PARAGON
Rapid Technologies

Making the cut

Authentic props, models and miniatures for stage, screen and exhibitions

PARAGON-RT

SERVICES

CAPABILITIES

MATERIALS AND TECHNOLOGIES

YOUR PRODUCTION PARTNER

What do you want to make today?

Paragon Rapid Technologies provides world-class support throughout the product development cycle. For more than 15 years our specialist engineers have been helping the entertainment industry and creative businesses like yours bring complex, or simple, designs to life.

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About us

Paragon Rapid Technologies is a product development support company. When it comes to stage and screen, we are a one-stop-shop for production parts, props, models, prototypes and some set pieces.

Formed in 2003, we are part of the Northern Powerhouse with purpose-built facilities at our head office in Darlington, County Durham.

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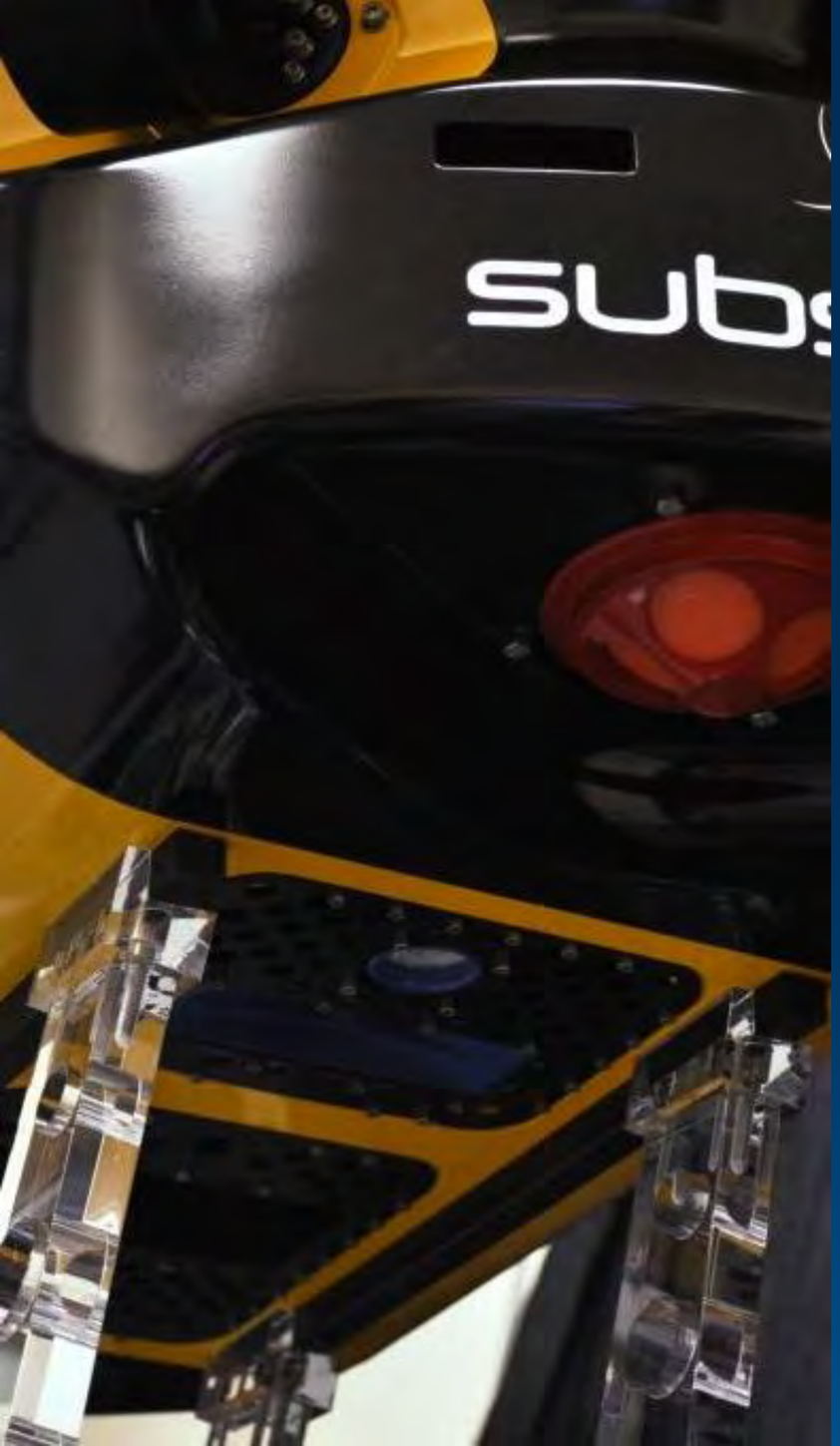
Turning imagination into tangibles since 2003

