

HYCROME

EUROPE LTD

SURFACE TECHNOLOGIES
AND ADVANCED MANUFACTURING

AEROSPACE



POWER
GENERATION



OIL & GAS



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About Hycrome

Hycrome was originally established in 1947 and mainly serviced the textile industry. Throughout the decades the company has evolved into the current organisation which has business activity in the Aerospace, Power Generation and Oil and Gas Industry sectors.

Specialist activities include Engineering and Design, Advanced Manufacturing, Application of Protective Treatments and Component Repair.

The company has invested in the latest equipment to meet its aim of delivering value into the Supply Chain by minimising cost and lead-time.

As a privately owned business with the backing of Score Group plc, Hycrome can react quickly to changing market demands by matching services and products to customer requirements.

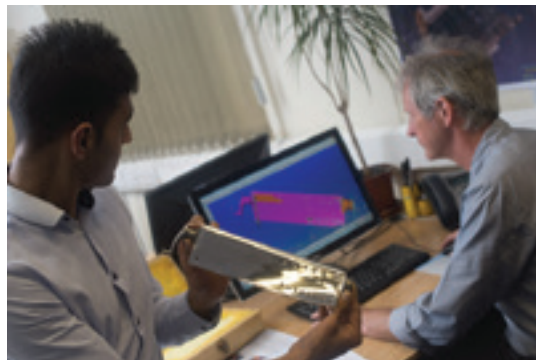
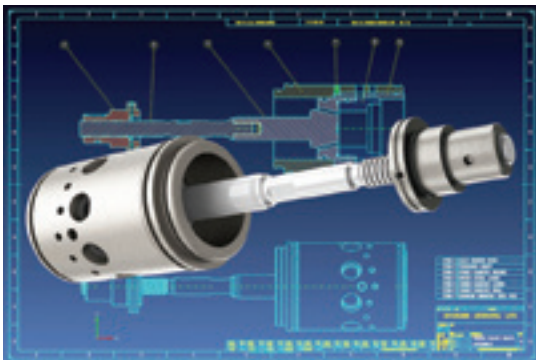
Score Group Locations Worldwide



The strategic vision is to provide the customer with a reliable service that exceeds their expectations on quality, cost and delivery.

Hycrome can offer this because it has developed a sustainable business, driven by well trained and knowledgeable employees who work to a management system accredited to the highest industry standards in Safety, Quality and Environmental activities.

Design and Engineering



Using the latest CAD systems, the engineering team support the needs of the business by providing solutions to complex manufacturing, tooling and inspection challenges.

Continuous development of the production process allows the business to take advantage of the latest manufacturing techniques to improve efficiencies in the production of components and associated services.

Component Manufacture



Milling, Turning, Routing, Grinding and Electro-Discharge Machining techniques are employed on a combination of CNC and conventional machines to remove and shape materials to produce components to drawing requirements.



In 2014 a 1000 sqm extension was built to accommodate the expanding CNC machining section.



Heat Treatment and Forming

Following machining, Heat Treatment ovens are used to produce a material condition that meets the design specification.



Rubber Press and Brake Press Forming methods are used to shape sheet metal into complex geometries that can then be assembled by welding or vacuum brazing.

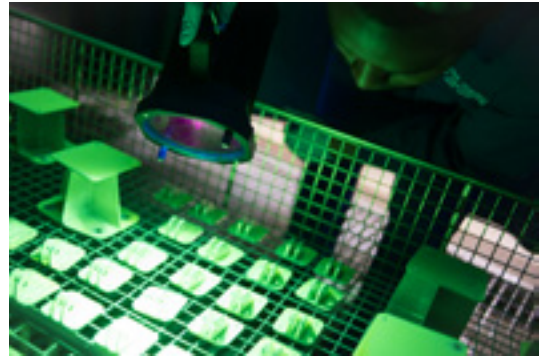


Component Testing



A range of Non-Destructive Testing and Material Evaluation techniques are used to validate the components. These include;

- FPI
- MPI
- Hardness Testing
- Conductivity testing
- Etch Inspection
- Tensile Testing



Controlled Shot Peening



Controlled Shot Peening is carried out to enhance the fatigue properties of the parts prior to the application of the specified protective coating. This process is applied to airframe components and critical rotating gas turbine engine parts.



Surface Treatments

Designated chemical processing lines are used to condition the surface of the part to prepare it for further treatments.

The coatings applied depend on the material type, service conditions and design of the part.

