

Greetings!

BEC Foundry



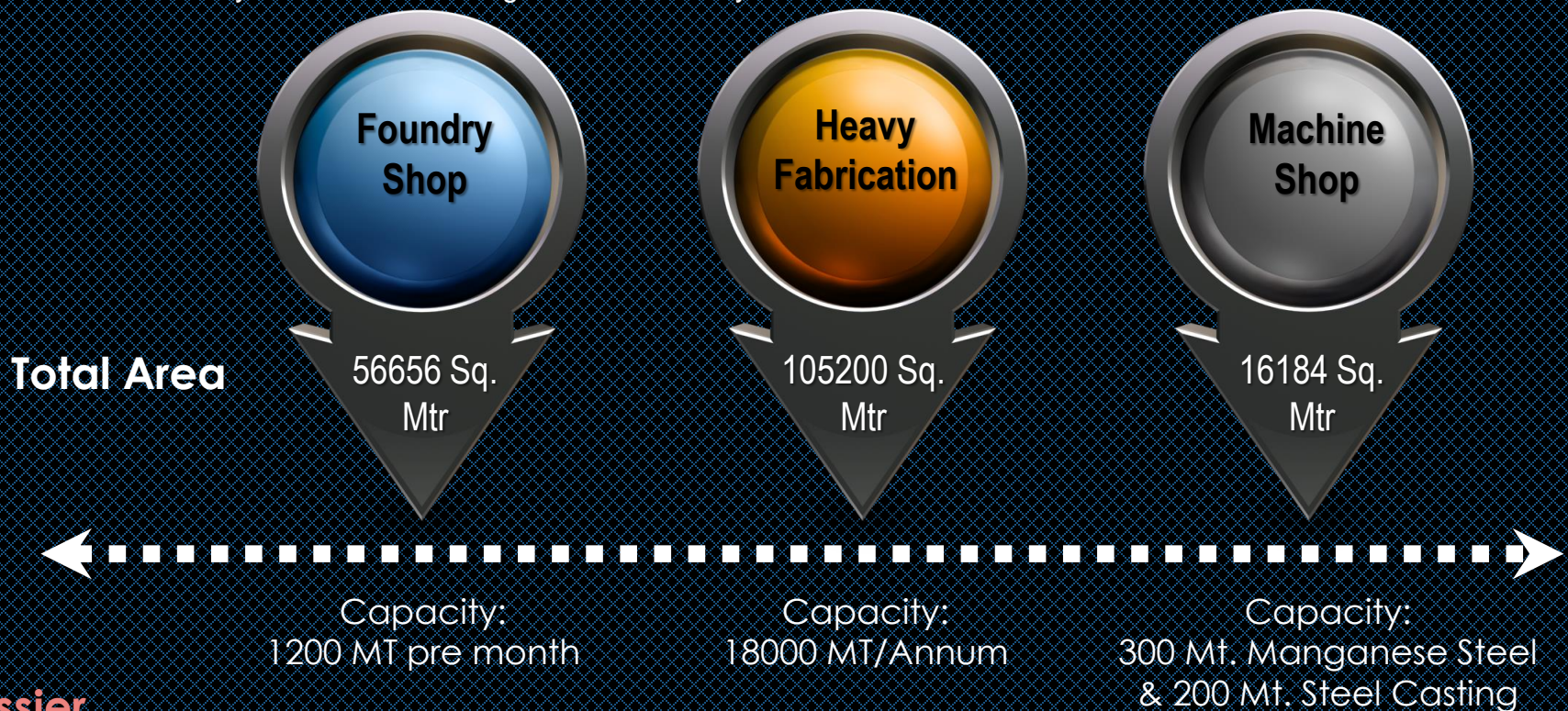
Bhilai Engineering Corporation Limited



Engineering the Future



- Established in 1960, Bhilai Engineering Corporation Limited serves Railways, Mining, Steel Plants, Power Plants, General Engineering, Shipping & Marine for their requirements of Steel, Alloy steel and Manganese steel castings.
- The company was set up with an objective of manufacturing high quality ferrous castings, heavy fabrication and to provide machining assistance to their valued customers using the latest State of Art technology. Our products are built to stringent International standards, and have been received with distinction and acclaim by all users, both in the International and Domestic market. Company is managed by a team of highly technical professionals. It is no wonder the company has withstood the test of time for the last 52 years, given the dynamic nature of the economy with a focused vision.
- **Our Foundry is a single manufacturing facility in India with complimentary light fabrication and machine shops.**
- The Steel Foundry consists of following divisions, namely: -



Established 1960

Melting

The Liquid Metal is produced by using Three Phase Electric Arc Furnace and Induction Furnace.

Direct Arc Furnace: -- Furnace capacity 10 Tons
(HBB & GE) -- Furnace capacity 8 Tons
Induction Furnace: -- Furnace capacity 2.5 Tons(GEC)



Heat Treatment



Type	Capacity	Size	Remarks
Oil Fired	60 Tons	8.0 x 6.3 x 3.7m	With Water Quenching facility
Gas Fired	25 Tons	6.6 x 4.2 x 2.0 m	With Water Quenching facility
Gas Fired	16 Tons	8.5 x 2.2 x 1.0 m	With Rapid Quenching facility
Electric	5 Tons	3.0 x 3.0 x 1.5m	For Tempering

Handling Facilities

Facility spread over **125,000 sq.mt.** with specialized fabrication, machining & assembly capabilities in designated area.

Foundry Shop is well equipped with Material Handling facilities for movement of produce based on operations as melting, molding, fettling, heat treatment, raw material etc.

EOT Cranes : 5 – 25 Tons

Radio Remote Control EOT Cranes : 5 – 8 Tons

Ground Transfer Trolleys : 30 Tons – 3 Nos.

