

Boilers - 2012

Steam Generators, Waste Heat Boilers & HRSGs

Speaker:



V. Ganapathy

A Single Person Consultancy..

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Venue Details:

Bangalore

JW Marriott

Bangalore

Date: 19th – 20th April 2012

Mumbai

JW Marriott

Mumbai

Date: 26th – 27th April 2012

Delhi

Hotel The Grand

New Delhi

Date: 3rd – 4th May 2012

...Knowledgeable, Entertaining and Outstanding Presentation...



Mr. V. Ganapathy is acknowledged as “A Single Man Consultancy”.....

Mr. Ganapathy is a B. Tech (Mechanical Engineering) from IIT, Madras and Msc (Engg.) from Madras University. He is having over 37 years of experience in thermal design / performance issues of steam generators/waste heat boilers. The Consultants typically recommend low cost boilers which may cost the end user in the long run through high operating costs. A second opinion before you buy the boiler / HRSG adds value to your project.

His primary focus is on thermal design / performance and design of boiler. On behalf of the plant or end user, he can question the boiler supplier and challenge his design, selection of surface geometry, fin geometry, heat flux, circulation or materials or performance.

Work Profile:

- He is a consultant on boilers and HRSGS, particularly related to their performance evaluation and thermal design.
- He has worked for 12 years with BHEL and 21 years for ABCO Industries, USA.
- He has conducted intensive courses for organizations such as PDVSA (Venezuela), RIPI (Iran), Farab (Iran), NTPC (Noida / Delhi), Reliance, IPCL, L&T, Thermax (Pune) and in Bahrain (for Saudi Companies) and a few other organizations around the world.
- He is the author of over 250 articles which have appeared in various magazines in USA, UK and India.
- He is the author of four books and has contributed several chapters to the Encyclopedia of chemical processing and Design and the Handbook of Mechanical Engineering Calculations.

Learning Objectives :

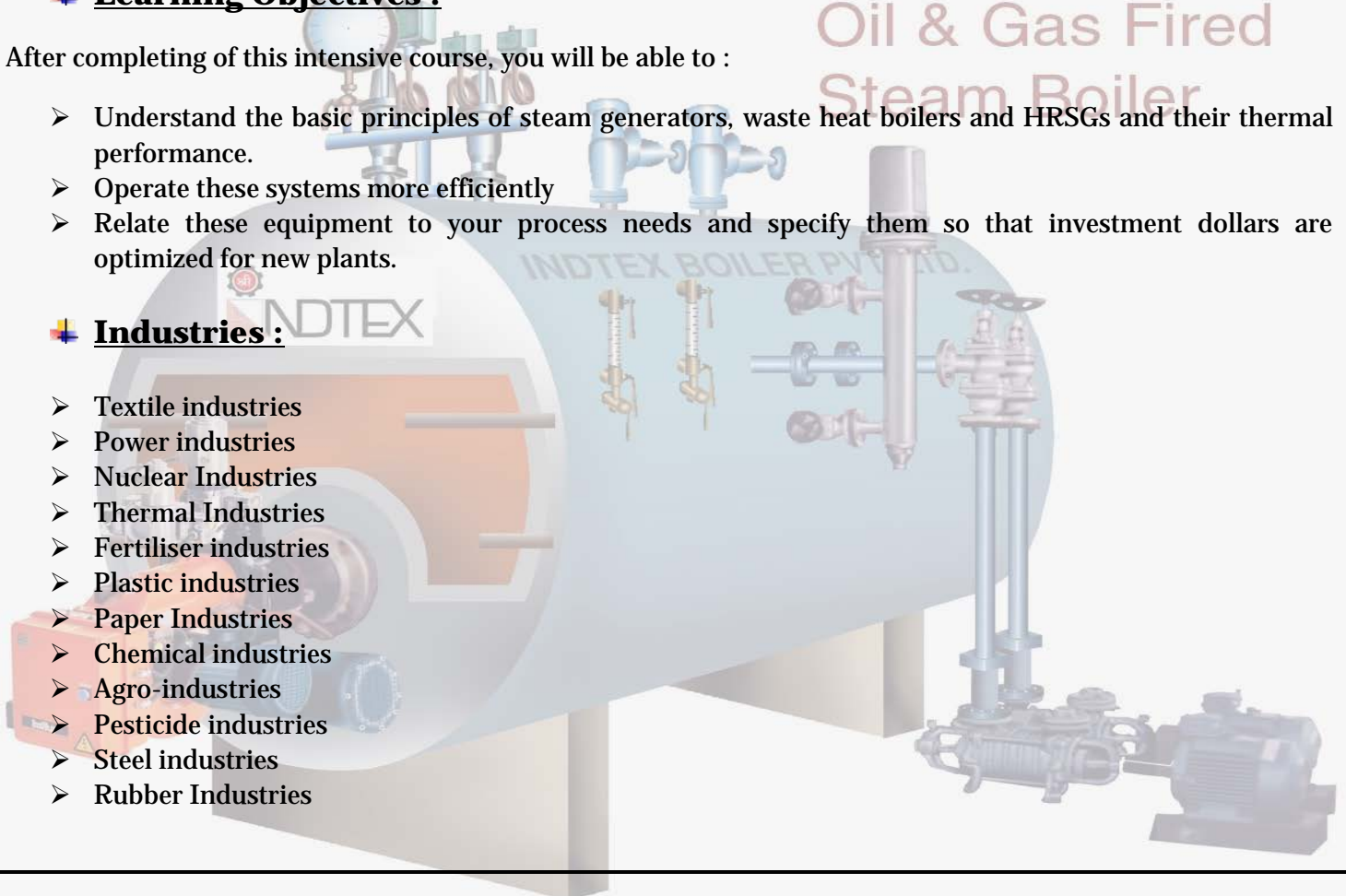
After completing of this intensive course, you will be able to :

