

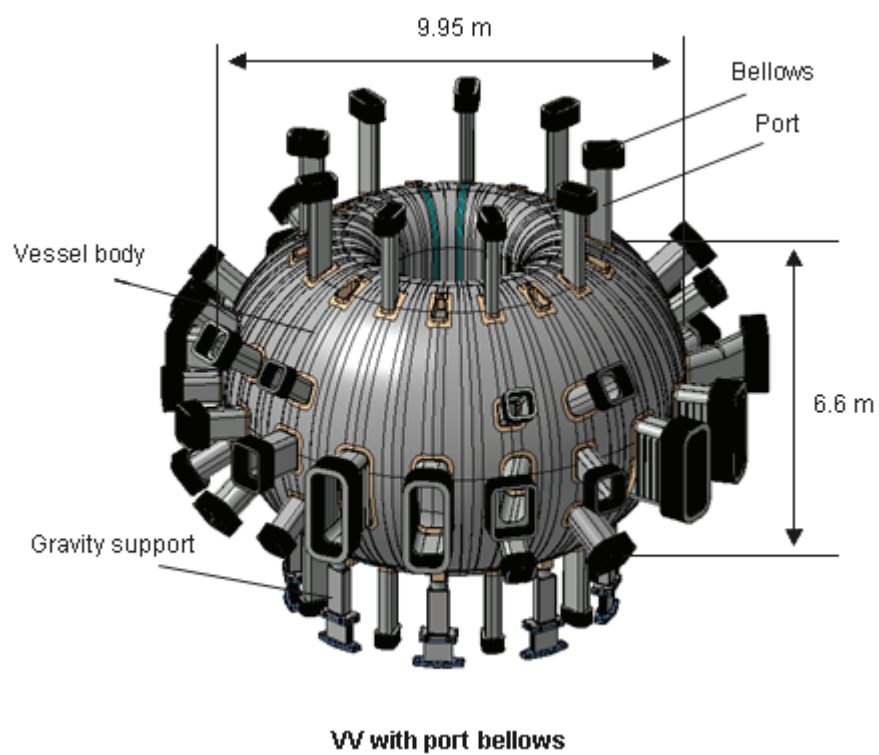
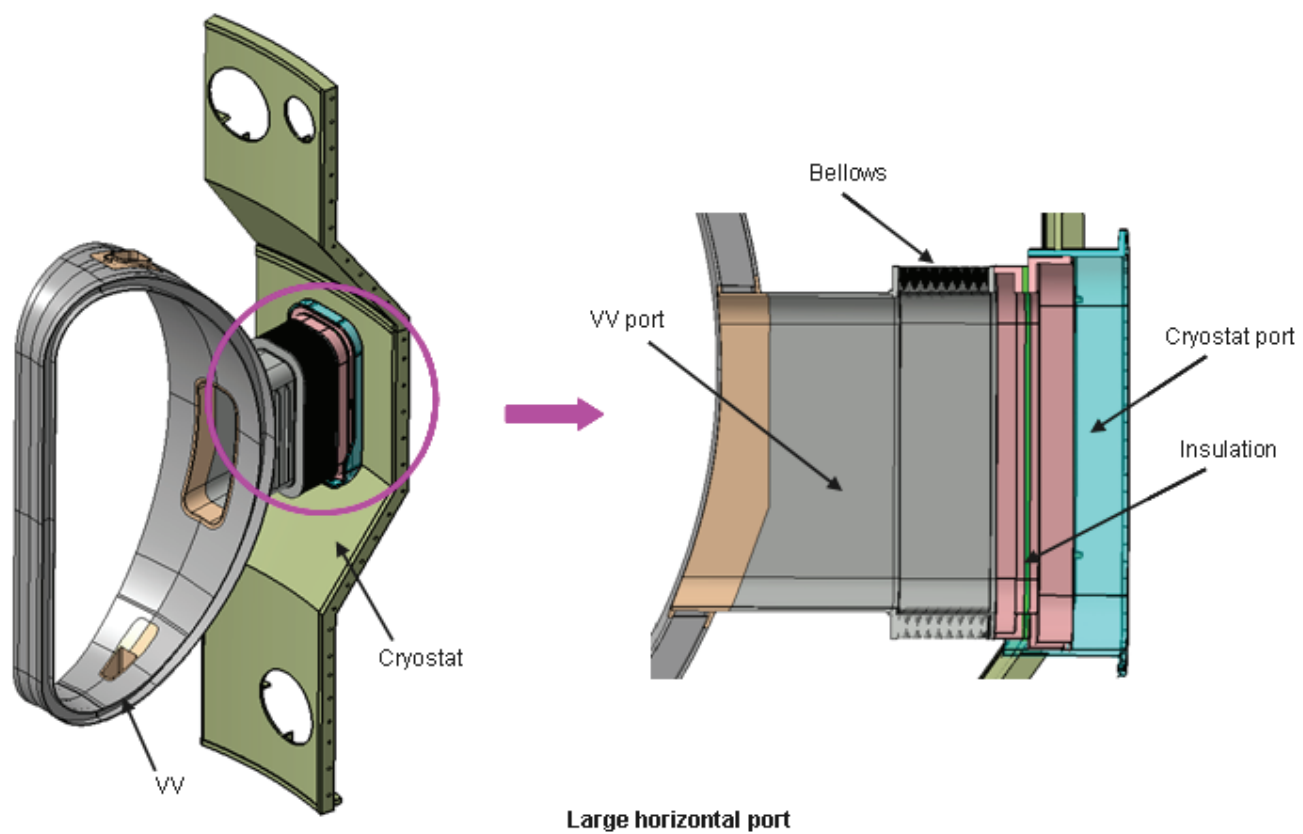
## Headline

