



# MACCHI

STEAM & POWER GENERATION

a division of **Sofinter**

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## in the Energy Evolution

### Customized Thermal-Systems for Oil & Gas and Petrochemical Industry Solutions

Today's projects live in an environment of very severe cost, time and environmental limitations.

In the Project planning phases, it is of vital importance to carefully choose the Boilers, one of the most critical and important pieces of equipment, of all, in the Oil & Gas and Petrochemical industrial complexes.

In the largest plants, environmentally compliant Continued Cycle Operation Equipment is essential for profitable operations.

MACCHI has provided, provides and will provide certainty with its Future-Ready, Customized Thermal-Systems.

#### Recognized Steady Performance

- Intensive in-house R&D, as well as at SOFINTER CCA Srl – the largest Combustion R&D European Center – allows for BAT Energy Efficiency & Emissions
- Recognized technological excellence of MACCHI Boilers make them a safer choice for plant's profitability

#### Customized Engineering Approach

- MACCHI provides customized, integrated boiler and combustion system solutions
- MACCHI Plug & Play deliveries optimize cost and time reduction for the fastest Time-To-Steam-Production

#### Wide Operation Experience

- Since 1959, MACCHI provided more than 1000 units installed in over 60 countries
- MACCHI Capabilities are suitable for Very Large Size Projects, proven by a wide track record





**No. 4 MVF Industrial Boilers**

each rated 363 t/h

42 bara, 355°C

Fuel Gas Firing

Libya

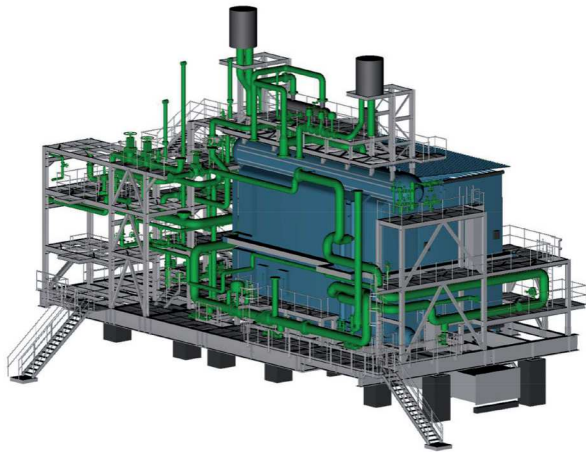
# INDUSTRIAL BOILERS

For the largest Oil & Gas and Petrochemical Plants

## TITAN M

### Package Boiler

- Steam capacity up to **300 t/h – 660,000 lb/h**
- Steam op. pressure up to **110 barg – 1,600 psig**
- Steam op. temperature up to **520 °C – 970 °F**
- Gas, Oil & Crude Oil fired



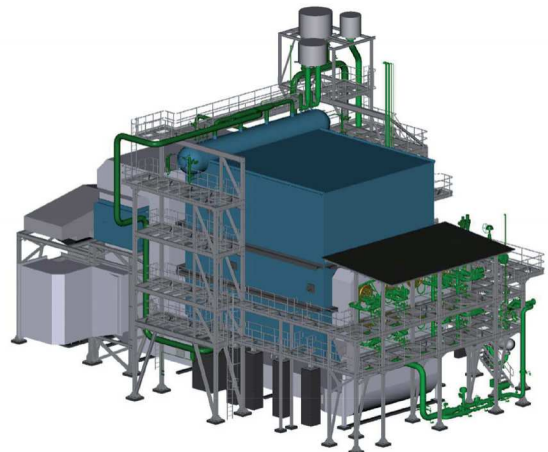
#### MAIN FEATURES

- Bidrum** type
- Natural** circulation
- Horizontal** gas path
- Bottom** supported

## MVF

### Vertical Gas Flow Boiler

- Steam capacity up to **500 t/h – 1,100,000 lb/h**
- Steam op. pressure up to **110 barg – 1,600 psig**
- Steam op. temperature up to **520 °C – 970 °F**
- Gas, Oil & Crude Oil fired



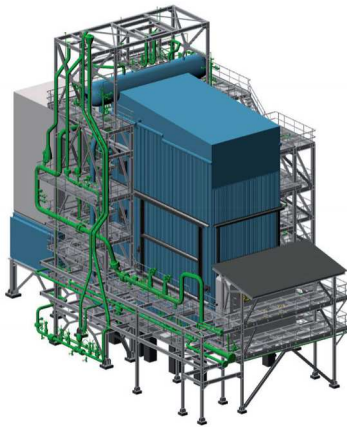
#### MAIN FEATURES

- Bidrum** type
- Natural** circulation
- Vertical** gas path
- Bottom** supported

# MRD

## HHP Radiant Boiler

- Steam capacity up to **600 t/h – 1,300,000 lb/h**
- Steam op. pressure up to **140 barg – 2,030 psig**
- Steam op. temperature up to **540 °C – 1,005 °F**
- Gas, Oil & Crude Oil fired

