

*POWER
AND
INDUSTRIAL
PLANTS*

*GAS TURBINE
HEAT
RECOVERY
STEAM
GENERATORS*



RSTF *Boilers*

LOOKING TO THE FUTURE

RSTF *Boilers*



Cassano D'Adda GR6 Power Plant -Italy

HEAT RECOVERY STEAM GENERATORS

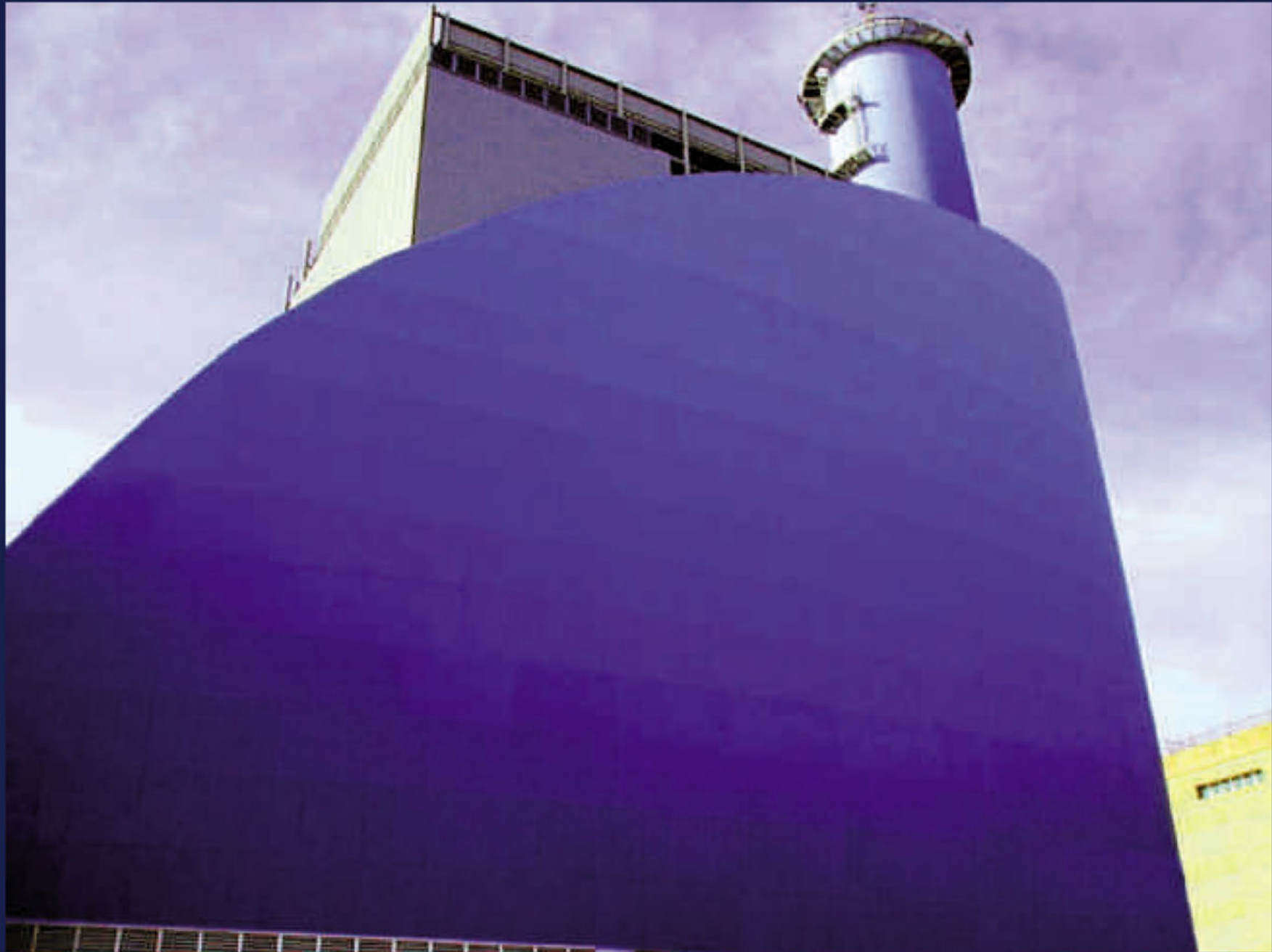
STF Heat Recovery Steam Generators (HRSG) include both natural circulation and assisted circulation steam generators, designed in accordance to our in-house developed technology and are fully tailored to meet any Client requirement.