Semi Gantry Cranes : 5 Tons

Jib Cranes : 4 tons

Mono rail Cranes : 2 – 4 Tons

Fork Lifters for water quenching : 2 Furnaces





View on Foundry Casting Process



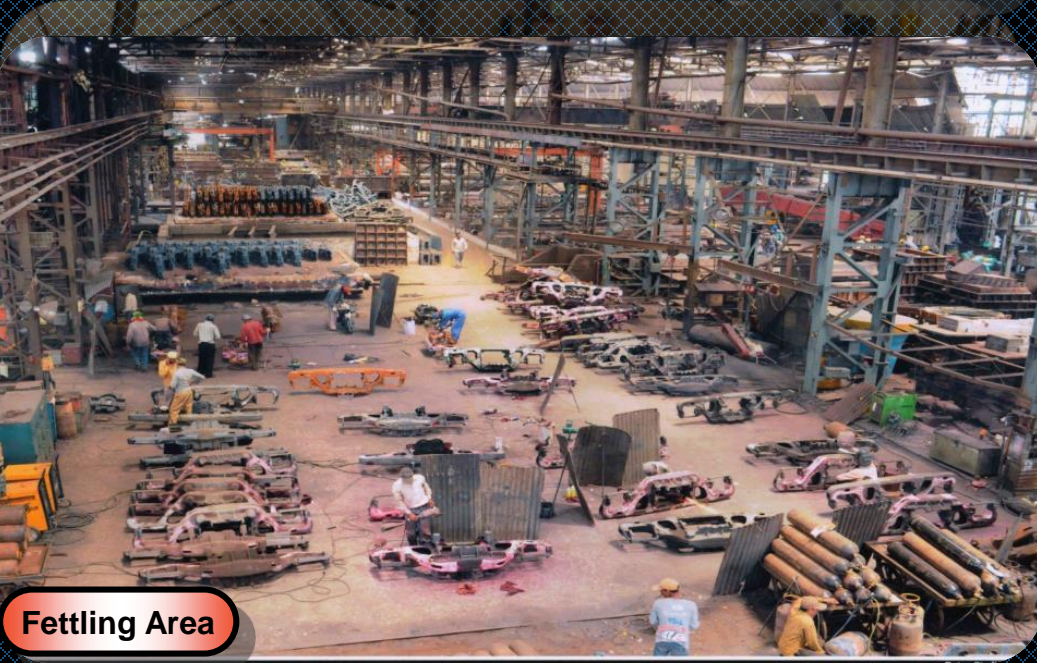
Molding Shop



Molding Area



Pouring Area



Fettling Area



Truck Frame Molding



Machine Shop



Boom & Colum Welding



Plate Bending Machine



Tube / Pipe Bending machines

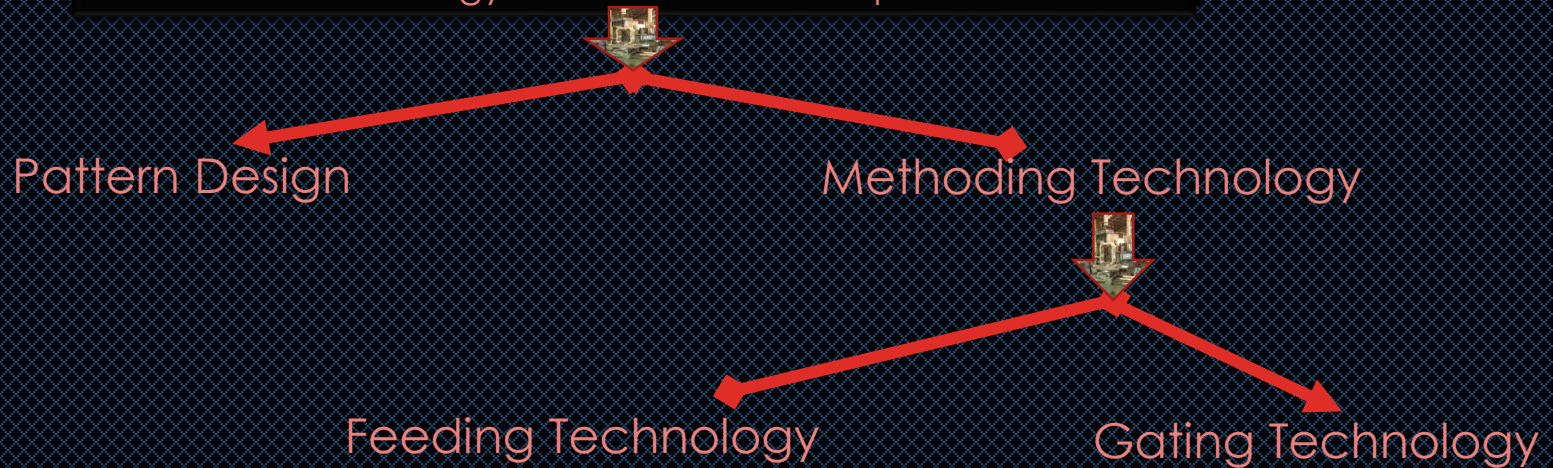


Shot blasting Facilities

Methoding & Pattern Shop



Methoding of casting is the HEART and SOUL of making a sound casting in economical way. The total methoding technology is carried out in two parts:



We have 3D modeler "SOLID WORKS" which facilitates pattern design. Other than modeling software we also are fully equipped with Solidification Simulation package "CAST CAE" through which we can check sample casting up to NDT quality Level - I, before producing it in the shop floor.

**BEC's Contribution to Environment
By using recycled sand we are:-**

10

- **Minimizes the soil pollution.**
- **Avoids Ground Water Pollution.**
- **Avoids excessive mining.**



IMF Sand Reclamation Plant

Sand System & Sand Reclamation System



Alfa Set System:

Phenolic Resin(Binder)
+ Easter (catalyst
hardener)

Green sand System:

Water + Bentonite & Dextrin(Binder) + Sand
(Olivine sand/ Silica Sand/Zircon sand/
Chromite Sand/Ceramic sand)

CO2 sand system:

CO2 (Hardener)
+ Sodium Silicate(Binder)

Sand Reclamation (Omega Foundry Machinery system, England)is equipped with three parts:

Attrition Unit, Cooling Classifier and Pressure vessel used for pneumatic conveying of sand.

