

UK-SWE MEETING SCOTLAND 11-13 JUNE 2019

Sammanställning av

Mats.werke@ri.se

+46 - 31 - 706 60 88

RISE Research Institutes of Sweden

**DIVISION
ENHET**

Contact us

Advanced Forming Research Centre
University of Strathclyde
85 Inchinnan Drive
Inchinnan
Renfrewshire PA4 9LJ

Email: info@afrc.org.uk
Tel: +44 (0)141 534 5200

www.strath.ac.uk/afrc



AFRC

Syfte och mål

- **Skapa möjligheter till samverkan och nya affärer genom kontakter med forskningsinstitut och företag i flyg- och rymdbranschen**
- Möjlighet att “pitcha” produkter/tjänster/samverkansbehov med fokus på samverkan
- Information om möjligheter till samverkan inom forskning
- Studiebesök
- Mingel och middag

HVM Catapult

The Advanced Forming Research Centre is one of seven High Value Manufacturing (HVM) Catapult centres in the UK and the only one in Scotland.

The HVM Catapult is an alliance of manufacturing research centres backed by Innovate UK. It acts as the catalyst for growth and success of UK advanced manufacturing. As we're part of the HVM Catapult, companies working with the AFRC can tap into a network of world leading research covering every aspect of manufacturing.

- Working with over 3,000 private sector companies of which over 1,000 were SMEs
- 1,730 projects with industrial clients
- Order book of over £205 million
- Over 2,000 staff employed by HVM Catapult focused on manufacturing research

The Advanced Forming Research Centre is one of seven High Value Manufacturing (HVM) Catapult centres in the UK and the only one in Scotland.



Advanced Forming Research Centre



Univ. Strathclyde - Glasgow



About the AFRC

The University of Strathclyde's Advanced Forming Research Centre (AFRC) is a globally-recognised centre of excellence in innovative manufacturing technologies, engineering research and development, and metal forming and forging research.

For almost a decade the centre has been at the heart of manufacturing research in Scotland. It is the only High Value Manufacturing Catapult centre in the country, one of only 7 in the UK making it the critical link between manufacturers in Scotland and the rest of this world-class network of manufacturing innovation and expertise.

The AFRC helps to fill the gap between fundamental academic research and industry. We help companies to turn innovative technologies and ideas into a commercial reality that will increase their competitiveness, boost their business and secure the manufacturing sector in Scotland and the UK for generations to come.

We offer world-class expertise and cutting-edge technologies that help firms develop solutions that bring about real business benefits for companies of all sizes from across the UK and internationally.

- £60m facility established in 2009
- £38.5 million project portfolio
- Over 400 projects; 331 with industrial clients
- 5,680m² research space



What makes the AFRC different?

The AFRC is a research centre that thinks like a business. The people here have worked in industry. They understand targets, financial pressures, deadlines and budgets and work accordingly.

Hot forging and forming capability

Schuler AG 2100 tonne screw press	6
ACB Loire 200T Superplastic Forming Press	7
ACB 1200T Superplastic Forming/600T Hot Creep Forming Press	8
Die Wear Cell	9
Schuler Multiforge – 3500kN	10
HARE clipping press – Model 63HP	11
Fanuc M-61B Robot	12
Fanuc M-710iC Robot	13
LAND thermal imaging cameras	14

Cold forming capability

Jean Perrot Maneo CNC Press-Brake	15
WF Flow Former – STR 600-316	16
MJC Rotary Forge – RFN 200T – 4	17
500 Tonne Hydraulic Press	18

Materials characterisation capability

HA 250 Servo-hydraulic test machine	19
Zwick/Roell Amsler Z250 Material Testing Machine	20
Zwick/Roell Z150 Material Testing Machine	21
Instron Electro-Thermal Mechanical Tester (ETMT)	22
Phoenix High Strain Rate testing machine	23
Alicona Infinite Focus IFM G4	24
FEI/Oxford Instruments Quanta 250 FEG SEM	25
MTS3000 hole drilling system for residual stress measurements	26
Electronic Speckle Pattern Interferometry (ESPI)	27
PROTO LXR D	28
Flexible Automation Cell	29
Zwick ZHV1 –micro Vickers hardness tester	30
Olympus GX51 inverted optical microscope	31
Leica DM12000M Optical Microscope	32

Metallographic preparation

Buehler Vibromet 2 vibratory polisher	33
Buehler EcoMet 300/AutoMet 300 grinder/polisher	34
Struers Lectro-pol-5 electrolytic polisher	35
Buehler Abrasimatic 300	36
Buehler IsoMet 5000	37

Metrology capability

GOM ATOS TripleScan III/rotary table	38
GOM ARAMIS 5M optical 3D deformation system	39
Zwick / Roell BUP 1000 sheet forming machine	40
Mitutoyo CMM Crysta Apex C 121210	41
EU Classic Electrolyte Marking Machine	42

