

Unit 5 Century Road
High Carr Business Park
Newcastle-under-Lyme
Staffordshire
ST5 7UG

www.phoenixdynamics.com
sales@phoenixdynamics.com
+44 (0) 1782 578333



PHOENIX DYNAMICS

**INTERCONNECTION SOLUTIONS FOR
ARMoured VEHICLES AND
MILITARY EQUIPMENT**



**HARNESSING TECHNOLOGY
DELIVERING SOLUTIONS**

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ABOUT PHOENIX DYNAMICS

Phoenix Dynamics has established an enviable reputation for the Design and manufacture of high performance Electrical Interconnection Systems, Fibre Optics and Electromechanical Assemblies. As a key supplier to the Defence and Aerospace Industry for over 20 years Phoenix Dynamics has a wide range of experience in developing solutions for Artillery, Armoured Vehicle platforms, Defence Aerospace systems and associated Electronic Equipment. We have a knowledge rich staff, we are passionate about being the ideal partner for our customers and this is what our success has been built on.

Customer focus is our core business value. The services we offer our customers are based around our desire to fully understand customer challenges and provide robust solutions, from implementing new technologies to delivering assemblies on-time and to the right quality.

BENEFITS OF WORKING WITH PHOENIX DYNAMICS

Harsh Environment Specialists

We have worked alongside Defence leaders to create solutions, manufacture bespoke assemblies and provide engineering support. We are specialists in producing assemblies designed for harsh environments from sub-zero-75 degrees to over 150 degrees dependant on requirements We boast longevity with our assemblies, safe in the knowledge that our expertise offers long lasting life for our products and ones that we know are safe no matter the application.

Accomplished Project Management Abilities

You can feel safe that you are working with our established competent project management team that know your deliveries are critical to allow you to meet your deadlines for critical systems. We pride ourselves on our adaptability and communication skills, this has meant we have worked with Government Bodies as well as OEMs and the first-tier supply chain around the globe.

Exceptional Engineering Support

Our Engineers are always on hand to support in projects offering any technical advice and solutions as necessary. From alternative Component sourcing to Design our engineers can assist in any requirement, we are extremely proud of our what our engineers can offer. Our engineering has been recognised in recent research by Orbis Research recognising Phoenix Dynamics in being a “Top Player in Design for the Global Cable and Wiring Market.” This is now small part to our investment in prototype design, 3D printing as well as the research we conduct in the markets we support allowing us to support you fully.

Dedicated to Quality

Phoenix Dynamics have always been extremely committed to Quality, knowing the end uses and how vital it is they perform as expected has created a determination to thrive in supplying world class products. All of our operators are trained to IPC/WHMA-A-620 where we also boast our own in-house trainers resulting in high internal quality standards in building your products. This helps us to relieve any worries you may have regarding quality as you are in safe hands. We are also certified to the following management systems ISO9001 and AS9100 REV D ISO 14001 and OHSAS 18001. We regularly review our quality KPIs ensuring we are being the best we can be.

Enviable on site skills and equipment

Significant investment has always been a constant at Phoenix. This has enabled us to purchase the best equipment and employ those who are best skilled. We have a dedicated Fibre Optic cell fitted with all top of the range machines for build and testing meaning we are one of the few companies who can offer full in house testing to support harsh environment Fibre Optic assemblies which saves cost to you. All of our worktops have a soft finish surface meaning there is no chance of damage to components. We also have our dedicated areas for production and testing. Our testing area boasts Continuity capability as well as ATE Testing with product specific testing jigs allowing us to ensure you are receiving High Quality Products.

CABLE ASSEMBLIES



One of our core business competencies at Phoenix Dynamics is Cable Assembly production. From simple single wire, multi-wire & multi-branch, to fully encapsulated solutions, we can produce assemblies to your exact needs at our industry leading production facility. We utilise specialist equipment across all processes to ensure the highest levels of quality are built into our products from concept to delivery.

Our expertise in all types of cable assemblies is backed up by a highly skilled team using advanced software and management methods, who can work with you to ensure our solution will be perfect for your needs. We believe in working directly with our customers, visiting your premises and production facilities to understand the nature of their requirements and deliver a tailored package bespoke to you.



Currently supplying assemblies and products to OEM's, first tier suppliers, and direct to Government bodies globally, Phoenix Dynamics is recognised as being one of the world's finest providers of harsh environment cable assembly products.

Our wealth of knowledge and experience in all areas of these products allow us to offer Design & Development services, specification creation, validation testing and project management for all aspects of cable assembly, RF cables, Battery & Power cables, HV cables, complimentary bespoke Overmoulding, Fibre Optics and much more.



FIBRE OPTIC ASSEMBLIES

Fibre Optics are at the forefront of communications and data transmission technology. At Phoenix Dynamics we have recognised the need for Fibre Optics to be designed and produced in such a way that ensures not only their optical performance, but their physical performance too.