HRSG's can be manufactured, delivered, erected and commissioned as turn-key units, keeping up with continuous improvements in engineering, prefabrication and erection technologies enhanced by a continuous attention at meeting Client's expectations in relationship to:

- *all specific requirements to grant quality and safety oriented design;*
- *full compliance with applicable Standards and Codes, good engineering practice, contractual conditions;*
- *on time erection, commissioning, startup;*
- *easy operation and maintenance;*
- *control of boiler emissions in respect of local environmental conditions;*
- *reliable post service assistance.*

STF can also supply once through HRSG.

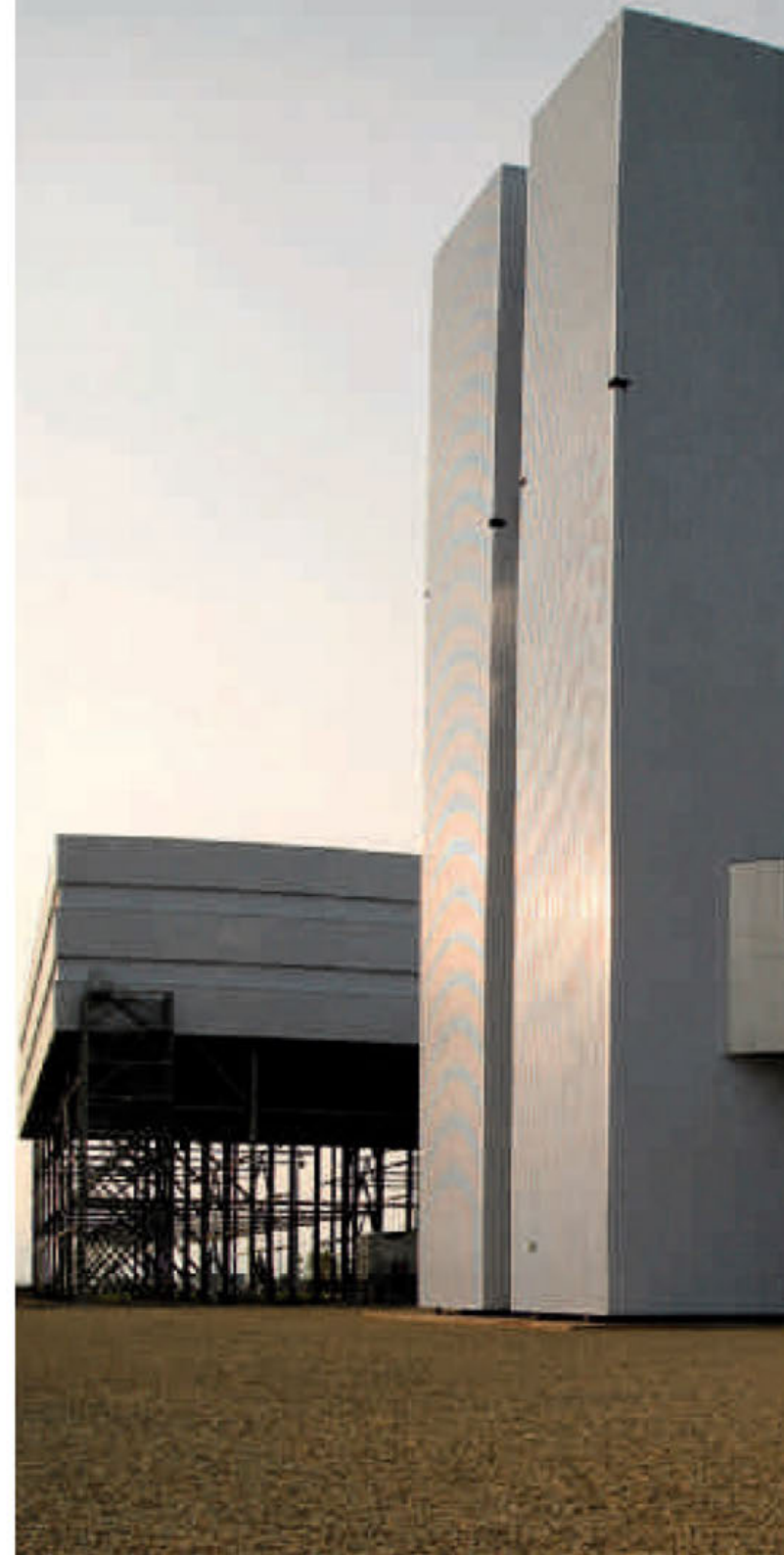




Napoli Levante Power Plant - Italy

BASIC TECHNICAL FEATURES

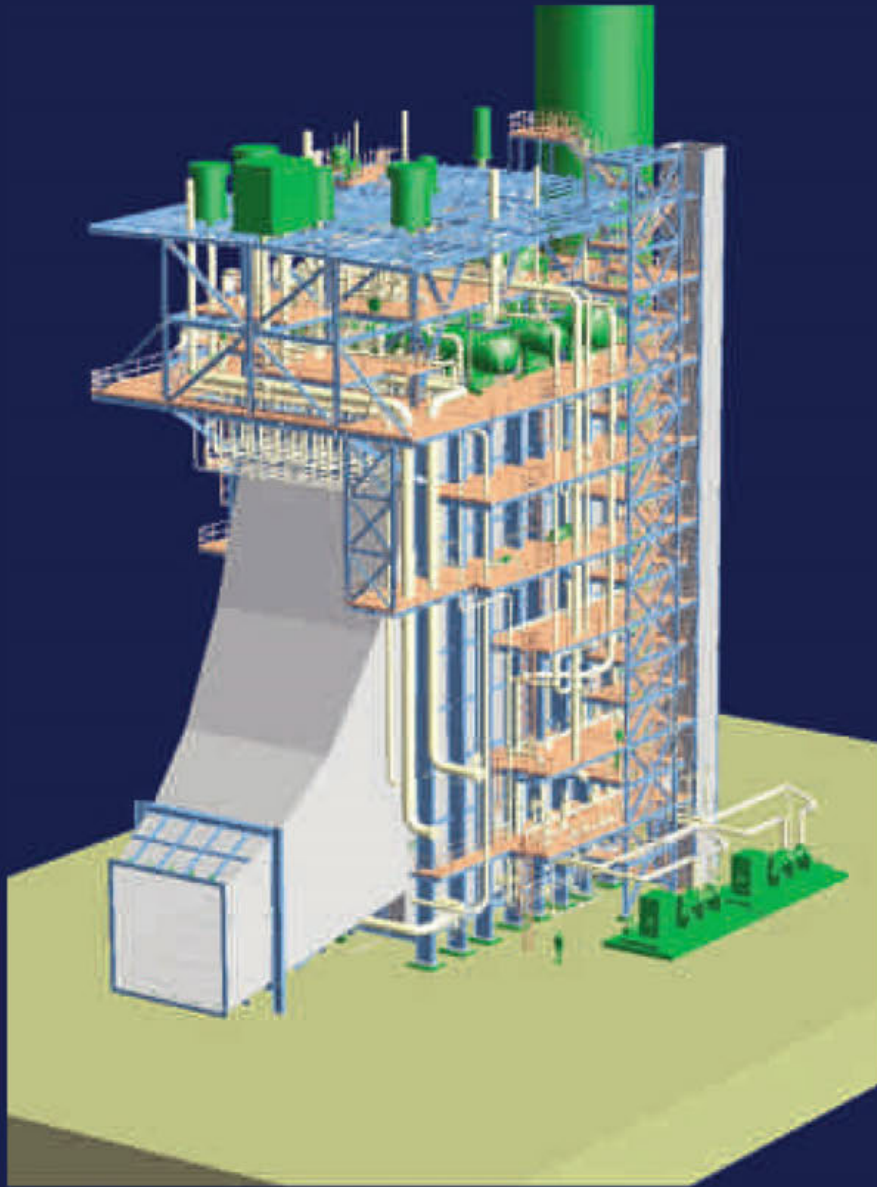
- *Horizontal / vertical type*
- *Natural / assisted circulation*
- *One, two, three pressure levels with / without reheat*
- *Top supported heat exchange bundles*
- *Cold / hot casing design*
- *Post-firing / fresh air firing system*
- *Solid / serrated fin tubes*
- *In-line / staggered tubes arrangement*
- *Inter-stage / final desuperheater for high pressure superheated steam and reheated steam*
- *Integral / external deaerator*
- *Modular design or loose harps erection system*
- *By-pass stack*
- *Main stack provided with stack damper and silencer*





