



MTC teams up with BOC to advance additive manufacturing.

Highlights

- Proven partnership covering all of MTC's gas-related needs
- Access to world-class, state-of-the-art gas-enabled innovations in AM
- Early adopter advantage for MTC members
- Gas safety training, also covering the safe handling of cryogenic gases

Manufacturing Technology Centre – Coventry UK.

The Manufacturing Technology Centre (MTC) was established in 2010 by four forward-thinking founders: University of Birmingham, Loughborough University, University of Nottingham and TWI, in collaboration with key industry partners including BOC, member of The Linde Group. In partnership with industry, academia and other institutions, the MTC develops and proves innovative manufacturing processes and technologies in an agile, low-risk environment to bridge the gap between university-based research and the development of innovative manufacturing solutions, in line with the British Government's manufacturing strategy. It is part of the High Value Manufacturing (HVM) Catapult, supported by Innovate UK.

The MTC specialises in manufacturing technologies and processes that are particularly important to the high-value, R&D-intensive sector. Additive manufacturing (AM) – more commonly known as 3D printing – is a typical example. An acknowledged world leader in additive technology and home to the National Centre for Additive Manufacturing, the MTC is dedicated to accelerating the uptake of AM by developing the technologies and systems required to address key challenges in the value chain. To accelerate the transition between technology concept and commercialisation, the MTC collaborates with its members to offer UK companies of all sizes access to leading-edge equipment and expertise at its National Centre for AM.



"BOC is a long-standing, trusted partner at the MTC. Through their ADDvance® portfolio of additive manufacturing technologies, we are giving UK companies access to world-class, up-to-the-minute facilities at the National Centre for Additive Manufacturing – facilities that provide real-world answers to the various challenges customers face along the value chain"

Kevin Withers
Senior Research Engineer – Fusion Welding, MTC



Partner of choice for AM hardware

BOC is a key MTC member in this area, bringing valuable expertise and innovative momentum to gas applications and technologies in 3D printing. The MTC works closely with AM specialists at BOC to keep its National Centre for Additive Manufacturing at the cutting edge. As a world-renowned provider of applications, solutions, gases, bespoke mixtures and equipment specifically for various powder metallurgy and additive manufacturing process steps, BOC is considered one of the leading lights in the field.

It is also the only company worldwide that has launched a measuring technology that enables metal additive manufacturers to analyse and precisely control the level of oxygen and humidity inside the print chambers. With ADDvance® O₂ precision, AM manufacturers can look forward to perfect printing results. It continually monitors the oxygen concentration in the printer chamber, detecting levels down to 10 parts per million (ppm). If the oxygen level rises, ADDvance O₂ precision automatically triggers the argon or nitrogen purging process to bring oxygen and moisture levels back within the required bandwidth.

In addition to ADDvance O₂ precision, the National Centre for AM is also equipped with ADDvance cryoclean to ensure the perfect surface finish. This solution was designed to clean and smooth the surface of 3D parts, also complementing abrasive methods to increase the effectiveness of post-treatment finishing in additive manufacturing.

Trusted alliance

The close collaboration between BOC and the MTC extends beyond AM. BOC regularly and actively engages in various R&D projects at the MTC. Since 2011, BOC has also been the exclusive supplier of all gases required by the MTC for its various application cells. These gases are supplied in cylinders or through CRYOSPEED® cryogenic and bulk deliveries to meet individual application requirements. In addition, BOC has installed hardware such as gas-mixing panels for laser cells. Last but not least, the MTC regularly relies on BOC for training on general gas safety and the safe handling of cryogenic gases. To support the installation of ADDvance O₂ precision, for instance, BOC specialists provided extensive hands-on technical assistance at the National Centre for AM.

Looking to the future

The MTC is also planning to install Linde's innovative ADDvance powder cabinet to resolve the powder handling and storage challenges facing many companies. ADDvance powder cabinet was designed specifically to retain the quality of valuable, sensitive AM metal powders by protecting them against ambient air and humidity.

Looking ahead, the MTC hopes to continue the close collaboration with BOC so it remains in pole position to explore and trial the latest gas-enabled innovations in AM.



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