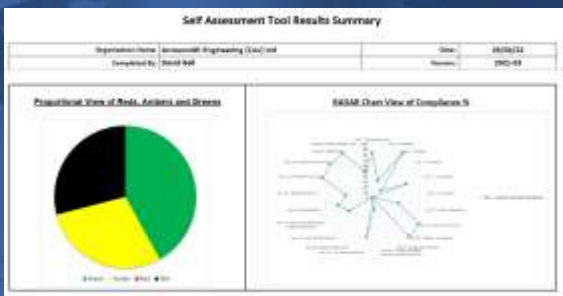
Arrowsmith - AS13100 & SABRe 4 Compliance

- Initial gap analysis showed Arrowsmith were 15% non-compliant to SABRe 4



Clause	Clause title	Compliance Status	Supplier Process Reference	Action	Owner	Completion %	Date Close	Status (Auto Field)
4.1	Address to Address Book and Organization	Y	AS13100-01-01	AS13100-01-01		100%		
4.1.1.1	Product delivery inspection	Y	AS13100-01-01-01	AS13100-01-01-01		100%		
4.1.1.2	Production Measurement, Analysis and Evaluation	Y	AS13100-01-01-02	AS13100-01-01-02		100%		
11	GENERAL	Y	AS13100-01-01-03	AS13100-01-01-03		100%		
15.1.1	ADOP	Y	AS13100-01-01-04	AS13100-01-01-04		100%		

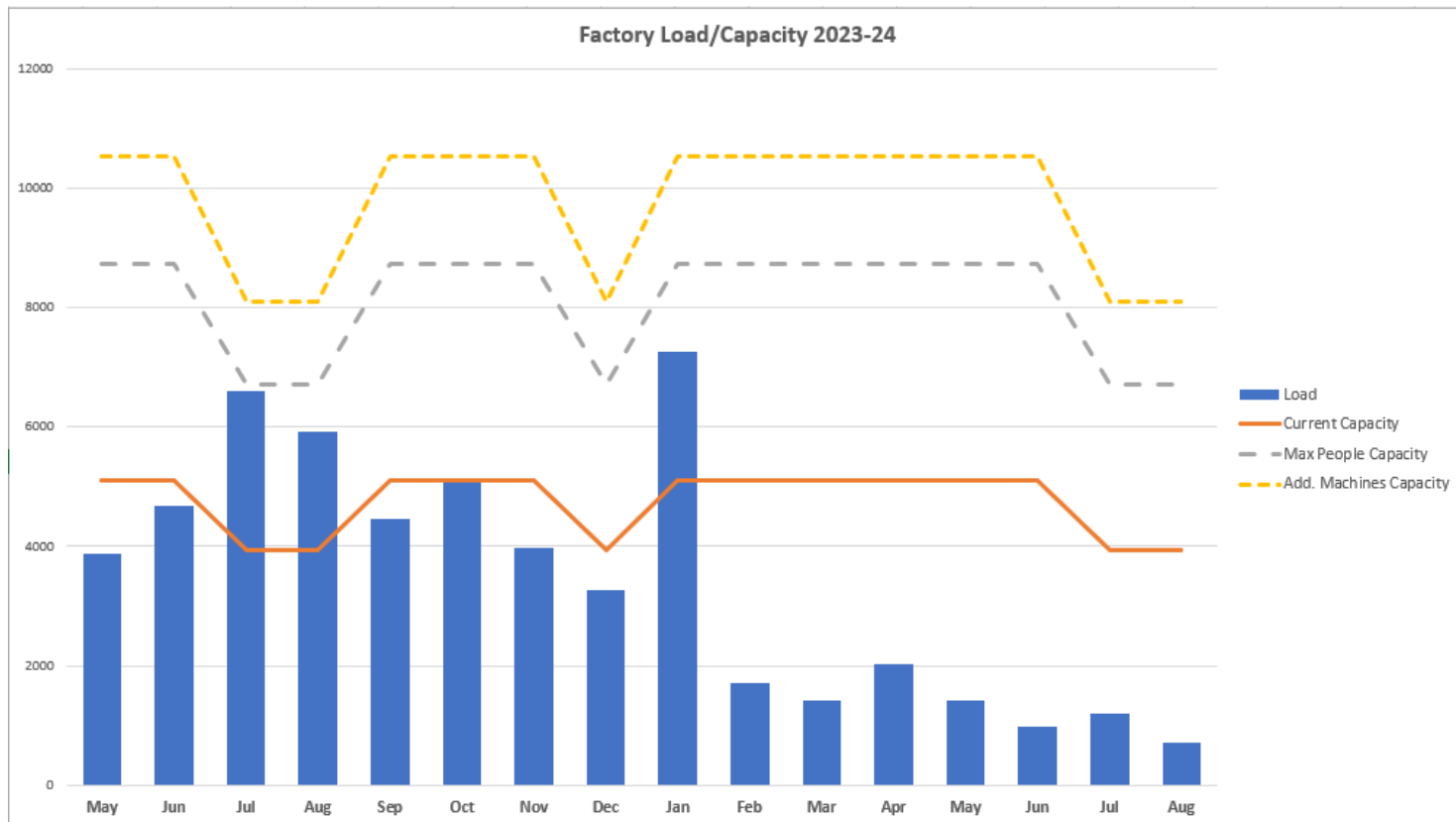
- Initial gap analysis showed Arrowsmith were 29% non-compliant to AS13100



