



Metal Additive Manufacturing (3D Printing) within the Filtration Industry

Instructor: Mr. Neil Burns

Course: 8:00 am – 12:00 pm, .4 CEUs

The short course aims to give attendees a basic knowledge of AM, the process and what is involved within the development of additive industrial parts. Not only will the course discuss the AM process, but will also focus on Designing for Additive Manufacturing (DfAM), and how it differs to conventional designing. Backed with case studies relating to the filtration industry, course participants will leave with a wider understanding of the potential benefits AM can deliver to the filtration marketplace.

Learning Objectives:

- To gain an understanding of the key principles of Additive Manufacturing (AM) from concept through to completion.
- To understand the benefits of AM in relation to filtration.
- To understand the principles of Design for Additive Manufacturing (DfAM) and how it improves on conventional filtration designs.
- To become familiar with the challenges of AM and how to overcome them. To see how AM has already been applied within the filtration industry.

Course Outline:

- Wedge Wire
- Woven Wire Mesh
- Perforated Plate
- Hybrid - Conventional Manufacturing and Additive Manufacturing
- Filter Housings
- Component parts

What is covered?

- Background to Additive Manufacturing (AM) in different materials A detailed outline of Selective Laser Melting (SLM)
- Design for Additive Manufacturing (DfAM)
- Surface finish and build orientation
- Post processing and finishing
- Inherent challenges of Additive Manufacturing
- Applied Additive Manufacturing within the filtration industry

Who should attend?

The course is aimed at anyone who wishes to gain a detailed insight into the fundamentals of metal additive manufacturing within the filtration industry. Distinct from the available academic courses currently being offered, the course is designed to be accessible for potential users of the AM, product designers, and anyone else who has an interest in learning more about the technology. The aim is to provide real knowledge backed with real experience.



Neil Burns is a founder and co-director of Croft Filters Limited and Croft Additive Manufacturing Limited, Warrington, United Kingdom and has more than 30 years' experience developing and delivering high quality filtration solutions to a range of industries in the UK and worldwide. His engineering experience began with wire mesh fabrication and along with brother Mark Burns they formed Croft Engineering Services, originally mesh suppliers. Their engineering abilities took them along the natural progression path to filter manufacturing. Croft Filters company has grown to thirty employees. As a Director, Neil and his fellow Directors are responsible for the overall management of the company, with each Director having responsibilities in specialized areas. In particular, Neil's role is very diverse and covers all aspects of financial, product development, growth strategy, staff skills, and recruitment and marketing. Neil and fellow Directors recognized the potential of additive manufacturing, acquired a machine and created a spin off company, Croft Additive Manufacturing Ltd. He aims to introduce advances in processes employed in filter manufacture as well as creating improved filtration solutions of high quality. Improvements in filter outputs allow him to continually advance their environmental policy to reduce not only their own carbon footprint but that of their customers. Neil gained his MBA from the University of Liverpool in 2012 and in 2019 graduated for his MSc by Research at Lancaster University. He continually expands his skills horizons by attending workshops and national and international conferences. In 2014, Neil presented at Automate UK, 1st World Congress of 3D printing, China, Additive Manufacturing and 3D printing International Conference, Nottingham. Neil is a Committee Member of ASTM Standards Board (USA) and a Committee Member, ISS Standards Board (UK).