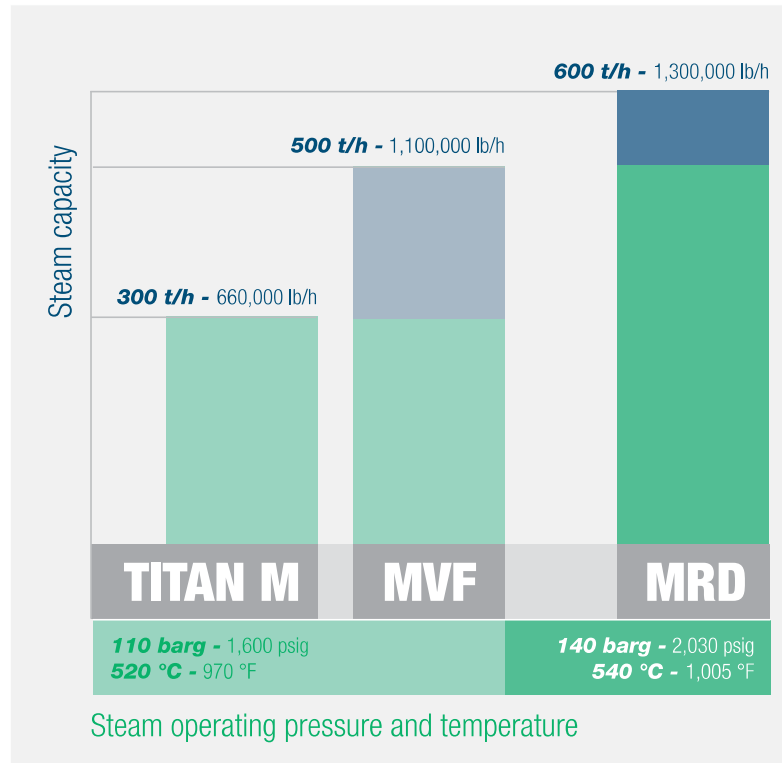


### MAIN FEATURES

**Radiant** boiler  
**Single drum** type  
**Fully-welded**

**Natural** circulation  
**Vertical** gas path  
**Bottom** or **top** supported

## COMPARATIVE TABLE



# HEAT RECOVERY STEAM GENERATORS

For the largest Oil & Gas and Petrochemical Plants

## HRSG

Downstream Gas Turbine

- Steam capacity up to **300 t/h – 660,000 lb/h**
- Steam op. pressure up to **140 barg – 2,030 psig**
- Steam op. temperature up to **520 °C – 970 °F**

### MAIN FEATURES

**Horizontal** and **Vertical** design

**Natural** circulation and **Assisted** circulation

**Multiple** pressure levels

**Supplementary** and **Fresh-Air** firing mode  
with **Automatic Changeover**

## WHB

for Industrial Process  
Heat Recovery

- Steam capacity up to **300 t/h – 660,000 lb/h**
- Steam op. pressure up to **140 barg – 2,030 psig**
- Steam op. temperature up to **520 °C – 970 °F**

### MAIN FEATURES

**Horizontal** and **Vertical** design

**Natural** circulation and **Assisted** circulation





**No. 1 HRSG**  
behind 40 MW GT  
Malaysia





**No. 6 TITAN M Boilers,**

**Plug & Play Delivery**

each rated 173 t/h

65 bara, 460°C

Fuel Oil / Gas Firing

Kuwait

# MODULARIZATION

## Degree of pre-fabrication

MACCHI provides different modularization solutions based on time, cost and logistic constraints.

MACCHI «Plug & Play» delivery solutions enable a more streamlined site management and coordination thanks to an almost complete pre-assembly and hydro-test of the Boilers.

«Plug & Play» modularization degree grant the following advantages at the Construction site:

- Reduced storage periods / costs
- Decreased traffic and congestion
- Reduced unfavourable weather contingency
- Reduced Erection Costs



# OFFSHORE THERMAL SYSTEMS

## Steam For Offshore Oil&Gas Production

On demand, MACCHI provides Turn-key Industrial Boilers – firing Gas, Oil and Crude Oil – and Integrated Heat Recovery Modules suitable for Offshore Applications, including:

- Fixed Production Platforms
- Floating Production Storage and Offloading Platforms (FPSO's)
- Floating Liquefied Natural Gas Platforms (FLNG's)



### **No. 2 HRSG Modules**

Direct installation  
on existing platform  
in North Sea



# BOILER SERVICES

SOFINTER Group offers a full range of boiler services, spanning from full Rehabilitations to Spare Parts procurement.