General machine tool capability

Agie Charmilles Hole Drill DRILL 11	43
Agie Charmilles Wire EDM F1440CCS	44
Jones & Shipman CNC Surface Grinder 624 Easy	45
HAAS CNC Mill TM-2	46
HAAS CNC Lathe TL-1	47
DMG MORI DMU 125 FD DuoBLOCK	48
DMG MORI HSC 75 Deckel Maho CNC	49
Sheet metal guillotine/Horizontal bandsaw/Pillar drill/Bandsaw	50
TIG welding plant/Abrasive blast unit/Pedestal grinder	51

Furnace capabilities

CMI bespoke Gas Furnace	52
Carbolite furnace HRF 7/324	53
Carbolite furnace GPC 12/131	54
Carbolite furnace LCF 14/350	55
Electrotherm rotary furnace – 5700	56
VFE/TAV TPH25/25/35 Horizontal Vacuum Furnace	57
Quench tank 1000L	58
Polymer quench tank	59

What will the Lightweight Manufacturing Centre look like?

The Lightweight Manufacturing Centre will be designed as a flexible space supporting a broad range of research and development activity, linking academia to industry.

In support of industry, the centre will have the following capability and facilities:

- Resin transfer moulding of composite components
- Automatic tape laying
- Autoclave
- Machining cell for machining and trimming composite components and manufacturing composite tooling
- Non-destructive testing
- CNC Ply cutting
- ISO Class 8 clean-room

National Manufacturing Institute for Scotland

In February 2016, the Scottish Government launched its manufacturing action plan: A Manufacturing Future for Scotland, which called for a centre of excellence for manufacturing along with a skills academy.

In September 2016, in the Government's Programme for Government, this centre for excellence and skills academy became known as the National Manufacturing Institute for Scotland (NMIS). NMIS is a major, transformative project being developed by the Scottish Government and the University of Strathclyde, in association with the Scottish Research Partnership in Engineering, Scottish Enterprise and Highlands and Islands Enterprise, Skills Development Scotland, the Scottish Funding Council and the private sector.

NMIS will launch a new era for Scottish manufacturing and will equip manufacturers of all sizes to compete in future international markets. It will support the transformation of Scotland's manufacturing industry in terms of innovation and digital opportunities and create sustainable, high-value, highly-skilled jobs.

UK-SWE Aerospace matchmaking event

- 11/6
Afternoon
Landvetter **12.05**/Arlanda **11.30** - via Amsterdam – Glasgow International **16.05** (KLM)
- 12/6 AFRC
Morning Company presentations (SMEs pitch competences, OEMs clarify needs)
Afternoon Workshop/discussions concerning future collaborations (Business & RND)
 Round Tour at AFRC and [Lightweight Manufacturing Centre](#)
Evening Dinner at AFRC for participants
- 13/6
Morning Visit UK – Company or organisation (RR, Collins Repair etc)
Afternoon Glasgow International **16.55** – via Amsterdam - Landvetter **22.45**/Stockholm
 Arlanda **22.55**



Supporting Scottish businesses to achieve their goals



01:46

2017/18 PERFORMANCE

500+

BUSINESSES SUPPORTED TO ACCESS FINANCE

£315m

PLANNED R&D INVESTMENT

£170m

PRIVATE FINANCE LEVERAGED

Aerospace Defence and Security trade organisation



Working for our members

[ABOUT](#)[EVENTS](#)[MEMBERSHIP](#)[INDUSTRY ISSUES](#)[NEWSROOM](#)[Join](#)[Our Members](#)[Contact](#)[Login](#)[OUR SECTORS](#)[HOW WE WORK](#)[WHO WE WORK WITH](#)[WHERE WE OPERATE](#)[EXECUTIVE TEAM](#)[ADS CAREERS](#)[CAREERS ENGAGEMENT](#)

[Home](#) » [About ADS](#) » [ADS Offices](#) » [Scotland](#)

SCOTLAND

Recognising the need for Scottish based companies in the Aerospace, Defence, Naval and Security Sector to have an effective voice, ADS Scotland was established in 2005 to represent both SME and multinational company members. Today, our members significant contribution to both the Scottish and UK economies is recognised by the policy makers.

Our purpose is to deliver real added value by bringing global business opportunities to members, improving manufacturing productivity and efficiency through our SC21 programmes, raising individual company profile and marketing member and sector capability internationally.

UPCOMING EVENTS

- 🕒 **Security & Policing 2019**
Mar 5, 2019 - Mar 7, 2019
- 🕒 **Security & Policing 2019 - Thought Leadership Panel and Security Dinner**
Mar 6, 2019 - Mar 6, 2019