Paragon's talented team of designers, engineers and model-makers have been turning your imagination into tangibles for more than 15 years.

Our horizons are as broad as our service offering, which spans some 65 capabilities, from pattern making to 3D printing. Our outstanding technical expertise and process knowledge help us provide innovation, product development and manufacturing support of the highest quality to the automotive, aerospace, defence, entertainment, security, medical, consumer, marine, rail, energy, oil and gas, and industrial products industries.



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Your imagination is everything. It is the preview of coming attractions.

- We offer an array of 3D printing technologies enabling fast turnaround of large and small parts with simple or complex geometries. We have printed body armour, period cutlery, Star Wars characters' helmets, multiples of fruit, insects, monsters, motion capture carapaces, miniatures for stop motion animation, and much, much more
- Our wide range of prototyping and engineering capabilities, including CNC, vac casting, RIM and silicone moulding, enables you to meet progressively tough design and production challenges in isolation or in collaboration with our experienced model makers
- Our services are competitively priced, supporting for quick decision-making at the design stage
- When necessary, we provide fast-track options and project management to produce parts with tight time frames

Concept Visualisation

Empowering you to push your creativity to the limits

Design Support

Working together to ensure creative and functional elements align with production and manufacturability

Reverse Engineering

Providing a precise facsimile of your model or propto enable you to produce it again and again

3D Printing

Print props and parts, large and small, and with infinitesimal detail in less time than it takes to set up a scene.

Production & LVM

Lowering spending. Meeting deadlines and quality targets time after time

Model Making

Undertaken with scrupulous attention to detail, ingenious attitude and with you as the hero of the story

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Paragon Rapid Technologies in the Entertainment industry

Concept visualisation

- Providing you with access to scaled, tangible digital image visualisation
- Enabling you to adjust and reiterate without incurring significant costs

Design support

- Helping you with CAD compliance and translation for quicker concept to part processing
- Providing technology-specific design development assistance
- Analysing your designs for manufacturability where necessary

Reverse engineering and reproduction

- Our reverse engineering technology enables accurate and efficient acquisition of functional dimensions to SPAT of 18 microns and VMD of +/- 25 microns. That means part recreation is achievable and extremely accurate

3D Printing

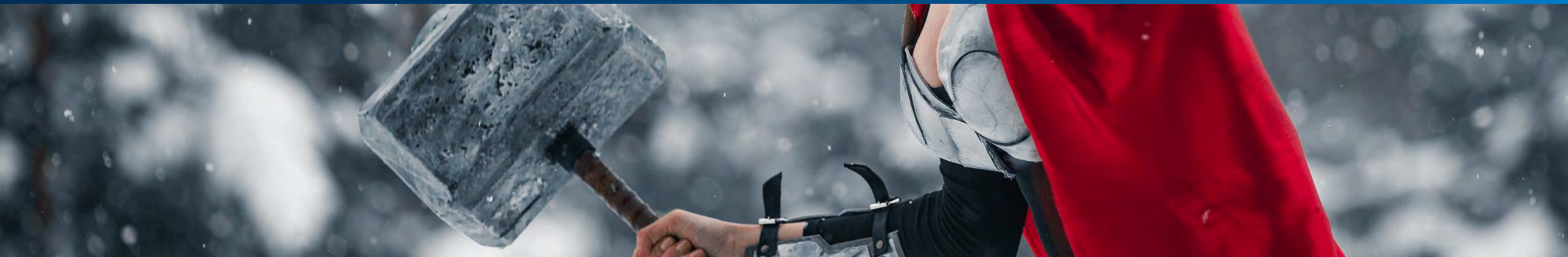
- Helping you to make significant savings in production times and costs
- Enabling you to create complex designs or pattern masters for large pieces
- Offering a range of resins suitable for polishing, painting, texturing and sculpting