Clause	Clause title	Organization's Process Reference (or summary)	Action	Owner	Completion Due Date	% Completion	Date Closed	Status (Auto Field)
4.1.1.1	Quality Management System and Performance Improvement Assessment Review/Control	AS13100-01-01-01	Full completion as per AS13100			100%		
4.1.1.2	Customer & Supplier & Assessment Requirements	AS13100-01-01-02	AS13100-01-01-02			100%		
4.1.1.3	Understanding the Quality Policy, Department/Requirements	AS13100-01-01-03	AS13100-01-01-03			100%		
4.1.1.4	Production System Analysis, Evaluation of Requirements	AS13100-01-01-04	AS13100-01-01-04			100%		
4.1.1.5	Product Mfg. equipment	AS13100-01-01-05	AS13100-01-01-05			100%		
4.1.1.6	Customer Mfg. equipment	AS13100-01-01-06	AS13100-01-01-06			100%		
4.1.1.7	Agree improvement actions for Mfg.	AS13100-01-01-07	AS13100-01-01-07			100%		
4.1.1.8	Action completion	AS13100-01-01-08	AS13100-01-01-08			100%		
4.1.2	Product Delivery Assessment	AS13100-01-01-09	AS13100-01-01-09			100%		
4.1.3	Customer Requirements Department/Requirements	AS13100-01-01-10	AS13100-01-01-10			100%		
4.1.3.1	Production System Analysis	AS13100-01-01-11	AS13100-01-01-11			100%		
4.1.3.2	Production System Analysis	AS13100-01-01-12	AS13100-01-01-12			100%		
4.1.3.3	Supplier Selection - Department/Requirements	AS13100-01-01-13	AS13100-01-01-13			100%		

- Arrowsmith are 100% compliant to both AS13100 and SABRe4
- Gap analysis results have been shared with Customers

