



MANOIR INDUSTRIES



## Manoir AlloyServices International Welding Team

**Manoir AlloyServices**

TECHNICAL SERVICES TO INCREASE MAINTENANCE PERFORMANCE



Welding high alloys, when they are new, but even more so, when they are aged, require some skills.

Manoir Industries can offer assistance on site to its valuable customers who require specific welding operations to be performed in an emergency.

If you experience difficulties in the welding of new or aged alloys or if you simply require some assistance in the training and / or supervision of your own team, AlloyServices can help you.

### This service includes:

- All welding operations using TIG or SMAW techniques according to ASME IX, ISO 15614 and EN 287-1
- Welding assistance / training
- Welding supervision

Thanks to our global team of highly qualified and experienced welders, we can intervene 24/7 worldwide and can be on site within 2 days (visa permitting).

Please contact your Manoir Sales Manager or Agent for further information and rates.



Manoir Petrochem & Nuclear Business Unit  
Pitres, France - Burton-on-Trent, UK - Chennai, India - Yantai, China

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## Manoir Alloy Services Reformer tube life assessment

**Manoir Alloy Services**

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Manoir Industries offers to its valuable customers a special assistance to assess the estimated remaining life time of their reformer tubes.

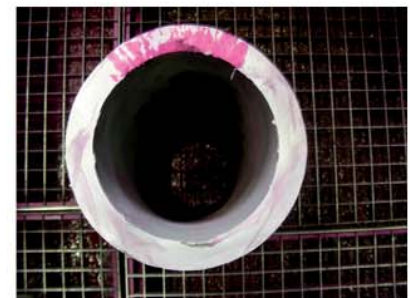
As such, and upon receipt of a 200 mm long tube sample, Manoir Industries proposes to conduct the following examinations per tube sample:

- Visual and dimensional inspection to assess the extent of bulging,
- Chemical analysis check by optical emission spectrometer,
- Destructive testing according to the ASTM A370,
- Creep test according to the ASTM A370,
- Metallographic analysis (creep damage assessment) done by optical microscope, SEM and image analysis.



All the results will be included in a comprehensive expertise report which will contain all the results of the above mentioned analysis including a diagnosis on the condition of the tubes.

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## Non destructive Carburization measurement device

**Manoir Alloy Services**

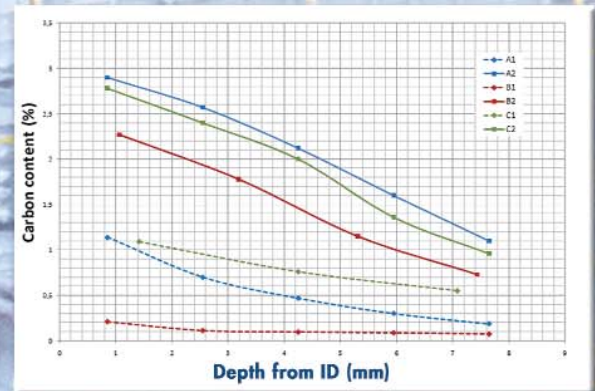
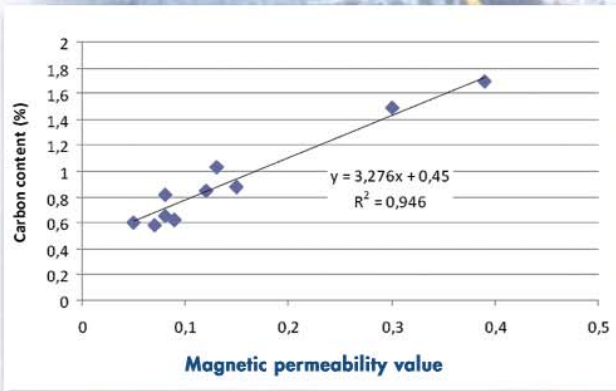
TECHNICAL SERVICES TO INCREASE MAINTENANCE PERFORMANCE



Manoir Industries offers to its valuable ethylene customers, an assistance in their preventive maintenance operations.

Upon request, Manoir can provide the furnace maintenance teams with 2 different types of carburization measurement devices, "Sigmameter" & "Inductance Meter". These apparatus work with magnetic permeability.

This non destructive test is easy to implement and use. The devices can be sent together with a comprehensive user and interpretation guide, and in case of any additional help you may require, our experts will assist you accordingly.



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## Steam cracking damaged tube analysis



Manoir Industries offers to its valuable customers a special assistance to assess the tubes failure root causes.

As such, Manoir Industries proposes to conduct the following examinations upon receipt of a 200 mm tube sample:

- Visual and dimensional check to assess the extent of bulging,
- Chemical analysis check by optical emission spectrometer,
- Corrosion and carburization analysis to assess the carburization depth but also the carbon content,
- Destructive testing according to the ASTM A370,
- Creep test according to the ASTM A370,
- Metallographic analysis to assess carbides coalescence (macro & micrography),
- EDX analysis as an option if necessary.

All the results will be included in a comprehensive expertise report which will contain all the results of the above mentioned analysis including a detailed explanation of the possible root causes of the tube failure.

This will allow your maintenance teams to accurately know the extent of the damage of your tubes and help plan revamps accordingly.

Please contact your Manoir Sales Manager or Agent for further information and rates.



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## Manoir expands its offer of Petrochemical services

Manoir Industries, the leading producer of integrated high alloy solutions for the Petrochemical industry, is launching AlloyServices, a complete set of services to help its clients in their continuous effort to improve the performance of their operations worldwide:

- **International Welding Team:** Provides clients globally with any welding operation, assistance, training, supervision through a Team of highly qualified and experienced welders available 24/7 for world-wide on-site intervention.
- **Reformer tube life assessment:** Complete tube sample analysis (Visual and dimensional inspection, Chemical analysis, Destructive testing, Creep test, Metallographic analysis). Tubes condition and recommendations are provided through a comprehensive report qualified by our technical experts.
- **Steam cracking Carburization measurement:** Two different exclusive devices developed by Manoir Industries will enable Maintenance teams to assess the carburization damage level of their tubes. Manoir technical experts available to propose innovative technical solutions to reduce coke deposit and increase run length and tubes life time.
- **Steam cracking damaged tube analysis:** Complete tube sample analysis (Visual and dimensional inspection, Chemical analysis, Corrosion and Carburization, Destructive testing, Creep test, Metallographic analysis, EDX). Detailed explanations of the possible root causes of the tube failure through a comprehensive Expertise Report.

AlloyServices are available on a worldwide basis to all Manoir Clients or to potential Clients. Please contact the Manoir Team for further information.

*For more than 40 years, Manoir Industries is the leading manufacturer of high heat resistant alloys dedicated to the petrochemical industry (steam cracking, steam reforming, DRI). Thanks to the most internationalized manufacturing network in the market (France, UK, India, China), Manoir Industries serves a world-wide customer base with the most integrated range of products (tubes, collectors, tube sheets).*

*Having introduced the micro-alloying, Manoir industries has constantly improved the performance of its products by developing new high-grade materials and technologies. The latest XO alloys (increasing cracking tube life by 40% and extending production runs) and XMR (allowing reformer tube cost reduction through 15% weight saving for the same tube life) are now references in the Petrochemical industry.*

