

DAMRC Newsletter – 5/ 2015



When you receive this newsletter, we can see the end of 2015, and before we know it, we will be facing the challenges and opportunities that 2016 offers. The year 2015 was, as the previous years, a year of great activity and exciting challenges. We doubled the area of the Technology Centre, so now we have 1800 m² with the latest technology in metal cutting. In 2015, we could celebrate DAMRC's 5 year anniversary and we thank everyone who helped us making it a good day.

In this newsletter, you can read about courses and seminars, new projects and expansions of machinery in the Technology Centre. We also presents a new student and no less than seven new members. Enjoy your reading.

New machines in DAMRC Technology Center

Robots moving in

With KUKA Quantec KR 300 R2500 ultra, another technology has become a part of DAMRC Technology Center. The robot is capable of carrying a payload of 300 kg, and has a positioning repeatability of an amazing ± 0.06 mm.

At DAMRC, we will be tested the robot to its limits during processing. For this very specific purpose, KUKA has also delivered a working solution called KUKA.CNC, making the robot works as a conventional CNC machine. Among other things, the robot is used in the project PreMac mentioned elsewhere in this newsletter.



New CNC machine

In addition to KUKA robot mentioned above, one more machine is installed in the Technology Centre - a DMG NHX 6300. This 3-axis high-torque machine will bring increased focus on the processing of typical intractable materials for aerospace and offshore such as titanium, duplex, super duplex and nickel alloys.



Fantastic agreement with Boeing

On December 9 2015, DAMRC signed a partnership agreement with Boeing Defense, Space and Security on the development of a competence center focusing on machining titanium at DAMRC. Boeing sponsors the establishment and a part of the operation cost concerning the part of the DAMRC dealing with machining of titanium. An additional agreement was signed, which Boeing with immediate effect, has agreed to sponsor a pilot project at DAMRC. This agreement comes as a natural consequence of DAMRC's courses on titanium machining and the new machine dedicated to these kinds of materials.



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PreMac

DAMRC works together with three mechanical engineering students from VIA College Horsens on a project, where we examine the applications of robots in preprocessing entry processes (roughing) through a theoretical and practical approach. The robot dynamic is examined in a simulation program that allows you to see the robots position, acceleration and power output in the various stages. In addition, the cutting forces in a milling process are clarified by developing a calculation model, which is adapted and validated through experimental tests. They can be used to find out how the robot must be positioned to achieve maximum stability or put into the simulation software to read power output and thereby find the robot's limitations. In addition, we carry out various tests to measure the robot's accuracy and repeatability with and without the application of force.

Early January, we expect to take the first chips and it will be demonstrated during Spånligaen January 28 - 29 2016

New members

The Danish Wind Industry Association

It is with pleasure that we welcome The Danish Wind Industry Association as a new member. The Association is industrial organization for windmill manufacturers, energy companies and companies that supply components, service and consulting for wind turbine manufacturers and / or energy companies. The association has 250 members. With the enrollment in DAMRC, they get an even better the opportunity to fulfill the objective of constant improving the members' global competitiveness through access to research, training and networking.



Kennametal v. Fortiva

We also welcome Kennametal represented in Denmark by Fortiva. Kennametal delivers tools for metalworking for drilling, turning, milling and clamping. Through their membership, they have the opportunity to achieve an even greater knowledge about their cutting tools through future projects.



VSR Systems & Service

Based in Pennsylvania, VSR Systems & Service operates with VSR (Vibratory Stress Relief) worldwide. It is a method for removing residual stress in both larger and smaller components using vibrations instead of thermal treatment. VSR Systems & Services is a market leader in the field and their wish to have DAMRC as research partner and European base for further development of the



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technology, gives Danish companies a unique opportunity to make the most use of the technology.

Zebicon

Zebicon works with 3D scanning and industrial measurement technology with equipment from the German company GOM. There is cooperation with customers in many different industries from metal and plastic to energy design and art. Part of the cooperation between DAMRC and Zebicon will focus on metrology under the project "Innomill" supported by the Innovation Fund.