- Understand the basic principles of steam generators, waste heat boilers and HRSGs and their thermal performance.
- Operate these systems more efficiently
- Relate these equipment to your process needs and specify them so that investment dollars are optimized for new plants.

Industries :

- Textile industries
- Power industries
- Nuclear Industries
- Thermal Industries
- Fertiliser industries
- Plastic industries
- Paper Industries
- Chemical industries
- Agro-industries
- Pesticide industries
- Steel industries
- Rubber Industries

Oil & Gas Fired Steam Boiler



- Pigments & food dies stuff industries
- Taneries industries
- Pharmaceutical Industries
- Marine Industries

WHO SHOULD ATTEND?

The course is designed for steam plant professionals in the chemical industry, refineries, cogen plants and power plants and power plants, whose function includes :-

- Process engineering, technical services related to steam generation and energy recovery.
- Plant engineering
- Design , trouble shooting and operation of steam generators, waste heat boilers and HRSGs
- Optimizing life cycle costs of steam generators

HIGHLIGHTS:

This practical two day workshop will give you the knowledge to enable you to:

- Typical characteristics of fuel fired
- Perform basic combustion and process calculation
- Discuss the correct operations, control sequences and procedures for the safe operation of a typical fir – tube boiler plant
- Outline the applicable pressure part design codes and explain their influence on boiler pressures part sizing, inspection and non-destructive examination
- Initiate an effective inspection and maintenance program.
- Recognize the impact fuels have on the boiler heat transfer surfaces
- Outline the technologies available for the reduction of emission levels and the applicable international legislative controls.

TWO DAY WORKSHOP ON:

BOILERS - PLANT OPERATION AND MANAGEMENT

Brief :

Steam generators, waste heat boilers and HRSGs is an highly practical and useful two day workshop. You will gain the most up to date information and practical understanding of process heat transfer aspects, boiler design features, recent trends in design, what to look for a good design or identify a poor design, evaluate and improve operating parameters and regimes and even ask the equipment suppliers the right questions before purchasing these equipments.

