



M'News

Issue No.22

M'News is MACOGA's online news bulletin featuring the latest development of significant projects, achievements, events and expansion joints related news.

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MACOGA SUPPLIES EXPANSION JOINTS TO ITER, THE MOST AMBITIOUS ENERGY PROJECT IN THE WORLD TODAY

In southern France, 35 nations are collaborating to build the world's largest tokamak, a magnetic fusion device that has been designed to prove the feasibility of fusion as a large-scale and carbon-free source of energy based on the same principle that powers our Sun and stars.

The experimental campaign that will be carried out at ITER is crucial to advancing fusion science and preparing the way for the fusion power plants of tomorrow.

MACOGA has contributed to this project by supplying a large number of high-tech metal and rubber Expansion Joints. The supply included Universal Metal Expansion Joints completely manufactured in ASTM A-358 304L and MAC-FT Rubber Expansion Joints in EPDM.

A complete program of non-destructive tests: Radiographic Examination, Liquid Penetrant Examination, Pneumatic Pressure Test & Leak Detection Test and Hydraulic Pressure Test, PMI (Positive Material Identification) and Spring Rate Test has been carried out as well as destructive tests on prototypes including Fatigue Life Testing, Squirm Testing, Meridional Yield Rupture Testing and Burst Test.





REFRACTORY LINED EXPANSION JOINT FOR SEVERESTAL CHEREPOVETS STEEL MILL, RUSSIA

In Russia Severstal is the prime high-quality supplier of flats, longs and steel pipes for the construction, automotive, machinery, and oil & gas industries.

This time MACOGA supplied a high-tech Refractory Lined Universal United Expansion Joint MFD DN-2630 (104") for blast furnace gas at 300 °C (572 °F) / 3 barg 43.5 psi).

Severstal Russian Steel is a leading Russian steel producer, with a broad product mix, self-sufficiency in raw materials and an extensive distribution network. Focused on high value-added flat steel products and the production of long products for construction and downstream sales.

Located in north-west Russia, the division's steel operations enjoy convenient rail access to the Company's mining operations and low-cost direct river access to the Baltic ports, as well as being well positioned to serve the industrial hubs around Saint-Petersburg and Moscow.





MACOGA PROVIDES PREMIUM SERVICE FOR LUXURY SUPERYACHT

As the most trusted in the business, we provide all shipyards and yacht owners the highest quality Expansion Joints and an unparalleled technical assistance.

This time we designed, manufactured, tested and shipped to 64 m superyacht a set of Viton MAC-F Series Expansion Joints. Due to an emergency at the shipyard we manufactured these units, including ABS certification in a record time of 4 days.

Our Viton Expansion Joints have a good flame resistance, resistance to oxygen, ozone and natural weathering and they are good for high concentrated chemicals up to 150 °C, hydrocarbons, aliphatic, aromatic and chlorinated chemicals. Good resistance to acids and alkali's including oxidants. Good resistance to chemicals, oils, combustibles and solvents.

In addition to luxury ships, MACOGA supplies Expansion Joints and provides technical assistance to countless clients in the naval sector, such as ships from different navies in the world, submarines, cruises, fishing boats, etc.





MACOGA EXPANSION JOINTS FOR OLEFIN PLANT AND POWER PLANT IN THE REPUBLIC OF TATARSTAN IN THE RUSSIAN FEDERATION

We have successfully designed, manufactured and tested a Pressure Balanced Expansion Joint DN1350, a Rectangular Expansion Joint DN 2470 x 925 and a Universal Untied DN1200 for PJSC Nizhnekamskneftekhim, one of Europe's largest petrochemical companies.

Linde is engaged in the ethylene complex, Siemens is building 495-MW combined cycle power plant on a turnkey basis at the same site where the Expansion Joints will be installed.





PRESSURE BALANCED EXPANSION JOINTS FOR ASSIUT SUPERCRITICAL POWER STATION

Two Elbow Pressure Balanced DN 2000 (80") and 6530 mm (257") long have been successfully designed, manufactured, tested and shipped for a Assiut Supercritical Power Plant 1x650 MW Steam Power Station in Egypt.

A pressure balanced expansion joint accommodates axial and lateral movements and counteracts the bellows pressure thrust. An additional bellows is incorporated into the unit and is subject to the line pressure to generate a force equal and opposite to that on the main bellows. Tying these bellows together neutralises the pressure load on the unit.





EXPANSION JOINTS FOR PETROPERU TALARA REFINERY, PERU

Large size single unrestrained MFW Series DN2800 Expansion Joints have been successfully designed, manufactured and tested for Petroperu Talara Refinery in Peru.

These expansion joints are made of one single bellows element with end connections.

Regardless of accessories, such as liners and covers, this model absorbs all the movements in any one length of piping but it is mainly used to absorb axial movements.

It does not restrain pressure thrust so adequate anchors and guides must be provided and they can be used only in piping systems that incorporate correctly designed anchors and pipe alignment guides.





