



BHEL - HPBP
Tiruchirappalli

Boiler Spares Brochure



**SPARES BUSINESS
RENOVATION &
MODERNISATION**

Powering Progress

Brightening Lives

Touching Every Indian Home



Why choose us...



Customized Product Profile



Quality Products & Services



Global Spread over 83 countries



Well-known Boiler Tube Maker in India



Thermal Set Spares for 30 MW to 800 MW



12 Spares & Services Business Groups in India

...One stop solution for all your boiler spares requirements





BHEL - Spares Business and R&M

Established in 1964, Bharat Heavy Electricals Limited (BHEL) is the largest engineering and manufacturing enterprise in India in the energy and infrastructure sector with the capability to manufacture the entire range of power plant equipment.

BHEL lays special emphasis on after sales service. Prompt and efficient handling of customers' concerns is an assurance that accompanies BHEL's involvement in any project. BHEL has eight organized service centres operating from different parts of the country. Troubleshooting/ overhauling/ repairs are routine services offered by BHEL.

The Spares Business and R&M department at BHEL Tiruchirappalli exclusively addresses the supply of Boiler Spares, R&M of Boilers and RLA.

Timely supply of spares is ensured for proper upkeep of equipment and maximization of equipment utilization. Special trainings are also provided to customers' O&M personnel. We undertake Renovation, Modernization and Uprating of old power plants and Life Extension Programme (LEP) for aging sets thereby enhancing the efficiency of the respective products as well as the power plant as a whole.

Tubular Products

BHEL manufactures Seamless Steel Tubes of world standards, catering to the needs of a wide spectrum of customers.

BHEL offers seamless steel tubes and pipes in a wide range of sizes with outer diameters ranging from 19mm to 133 mm and wall thicknesses from 2mm to 12.5mm

Seamless tubes/pipes



Hot Finished tubes/pipes



Cold drawn tubes/pipes

Special Tubings



Spiral Fin Welded tubes



Rifled tubes

Special Tubings include Spiral Finned Tubes (Solid/Serrated) and Rifle Tubes

The Spiral Finned Tubes have extended surface area designed for maximum heat recovery.

BHEL seamless steel tubes are extensively used in power stations, marine boilers, refineries and for oil & gas exploration applications besides industries such as petrochemicals, fertilizers, textiles, automobiles, paper, sugar, etc.

Size Range		
Dimension	Min(mm)	Max(mm)
OD	19	133
WT	2.0	14.0
Length	4000	15000-Plain 22000- SFT

Sector	Applicability	Spec	Grades
Power	Boiler quality tubes /Pipes	ASME	SA106Gr A,B,C SA179 ,SA192,SA210 GrA1,C SA209T1 ,SA213 T11,T12,T22 SA335 P1,P11,P22
		BS 3059	320,360,440 and 662
		GOST	20, 12X IMØ
Process Industries	Tubes for low temperature applications	ASME	SA 333 Gr 1,6 SA 334 Gr 1,6
Automobile, Textile	Seamless Precision steel tubes	SAE DIN	1040 2391
Sugar		ASME	SA 192 , SA210 Gr A1

BHEL seamless cold-drawn low-carbon-steel heat exchanger tubes are used for a variety of heat transfer applications.

Coils, Tubes & Bends



Boiler Tubes



Bends



Headers



LTSH Coils



Economiser Coils



Reheater Coils



Studded Tubes



Finned Tubes



Swaged Tubes



Fusion Welded Panels



Spiral Welded Pipes



Shields

BHEL is the largest manufacturer of a wide range of Valves, Oil Field Equipment, Silencers and Soot Blowers in the South Asian Region