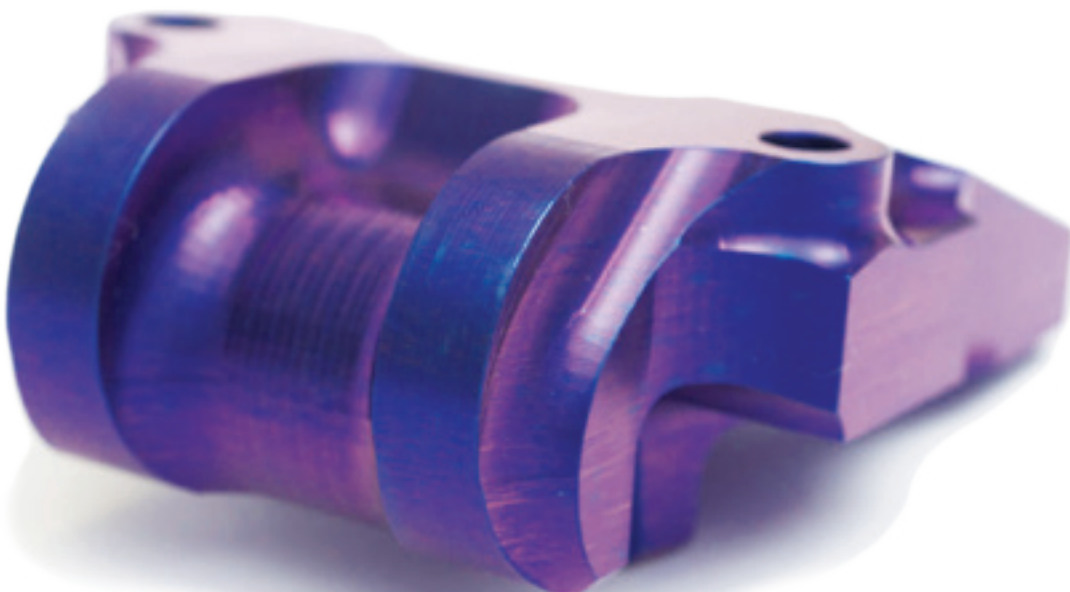


Key competences;

- NEW – Zinc Nickel Plate
- Tartaric Sulphuric Anodise (TSA)
- Chromic Acid Anodise
- Chemical Conversion Coating (Alocrom 1000 and 1200)
- Acid Pickle and Passivation of Titanium and Steel
- Electroless Nickel Plating (ENP)
- HYC20 – Enhanced ENP with Silicon Carbide particles distributed in the matrix

< Hard Chrome Plating (HCP)

√ Sulphuric Anodise

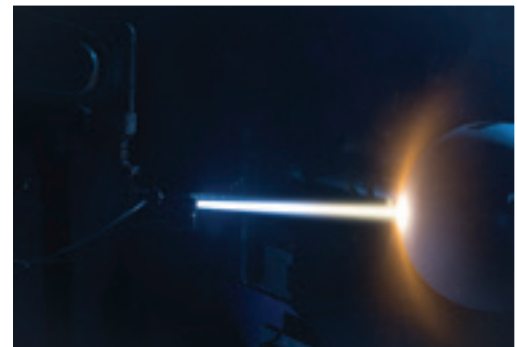
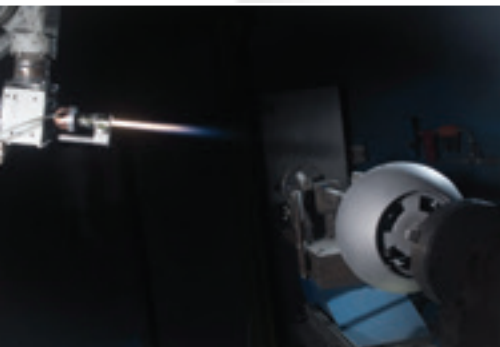


Thermal Coatings



Using High Velocity Oxygen Fuel (HVOF), Plasma and Electric Wire Arc application methods, many different types of coating can be applied such as:

- Tungsten Carbide
- Chrome Carbide
- Nickel based coatings
- Zinc Spray
- Ceramic Thermal Barrier Coatings
- Abradable coatings



Laser Powder Fusion Welding

The Huffman HC-205 is a 5 axis laser powder fusion welding system which is used in conjunction with a PRC 2.2kW Carbon Dioxide Laser.

Using high precision imaging software, this technology is used to create near-net-shape weld geometries on Gas Turbine Engine Components.

The leading advantages of this process are the significantly lower and localised heat input, low residual stresses and high accuracy of the deposited material.

The HC-205 is used in applications such as the enhancement of Turbine Blade material properties by application of hard-face weld to the outer shroud abutment faces.



Machining to Finish

When required, the protective coatings can be machined to reproduce the design conditions of the parts.

A range of techniques are available depending upon the coating with Diamond Grinding of Tungsten Carbide a speciality.

Hycrome have the ability to HVOF coat and grind ball valves up to 36" diameter bore in house.



Paint Application



Most aerospace and gas turbine engine components require a protective paint finish and the full range of water based and solvent based coatings are applied at Hycrome.

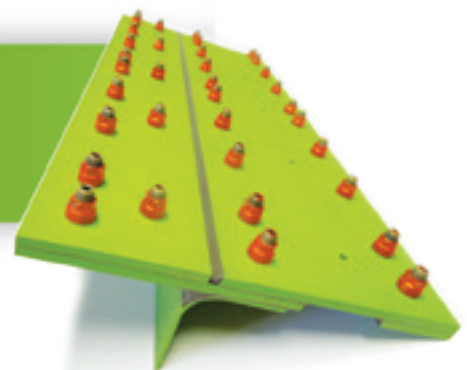
Examples of these are;

- Primer
- Top coat
- Abrasion Resistant Paint
- Heat Resistant paints
- Diffusion coatings
- Dry Film Lubricant
- Composite Coatings



Assembly

Hycrome are approved for wet and dry assembly of aircraft components to create sub-assembly parts and add on fasteners such as anchor nuts.



Quality Control

Strict control procedures are in place to ensure that parts are processed correctly and the quality of the component meets the required criteria.

Hycrome work to the highest industry standards and are accredited to ISO 9001 with supplementary AS9100 Rev C and NADCAP approval for all of the services on offer.



BOMBARDIER

 **AIRBUS**
AN EADS COMPANY

SPIRIT
AEROSYSTEMS

BAE SYSTEMS

Awards

Business improvement and employee training are priorities at Hycrome.

Using the same continuous improvement methods as our customers and sharing best practice, allows us to align our systems and offer a consistent approach across all industry sectors.

Employee training, particularly the development of our Apprentice programme, has resulted in numerous awards in recent years that recognise our commitment to the next generation of engineers.



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