



NUCLEAR AMRC
ADVANCED MANUFACTURING RESEARCH CENTRE

CATAPULT
High Value Manufacturing



The
University
Of
Sheffield.

Tuesday
11 February
2020

Advanced cooling with carbon dioxide and MQL

In its fourth annual cooling seminar, the **Nuclear AMRC** invites you to explore the state of the art in supercritical carbon dioxide coolant in advanced machining for the most demanding industries and applications.

The Nuclear AMRC is leading research into supercritical CO₂ cooling for challenging machining tasks, and combining it with minimum quantity lubricant (MQL) techniques for optimum performance.

The technology has been shown to reduce tool wear compared to traditional oil-based coolants, but needs further R&D to optimise cutting conditions for the most demanding tasks.

This one-day forum will bring together industrial users with researchers to discuss the opportunities and challenges of CO₂ coolants, and share the latest research and best practice.



To register, or for more information:

 advancedcooling4.eventbrite.co.uk

 events@namrc.co.uk  0114 222 9954

Venue: AMRC Knowledge Transfer Centre, University of Sheffield,
Advanced Manufacturing Park, Brunel Way, Rotherham, S60 5WG

Advanced cooling with CO₂ & MQL

Agenda

Tuesday 11 February 2020

8.30	Registration, refreshments and networking
9.00	Introduction and safety brief
9.15	Nuclear Energy Components – investigating a cooler future Vince Middleton OBE and Adam Hadfield, Nuclear Energy Components Ltd
9.45	Machining materials for the medical industry using CO ₂ assisted machining Dr Nikolaos Tapoglou, AMRC
10:15	Application of CO ₂ /MQL coolant and lubrication strategies during machining of CFRP/Ti and CFRP/Al stack components Dr Pete Crawforth and Olly Hayes, AMRC
10:45	Coffee break
11:00	Rake and flank application of metalworking fluids in face milling of Ti-6Al-4V Antoine Morandau, Advanced Assisted Manufacturing Solutions (AAMS), and Anshab Kummamkandath Abdullaheef, Sandvik Coromant
11:30	Application of supercritical CO ₂ in machining of SA508 steel for nuclear components Dr Przemyslaw Litwa, Nuclear AMRC
12:00	Resource-efficient machining of tool steels via minimum quantity lubrication Dr Chris Taylor, AMRC
12:30	Lunch
1:30	Milling of 42CrMo4 using through-spindle delivery of lubricated liquid carbon dioxide for industrial application Luka Sterle, University of Ljubljana
2:00	Coffee break and networking opportunity
3:00	Workshop tour
4:00	Close

Venue

AMRC Knowledge Transfer Centre, University of Sheffield,
Advanced Manufacturing Park, Brunel Way, Rotherham, S60 5WG
The AMRC campus is just off Sheffield Parkway (J33 M1) – follow signs to the Advanced Manufacturing Park, and aim for the large wind turbine. Free parking is available in front of the Nuclear AMRC, or follow signs to the AMRC overflow carpark further up Brunel Way.
Satnav: please use the postcode S60 5TZ.
Map and directions: namrc.co.uk/contact