Livorno Ferraris Power Plant - Italy

FROM PROJECT



3D Model - Termini Imerese Power Plant - Italy

Termini Imerese Power Plant - Italy



TO INSTALLATION

WIDE – RANGE VERSATILITY

All HRSG's supplied by STF suit every combination of power requirements, heat and operational needs as requested by Client.

Steam generated by Heat Recovery Steam Generators in a Combined Cycle Plant or in a Co-generation Plant may be used to run a steam turbine, to feed any specific process of the Plant or a combination of both.

HRSG design from STF offers compact, adaptable systems for the widest range of heat recovery requirements through the provision of key features like an extended tubing surface. The steam quality is assured by reliable design of steam drums and internals (Primary Horizontal Cyclones and Integral Chevron Dryers), easy to be installed and removed, which provide dry steam to the super-heater sections and steam free water to the down-comer system of the boiler.



Tavazzano Power Plant - Italy



Cassano D'Adda GR5 Power Plant - Italy



Piacenza Power Plant - Italy

HRSG DESIGN





RELIABLE THERMAL and MECHANICAL PERFORMANCE



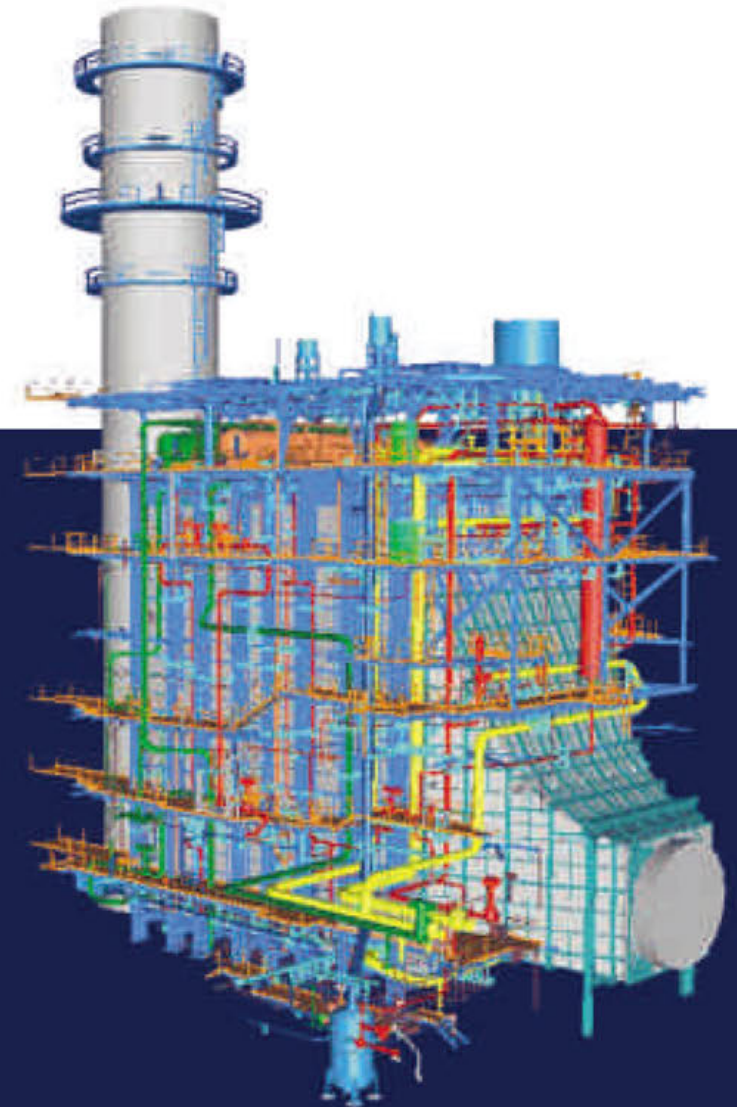
Porto Corsini Power Plant - Italy

Improving fuel efficiency has become a stringent economic necessity in every industrial solution.