Applying our wealth of experience in harsh environment cable assembly requirements to the Fibre Optic arena has seen us invest significantly in an industry leading high-tech manufacturing facility, specifically tailored to the production of bespoke Fibre Optic assemblies. We have fitted our clean room manufacturing facility with the latest in preparation, handling, termination, polishing and testing equipment, including our own interferometry and optical performance testing capability, allowing us to develop custom production techniques and prove the exact performance and compatibility of each design for a particular application.

This means we can work with you to put together a bespoke specification for your requirement, and fine tune the design and production processes to ensure the highest levels of quality and performance, all proved and certified in house at our facility. Our team use industry leading 3d CAD software to carefully model our designs, checking for critical elements and requirements to be met and assure perfect results.

We have tooling and capability to handle most expanded beam and PC connector systems, and we are adding to our suite of tooling and testing continuously to keep up with ever changing demands and requirements. Producing hybrid Fibre Optic /Copper assemblies and implementing bespoke over mouldings into our products is also something that we can apply to bring the most unique and challenging projects to life.



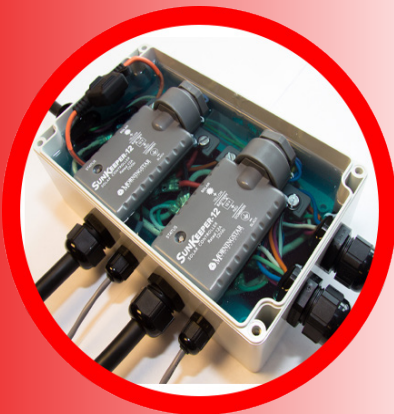
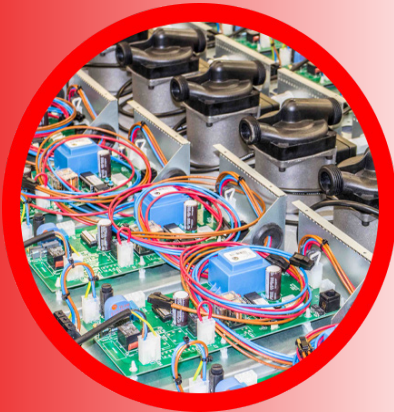
ELECTROMECHANICAL ASSEMBLIES

Electro Mechanical systems are becoming more prevalent in modern system design. Phoenix Dynamics utilises the latest in 3D CAD software, Simulation techniques, 3d printed prototypes and comprehensive validation testing methods to ensure all our products are of the highest quality and durability.

Increasingly, across all market sectors, there is a move towards the modular integration of high-quality cable assembly products and bespoke mechanical components. From simple integrated bracketry, control boxes and switchgear to electronic panels, subsystems and highly complex armature and bespoke 'manned system' elements.

Our industry leading facility is designed to ensure the highest standards are met and the quality of products we supply to you is of the utmost importance to us. We utilise anti-static technology as part of our ESD assembly & production areas and all our work surfaces are soft touch to protect the integrity and surface finishes of components.

In true partnership fashion, we have worked extensively with our customers to improve product performance, streamline installation and speed up production. Effective system design and subsequent manufacture is critically dependent on the skill and expertise of the people and teams involved in the life cycle of the product. At Phoenix Dynamics we pride ourselves on the continued education and development of all of our staff. Technology and Engineering is at the core of our business and our goal is to fully understand the nature of your requirement and deliver a tailored package, bespoke to you.



OVERMOULDING

Phoenix Dynamics has invested in OverMoulding equipment to allow us to support our customers with their ever changing requirements, and to promote innovation and solutions in our fields of expertise.

Driven by technology and engineering solutions, we pioneered various low pressure moulding techniques in areas never before attempted, validating and approving our designs alongside our customers and their technical teams.

We can now proudly say that our over moulded products are approved and fielded by many major government and defence agencies, in aerospace applications, marine, rail and many more. The flexibility of our design and material selection allows us to react quickly for prototyping and low volume production, but also be robust enough to handle larger quantities in a general production environment. Recognising the need to deliver a bespoke solution in most cases, we use industry leading 3D CAD packages to work together with your teams to design an Over Moulded component to suit the exact requirement. Tooling is designed and created for your specific needs in house here, reducing costs and lead times.

Over moulding of components and products is something that we do for reasons such as encapsulation, to add rigidity, increase environmental protection or harsh environment performance, to aid in handling or fitting and much more.

Some examples of application of our Over Moulding technology would be to implement fitting and fixing points onto Cable Assemblies and Fibre Optics, these can be physical using carabiner type clips or simple push fit, and we have even moulded magnetics in hidden positions to allow for assemblies and products to be fast fit and remove for reconfiguration or deployment in the field. We can also solve routing and fitting problems with fixed point moulds and forms to ensure your products are as effective and robust as possible.