### **Successful trial production of world's largest class of port bellows**

A prototype of the world's biggest class of port bellows, H 2.2 m, W 1.0 m, L 0.6 m, for the large horizontal port of the Vacuum Vessel (VV), was fabricated, and passed the operational fatigue tests of 3,000 cycles and the helium leak test. Another prototype of the port bellows for the lower part of the VV was also fabricated, and passed the same required tests. They were both delivered to JAEA Naka Fusion Institute in Japan. Twelve port bellows to be used for the VV will be manufactured and delivered to the Institute by the end of March 2011.

Port bellows will be placed between the Cryostat port and the VV port in order to absorb thermal expansion and vibration of the VV, including seismic vibration.





## News

### **PL visited PF coil manufacturer's factory in Kobe, Japan**

In February 2011, the Project Leader (PL) of the JT-60SA project, S. Ishida, the Project Team Expert, M. Sato, and a JA Home Team member visited the manufacturer's factory of the Poloidal Field (PF) coils in Kobe, Japan. They reviewed the progresses in manufacturing of the Equilibrium Field coil No.4 (EF4), and winding of the Central Solenoid (CS) using dummy conductors, and confirmed that manufacturing of the coils was going very well. The manufacturer expressed their confidence in manufacturing as scheduled based on what they had done so far.



**Start of winding process of EF4 coil**





Explanation of manufacturing process to PL (centre)

## News

### **Contract activities for the Quench Protection Circuits procurement proceeding well**

The Quench Protection Circuits (QPC) for the Superconducting Magnets of JT-60SA are procured by the Italian National Research Council, acting through Consorzio RFX.

On 20 December 2010, the assignment to start the contract activities was officially entrusted to the company Ansaldo Sistemi Industriali (ASI) by the President of Consorzio RFX: Professor Giorgio Rostagni.



**Prof. Giorgio Rostagni – Consorzio RFX**

Immediately after the assignment, the Contract Responsibilities were nominated both by Consorzio RFX and by the company Ansaldo Sistemi Industriali (ASI): E. Gaio for Consorzio RFX and M. Perna for ASI and they signed the start of activities minute on 21 December 2010. The same day, the contract Kick-Off Meeting (KOM) was held and the activities started.

The next progress meeting was held on 1 February 2011 at Consorzio RFX in Padua, as scheduled, again with the participation of F4E and JAEA Technical Responsible Officers via video-conference.