Model Making

- Supplement or complement your capabilities with an exceptionally skilled and experienced team working across a broad spectrum of technical and creative processes.
- Working closely with you to ensure we establish the methods and materials are best suited to ensure a perfect result
- Offering you options in materials and techniques including polystyrene carving, sculpting, reaction injection moulding, model board shaping, silicone moulding, vacuum casting, and CNC machining of metals and plastics

Production and LVM

- Eliminate tooling costs.. We can print production parts in their 1000s with injection moulded qualities
- We have an enormous variety of resins and materials
- Moving to low volume manufacture allows you to benefit from economies of scale



3D printing of props, parts and miniatures

Timely. Flexible. Cost effective.

Weapons and Armour

- Complex designs. Multiple units. Tough, lightweight, large pieces
- SLA, SLS, FFF, DLS

Models for large scale set design

- Complex scenery pieces in miniature to enable concept development. Economical. Practical Moveable
- SLA, SLS, FFF

Multiples and miniatures

- From baskets of realistic fruit to scene set ups for stop motion and CGI, 3D printing allows for infinitesimal detail and precise replication, time after time
- SLA/SLS/FFF/DLS

Scanning and reverse engineering

- Scan and recreate concept models for all your FX, design and prop development requirements

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Stereolithography (SLA)

NEO 800

Bed: 800 x 800 x 600mm
Accuracy: ±0.15%.
Layer resolution: 50 - 200µm

Materials

Somos® EvoLVe: durable, fast processing white resin with exceptional detail ability
Somos® WaterShed XC11122: clear resin with great water resistance, ABS- and PBT-like properties

Applications

Ideal for assessing design concepts, validation prototyping for high visual pieces, armour, snap fit and hinged designs, large pieces

SLA 5000

Bed: 500 x 500 x 500mm
Accuracy: ±0.3%
Layer resolution: 50 - 100µm

Materials

Somos® Taurus: high impact resin with good mechanical and thermal properties

Applications

Ideal for assessing design concepts, validation prototyping for high visual pieces, small scenery models

P A R A G O N - R T

Selective Laser Sintering (SLS)

SinterStation 2500 HiQ

Bed: 330 x 280 x 400mm
Accuracy: ±0.2%
Layer resolution: 50 - 100µm

Materials

Standard Nylon PA650 and Glass-filled Nylon PA615: strong, impact resistant, chemical resistant and heat resistant resins

Applications

Strong, durable, highly detailed parts with superior thermal stability. SLS delivers on functional prototypes. With some flexibility is great for producing masks and helmets for motion capture

Fused Filament Fabrication (FFF)

MarkForged Mk. II

Bed: 320 x 132 x 154 mm
Accuracy: ±0.3%
Layer resolution: 100µm

Materials

Onyx: chopped carbon fibre filament with twice the strength of ABS, possessing dimensional stability and heat resistance to 145ºC. Can be reinforced with fibre materials: **Carbon Fibre, Fiberglass, Kevlar, HSHT Fiberglass**

Applications

Utilises a strong plastic that can be reinforced with an array of fibre materials, from carbon to Kevlar. Resultant parts are twice as strong as ABS and ideal for functional prototyping and parts

P A R A G O N - R T

Digital Light Synthesis™ (DLS)

