



NUCLEAR AMRC
ADVANCED MANUFACTURING RESEARCH CENTRE

CATAPULT
High Value Manufacturing

Monday
15 January
2018

Advanced cooling with carbon dioxide CO₂ machining applications

The Nuclear AMRC invites you to explore the state of the art in supercritical carbon dioxide coolant and other CO₂ applications in advanced machining for the most demanding industries.

The Nuclear AMRC is leading research into supercritical CO₂ cooling for challenging machining tasks, focusing on deep-hole drilling for nuclear industry applications.

The technology has been shown to increase cutting speeds and reduce tool wear, compared to traditional oil-based coolants and minimum quantity lubricant (MQL) techniques, but needs further R&D to optimise for the most demanding tasks.

This one-day forum will bring together technology providers – including Fusion Coolant Systems, supplier of the Nuclear AMRC's system – with industrial users and researchers to discuss the opportunities and challenges of CO₂ coolants. We will also look at other applications such as CO₂ cleaning.

To register, or for more information:

 advancedcooling.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 carbon dioxide

Agenda

Monday 15 January 2018

9.30	Registration, refreshments and networking
9.55	Introduction and safety brief
10.15	Milling of titanium alloy with CO₂-based lubricant <i>Dr Nikolaos Tapoglou, AMRC with Boeing</i>
10.45	Cryogenic dry cleaning of engineering surfaces <i>Jim Smith, BOC</i>
11.15	Refreshments
11.30	Numerical simulation of cryogenic machining with CO₂ – applying expertise from the carbon capture and storage sector <i>Dr Christopher Wareing, University of Leeds</i>
12.00	CO₂ and MQL – experimentation and devices <i>Haizea González, Centro de Fabricación Avanzada Aeronáutico, University of the Basque Country</i>
12.15	Lunch and networking
1.00	Supercritical CO₂ as a cutting fluid – principles and applications <i>Professor Steve Skerlos, Fusion Coolant Systems</i>
1.30	Face milling of stainless steel with supercritical CO₂ <i>Dr Krystian Wika, Nuclear AMRC</i>
2.00	Summary & next steps
2.15	Networking & optional tour of Nuclear AMRC
3.30	Close of event

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