The main picture shows the Contract Responsible from ASI (M. Perna, the fourth from the left), and the four other engineers in charge of the main parts of the system, who participated in the meeting; starting from the right: the Engineer in charge for the development of the QPC core components (A. Coffetti), the Project Manager (E. Merli), the Project Engineer (G. Battilana) and the Control Engineer (F. Soso). On the left side, the Consorzio RFX team: L. Novello, E. Gaio and A. Maistrello.

ASI engineers confirmed the basic choices made at the conceptual design level by Consorzio RFX. The QPC will be based on a hybrid circuit breaker, composed of a mechanical bypass switch (BPS) and a static interrupter; an explosively actuated circuit breaker (pyrobreaker) connected in series represents the backup protection. The selected type of mechanical BPS and the pyrobreaker are based on the prototypes developed for the fast discharge units of ITER; the static circuit breakers design

derives from that developed for the RFX-mod toroidal circuit, successfully in operation since 2004.

ASI reported on the status and progress of the project activities. The technical specifications of the main components (BPS, pyrobreakers, integrated gate-commutated thyristors) have already been issued and discussed with the relevant suppliers.

Some specific aspects, such as transducer characteristics, relevance of the ambient conditions to the device operation, and assessment of the control interfaces were discussed in detail, and will form the core of the detailed design phase.

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## **News**

### **SCMPS procurement arrangement signed**

On 16 February, the procurement arrangement for the JT-60SA Superconducting Magnet Power Supply (SCMPS), a European contribution, was signed by the Director of the International Affairs Department of JAEA, K. Hashimoto (right), and witnessed by the Project Leader, S. Ishida (left) after the Director of Fusion for Energy, F. Briscoe, had signed it.

See the JT-60SA Newsletter No. 10 and JT-60SA Newsletter No. 11 for more technical information about the SCMPS.



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## **Meetings**

### **Video conference on JT-60SA research plan, plasma modelling and diagnostics held at Naka Fusion Institute**

In 2011, detailed discussions started between the EU fusion community (through F4E, Fusion for Energy, and EFDA, European Fusion Development Agreement) and JAEA about the JT-60SA Research Plan and possible collaborative areas.

From 14 to 18 February, an EU-Japan video conference was held at Naka Fusion Institute, involving three experts, T. Bolzonella from Consorzio-RFX, G. Giruzzi from CEA and F. Orsitto from ENEA, who came to Naka Fusion Institute in order to discuss about the JT-60SA research plan, plasma modelling and diagnostics.





## Visits

### Kick-off meetings of TF conductor contracts managed by F4E for strand procurement and cabling-jacketing procurement

After placement by F4E of both the TF coil conductor strand and cabling-jacketing contracts, respectively signed on 9 and 17 December 2010, the practical contract implementation stages are now ongoing.

For the cabling-jacketing contact, the kick-off meeting was held at F4E Barcelona on the 11 January 2011 with the company Italian Consortium for Applied Superconductivity (ICAS). JT-60SA technical and organisational matters were discussed together with cabling-jacketing for the ITER TF and PF magnets, which are included in the same contract.

For the strand contract, the kick-off meeting was held at Furukawa Electric Co. Ltd. (FEC) premises at the Nikko production plant in Japan between the 18 and 21 January 2011. The meeting included exchanges on various matters and also a technical inspection of the ongoing production process (fabrication of an evaluation billet). The F4E visit was also followed on the 24 by a management meeting with EU Project Manager, P. Barabaschi, at FEC Headquarters in Tokyo.

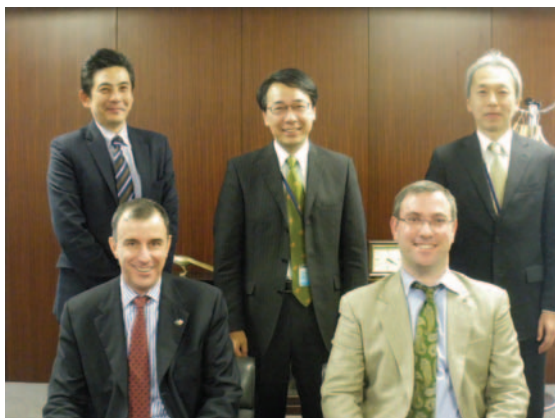
Globally for both contracts, discussions on technical and organisational matters showed satisfactory outcomes, that are foreseen to be consolidated in the coming months.