The reclaim sand is used for mould preparation in Alfa Set System.

Molding Process



Hand Molding:

- Continuous Sand Mixer (20 T / hr. and 30 T /hr.) and Compaction Table
- Sand Mixers (5T / hr.) – 3 units. :for Core making

Machine Molding:

- Kunkel Wagner Jolt, Squeeze with Rollover .
Bed Size : 3.2 m x 1.2 m.
- ARPA – 900 Jolt, Squeeze molding machine. Bed Size :
110 cm x 90 cm.

BEC has modern and sophisticated semi-automatic Molding Machine for Small Heavy Castings up to 10 Ton of single piece casting with Alphaset and Green Sand technology.

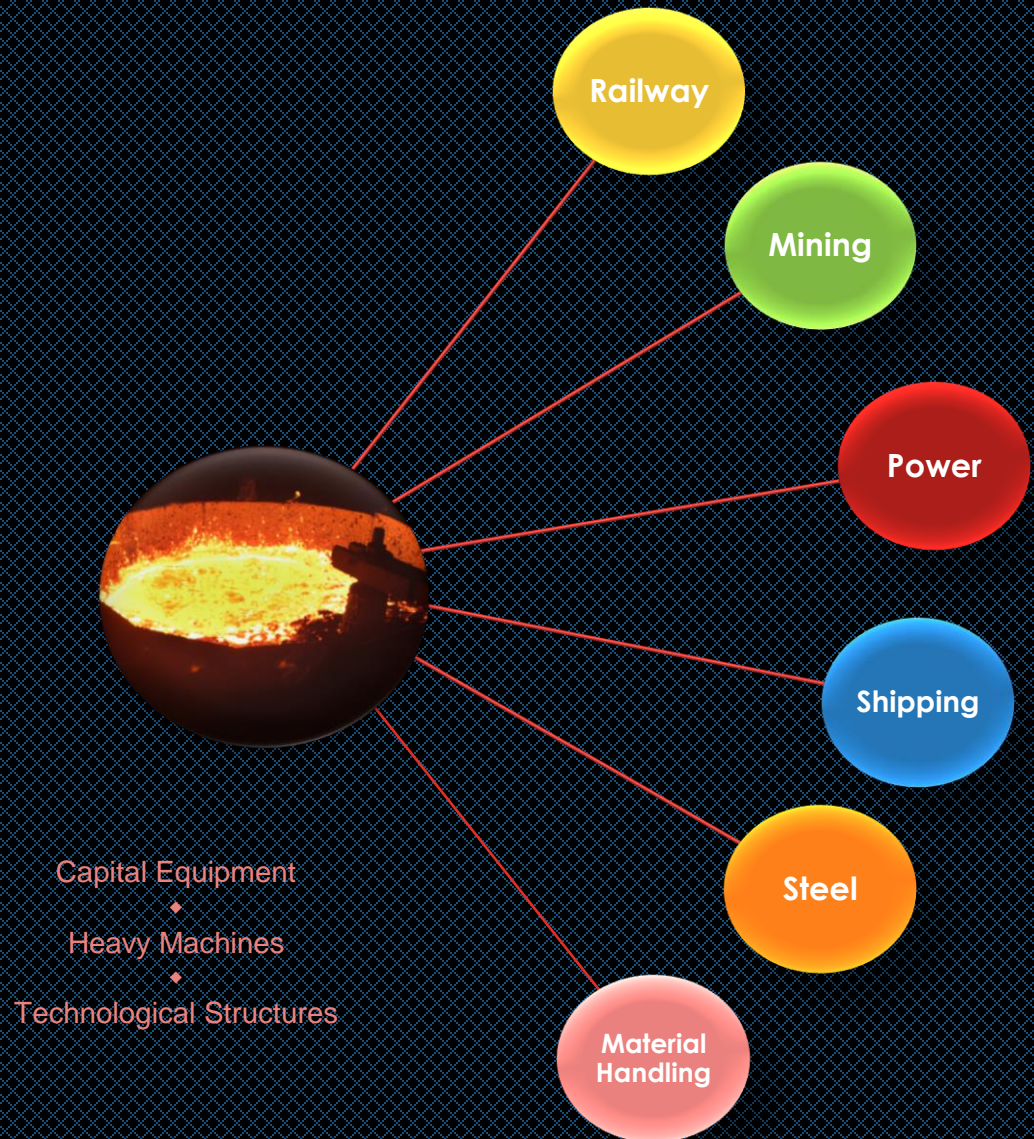
To feed with quality sand to machine BEC has a Thermal Reclamation Plant also.

Area of Specialization

Serving Core Sectors as Steel, Railways, Power, Shipping, Mines & Infrastructure sectors with global Presence through TOT, Collaboration & Exports of Heavy Engineering Products.



Our Technical Capability to deliver critical & fully finished components in the following Sectors:





BEC in Railways

Railway Products

Manganese Steel Crossings:



- Largest Producer and Exporter of Cast Manganese Steel Crossings in India.

Locomotive Bogie Frames:



- One of the biggest manufacturers of Locomotive Bogie Frames and also exporting to USA.

Coco Bogie:



- Cast Steel Locomotive Bogie Frame Assembly

Coupling System



- Coupler Assemblies for Railways

Flexi Coil



- Flexi-coil Bogie

Freight Car



- Wagon Casnub

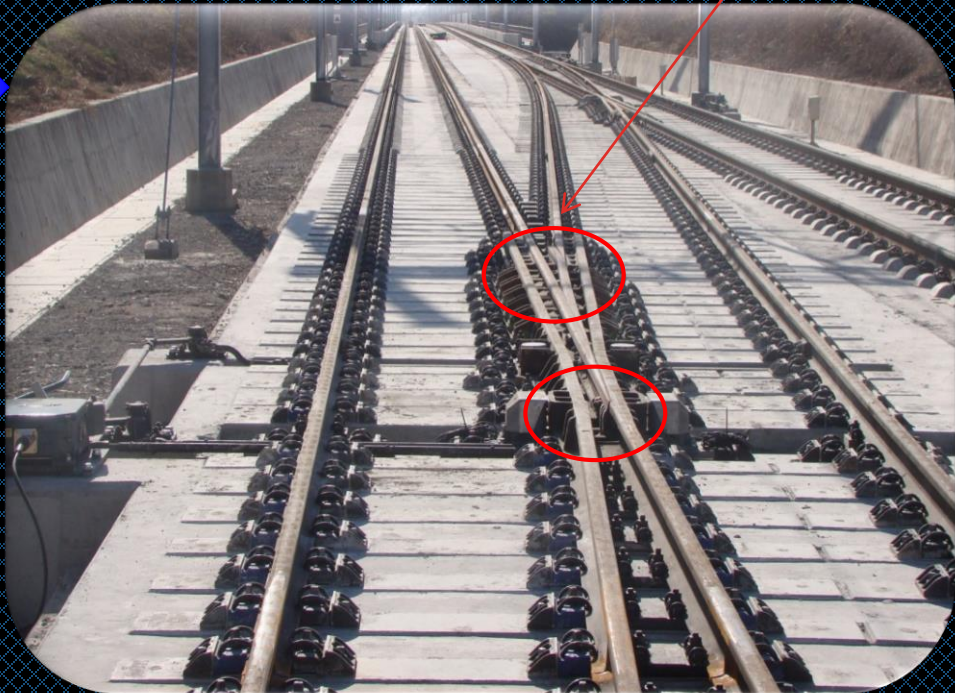
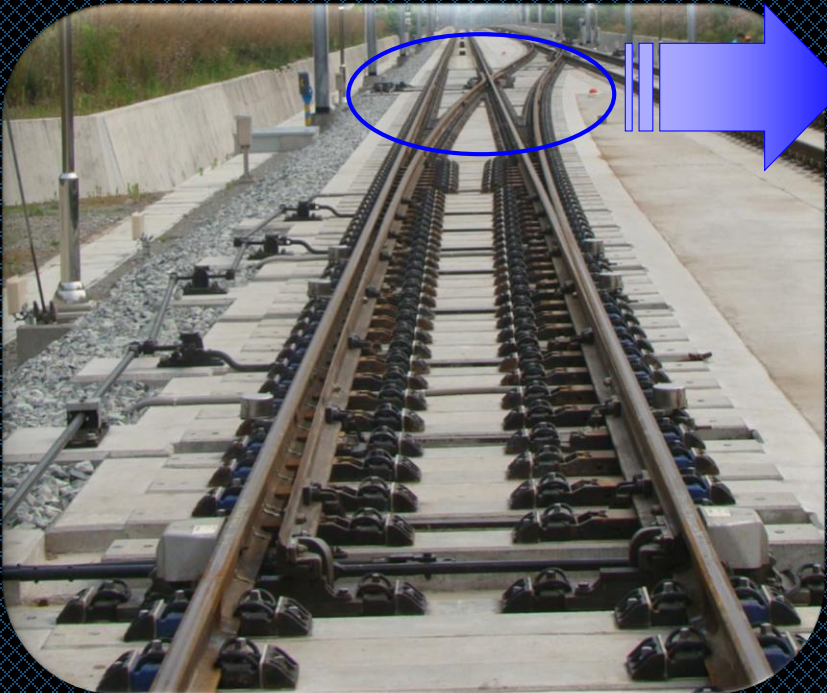
Specializes in manufacturing different Types of Locomotive Bogie Frames

Turnouts

Thick Web Switches



Weldable CMS Crossings



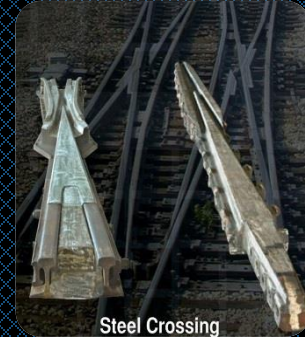
C.S. Bolster



Side Frames



Bogie Bolster



Steel Crossing



Spider / Motor Housings for USA



Magnet Frame



Draw Bar



Tri Axle Bogie Frame



Two Axle Bogie Frame



BEC In Export

Miscellaneous Castings



High Pressure Valve Castings



Magnet Frame



Yoke



Centre Pivot



End Shield



Bucket Teeth

Tracks / CMS Crossings

We offer a wide range of Railway crossings that includes Cast Manganese Steel Crossings (Frog) as per USA and Indian Railway design specifications.



Indian Railway – 6 types.

Export –

- Frogs - 21 types.
- Inserts - 26 types.
- Spring Frogs - 04 types
- Universal Crossings - 02 Types



Our Foundry has long experience to produce various types of Frogs & Inserts





Fabrication Machine shop

Our in-house facility includes fabrication shop, blasting booth, paint booth, testing labs with all advance measuring and testing instruments. And our Quality Assurance Department is well equipped with modern testing facilities to control right from raw material to finished stage components.

Facility Includes :

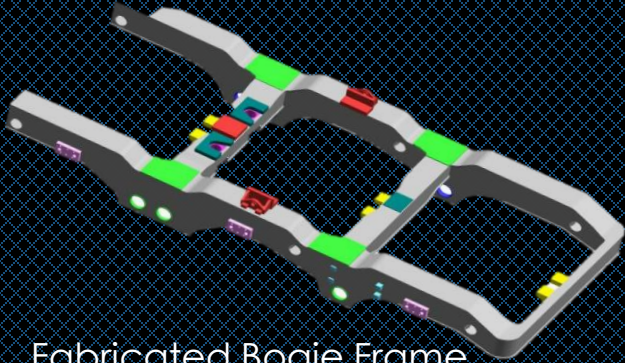
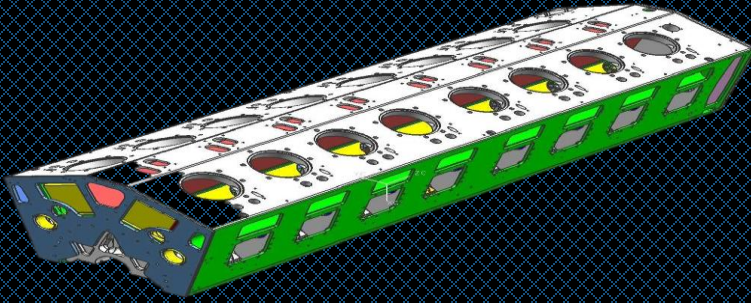
- Radiography Lab
- Ultrasonic Testing
- Metallurgy Lab
- Easy Laser
- Paint Lab
- Pneumatic & Hydraulic Testing

High quality performance is maintained at every stage of fabrication and welding. The division's Quality Assurance system meets or exceeds our Accreditations listed.