The incorporation of an efficient Heat Recovery Steam Generators in gas turbine powered installations, like combined cycles, or in co-generation plants is a key factor and solution for a better use of the energy that can be recovered from the exhaust flue gas of a gas turbine

SOLUTION for CYCLING OPERATION and FAST START-UP TIME

- *Once through boiler suitable for faster start-up*
- *Highest insulation level to minimize heat waste*
- *Accurate mechanical design to minimize thermal stress*
- *Quick start-up functional systems*



COMPLETE ERECTION and COMMISSIONING



- *Highest levels of quality control during manufacturing of HRSG components*
- *Suitable packing, shipping, delivery of materials at site, eased by an accurate preparation of shipping documents*
- *Dedicated instructions for storage and preservation of materials delivered at site and when erected*
- *High degree of prefabrication of boiler main components*
- *Proper handling and erection sequence of materials, especial casing panels, harps and/or tube bundles, piping, instrumentation*
- *Full compliance to quality control and quality assurance standards and tests at site, including preparation of documentation of testing certification*
- *High degree of insulation/cladding and painting activities in relationship to harshness of local environmental conditions*



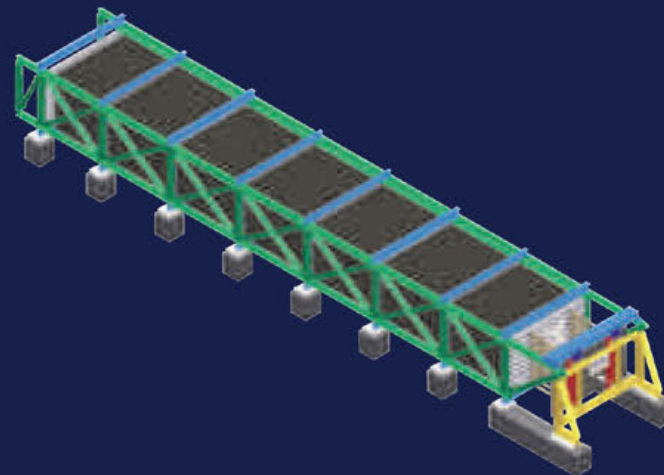
MODULAR CONSTRUCTION

Pressure parts of STF Heat Recovery Steam Generator are manufactured in harps or in shop-assembled in modular sections.

