



M'News

Issue No.21

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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MAC-FT RUBBER EXPANSION JOINTS FOR POWER PLANT IN NORTH AFRICA

A large number of MAC-FT Series Rubber Expansion Joints from DN 1600 mm (65") and DN 2400 mm (94.5) have been successfully designed, manufactured, tested and shipped for the biggest and most efficient thermal plant in the area.

The high quality custom-made expansion joints were supplied with fixed steel backing flanges, gussets and tie rods. The full-face flanges are integral with the body of the joint and drilled to conform the bolt pattern of the companion flanges of the pipe line.

The main design and construction details of these unit are:

- Medium: River water
- Design Pressure: 4.5 barg / FV
- Test Pressure: 6,75 barg
- Design Temperature: 120 °C
- Axial movement: - 40/+30 mm
- Lateral movement: 30 mm
- Angular movement: 0.5 deg
- Bellows: EPDM HT

The rubber bellows have been manufactured from high quality reinforced EPDM HT. Our Special EPDM HT rubber compound is suitable for high temperature up to 140 °C applications without hardening. Weather-resistant, good gas tightness, resistant to attack by oxygen, U.V., ozone and extreme weather environments.





METALLIC EXPANSION JOINTS WITH OUTER PTFE FABRIC PROTECTION COVER FOR A US STEEL PLANT

A very special set of Expansion Joints have been designed and manufactured at MACOGA.

In addition to the metal expansion joint, these units incorporate a textile outer cover in PTFE. The purpose of this cover is to protect plant personnel in case of leakage of medium.

Bellows include secondary flexible outer wrap with provision for pressurizing between bellows and outer wrap with nitrogen.





EMERGENCY REFURBISHING OF FCC JOINT FOR EUROPEAN REFINERY

An FCC In-Line Pressure Balanced Expansion have been revamped in a record time at MACOGA facilities during the refinery turnaround.

In only a few days, MACOGA team have performed a very successful revamping work on an In-Line Pressure Balanced Expansion DN1000 (39") FCC Expansion Joint.

The main works consisted on:

- Replacement of old bellows and installation of complete set of new bellows with the same dimensions and features of the existing ones. Material of these bellows ASTM B443 Inconel 625 LCF.
- Complete set of internal insulation (Super Wool Blanket) and sealing system.
- Replacement of damaged pipes.
- Replacement of the external covers.
- Change of balancing pipe.
- X Ray and PT Testing on all new welds.
- Pressure Test.





MACOGA ON-SITE TEAM PROVIDES OUTSTANDING FCC EXPANSION JOINTS INSPECTION AND INSTALLATION

MACOGA offers its customers in the oil and gas, refinery and petrochemical industries a complete field service package.

We provide a professional variety of site services including installation, supervision of installation and inspection that minimize risks of unplanned shut-downs and help to avoid failures and breakdowns.

This time our team has successfully completed the installation of nine units FCC Expansion Joints for one of the most important refineries in Europe.

During the 2019 turnaround, one of our FCC specialists engineer along with four of our best welders have worked tirelessly for three weeks to successfully complete the assembly of nine high-tech FCC expansion joints.

All assembled units have been manufactured and delivered by MACOGA to the refinery well before the turnaround.

The installed FCC Expansion Joints have been the following:

- 1 unit Spent Regenerated Standpipe Expansion Joint
- 1 unit Reactor Standpipe Expansion Joint
- 1 unit Spent Catalyst Standpipe
- 1 unit Regenerated Catalyst Standpipe
- 2 units Hinged Expansion Joint Cold Wall
- 2 units Flue Gas Double Gimbal Cold Wall
- 1 unit Hinged Expansion Joint Cold Wal

Our site team is trained and consists of qualified welders, technicians and engineers who worked in plants and refineries worldwide. Thanks to our many years of experience in manufacturing and installing FCCU Expansion Joints we know what matters.

If you need help with your FCC Expansion Joints when planning and executing a shut-down or plant turnaround, call or e-mail us with your requirements, and our team will offer solutions and further guidance.





MACOGA DELIVERS EXPANSION JOINTS TO WASTE TO ENERGY PLANT IN BELGIUM

MACOGA was awarded the contract for the design, manufacturing and testing of four units Universal Tied and Hinged Expansion Joints DN1800 (70") and one Dog Bone Tied Expansion Joints DN 3000 (118") for a WtE power plant in Beringen Belgium.

The power plant aims to handle 200.000 tons of residential and similar waste by means of the best available techniques.

The new biosteam power plant in Beringen produces renewable heat energy, that will be injected in a new to build heat network of which neighboring companies will be able to profit. With the neighboring petrochemical company Borealis the heat energy net will already have an important client.





FCC COOLED CATALYST LIFT RISER GIMBAL AND COOLED CATALYST STANDPIPE HINGED EXPANSION JOINTS FOR MIDDLE EAST REFINERY

The scope of supply included complete detail design, fabrication, preparation and application of refractory linings and testing in accordance with UOP project & standard specifications.