Critical Fabricated Parts for Locomotives

Crank Case
for Locomotives



Fabricated Bogie Frame
for Locomotives



Under frame Assembly & Kit
for Electric & Diesel
Locomotives

BEC in Heavy Fabrication

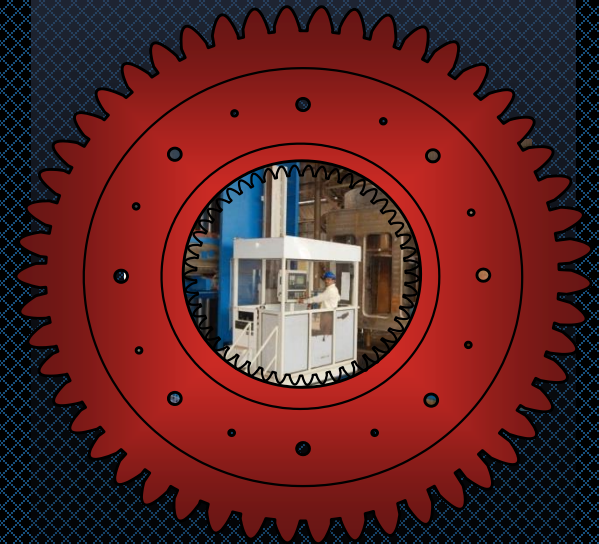
BEC's goal is to provide solutions in Turbine Tubular Tower, Heavy Fabrication, using the best technology the world has to offer. But we are proud of much more than just the products we make.

BEC is equipped with Heavy Fabrication, Machine & Assembly shops and offers complete technological & metallurgical equipment.

The division operates from the three manufacturing units of combined area of **0.3 million sq. meter**. All critical assemblies are performed under covered bays & are also integrated with the mechanized grit & sandblasting booth with painting & metallizing shops for the high quality applications which can last for even 15 years & more.

The equipments supplied from the division are pre-assembled with drives, trial tested & match marks are provided for ease of erection at site.

We specialize in the welding of all types of metal alloys in addition to quality welding of complex parts where precision is critical.





"Box" Columns for
Boiler Structures -BHEL



"+" Columns for Boiler
Structures -BHEL



Advanced Welding Technology
(Core Impex)



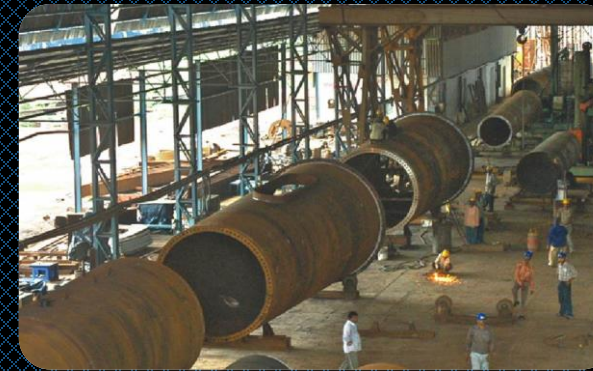
Wind Mill Towers



Column Boom
Welding Machine



Plate Bending
Machine



Tower Bay Shop



CNC Messar Cutting Machine



Machining in Toss Machine



Advanced Welding Technology &
CNC Cutting Machine

Structures for Power Sector & Material Handling

BEC shops are approved by BHEL, Enercon, Sandvik, Metso & SIEMENS for the manufacture of fabricated parts & Assemblies. Our offerings includes: Fabricated items for Electrical Parts, Infrastructure, Material Handling Equipments and their assemblies.

It includes:

- ❖ Boiler & Turbine Structures: Primary & Secondary
- ❖ Buck Stays
- ❖ Wind Boxes
- ❖ Wind Mill Towers for Wind power
- ❖ Radial Gates for the Hydel Power
- ❖ Cyclones
- ❖ Silos, Hoppers, Bunkers
- ❖ Chimneys & Stacks

