

# NSM

NORDISKA SVETSMÖTET 2010



## Nordic Welding Conference

### Stockholm, 20–22 October 2010

An opportunity to listen to experts presenting welding applications in the energy and automotive sectors.

You'll get ideas how to improve your own productivity, quality, working environment and reduce your environmental impact.



[www.svets.se/NSM](http://www.svets.se/NSM)

# Welding in energy industry and for a sustainable environment



**Welcome to Stockholm** and the Nordic Welding Conference 2010; a tradition since 1948, with a two day program, covering the most recent and interesting welding applications in the Nordic countries. This year's theme is: *Welding in energy industry and for a sustainable environment*.

**The energy consumption**, which is continuously growing, forces construction of new power generation plants, exploration of new energy sources and many other actions to reduce negative environment impacts. Wind power construction has the highest growth. More nuclear power plants will soon be built as green light has been given in several countries to expand this sector. Huge projects in gas and oil exploration and transport will continue to be accomplished with careful considerations to a sustainable environment.

The automotive industry is one example, which has many challenges to reduce the weight of cars in order to consume less fuel and have lower CO<sub>2</sub> emissions. New and more advanced materials and welding processes are introduced to meet these objectives. These have

sometimes to be realized under extreme conditions in deep water and cold climate.

**Take the opportunity** to listen to experts presenting welding applications in the energy and automotive sectors. You may get ideas how to improve your own productivity, quality, working environment and to reduce your environmental impact.

**In addition** you will have many opportunities to exchange experiences and network with the all Nordic participants. Any accompanying persons have several interesting sites to visit.

You can as well visit the Scandinavian Technical Fair 2010 where we have the venue for NSM 2010.

**The Swedish Welding Commission and the Welding Association** are looking forward to the conference with many participants and a successful NSM-2010.

*Bertil Pekkari*  
Chairman, Swedish  
Welding Commission

*Magnus Areskoug*  
Chairman, Swedish  
Welding Association

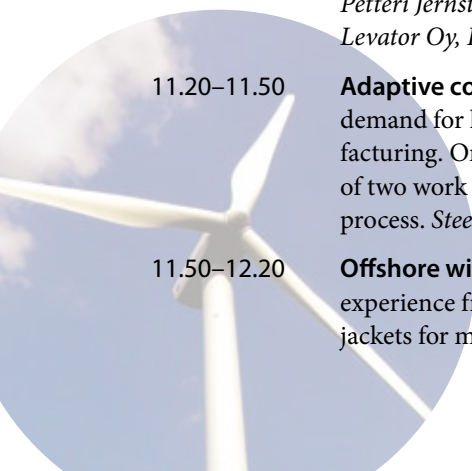
---

## Day 1 Wednesday October 20

- 9.00–9.45 **Registration and coffee**  
9.45–9.50 **Introduction.** *Bertil Pekkari, Chairman Swedish Welding Commission.*
- 9.50–10.05 **Opening ceremony.** Research and development crucial for the Nordic engineering industry – applications relating to sustainable environmental development.  
*Tomas Thorvaldsson, President Swerea AB, Stockholm.*
- 10.05–10.30 **Trends in global energy demand.** The energy consumption is steadily growing and it must be met by continuous expansion of power generation with careful consideration of lowest possible negative impact on the environment. Welding, which is one of the most important manufacturing processes, must offer high and consistent quality and productivity in a safe working environment.  
*Bertil Pekkari, Chairman Swedish Welding Commission.*
- 10.30–10.50 **Pause**

### *Wind. A world wide strong growth in construction of wind power towers demands for high productivity in heavy welding.*

- 10.50–11.20 **Challenges in manufacturing of wind turbine towers.** The common appearance of the wind turbine tower can be deceptive. Rolling and welding of tower shells, as well as other manufacturing processes are demanding due to the considerable wall thickness and shell diameter, and due to the high-precision saddle joints. Submerged arc welding guarantees the best combination of productivity and quality within the thickness range, and multi wire applications ensures maximum production efficiency.  
*Petteri Jernström, Director Quality and Development or Petri Metsola, Managing director, Levator Oy, Finland*
- 11.20–11.50 **Adaptive control of weld process in wind turbine tower manufacturing.** There is an increasing demand for higher productivity and a more consistent, high quality in the wind turbine tower manufacturing. One challenging task is to provide means for one welding operator to manage the control of two work stations. These goals can be achieved by means of advanced, adaptive control of the weld process. *Steen Ussing, Head of welding dept, FORCE Technology, Denmark.*
- 11.50–12.20 **Offshore windmill foundations.** Transferring to serial production of offshore windmill jackets using experience from the fabrication of large oil and gas jackets. Taking advantages of previous oil and gas jackets for mounting windmill towers. *Erik Stiklestad, Production director, Aker Verdal, Norway.*