42" FCC EXPANSION JOINT FOR PARTICULATE EMISSIONS REDUCTION PROJECT FOR EUROPEAN REFINERY

We have successfully designed, manufactured and tested a Universal Untied 42" FCCU Expansion Joint for Particulate Emissions Reduction Project in Europe.

The FCC (Fluid Catalytic Cracking) unit is used to transform diesel and other components from atmospheric distillation into lighter, higher quality products for final fuel processing.

The Refinery will invest 69 million euros in reducing CO₂ and particle emissions to the atmosphere. According to the company, the objectives are the improvement of quality and energy and environmental efficiency in the processes of the refinery.

This air quality improvement project aims to reduce the emissions of particles into the atmosphere of the FCC unit, making technological improvements to the plant and adapting it to the latest existing European regulations.

Mechanical design, parameters and features of the FCC expansion joint supplied are:

- Universal expansion joint – Pantograph Design
- DN 1000 mm (42") - Length: 3900 mm
- SB-443 N06625 LCF Inconel 625 LCF bellows – 2 ply testable – Sealed system SS309
- SS304 Hardware
- Design Pressure: 3.72 barg / Design Temperature: Bellows 535 °
- Medium: Flue Gas





MACOGA DELIVERS EXPANSION JOINTS FOR 4.26 MWE CONCENTRATED SOLAR PLANT IN SICILY

The sun radiation is the main energy resource of our planet, and several technologies are currently available to exploit it, among them the Concentrated Solar Power (CSP) is very important.

The sun rays are concentrated by special mirrors on a receiver, heating a vector fluid made by molten salts up to ~550 C°. The vector fluid transfers the heat to the steam cycle that produces electricity by a Steam Turbine. The vector fluid can also be stored in special tanks at high temperature allowing the production of energy even in the absence of sun.

The plant will be located in the Partanna Municipality in Sicily and will occupy about 110,000 m², the surface of the mirrors will be 83,200 m².

The steam turbine power size will be 4.26 MWe. The thermal energy storage will have a capacity of 15-hour operation and the annual energy production will be around 19 GWe.

Mechanical design, parameters and features of the expansion joint supplied are:

- Type: Elbow Pressure Balanced MPB-E
- Size: 1200 mm
- Design Pressure: 0,5 barg
- Temperature: +120 °C
- Type: Universal Tied MWL
- Size: 660 mm
- Design Pressure: 0,5 barg
- Temperature: +120 °C





HIGH PRESSURE MAC-F2 RUBBER EXPANSION JOINTS FOR RABIGH-JEDDAH/MAKKAH WATER TRANSMISSION SYSTEM IN SAUDI ARABIA

The Rabigh – Jeddah/Makkah Al-Mokarrah Water Transmission System is one of the largest transport systems for drinking water.

A total about 450-kilometer pipeline would be constructed for the project with diameters of pipe varying from 10 inches to 80 inches.

This time we have designed, manufactured and tested a very large number of high-quality custom made double arch unrestrained expansion joints consisting of a EPDM Drinking Water rubber bellow incorporating full face rubber flanges and metal backing flanges.

A Rubber Expansion Joint is flexible connector fabricated of natural or synthetic elastomers, fluoroplastics and fabrics and, if necessary, metallic reinforcements used to absorb movements in a piping system while containing pressure and a medium running through it.

MACOGA rubber expansion joints are designed following the guidelines of the FSA (Fluid Sealing Association) Non-Metallic Expansion Joints Technical Handbook, ASTM F1123 - 87 Standard Specification for Non-Metallic Expansion Joints and always complying with the European Pressure Equipment Directive 2014/68/UE for the specified operating conditions.





PREMIUM SERVICE DELIVERY FOR NITRATES / FERTILIZERS PLANT IN AUSTRALIA

A Universal Tied MWL Series Expansion Joint DN 1200 (48") completely made in stainless steel and Alloy materials have been manufactured in a record time of 5 days and shipped to Australia by air-freight. The fertilizers plant is one of the largest ammonia production sites in the world and exports ammonia to global markets to help feed the world.

In an emergency situation, MACOGA will mobilize a production team at our facilities and a team of trained and experienced personnel to immediately travel to customer's plant within hours anywhere in the world.

This Premium tool is the most reliable and efficient solution for those customers who require Expansion Joints in a record time.

Mechanical design, parameters and features of the expansion joint supplied are:

- Type: Universal Tied MWL Series
- NB: 1200 (48")
- Length: 2000 mm
- Design Pressure: 5.5 Barg (80 PSIG)
- Test Pressure: 16,18 Barg (235 PSIG)
- Operating temperature: 535 °C (995 °F)
- Multiply bellows in SB424-08825 Alloy 825



GLOBAL PRESENCE WORLD-CLASS COMMITMENT

Our expansion joints are present in more than 90 countries across all continents performing demanding tasks. MACOGA is always ready to provide support exceeding customer expectations.

We are conveniently located in NW Spain near two international airports (SCQ and LCG) and two deepwater oceanic sea ports (Vigo and La Coruna).