Towers in finished condition coming out of 32 MT Paint Booth



Generator End Shield



Box Columns



Stator Frame

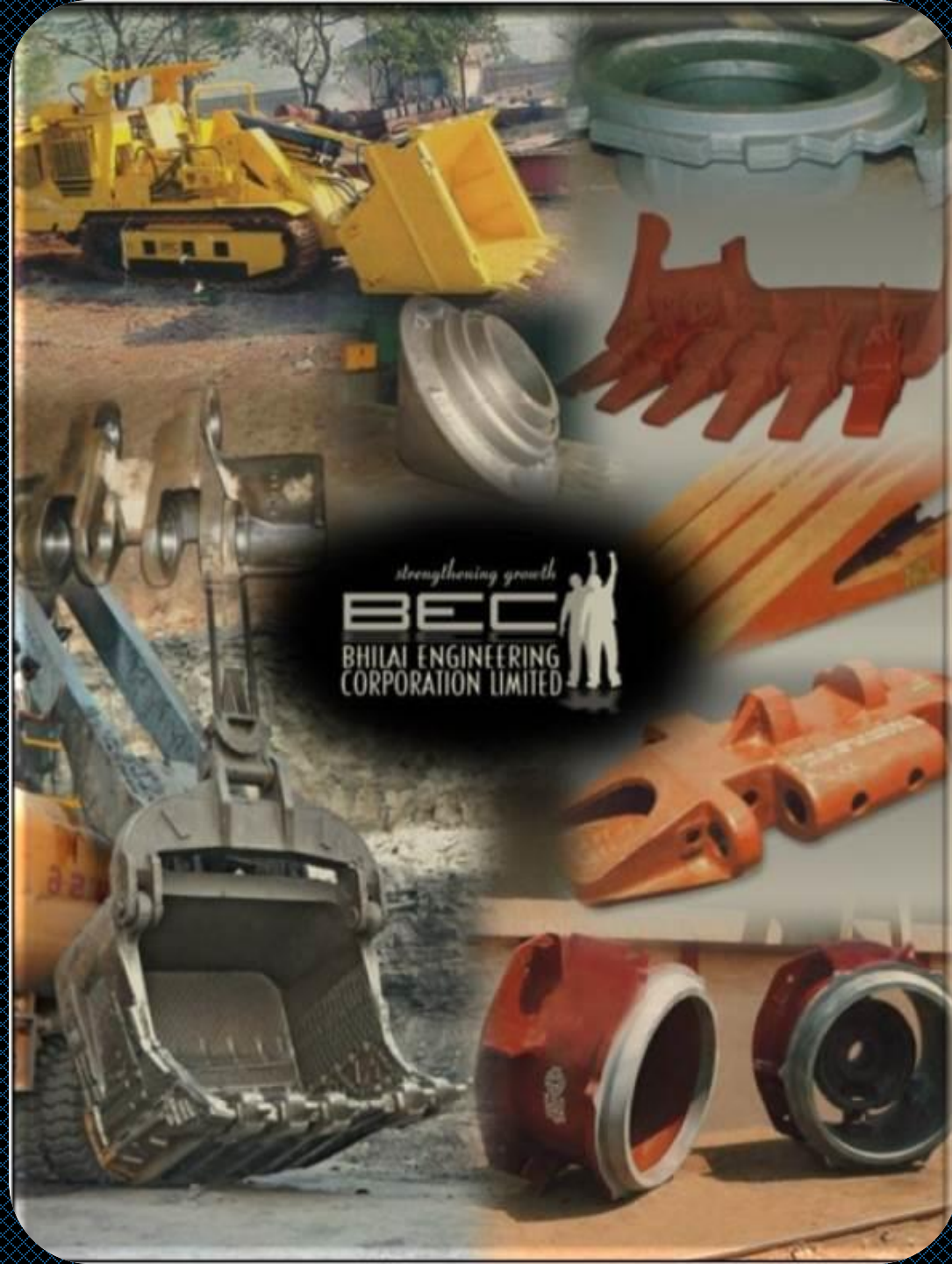


BEC in Mining

Specializes in manufacturing different Types of Mining Equipment.



The Indian mining equipment industry has expanded at a fast pace, making the country a significant producer of such highly sophisticated machinery and India has a substantial manufacturing base which largely helps in production of mining equipment and **BEC is one of them offering comprehensive and diverse range of mining machinery for both opencast and underground mines.**





10Cu.M Shovel
Bucket Assembly



Shovel Bucket Assembly



Shovel Bucket Assembly



Track pad in Assembled
Condition



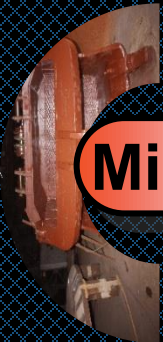
Track Pad -70-inch-
Crawler-Shoe



Upper Mantle



Bowl Liner



Mining Products



Pallet



Castings for Marine & Shipping Applications

We offer castings for Marine & Shipping Applications.

The range includes castings such as:

- A Bracket
- Stern Boss
- Rudder Stock etc.

These are high quality castings that meet the manufacturing requirements at client's end.

Our castings are approved by **American Bureau of Shipping (ABS)** for marine applications and are offered at very competitive price and assure timely delivery of all large and small orders.



BEC is a leading supplier for Specialty and Melt Shop Transfer Cars and heavy capacity-related equipment for steel mill applications.

BEC has successfully carved a niche in the competitive world of machines and equipment. We manufacture wide range of qualitative multi-dimensional product line / equipments for Steel Plants in various sizes and specifications which also can be customized as per customer's requirements.

BEC believes in better engineering and develop customized solution as required by Steel Applications

Our motto at BEC is to deliver the best and meet up to the industrial expectations for competent strategies.

Our major objective is to give our client full support so that they meet their objectives and not to superimpose on them a 'fixed process or project model'.