12.20–13.30 **Lunch**

**Nuclear.** *Green light for more nuclear power require higher and more consistent and efficient welding procedures.*

- 13.30–14.00 **Upgrading of reactor vessels at Forsmark nuclear site, unit 1, 2 and 3.** A retrospect and overview on the official Swedish nuclear power development and the construction and manufacturing of the reactor vessels. *Mats Molin, Head of welding, Forsmark Kraftgrupp AB, Sweden.*
- 14.00–14.30 **Advanced materials and modern processes in nuclear fuel manufacturing.** Enhancing nuclear fuel performance in a power plant requires use of advanced materials and modern processes for welding, manufactured in a reliable and repeatable fashion. *Peter Haglund, Welding Coordinator, Westinghouse Electric Sweden AB, Sweden*
- 14.30–15.00 **Dissimilar metal and narrow gap welding for nuclear components.** The operating experience of major nuclear power plant pressure boundary components has recently shown that dissimilar metal weld joints can markedly affect the plant availability and safety because of increased incidences of environment-assisted cracking or primary water stress corrosion cracking (EAC, PWSCC) of Alloy 600 and corresponding weld metals Alloy 182/82. *Pertti Aaltonen, Senior Research Scientist VTT, Technical Research Centre of Finland*
- 15.00–15.30 **Coffeebreak at the Technical Fair – welding demonstrations.**
- 15.30–15.50 **Underwater laser beam welding in nuclear applications.** A welding method that minimize time for intervention and dose. Applicable both for mitigation (cladding) and repair in underwater applications. The method is also superior on irradiated material. *Stellan Thorén, Director of Technology, Westinghouse Electric Sweden AB, Sweden.*
- 15.50–16.20 **Reliable sealing of copper canisters containing Swedens nuclear waste.** The Swedish Nuclear Fuel and Waste Management Company (SKB) will use Friction Stir Welding to join at least 12 000 lids and bottoms to extrude 5 cm thick copper tubes. Current developments include an automatic regulator controlling heat input and improved safety factor against welding toll failure. *Lars Cederqvist, Project manager encapsulation technology, SKB, Swedish Nuclear Fuel and Waste Managements Co. Sweden.*
- 16.20–16.30 **Summary day 1**
- 19.00–21.30 **Reception at Stockholm Townhall**

**Day 2** Thursday October 21

**Oil and gas.** *Extreme conditions for exploration and transport of oil and gas are challenging prerequisites for the welding applications.*

- 08.30–08.35 **Introduction.** Chairman Magnus Areskoug, Swedish Welding Society.
- 08.35–9.00 **Stress corrosion cracking of carbon steel in ethanol.** Stress corrosion cracking of carbon steels ST35 (ASTM A53) and SA106 (ASTM A106) was studied by slow strain rate tests in ethanol denaturated with ETBE. During the experiments ethanol was aerated by nitrogen/oxygen gas. Some of the tests were made with samples that had clean surfaces and some were made with samples that had preoxidized surfaces. *Valtteri Hirsi, researcher, Alto University School of Science and Technology, Finland.*
- 09.00–09.20 **Surfacing techniques for power plant applications.** Several new techniques with interesting potentials for powerplant applications have emerged in the later years. Cold gas spraying is a new option for protection of boiler surfaces in aggressive environments. Laser fusing can prolong life for worn and damaged surfaces of high-value components. More traditional thermal spraying techniques also offer numerous other possibilites in connection with extension of service life. *Peter Tommy Nielsen, Projekt manager welding innovations, FORCE Technology, Denmark.*
- 09.20–09.50 **Trends in welding of offshore flow- and pipelines.** During the last 10-15 years Statoil ASA has qualified and gained welding and materials techology experience with a wide range of new linepipe materials like supermartensitic stainless steels, metallurgically or thermo-mechanically bonded CRA clad (316L, alloy 825), as well as different types of conventional carbon steel materials (SAWL, Seamless, HFW). Some challenges and practices in terms of weld fabrication, NDT and adequate weld property relationships will be presented both for S-layed and reeled pipelines. *Gisle Rörvik, Leading Advisor-Metallic Materials & Welding, Statoil ASA, Rotvoll, Norway.*

09.50–10.10 **Coffee break**

10.10–10.40 **New high temperatur resisting “supersteel” for power plant application.** The newly developed Z650 steel type is capable of resisting higher temperatures, resulting in a higher efficiency and a lower CO<sub>2</sub> emission per kwh. Presentation of the results from a large research project at the Danish Technical University, DTU. *Prof. John Hald, Technical University of Denmark.*