Harps



ModularSections



ADVANCED NOISE SOLUTION

- Complete boiler enclosure to achieve the maximum noise reduction
- Noise emission down to 60 dB
- Boiler partial enclosure, as per Client requirement
- Forced or natural ventilation system
- Silencer installed on boiler safety valves and vents discharge lines to fulfil noise requirements

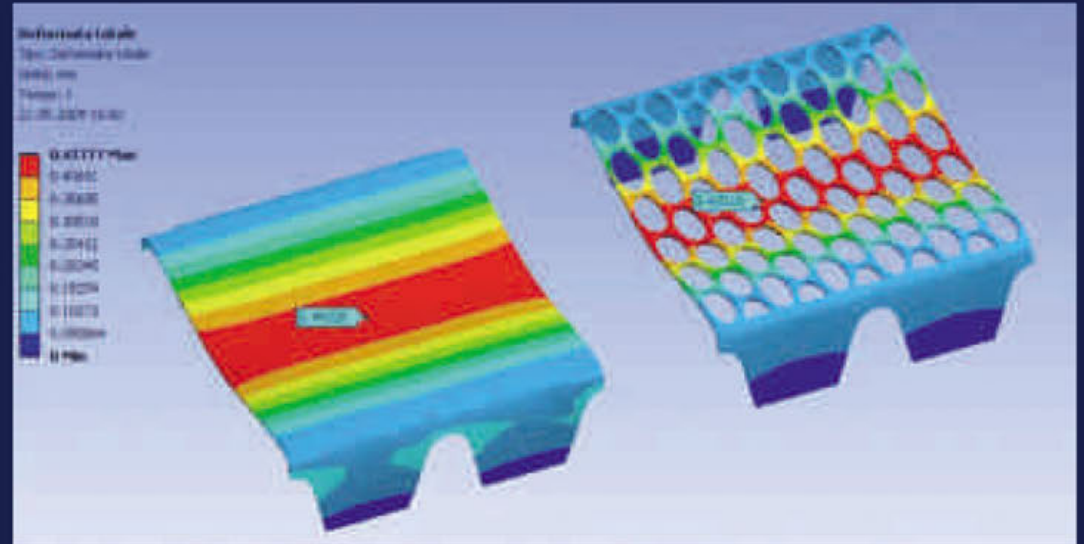


Termini Imerese Power Plant - Italy

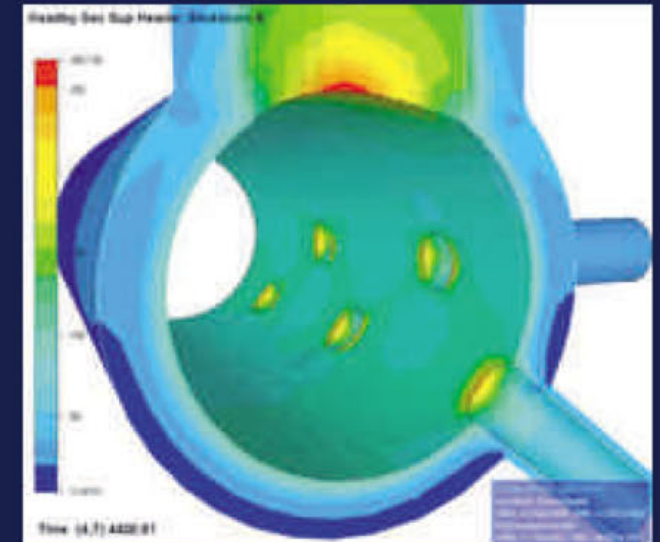


Ponti sul Mincio Power Plant - Italy

COMPETITIVE ADVANTAGE: RESEARCH AND DEVELOPMENT



- *Strict collaboration with the most important universities and engineering companies*
- *Finite element analysis for deep investigation of most critical components*
- *Static and dynamic simulation of HRSG behavior for performance evaluation*
- *Steam and gas 3D fluid-dynamic modeling*





Ibiritè Power Plant - Brazil



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TERMOTECNICA INDUSTRIALE
SISTEMI INTEGRATI