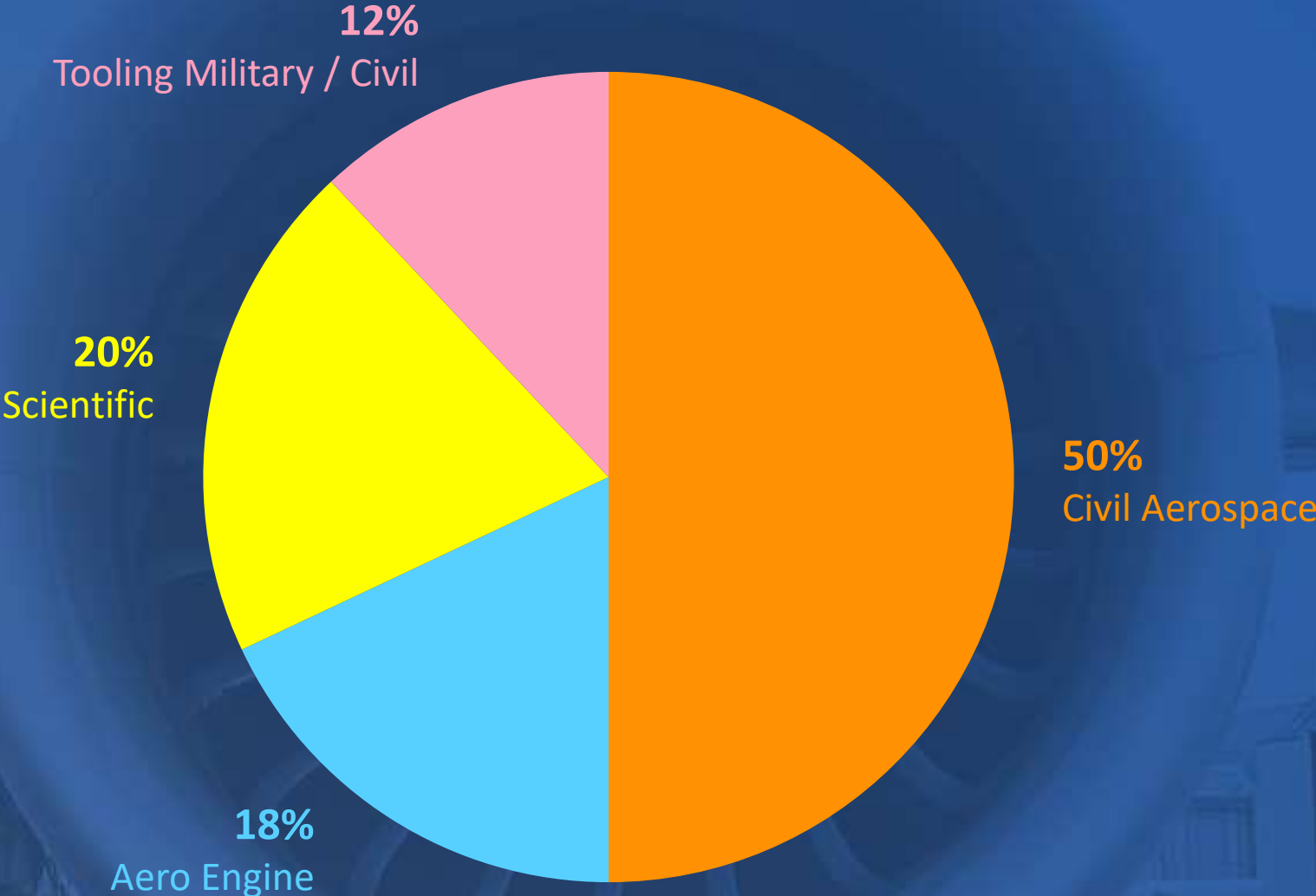
Arrowsmith Factory Load/Capacity 2023-24



A significant increase in capacity can be achieved by introducing:

- Additional labour and overtime
- New machinery and automation
- If further capability and capacity is required a cell can be created in one of the other ASG companies.