Product Range For Steel Plants

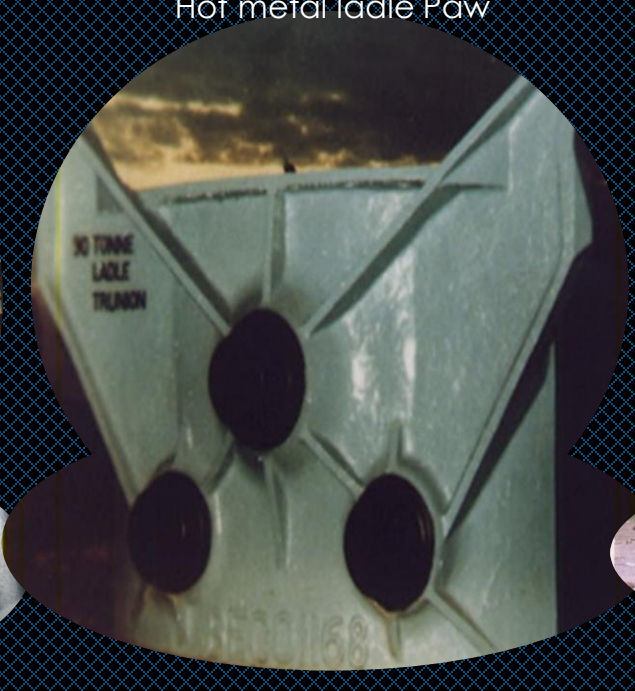


Big Bell Hopper

Hot metal ladle car



Hot metal ladle Paw



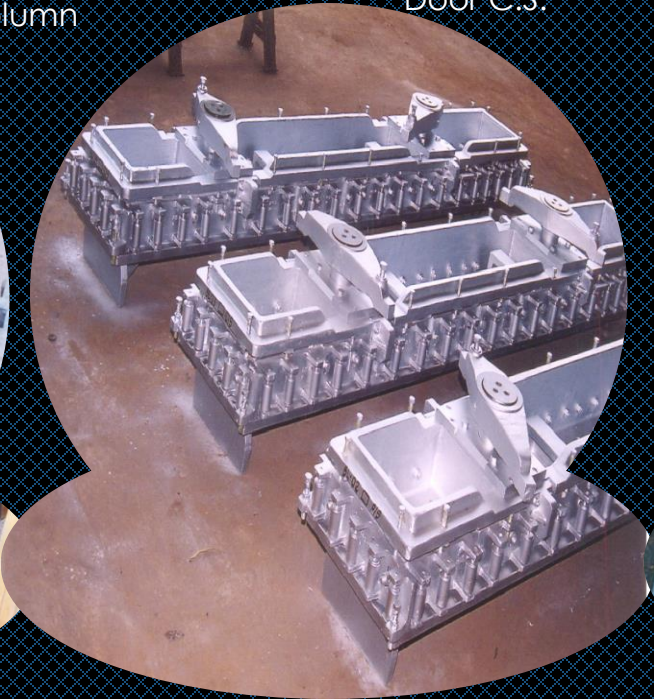
Slag Pot for Steel Melting Shop



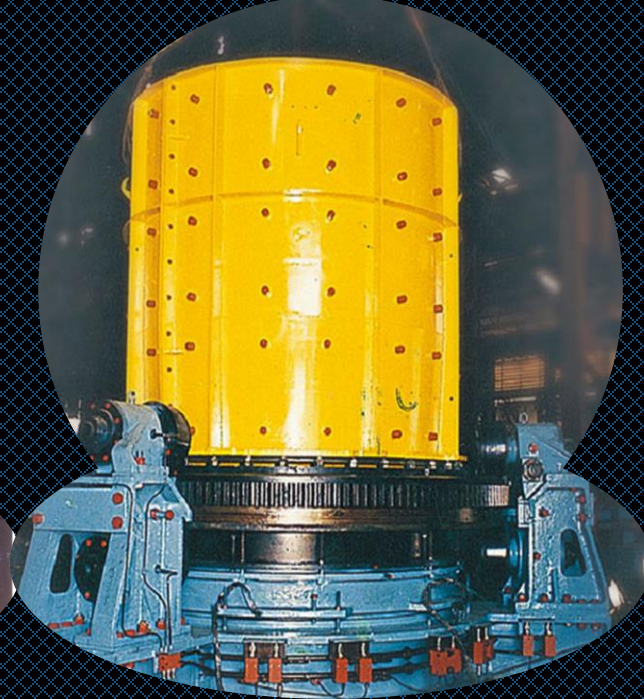
Blast Furnace-Grid & Column



Door C.S.



Rotary Burden Distributor



Quality Assurance

Stage - I

Liquid metal temperature
Chemical composition

Stage - II

Visual check – Before H.T.
Visual check – After H.T.
Mechanical Testing /
Hardness of Test Piece

Qualified NDT personnel –
ASNT/ISNT Level – II

Metallography - 1200 X

NDT:T, RT (IR – 192 & X – Ray),
LPT, MPT

Volumetric Analysis &
Sand Testing Lab

Stage -IV

Dimension check using
various Gauges, after
Machining.
Final Check after Assembly.

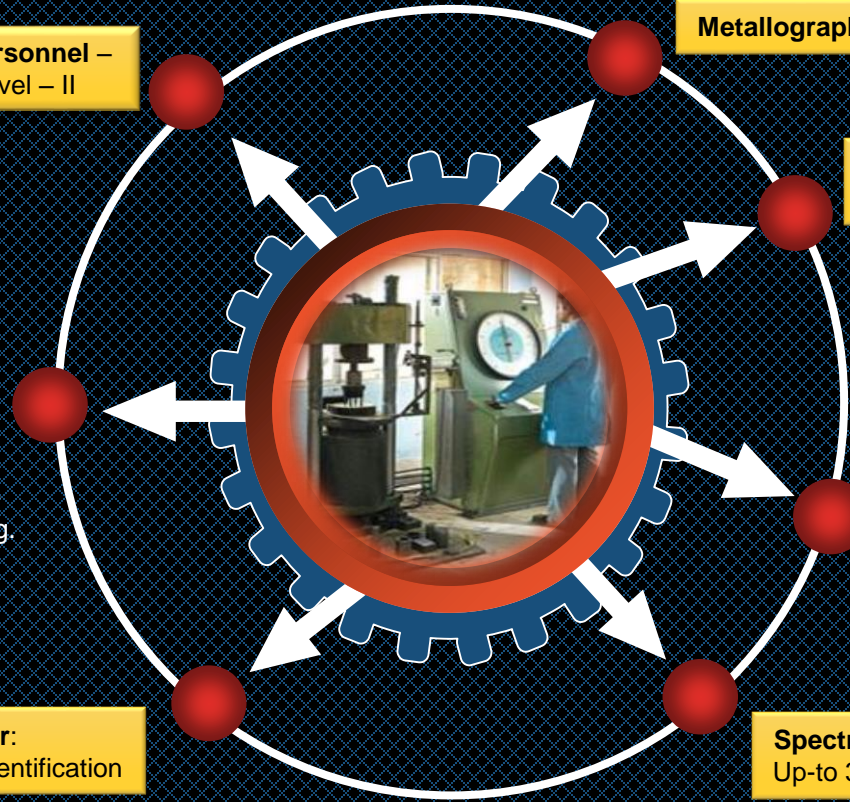
Stage -III

Dye Penetration Testing.
Magnetic Particle Testing.
Radiography – 1 in 10
castings.