Kick-off meeting at FEC Nikko plant with F4E and FEC members



**Evaluation billet sub-elements inspection at Nikko plant**



**Management meeting at FEC HQ's**

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## **Calendar**

March 23, 2011  
 8th Meeting of the STP Project Committee  
 Naka, Japan

April 13-14, 2011  
 11th Technical Coordination Meeting  
 Naka, Japan

May 11, 2011  
 9th Meeting of the BA Steering Committee,  
 Naka, Japan

June 26-30, 2011  
38th IEEE Int. Conf. on Plasma Science (ICOPS2011) and 24th Symp. on Fusion Engineering (SOF2011)  
 Chicago, USA

September 11-16, 2011  
10th International Symposium on Fusion Nuclear Technology (ISFNT-10)  
 Portland, USA

September 12-16, 2011  
22nd International Conference on Magnet Technology  
 Marseille, France

September 21-22, 2011  
 12th Technical Coordination Meeting  
 Karlsruhe, Germany



## Local

### **Beautiful historical city – Padua in Italy**

The first rays of sunshine are starting to warm the still biting air of this cold winter in Padua and unveil the medieval and renaissance lanes of the historical city centre, its elegant architecture, squares and fascinating corners. It is an old setting where today life finds its own way to accelerate the rhythm of markets, shops, studios and to populate buildings and streets where the old and the new interlace in a metropolis-like modernity .

Still, it is the quality of life that bewitches. At every corner, you can stop at an osteria or a cafeteria to taste appetizers and wine, or the traditional “spritzz”. Here and there, is a market place to buy fresh food and smart clothes.

In Padua, it's carnival time in February. This year it will last until 8th March. If you were in town, you could not miss street entertainers, dances and animation and, needless to say, delicious home made frittelle, our carnival specialties. Shaped in a ball, these pastries are fried in oil, stuffed with cream and served hot. Or alternatively, the crunchy galani of our tradition, present on all tables for carnival.

Some thirty kilometres far away, another carnival is on: the carnival of Venice, so famous all round the world. The calendar of events is richer than ever this year for the celebration of 150 years of Italian unification, and it will close with the noisy “following one another” with a silent regatta of boats along the Canal Grande that will be illuminated only with candles.

The tradition in Padua reflects the Venetian influence, as the town was part of the Venetian Republic until the end of the 18th century. We can find its magic in the sumptuous villas along the Brenta river owned in the past by the Venetian nobility. You can visit them on mini-cruise trips.

Still Padua has its own personality, made up of cultural events, professional competence, and innovative projects. The town has offered hospitality to Galileo, Giotto, Saint Antony, given birth to its University in 1222, promoted science, research, medicine and technology for centuries.

It is the astronomic clock mounted in the tower situated in Piazza dei Signori that makes us reflect on the passing of time. Recently, the mechanism of this extraordinary clock, designed and built by Jacopo Dondi at the end of the 14th century has started working again after a careful restoration of its components. To see it strike the hour, while sitting at one of the cafes in the square, sipping some hot chocolate. “Cioccolando” is an event not to be missed!

And Consorzio RFX is located in this beautiful historical city, Padua in Italy.

For more information about Padua:

<http://www.padovanet.it/dettaglio.jsp?tasstipo=C&tassidpadre=284&tassid=1569&id=10662>

<http://www.turismopadova.it/>

<http://www.padovanavigazione.it/it/home.htm>









**Pictures of Padua and Galani, traditional food for carnival**

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### **Contact Us**

The JT-60SA Newsletter is released monthly by the JT-60SA Project Team.  
Suggestions and comments are welcome and can be sent to [masayasu.sato@jt60sa.org](mailto:masayasu.sato@jt60sa.org).

For more information please visit the website: <http://www.jt60sa.org/>