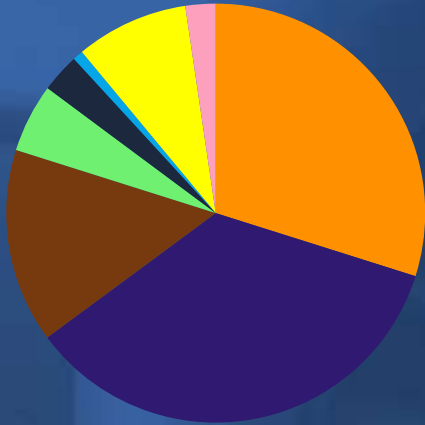
ASG Group Turnover Percentages



Factory Load/Capacity 2019-23

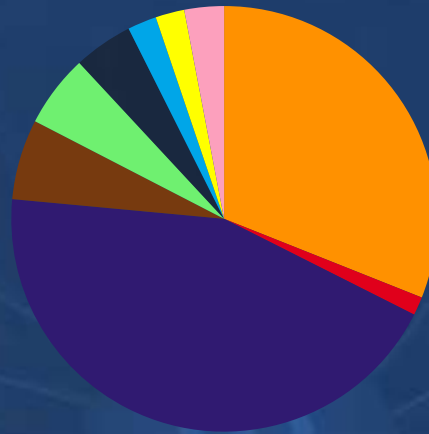
2022-2023

Turnover for year: £7,700,000



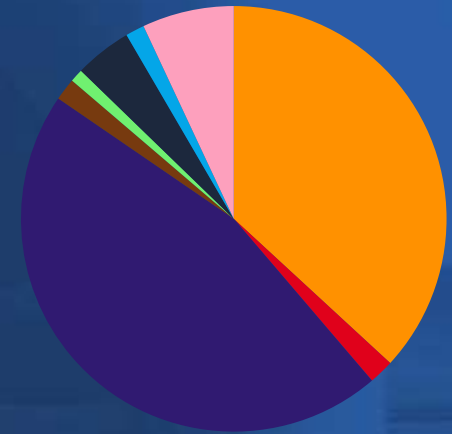
2021-2022

Turnover for year: £5,300,000



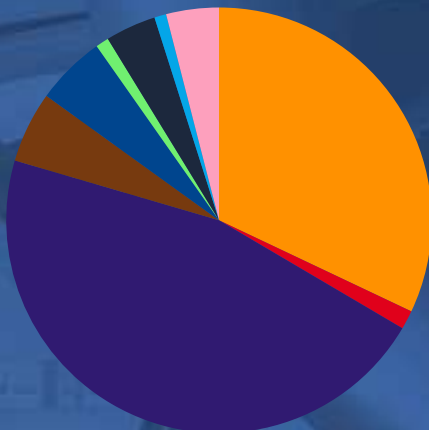
2020-2021

Turnover for year: £4,700,000



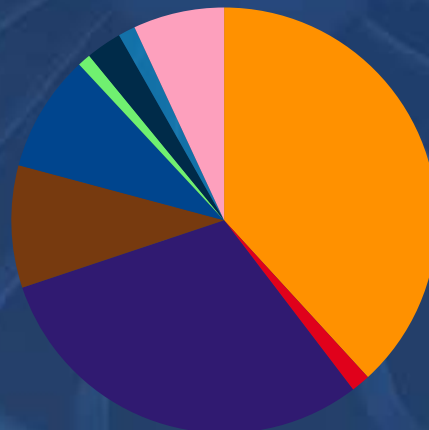
2019-2020

Turnover for year: £7,700,000



2018-2019

Turnover for year: £6,678,000



- Rolls Royce
- RRCS
- Incora/PAT
- ITP
- GKN
- Mecachrome
- Meggitt
- Siemens
- Others aero
- Others

Rolls Royce - Ivalua Scorecards

2022 Ivalua Scorecard

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Quality	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99.36%	99%
Delivery	96%	95%	93%	96%	95%	95%*	98%*	100%	96%	100%	100%	98%

Average agreed results to date for year: **Quality 100%, Delivery 96%**

*Contested and agreed

2021 Ivalua Scorecard

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Quality	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Delivery	100%*	100%*	97%*	95%	97%	90%	100%*	91%*	100%*	98%	98%	100%

Average agreed results to date for year: **Quality 100%, Delivery 97.4%**

*Contested and agreed

Other suppliers linked to Rolls Royce

Incora Scorecard

	April 2021 - March 2022 (12 months)	April 2022 – March 2023 (12 months)
Quality	100%	100%
Delivery	97.4%	97%

Meggitt Scorecard

	April 2022 – March 2023 (12 months)
Quality	100%
Delivery	100%

ITP Spain Scorecard

	April 2022 – March 2023 (12 months)
Quality	99%
Delivery	99%

Mecachrome Scorecard

(only provided in 2022)

	April 2022 – March 2023 (12 months)
Quality	100%
Delivery	100%

Examples of aero-engine components that ASG Arrowsmith manufacture from hard and exotic metals

Specialists in the machining of Nimonics, Titanium alloys, Inconels, S130 Stainless Steel, Magnesium as well as standard free cutting materials.



Well versed in the deployment of APQP principles through NPI process



 asg |  Arrowsmith



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