Carbon M2

Bed: 189 x 118 x 326mm
Accuracy: ±0.075%
Layer resolution: 75µm

Materials

RPU 70: ABS-like, durable, rigid with Blue Card status and UL 94 HB flammability rating
EPX 82: similar to glass-filled thermoplastics, with heat deflection to 130ºC
CE 221: similar to glass-filled nylon, heat deflection to 231ºC
FPU 50: designed to withstand repetitive stresses
EPU 40: Exceptional tear strength, energy return, and elongation
SIL30: a flexible silicon ideal for printing straps and flexible pieces

Applications

Digital Light Synthesis™ (DLS) volume produced end-use parts have injection-moulded qualities. Printing with specially designed polymers and elastomers, DLS is perfect for skin contact parts, multiples and miniatures

Prototyping and model making

For large builds and complex creations

Set design pieces

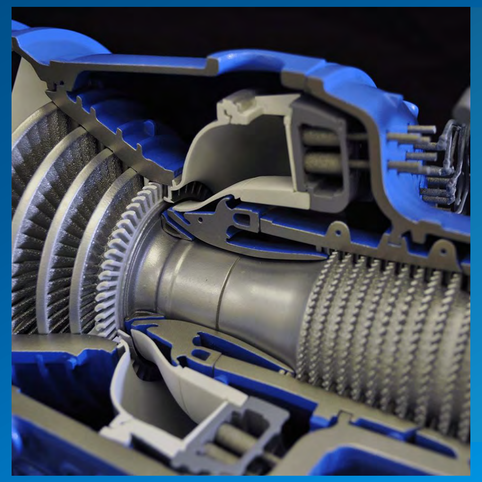
- For large, lightweight, complex one-off scenery pieces; or multiples of cast smaller pieces requiring flexibility and texture
- A range of materials that can be textured, aged and painted
- Using RIM, Vac Casting and CNC

Skins and prostheses

- Textures and tones are easily achieved with silicone moulding. Our CNC facilities enable us to produce precise moulding tools delivering quality, repeatability and savings on time and costs

Model making

- With 17 model makers on site, we have both the expertise and the capacity to tackle all manners of model making requests. We create models in any scale for film and theatre. as well as for retail and marketing



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Reaction Injection Moulding (RIM)

Process

METERMIX PAR50 (x3)
The injection of a precisely proportioned mix of chemicals into a mould. Moulds can be manufactured in house through CNC machining of model board, epoxy, silicone or aluminium.

Materials

High impact, high temperature polyurethanes, glass-filled nylons, some rubbers.

Applications

For low volume manufacturing and prototyping of larger components. The economical silicone tooling method will produce 100s of parts from one tool. Parts can be rigid, flexible, and coated if necessary.

Vacuum Casting

Process

MTT 001, 501, 004, 504 plus extension chamber.
We create a 3D printed master model with a high-quality surface finish. From this, we produce a silicone mould. The cavity can then be filled with variety of resins and rubbers to make numerous copies.

Materials

A variety of thermoplastics, rubbers and resins, many of which can be pigmented, or come ready coloured.

Applications

For low volume manufacturing and prototyping of smaller components. Components can be textured, overmoulded and layered.

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Silicone Moulding

Process

A compression moulding process using 3D printed and CNC-cut tooling.

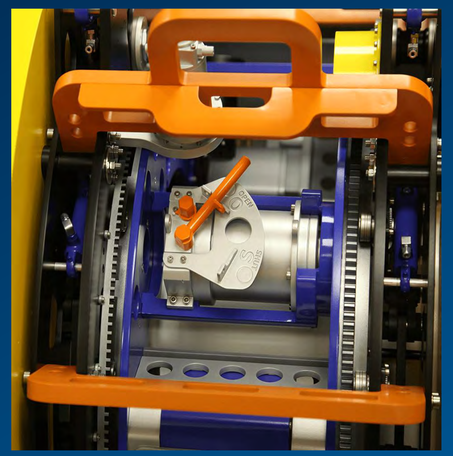
Materials

A variety of silicone grades, from 10 Shore A to 70 Shore A hardness, including medical grades and those capable of withstanding environmental extremes.