KUKA

KUKA is working on robotics and automation technology. They produce industrial robots with control and software packages and covers all load areas and robot types. They can thus provide tailor-made automation solutions, which DAMRC have benefited from in the form of a KUKA Quantec KR 300 R2500 ultra used inter alia in the project PreMac. This project also provides KUKA the opportunity to better understanding of how their robots can be used for roughing in especial cast iron and aluminum components.



Randers Tandhjulsfabrik

Randers Tandhjulsfabrik manufactures gear and other related products. Today, the company is one of the leading gear manufacturers in Scandinavia. Randers Tandhjulsfabrik is currently a subcontractor to a number of companies, including railroad, port machinery, wind, aerospace and radar industry. The company has joined as a member to get faster access to the latest technologies for process optimization, which DAMRC can offer.



MillPart

MillPart specializes in advanced milling and machining of hydraulic related products. The company produces items for semi-finished and finished subcomponents, and a customer base with a variety of industries at home and abroad. Mill Parts membership is a natural consequence of a wish for greater cooperation succeeding a development project focusing on milling technology.



At DAMRC, we say thank you for their support and look forward to working with the new members.



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New student

Mid October, our new students, Iñigo Alberdi, from Spain started. During his stay, Iñigo will do his final project in Robotic Machining. Iñigo is 26 years old and comes from the Basque Country (Spain) where he studies Mechanical Engineering at Mondragon University. Iñigo has a bachelor's degree in computer science

We welcome Iñigo.



New courses

You can still sign up for the course **Advanced use of Esprit** with start 11 to 12 January 2016. This course aims to lift the experienced CNC programmer to a level where he is able to press machines and tools for maximum via offline programming.

There is also the option of **Advanced turning optimization**. It is a 2-part course; start time will be published as soon as possible on our website. The course focuses on the ability to use the newly acquired skills into practice to optimize production.

The course is designed for technicians and operators with substantial experience in turning, and who want a deeper understanding of turning processes.

For registration and other information on our courses and seminars, please contact Lene on len@damrc.com or 2154 5054. Please also pay attention to the list of courses at damrc.com for new courses. You can follow DAMRC on LinkedIn, where we, among other things, announce our courses and seminars.



Spånligaen January 28.- 29. 2016

Late January, we invite you to Spånligaen 2016 where you have the opportunity to see the latest technology in machinery, tools, software, coolants and lubricants for improving your productivity and competitiveness.

As a new initiative, teams demonstrate various aspects of the machining, to show how to optimize all the way around. At the same time, you can visit all the other members of Spånligaen.

For invitation and further information, please go to spånligaen.dk.

SPÅNLIGAEN 2016
DEN 28. OG 29. JANUAR 2016

Kenn til samarbejde hos DAMRC, og se den nyeste teknologi inden for maskiner, værktøj, software, køle- og smøremidler med mere.

De fleste af de påvist demonstrerede løsninger kan bruges sammen med kombinationer af maskiner, værktøj og software.

Samtidig kan de bruges alle de medlemmer af Spånligaen, der har en stand.

Vi optimerer hele værket
Kom og med og se, der tænker alle aspekter af den pågældende bearbejdning. Vi glæder os til at se dig, hvordan du forbedrer din produktivitet og konkurrencesevne.

Husk tilmelding på www.spånligaen.dk senest 22. januar 2016

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Planned courses and seminars

Advertised as soon	Advanced turning processes
11th-12th January and 1st-2nd February	Advanced use of Esprit
13th-14th January and 3rd-4th February	Advanced use of Esprit

Sincerely

Klaus Bonde Ørskov
CEO

Should you want to learn more about project collaboration with the DAMRC and what the DAMRC can do for you and your business you are most welcome to contact Klaus Bonde Ørskov – kbo@damrc.com

If you receive this newsletter from a colleague and wish to register yourself for future updates from the DAMRC, simply send an e-mail to kbo@damrc.com with the text "Sign up to the DAMRC newsletter". If you have received the newsletter by mistake, you may unsubscribe at the same mail with the text: "Unsubscribe from the DAMRC newsletter".

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DAMRC

**wish our members and partners a Merry Christmas and
a Happy New Year**

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