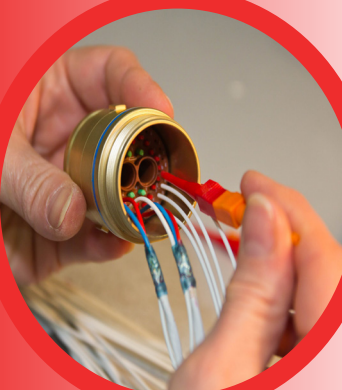
RESEARCH, DESIGN & SERVICE

With many years of proven experience working directly with Government bodies globally, DOD, MOD, OEMs, first tier supply chain integrators and independent companies. Phoenix Dynamics have designed, developed, validated, project managed, prototyped and produced a vast array of products in and around our core market sectors.

We are technology and solutions driven, and work directly with you to understand the requirements and desired outputs you need to deliver. These can include such activities as design specification creation and management, product lifecycle management, design of bespoke componentry, 2D & 3D CAD activities, 3D rapid prototyping, validation testing, product data sheet creation, pre-production runs for field testing, design and implementation of bespoke over moulds, fabricated panels and enclosures, switchgear, electromechanical assemblies and many more.

Our team is customer focused and take great care to communicate with you at all times under an agreed project management plan. Visiting your facilities and production sites can be essential to assuring that the end products are of the correct performance, and the highest quality, and to support this Phoenix Dynamics regularly deploy our team of highly skilled engineers and technical support staff to visit our customers around the world.

Our Research and Design activities are supported by our industry leading production facility which has dedicated areas for all elements of our core business including Cable Assembly, Fibre Optics, Over Moulding, ESD sensitive products, Testing and more.



CASE STUDIES

NATO SLAVE ADAPTOR

Client : US Army

Commission : The basic technical outline was to provide an electrically protected interface conversion from a MIL-C-38999 Series IV connector to a connector receptacle, commonly referred to as a NATO slave receptacle.

The limiting mechanical consideration due to existing Prime Mover space restrictions was that the overall volumetric envelope could not exceed 177 x 127 x 203mm

Full First Article Testing including Electrical, Mechanical and Environmental performance was performed to validate the effectiveness of the design and production processes.

Results : A fully sealed and protected NATO Slave Adaptor. The product has in all parameters met or exceeded the initial design objectives.

Further Notes : The NATO Slave Adaptor is now in use in many parts of the world and continues to be supplied as a key operational component.



MAGNETIC INTERCONNECTION SOLUTION

Client: UK Manufacturer of Fuel Monitoring Systems

Commission : The outline was to provide a cable and connection system for a Fuel Monitoring System that would link a fleet vehicle to the monitoring unit when back at base/depot for re-fuelling. The system would then allow transfer of information between the vehicle and the monitor unit.

Scope of Works: The main challenge was to identify a connection method that would pull apart safely should the vehicle accidentally drive away whilst still connected. Traditional pull-break connector systems were reviewed that use either coupling ring mechanisms or friction fit but neither of these solutions would survive the extremely high mating cycle requirement. Magnetic connection methods were therefore considered and trialled. The magnetic force however had to be just right- strong enough to hold the connection securely when static but able to pull apart should the vehicle accidentally drive away. Variation in the angle of pull also had to be considered.

Results: The connection cable is built using an extending coiled cable with a Polyurethane outer jacket to survive the outside environment and chemical exposure. The PCB reader device is then attached to the end before being overmoulded using a special epoxy resin to provide the environmental sealing and the rugged drop-proof protection. The moulding is shaped to form a circular connector which houses four high power magnets in the mating surface. The mating vehicle mounted connector is also moulded and incorporates a magnetic stainless steel disc to which the magnets connect. The positioning of the magnets which are controlled by an assembly jig is critical in order to provide a strong connection but prevent interference with the electronic data transmission. A domed shape keying feature in the front face allow safe disconnect when pulled from all angles.

Further Notes : The system is now in full production and is currently in use by a number of vehicle fleet operators around the UK. Phoenix Dynamics 3D printing capabilities played a key part in the product development allowing scale replicas of early ideas to be demonstrated. Replicas of the final design were also supplied to the customer for marketing purposes at trade shows.



QUALITY

Phoenix Dynamics is built on a strong foundation of quality and quality management that is practised at all levels of the business. We provide all our services within an ISO9001 and AS9100 environment which ensures the quality and reliability of your products and designs. We implement a 100% inspection culture as we understand the role that we play within the supply chain and the integrity that our delivered products require.

Over the years we have been awarded a number of customer approvals so that we exceed the requirements of both ISO9001 and AS9100. These additional quality awards are based more around specific project requirements and improved integrity. As a business we are always ready to receive our customer's challenges and deliver the best quality product and solution.

We are proud to have been awarded the following certifications.

- » ISO 9001:2015
- » AS 9100 rev D
- » ISO 14001 (Environmental)
- » OHSAS 18001 (Health & Safety)
- » IPC/WHMA-A-620 Certified Trainers
- » IPC/WHMA-A-620 Applications Specialist
- » Customer specific codes of practice
- » Wide Range of Electrical/RF/Fibre Optic
- » Test Equipment
- » Cyber Essentials