Applications

For low volume manufacturing and one offs. Suitable for developing skins and prostheses covers, models and textured pieces

Model Making



Process

Combining all our technologies and capabilities to produce models of distinction

Materials

A variety of thermoplastics, rubbers and resins

Applications

For one offs, set pieces, life size or miniature

CNC Engineering

Precision. Tooling. Production.

Cutting and design

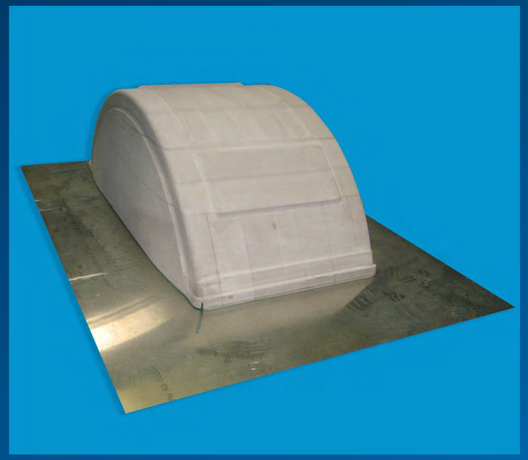
- In metals, model board, wood, plastics and foam, we can deliver items as raw machined parts, or can deliver them in combination with other in-house services to provide a comprehensive finished solution

Machine-led sculpting

- Cut, chisel, sculpt, shape and manufacture large, lightweight pieces for stage and film sets

Component parts and tooling

- Manufactured on demand for parts of complex machinery, costume pieces, camera stands, equipment adaption
- Create tools for manufacture, forming and pressing ensuring repeatability and quality



5-axis CNC technologies

HAAS CMS ANTARES, 24000 RPM

SIZE: Up to 2500 x 1500 x 1200
MATERIALS: model board, aluminium, ABS, EPP, nylon
VOLUMES: 1 – 100

HAAS UMC-750, 5 axis, 12000 RPM

SIZE: Up to 762 x 508 x 508
MATERIALS: steel, aluminium, ABS, model board, EPP, nylon
VOLUMES: 1 – 100

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3-axis CNC technologies

HAAS VF5, 3 + 2 axis, 12000 RPM

SIZE: Up to 1270 x 660 x 635 (400 x 400 x 100)
MATERIALS: steel, aluminium, ABS, model board, foam, nylon
VOLUMES: 1 – 100

HAAS SUPER MINIMILL, 2.3 Axis, 10000 RPM

SIZE: Up to 508 x 406 x 356
MATERIALS: steel, aluminium, ABS, model board, foam, nylon
VOLUMES: 1 – 100

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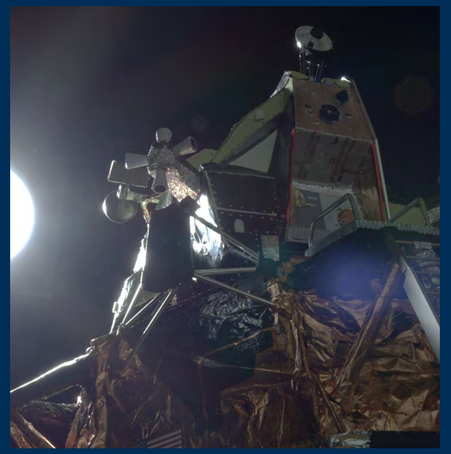
3-axis CNC technologies

HAAS VF6SS, 3 Axis, 12000 RPM

SIZE: Up to 1626 x 813 x 762
MATERIALS: steel, aluminium, ABS, model board, EPP, nylon.
VOLUMES: 1 – 100

HURCO VM201, 3 Axis, 10000 RPM

SIZE: Up to 1016 x 508 x 508
MATERIALS: steel, aluminium, ABS, model board, EPP, nylon
VOLUMES: 1 – 100



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for film, television and stage.
From a cast of one to casts of thousands.

Contact Us

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