The course is aimed at engineers, management personnel of process plants, cogen plants, chemical plants, refineries and steam Plants, who are involved with performance design, engineering, economics, troubleshooting and operation of oil/gas fired boilers, waste heat boilers and HRSGs.

Discussion will focus on efficiency, optimizing performance, steam and metal temperatures, importance of heat flux, circulation, effect of fuels on boilers, deviations from operating point, economizer steaming, evaluating field data for possible process problems.

.....will increase productivity and profitability

Contents

DAY: - 01

✚ Session-1:- Introduction- Steam Generators

Boilers basics, classification, package boilers ,A.O.D types custom designing, recent trends and advantages of completely water cooled furnaces radiant versus convective super heaters air-heater vs economizer for heat recovery-lowering life cycle costs through process optimization, selection of fans, material selection, specifying boilers.

✚ Session-2:- Fuels and Combustion :

Simplified combustion calculations, MM Btu method, effect of fuels, boiler efficiency calculations, ASME and simple methods, computing water and acid dew points.

✚ Session-3:- Boiler Furnaces and Circulations :

Furnace evaluation, heat flux, DNB issues, Circulation systems in fire tube and water tube boilers, Acceleration loss, Gravity loss, Friction loss in two phase flow, Critical heat flux, heat flux inside bare and finned tubes, Variables impacting circulations.

✚ Session-4:- HRSG Simulations :

Understanding pinch and approach points, design and off-design performance of HRSGs, Single or multiple pressures HRSGs, example of simulation analyzing field data, when to go in for multiple pressure, effect of part load operation of gas turbines on HRSGs, effect of supplementary firing.

✚ Session-5 :- Waste Heat Boiler :

Classification – fire tube and water tube processes, hydrogen plants, incineration plants refineries, Sulfur plants gas turbine HRSGs performance aspects-flue gas analysis, high and low temperature corrosion-fouling issues unfired and fired HRSGs, single pressure vs multiple pressures HRSGs, why finned tubes, effect of tube size, fins on surface areas, power systems.



DAY: 02

✚ Session-6 :- Heat Transfer :

Heat transfer equipment design, Sizing of fire tube, water tube boilers, Coefficients effecting U in various boiler components, performance evaluations procedure, flue gas analysis and its importance scale and its impact on boiler performance. Non-luminous heat transfer co-efficient, inline and staggered arrangements of bare and finned tubes. Bare tube vs finned tube boilers, effect of fins on on super heater design; inline vs staggered finned tubes, furnace performance, off-design performance evaluation with examples. Simplified approach to evaluating boiler, super heater or economizer performance.

✚ Session-7 :- General Calculations on Boilers and Auxiliaries :

Boiler dynamics, Drum pressure fluctuations with load, leakage of steam, leakage of air/ flue gases through dampers, Blow down estimation, flash steam recovery, flue gas density, velocity, gas pressure drop over tube bundles. Fan sizing and margins.

✚ Session-8 :- Pollution Control :

Health concerns, Incineration, Nox formation, Nox reduction in boilers and HRSGs. Flue gas recirculation, SCR, SNCR systems, Emission monitoring.

✚ Session-9 :- Water Chemistry :

Basics of water treatment, Boiler and feed water quality. ASME and ABMA guidelines, Solubility of salts in steam, Quality and steam purity and importance.

✚ Session- 10 :-Question & Answer (problems & Solutions)

Why do we need it??

- **FOR SAFETY**
- **FOR EFFICIENCY**
 - **FOR THE ENVIRONMENT**

Registration Form:

Please register the following delegate(s) to attend the Training program on Boilers – Plant Operation & Management...

Delegate 1 Title _____ First name _____ Surname _____

Job Position _____ Email _____

Delegate 2 Title _____ First name _____ Surname _____

Job Position _____ Email _____

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Job Position _____ Email _____

Company

Name _____

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Country _____

Postcode _____

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