Design parameters and features of the FCC expansion joints supplied are:

- Cooled Catalyst Lift Riser Expansion Joint
 - Single Hinged
 - N.D. 900 mm - Length: 1542 mm
 - Inconel 625 LCF bellows – 2 ply testable
 - Sealed system SS309
 - Abrasion lining RESCO AA 22S
 - Refractory lining RESCO RS 17 EC
 - Hexagonal Mesh 410S as per UOP 3-25
 - Design Pressure: 4.51 barg
 - Temperature: 538 °C Bellows - 343 °C Pipe – 700 °C Medium (MDMT +5°C)
 - Medium: Catalyst
- Cooled Catalyst Lift Riser Expansion Joint
 - Double Gimbal
 - N.D. 940 mm - Length: 3205 mm
 - Inconel 625 LCF bellows – 2 ply testable
 - Sealed system SS309
 - Abrasion lining RESCO AA 22S
 - Refractory lining RESCO RS 17 EC
 - Hexagonal Mesh 410S as per UOP 3-25
 - Design Pressure: 4.51 barg
 - Temperature: 538 °C Bellows - 343 °C Pipe – 700 °C Medium (MDMT +5°C)
 - Medium: Catalyst





MACOGA SUPPLIES HIGH-TECH EXPANSION JOINT FOR SABIC

Ranked among the world's largest petrochemicals manufacturers, SABIC is a public company based in Riyadh, Saudi Arabia. SABIC is a Saudi diversified manufacturing company, active in petrochemicals, chemicals, industrial polymers, fertilizers, and metals. It is the largest public company in the Middle East and Saudi Arabia. 70% of SABIC's shares are owned by Saudi Aramco.

MACOGA provides the client with the design, engineering, manufacturing, inspection, testing and packing of a Universal Restrained Expansion Joint DN-1000 (40") and 5373 mm (211.5") long. The Expansion Joint, designed for 3.8 barg and 500 °C incorporates a specially designed tie rod system.





DOUBLE GIMBAL AND PRESSURE BALANCED EXPANSION JOINTS FOR EUROPE'S LEADING STEEL PRODUCER

We have designed, manufactured, tested and shipped several high-tech Double Gimbal, Pressure Balanced, Universal Restrained and single Hinged Expansion Joints for Europe's leading steel producer.

Double Gimbal: Designed to absorb lateral and angular movements in any direction. This model is made up of two bellows joined together by a linking pipe and a double cardan system.

A double gimbal expansion joint is basically a two single gimbal expansion joints and an intermediate pipe that joins them. This type of Expansion Joint can absorb a large lateral movement in any plane and angular movement in any direction.

Pressure Balanced: 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.

This particular type of Expansion Joint offers the additional advantage of not transferring the thrust caused by the internal pressure to the pipes or adjacent equipment. This characteristic is especially important when it comes to joining the pipes to turbines or other delicate equipment which, by their nature, are unable to withstand these extra loads.





ELBOW PRESSURE BALANCED EXPANSION JOINTS FOR SUPERCRITICAL POWER PLANT IN NORTH AFRICA

Two Elbow Pressure Balanced DN 2000 (80") and 6530 mm (257") long have been successfully designed, manufactured, tested and shipped for a Power Plant in North Africa.

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.





MACOGA PROVIDES FCC EXPANSION JOINTS FOR NORTH EUROPEAN REFINERY 2019 TURNAROUND

The MACOGA scope of supply included complete detail design, fabrication, preparation and application of refractory linings and testing in accordance with UOP standards and project specifications.

Design parameters and features of the FCC expansion joints supplied are:

Spent catalyst standpipe

- Universal untied expansion joint – pantograph design – hot wall
- O.D. 1290 mm - Length: 2400 mm
- Inconel 625 LCF bellows – 2 ply testable – Sealed system SS309
- Abrasion lining RESCO A22S (UOP 3-25)
- Hexagonal Mesh 410S as per UOP 3-25
- Design Pressure: 5.03 barg / Design Temperature: Bellows 538 °C – 566 °C Pipe
- Medium: Catalyst

Regenerated catalyst standpipe

- Universal expansion joint – pantograph design – cold wall
- I.D. 1164 mm - Length: 4900 mm
- Inconel 625 LCF bellows – 2 ply testable – Sealed system SS309
- Abrasion lining RESCO A22S (UOP 3-25)
- Refractory lining RESCO RS17 EC
- Hexagonal Mesh 410S as per UOP 3-25
- Design Pressure: 6.0 barg / Design Temperature: Bellows 538 °C – 343 °C Pipe
- Medium: Catalyst

Hinged Expansion Joints Cold Wall Flue Gas to Boiler

- I.D. 2409 mm - Length: 2215 mm
- Inconel 625 LCF bellows – 1 ply
- Abrasion lining RESCO A22S (UOP 3-25)
- Refractory lining RESCO RS17 EC
- Hexagonal Mesh 410S as per UOP 3-25
- Design Pressure: 0.86 barg / Design Temperature: Bellows 560 °C – 350 °C Pipe

- Medium: Flue Gas/Fluid
- Flue Gas Double Gimbal Cold Wall
- I.D. 2409 Length: 5000 mm
- Inconel 625 LCF bellows – 1 ply
- Abrasion lining RESCO A22S (UOP 3-25)
- Refractory lining RESCO RS17 EC
- Hexagonal Mesh 410S as per UOP 3-25
- Design Pressure: 0.86 barg / Design Temperature: Bellows 560 °C – 350 °C Pipe
- Medium: Flue Gas

Hinged Expansion Joint Cold Wall

- I.D. 2409 I.D. 2409 mm - Length: 2241 mm
- Inconel 625 LCF bellows – 1 ply
- Abrasion lining RESCO A22S (UOP 3-25)
- Refractory lining RESCO RS17 EC
- Hexagonal Mesh 410S as per UOP 3-25
- Design Pressure: 0.25 barg / Design Temperature: Bellows 560 °C – 350 °C Pipe
- Medium: Flue Gas

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).