High Pressure Gate Valve

High Pressure Globe Valve

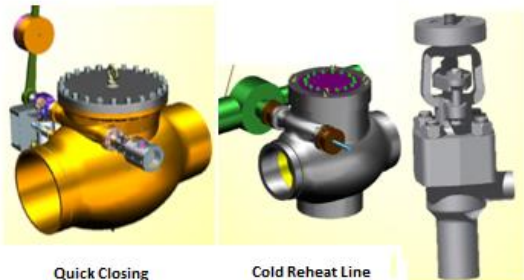
Forged Steel Globe Valve



Safety Valve

Safety Relief Valve

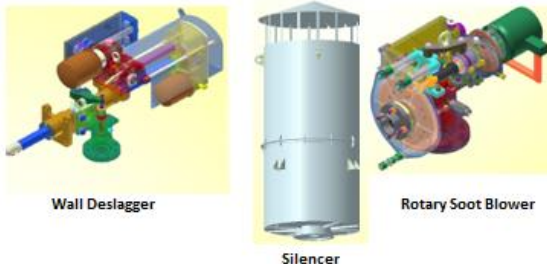
Reheater Isolating Device



Quick Closing Non Return Valve

Cold Reheat Line Non Return Valve

Angle Drain Valve



Wall Deslagger

Silencer

Rotary Soot Blower

Valves and Spares

- Technology from world leaders
- Products manufactured and tested using state-of-the-art facilities including a host of high accuracy CNC machines of large capacity
- ASME, ANSI, IBR, API & CE marking and other international standards
- Proven technology through extensive use in power plants and process industries including Fertilizer, Petrochemical, Cement, Sugar and Steel Plants, Refineries, Oil exploration & Production units in India and abroad

Valves for Sub-Critical & Super Critical Power Plants

- Gate, Globe, Non-Return Valves
- Safety and Safety Relief Valves
- HP-LP Bypass
- Quick-Closing Non-Return Valves (QCNRVs) & Cold Reheat Line Non-Return Valves (CRHNRVs)
- Angle Drain Valves, Blow Down Valves
- Soot Blowers, Wall Blowers and Temperature Probes
- Silencers, Water Level Gauge

Soot Blowers & Probes

- Long Retractable, Half Retractable, Rotary Blowers
- Wall Blowers
- Furnace Temperature Probes

Oil-Field Equipment for rating up to 15000 PSI

- Well-heads
- Christmas Trees (Stack or Block Type)
- Full bore through conduit slab Gate Valves
- Mud line suspension systems and mud valves
- Coal-bed methane Well-heads
- Choke & Kill Manifolds, Block-type Control Head & Choke Manifolds

Controls & Instrumentation Spares

BHELSCAN - Flame Scanners

BHELSCAN flame scanners use optical sensing of flames in the Visible spectrum, with Advanced Micro-Controller Technology System. It can be easily retrofitted with the existing flame scanner head assembly. It consists of a fibre optic light guide connected scanner head assembly and a chassis containing electronic signal processing modules. Discrimination between Coal & Oil flames is based on the Intensity and Flicker Frequency. It has Soft link RS485 Modbus DCS interface & Self-check and diagnostic features for added safety.



BHELFEED - Microprocessor based Gravimetric Feeder Control system

BHELFEED™ achieves optimized use of coal by continuously weighing the coal and feeding it by weight proportional to changing demands from the boiler. Providing a signal proportional to the weight of coal fed to the pulveriser in order to control and maintain the excess air quantity at the optimum level to make the combustion process efficient. Automatic calibration of Tare and Span, tracking of Load cell signals. Auto change-over to Volumetric mode of operation in case of load cell signal faults. Historic density calculation and record for use in volumetric mode of operation.

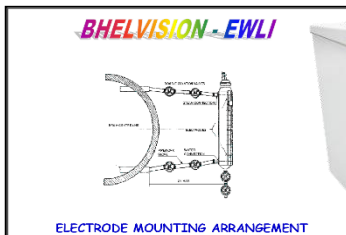
BHELSONIC - SONIC Tube Leak Detection System

The Sonic tube leak detection system works on the principle of detecting the sound waves emanating from the steam leak, process the same and indicate the quantum of steam leak and the location, within approximately 5M radius in the boiler from where the steam leaks. Boiler is divided into 18 number of zones for identifying the zone in which tube leakage likely to occur. However, facility exists in this system to cater up to 30 zones.



BHELVISION 20M - Electronic Drum Water Level Indicator

BHEL/VISION20M is a conductivity based water level sensing system for reliable level monitoring used in High pressure applications like steam boiler drums. With features like High bright LED bar graph level display at Local& Remote, Self-checking and validation, Alarm & Trip facilities through relay outputs and Field Selectable Alarm & Trip levels



Coal Burners

Backed by decades of experience in Indian coals, BHEL has the complete capability of providing Coal burner assembly to suit the combustion characteristics of the coal being used in pulverized coal tangential fired boilers.