## Regulations & Environment

### Emission

- Low Emission Burners
- In-Furnace Emission Reduction Systems

## Operation

### Flexibility

- Fuel Conversions & Multi-Fuel Applications
- Flexible Load & Cycling Mode Adjustments

### Availability

- Pressure Part Replacement
- Material Change

### Efficiency

- Combustion Optimization
- Efficiency Improvement

### Performance

- Restoration to Design Output
- Steam Flow Increase, Boiler Up-Grade

## Maintenance

### Reliability

- OEM Spare Part Manufacturing
- Spare Part Supply Management

### Intervention

- Failure Analysis & Improvement Studies
- Material & Design Modifications

### Improvement

- Inspection, Diagnostics & Expertise
- Outage Planning, Repairs, Supervision

## Lifecycle

### Status Extension

- Equipment Condition Analysis
- Remaining Lifetime Assessment
- Full Rehabilitation Projects

### Experience & Expertise

- Supervision of Erection, Commissioning & Start-Up
- Operator Training

# MACCHI

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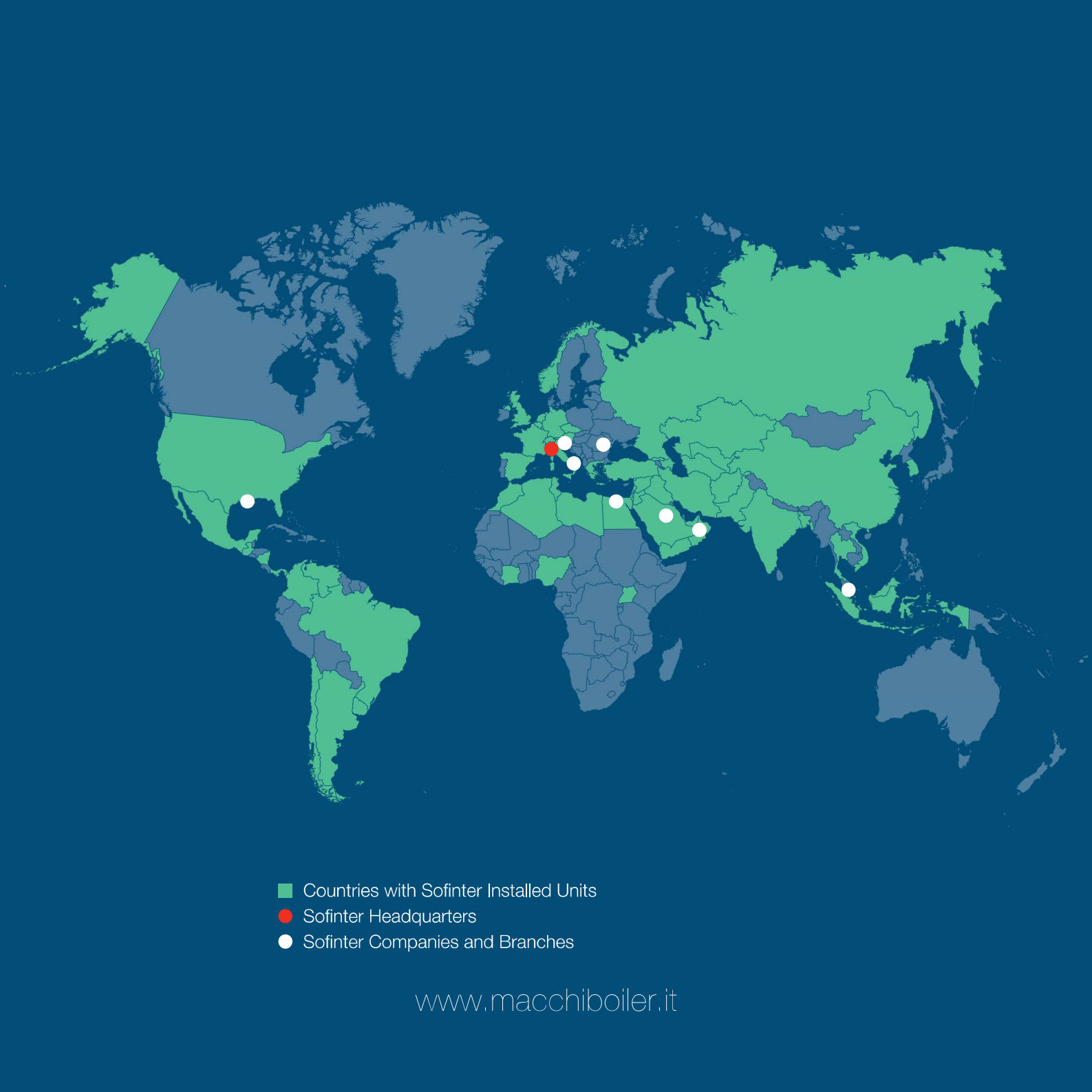
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- Countries with Sofinter Installed Units
- Sofinter Headquarters
- Sofinter Companies and Branches

[www.macchiboiler.it](http://www.macchiboiler.it)