### **Geothermal.** *Geothermal enegy is important for a sustainable environment.*

10.40–11.10 **Welding in aggressive geothermal environments.** Geothermal energy generation has been of great importance in Iceland for many years. The trend toward deeper drilling resulting in higher temperatures and more aggressive environments has raised concern about reliability of welded components due to e.g. Hydrogen damages. Hydrogen is absorbed into the material and welded joints resulting in reduction of its mechanical performance. A review of the variables that control hydrogen damages in steel welds are presented and some welding problems in geothermal power plants are discussed. *Adalsteinn Arnbjörnsson, Senior engineer, Innovation Center Iceland.*

11.10–12.00 **Visit to the Technical Fair**

12.00–13.00 **Lunch**

### **Automotive.** *The automotive industry has to reduce the fuel consumption drastically by using stronger and thinner sheet and find other ways to reduce the weight of the vehicles.*

13.00–13.30 **High quality welding of weight optimized passenger car bodies.** An important enabler for producing the most fuel efficient and environmental friendly products in the business. *Johnny K. Larsson, Technical specialist BIW joining technologies, Volvo Car Corporation, Sweden.*

13.30–14.00 **Laser welding of powertrain components for trucks.** Difficulties and solutions for laser welded powertrain components. Examples from laser welding of axles and gearbox applications with wall thicknesses over 10 mm. *Erik Tolf, Materials technology, Scania CV AB, Sweden.*

14.00–14.20 **Robotic Friction Stir Welding.** Establishing new production technology for the aim toward light weight vehicle design. The possibility of 3D handling of the welding tool opens for implementation of FSW Processing in a great many advanced applications. *Mikael Soron, Manager Engineering Laboratory ESAB AB, Sweden.*

14.20–14.40 **Coffee break**

14.40–15.00 **Laser welding as a tool for increased part functionality while reducing environmental impact.** The low heat input associated with laser welding does not only mean lower energy consumption during manufacturing. It also opens up new possibilities in part design where new energy efficient solutions can replace old manufacturing techniques. *Mikael Mimer, Laser product manager, Trumpf Maskin AB, Sweden.*

### **Final.** *Concluding session on sustainable environment.*

15.00–15.30 **Challenges on our path to sustainability.** As a leading supplier to the global welding community, we must be committed to a sustainable world and deliver product and services with highest quality alongside high morals and ethics. *Annika Fredgren, Environment Health and Safety Director, ESAB AB, Sweden.*

15.30–15.45 **Summary, closing the NSM Conference.** *Bertil Pekkari and Magnus Areskoug.*

19.30–23.00 **Banquet at Solliden.** At Europe’s largest open-air museum with spectacular panoramic views across Stockholm





## Industrial visit Friday October 22

### Alternative 1

*A full day tour by bus 08.30–17.30.*

*ABB Robotics AB, Västerås and Bombardier Transportation AB, Västerås.*

### ABB Robotics AB

ABB – a leading supplier of industrial robots and modularized production systems and service with focus on production solutions for optimizing productivity, quality and safety.

### Bombardier Transportation Sweden AB

Bombardier Transportation make complete railbound transport systems designed for environment. Platform and modular technology designed for urban and main-line operations combined with a comprehensive portfolio of rolling stock, propulsion and control systems, and services for vehicle modernization and maintenance.

### Alternative 2

*A half day tour by bus 09.00–12.00.*

### AB H Brantheim, Tyresö

The company, producing products, components in thin plate steel, stainless and aluminium, has the small company's flexibility and capacity as a larger company for design, prototyping to final product. We will see how the company has integrated laser welding and robotized highspeed welding in their production flow.

## Program for accompanying persons

Wednesday October 20

### Sightseeing Stockholm

*Guided tour with bus 9.30–12.30*

The tour goes through all parts of the city and points out the most famous and interesting buildings and show the magnificent view over the islands and waters of Stockholm. The tour ends with a walk in Old Town there the royal palace is situated. This tour gives an opportunity to learn about Stockholm and its history.

**Price:** SEK 400 excl. VAT incl. guide and bus.

Thursday October 21

### Visit to Waldemarsudde

*Bus tour 10.30–13.30*

Prince Eugen was one of his generation's foremost landscape painters and many of his best-known works, including the Cloud and The Old Castle, are part of the collections at Waldemarsudde. A guided tour in the mansion house ending with lunch in the "Prince Kitchen".

**Price:** SEK 300 excl. VAT incl. entrance fee, lunch and bus.

Friday October 22

### Stockholm SkyView

*Bus tour 10.00–12.00.*

A gondola will take us up along the outside of the Ericson Globe, the largest spherical building in the world. We promise a spectacular view over Stockholm from a height of 130 meter.

**Price:** SEK 320 excl. VAT incl. entrance fee, coffee and bus.

## Social programme

Wednesday October 20

*19.00–21.30 Welcome Reception in the golden Room, Stockholm Town hall*

An impressive building, most known for the yearly Nobel banquet. Host for the reception is Stockholm town.