With years of intensive research and proven capabilities dedicated to combustion and characteristics of Indian and imported coals, BHEL supplied coal burner assemblies has unique features that make it more suitable for Indian/imported coals for both sub critical and super critical boilers.

Burner Spares



Enhanced performance through

- Improved Combustion
- Greater flame stability
- Reduced carbon loss
- Enhanced boiler efficiency

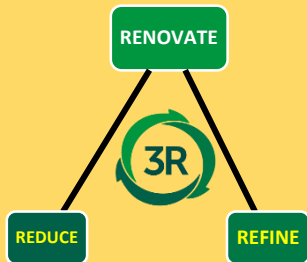
RC feeders

BHEL has supplied and installed 36 inch coal feeders in power stations for over three decades. This core experience coupled with extensive understanding of the power industry has enabled BHEL to supply feeders and associated spares pan India which in itself is testimonial to its performance, accuracy, reliability and ruggedness providing years of Trouble free operation.



BHEL also possess extensive and proven capability in retrofit/R&M of volumetric feeders with state of the art microprocessor based 24 inch gravimetric feeders considering the layout constraints.

Renovation & Modernisation



We undertake Renovation, Modernization and Upgrading of old power plants and Life Extension Programme (LEP) for aging sets thereby providing enhanced efficiency of the respective products as well as the power plant as a whole.



Benefits of R&M/Upgrading

Life extension of the plant by 15-20 years

Restore lost capacity

Increase safety, reliability, availability

Optimize cost of generation

Improve plant heat rate, plant emission level

Comply to statutory pollution norms

Introduce state-of-art technologies

Introduce better O&M practices

EMISSION MITIGATION

1. Facilitating staged combustion to reduce NO_x .
2. Tapping off secondary air and admitting it above the combustion zone.

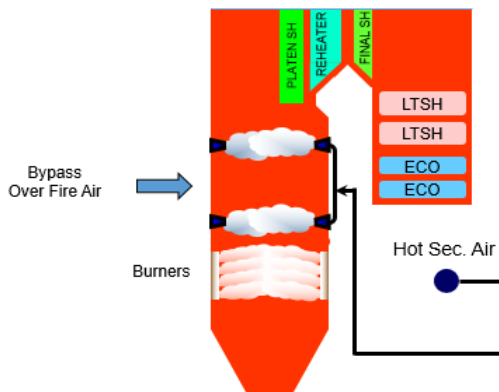
BENEFITS

- ❖ Reduced NO_x emission of around 40%.
- ❖ No additional operating cost.
- ❖ No negative impact on boiler performance.
- ❖ Retention of existing wind box.
- ❖ Quick erection within 45 days

REFERENCES

- ✓ Successful execution in APCPL Jhajjar 500 MW, Unit-3. Unit 1 and 3 under execution.
- ✓ 10 NTPC boilers (10x500MW) contracted
- ✓ 9 DVC boilers (total 4700 MW) contracted

DeNO_x Modification



Furnace Air Staging- Vertical
Bypass Over Fire Air (BOFA) System

EFFICIENCY IMPROVEMENT

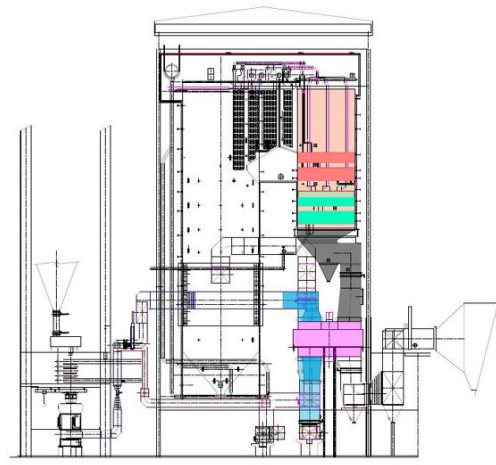
1. Replacement of economizer and LTSH.
2. Replacement of back pass panels & headers.
3. APH sector angle modification

BENEFITS

- ❖ Improved efficiency by back pass modification
- ❖ Reduced coal consumption and emission.
- ❖ Reduced aux power consumption
- ❖ Reduced operating cost
- ❖ Improved ESP effectiveness

REFERENCES

- ✓ Implementation in GSECL Ukai, Unit-4 200 MW led to **20 °C** reduction in exit gas temperature.
- ✓ Implementation in GSECL Wanakbori, Unit-3 210 MW led to improved efficiency by **1%**.



