

# Laboratory & Test Facilities



## Introduction:

KnitMesh Technologies® has an enviable track record for designing, developing, testing and manufacturing bespoke components for a diverse range of customers. In order to achieve this KnitMesh has continually invested in its research and development facilities.

## Scientific Analysis

KnitMesh Technologies has a laboratory dedicated to the scientific and physical analysis of the materials it uses in its wire mesh components. This includes microscopy, tensile and compressive stress/strain testing, and frictional drag testing. A comprehensive understanding of the chemical and mechanical properties of materials helps ensure KnitMesh delivers quality products every time.



## Performance Testing

It is often necessary to know how a component performs under operating conditions. KnitMesh has the facilities to replicate these for a variety of applications and situations. The test machine shown here is used to assess the thermal fatigue performance of knitted wire mesh components used in engine exhaust systems. Devices can be fatigue tested at temperatures up to 1000°C for millions of cycles.



## Prototype Development

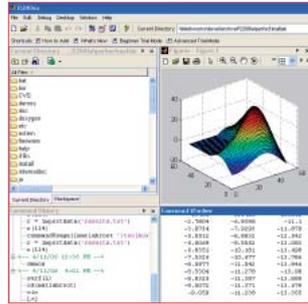
KnitMesh is not limited to off-the-shelf design solutions, and works with customers to create bespoke engineering solutions to a wide range of problems. As with its range of knitted wires, KnitMesh engineered products are available in a wide selection of materials including alloys, carbon and stainless steels, as well as non-metallic and natural fibres. Working from engineering drawings the KnitMesh development team are able to manufacture prototypes, test to assess performance and potential failure modes, and suggest improvements to clients prior to beginning full scale manufacture, thus saving time and money in unwanted product recalls.



# Research & Development Laboratory & Test Facilities

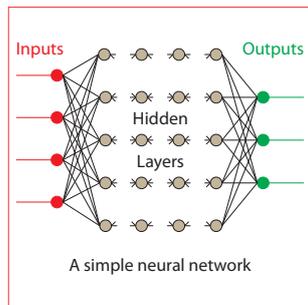
## Computer Modelling

To enable faster prototype and product development, KnitMesh engineers utilise computer packages such as MATLAB\* and computational fluid dynamics (CFD) software. By getting closer to the final product design before sampling begins, computer modelling helps to reduce the number of manufacturing samples required thus reducing overall development lead times and the associated costs.



## Neural Networking

KnitMesh engineers developed a computer software package that can predict the performance characteristics of compressed knitted wire mesh components placed under load. The package uses neural networking computational methods and techniques to predict component performance based only on the known mechanical properties of the materials used, and the shape of the final product.



## Flow Testing

The inherent semi-permeable nature of KnitMesh products means it is often necessary to determine the level of porosity of a component and/or the pressure drop across/through such an item when it is placed into an air/gas flow situation. KnitMesh has its own test facilities for determining these and other related properties for knitted wire mesh and compressed knitted wire mesh products.



## Explosion Testing

KnitMesh, in partnership with Elmac Technologies, has recently commissioned a highly advanced flame arrester test facility. This facility utilises high resolution data acquisition systems and modern analytical equipment to measure and assess flame front progress through various materials and configurations whilst under deflagration or detonation conditions.



## Summary

To help you with your knitted wire mesh component needs, KnitMesh Technologies can offer:

- Technical support for design and/or enquiry purposes
- State of the art testing and research for specific applications
- Rapid low-cost prototype design, development and manufacture
- Innovative and creative engineering systems and support

Not only are KnitMesh Technologies ahead of the field in terms of the testing facilities available, but we have also built a very strong technical team of highly qualified and experienced engineers and scientists to develop innovative products and provide quality support to our customers.



\* MATLAB® is a registered trademark of The MathWorks, Inc.

## Customer Support

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Issue No 01 (07/13)

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