Thursday October 21

*19.30–23.00 Gala Banquet at Solliden*

Dinner with entertainment. At Europe's largest open-air museum with spectacular views across Stockholm.

## General information

**Conference fee:** Registration before August 18, 2010; SEK 5 200 excl. VAT. Registration after August 18, 2010; SEK 5 900 excl. VAT. Including conference, reception, banquet and industrial visits.

**Fee for accompanying persons:** SEK 950 excl. VAT. Including reception and banquet.

**Language:** English.

**Registration:** By enclosed registration form to be sent to Swedish Welding Commission. You can register at [www.svets.se/NSM](http://www.svets.se/NSM). Your registration will be confirmed and invoiced after August 18, 2010. Deadline for registration September 3, 2010.

**Cancellation:** Cancellation of registration must be in writing. If cancellation is made before August 12, 2010 we invoice 10% of the amount. No refund at cancellation after August 12. Another person can take your place if you can't be present. Registration of the person replacing must be done.

**Hotel:** See registration form. Responsible for the booking is Birgitta Ossman, Swedish Welding Commission. E-mail: [birgitta.ossman@svets.se](mailto:birgitta.ossman@svets.se) Phone: 08-120 304 08, int+46 8 120 304 08. Deadline for reservations at Hotel Rica Talk is August 18. Hotel costs is to be paid directly to the hotel.

**Place for the conference:** Stockholm Exhibition and Congress Center, Mässvägen 1, Älvsjö. Session room K11. [www.stockholmsmassan.se](http://www.stockholmsmassan.se)

**Terms of payment:** Invoice. All fees excl. VAT if not specially mentioned.

**Registration at the conference:** NSM-desk, main entrance Stockholm Exhibition and Congress Center October 20 at 9.00–9.45.

**Conference secretariat:** At the Conference Center October 20–21. For general information about the conference before October 20, contact Birgitta Ossman, Swedish Welding Commission. E-mail: [birgitta.ossman@svets.se](mailto:birgitta.ossman@svets.se) Phone: 08-120 304 08, int+46 8 120 304 08. Fax: 08-679 94 04, int +46 8 679 94 04.

**Information about the conference programme:** Stellan Carlson, Swedish Welding Commission. E-mail: [stellan.carlson@svets.se](mailto:stellan.carlson@svets.se). Phone: 08-120 304 06, int+46 8 120 304 06.

**You will find** all information of the Nordic Welding Conference at [www.svets.se/NSM](http://www.svets.se/NSM) incl. the registration form.

# Registration form NSM-10, The 21rd Nordic Welding Conference in Stockholm October 20–22 2010

Surname: ..... First name: .....

Company/Organization: .....

Position: .....

Address: ..... Zip Code: .....

City: ..... Country: .....

Phone (incl. countrycode): ..... E-mail: .....

Fax: ..... Name of accompanying person: .....

Information about vegetarian-/special meal: .....

## Conference fee (price excl. 25% VAT)

- Registration before August 18, SEK 5 200
- Registration after August 18, SEK 5 900
- Fee for accompanying person, SEK 950

## Industrial visit 22 October

- Alternative 1.** ABB Robotics AB and Bombardier Transportation AB, Västerås. 8.30–17.30
- Alternative 2.** AB H Brantheim, Tyresö. 9.00–12.00

## Program for accompanying person

- Wednesday October 20, sightseeing Stockholm: 9.30–12.30. Price per person: SEK 400 excl. VAT
- Thursday October 21, visit to Waldemarsudde: 10.30–13.30. Price per person: SEK 300 excl. VAT
- Friday October 22, Stockholm SkyView 10.00–12.00. Price per person: SEK 320 excl. VAT

## Social programme

- Participant     Accompanying person. Wednesday October 20, reception in Town hall
- Participant     Accompanying person. Thursday October 21, banquet at Solliden

## Hotel accomodation

Mark your choice of room. The price is per room and night incl. breakfast and VAT. Prebooked rooms must be booked latest August 18. All hotel costs are to be paid directly to the hotel at checkout. You will be charged by invoice for rooms not cancelled. The Swedish Welding Commission will confirm your hotel booking.

Rica Talk Hotel, Älvsjö (close to the conference center). [www.rica.se](http://www.rica.se) Phone: +46 8 723 72 72

- Single room. SEK 1 470                      Check-in date: \_\_\_/\_\_\_
- Double room. SEK 1 670                      Check-out date: \_\_\_/\_\_\_

## Terms of payment

We will confirm your registration and send the invoice to the above given address. It is not possible to pay with credit card (other than for the hotel). Please note the terms of cancellation.

Date: ..... Signature: .....

Send the registration form by fax to 08-679 94 04 int +46 8 679 94 04  
or by post to Swedish Welding Commission, Box 5073, S-102 42 Stockholm