HFO TO LDO CONVERSION

Conversion of existing HFO based oil firing system to LDO based oil system

BENEFITS

- ❖ Reduced toxic oil pollution
- ❖ Reduced operating cost

REFERENCES

- ✓ NTPC Rihand Unit 1 and 2-500 MW non-BHEL boilers successfully converted.
- ✓ NTPC Unchahar, 500 MW under execution

BOILER REVAMPING

Retrofitting boiler components and replacing old components with newer components

BENEFITS

- ❖ Improved utilisation

REFERENCES

- ✓ UPRVUNL Obrá 9 to 13, 200 MW
- ✓ KBUNL Muzaffarpur, 1 and 2, 110 MW
- ✓ West Coast paper mills Recovery Boiler
- ✓ MAHAGENCO Koradi Unit-6 210 MW

C&I UPGRADATION

State of the art upgradation of power plant C&I equipment like gravimetric feeder panels, remote panels for flame scanners, ASLD, etc.

BENEFITS

- ❖ Better controllability

REFERENCES

- ✓ RINL Vizag, 5x330 TPH
- ✓ APGENCO Vijayawada, 2x210 MW
- ✓ NTPC Korba, 3x200 MW
- ✓ NTPC Farakka, 3x200 MW
- ✓ KPCL Raichur 2x210 MW
- ✓ CSPGCL Korba West 2x210 MW

BHEL LOW NO_x BURNER

Indigenously developed low NO_x burners for wall fired boilers by triple staging of air

BENEFITS

- ❖ Reduced NO_x emission of around 40%.
- ❖ No additional operating cost.
- ❖ Minimal modifications in existing wind box.

REFERENCES

- ✓ Successfully tested prototype at BHEL's test facility and availability of real scale burner



ONE STOP POWER SOLUTIONS



Spares & Services Business Groups

SSBG Head Quarters

Kribhco Bhavan, Second Floor,
Sector-1, A8-10, Noida-201301.
Phone No. 0120-2474065, 0120-2474068

SSBG Noida

Kribhco Bhavan,
Second Floor,
Sector-1, A8-10,
Noida-201301.
Phone No.0120-2532155

SSBG Lucknow

B-2, PIC-UP Bhavan,
1st Floor, Vibhuti Khand,
Gomti Nagar,
Lucknow - 226010
Phone No. 0522-2720746

SSBG Mumbai

14/15 Floor,
World Trade Center-1,
Cuffe Parade,
Mumbai 400005.
Phone no. 022-22160934

SSBG Jabalpur

2-Arya Nagar,
Narmada Road,
Jabalpur 482001.
Phone no. 0761-4018046

SSBG Vadodara

D-4, BHEL Township,
Gayatri Nagar,
Gotri Road,
Vadodara – 390 021
Phone No. 0265 – 2372488

SSBG Bangalore

BHEL, Prof.CNR Rao Circle,
Malleswaram,
Bangalore - 560012.
Phone No.080-23340448,

SSBG Chandigarh

SCO 129 - 130,
SECTOR 17C,
CHANDIGARH - 160017
Phone No.0172-2727954

SSBG Patna

Maurya Lok Complex,
Dak Bunglow Road,
Patna - 800001
Phone No. 0612-2204847

SSBG Bhubneswar

Plot No. 30 / A, 1st Floor,
Unit III, Kharvela Nagar,
Bhubneswar-751001.
Phone No. 0674-2396646

SSBG Kolkata

BHEL, Plot No. 9/1, DJ Block,
Sector-II, Salt Lake,
Kolkata - 700091.
Phone No.033-23211574

SSBG Secunderabad

BHEL, Ek Tara Building,
39, Sarojini Devi Road,
Secunderabad - 500003.
Phone No.040-27718968

SSBG Chennai

EVR Periyar Building(5th floor),
New No:690, Anna Salai,
Nandanam,
Chennai-600035
Phone No. 044-24314295

For inquiries contact....

**General Manager
Spares Business and R&M**



**Bharat Heavy Electricals Limited
High Pressure Boiler Plant,
Tiruchirappalli – 620 014,
Tamil Nadu, INDIA**



91-431-2576045



91-431-2576835



@ trichyspares@bhel.in



www.bhel.com



https://twitter.com/BHEL_India



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https://www.instagram.com/bhel.india