Mechanical : .UTS (40 Ton & 60
Tons) Impact at sub zero
temperature, Hardness (BHN /
Rockwell)

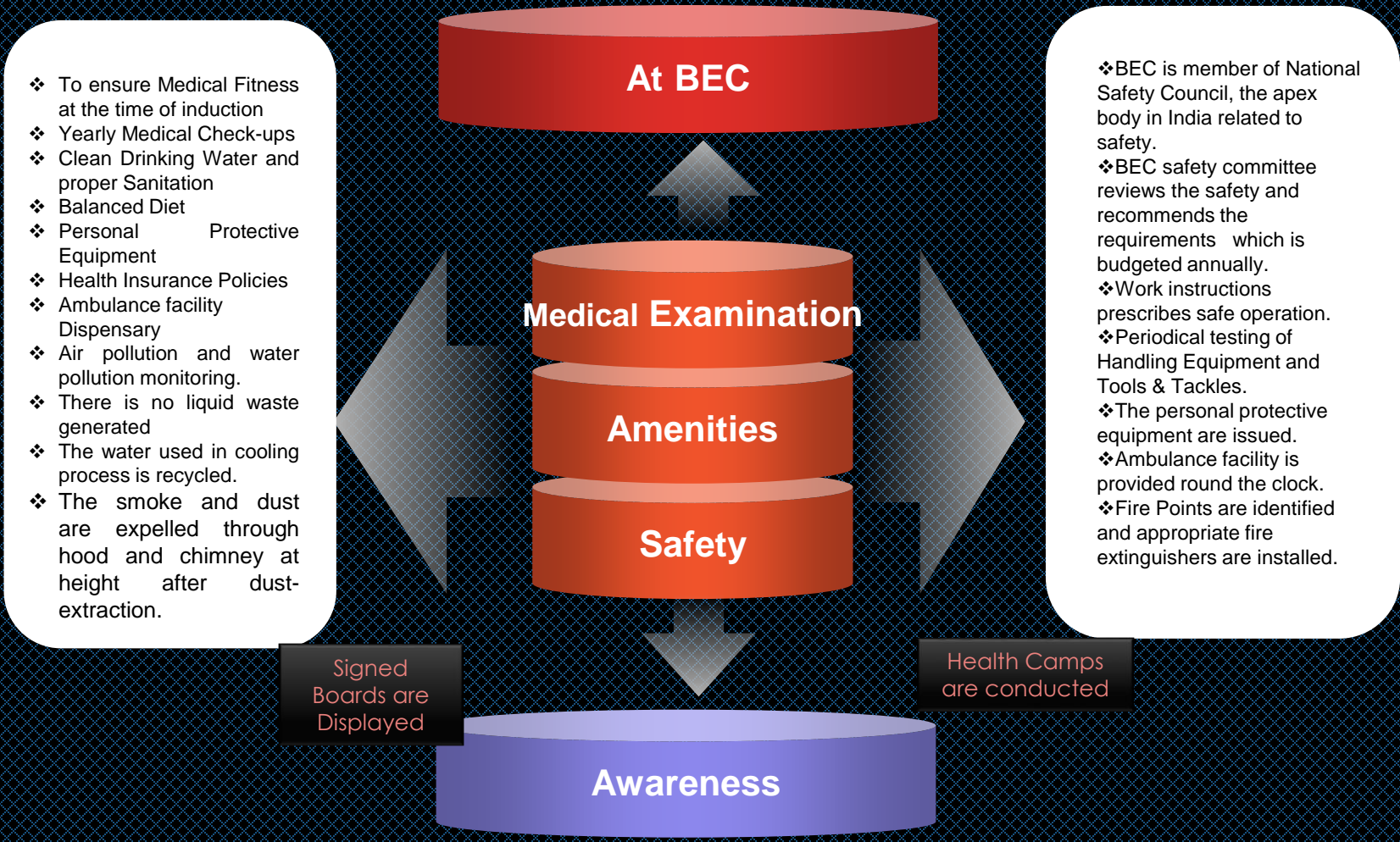
Portable Analyzer:
Scrap and Ferro Alloys identification

Spectro Analysis:
Up-to 30 elements



All products manufactured are thoroughly inspected, tried & tested for quality, efficiency and reliability. Our in-house testing laboratories are equipped with advanced and sensitive testing equipment controlled by experienced engineers, infatuated with quality. The scope of Quality Control begins with incoming material and components and persists until the finished product is tested & rolled out.

Healthy Safety & Management Environment (HSE)



BEC operate a mature Environmental Health and Safety Management System which we continue to review and improve. BEC strive to achieve the goal that it is unacceptable for people or the environment to be harmed as a result of our work, whether physically or mentally.

Certification

AAR (Association of American Railroads)

Ukraine Railway Certification for Bogie Frame (Bolster & Side Frame)

ISO 9001 – 2008 (Lloyd's Register Quality Assurance Standard, UK)

RDSO (Research Design & Standards Organization, Railways) approved Class 'A' Foundry

IBR Approval for manufacturing Pressure Containing Castings Parts

Star Export House - Ministry of Commerce & Industry (GOI)

Certified by BEML for supply of Steel & Manganese Steel Castings

American Bureau of Shipping (ABS) Certification for supply of Steel & Iron Castings for Marine Appl.

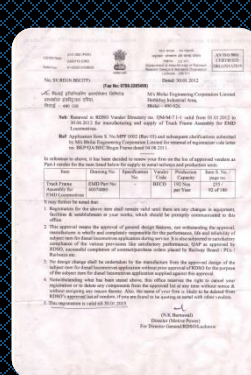
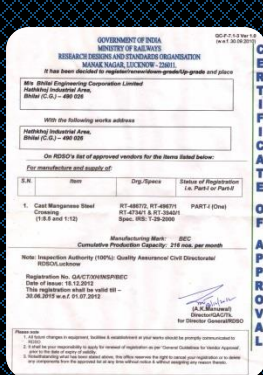
RDSO Approved supplier for Truck Frame Assembly for EMD Locomotives

RDSO Approved supplier for Tri-Axle and Flexi-coil Bogie Frames & CS Bolster for BG Locomotives.

RDSO Approved supplier for HTCB Coupler and Draft Gear for Freight Wagons.

DAkKS (Germanischer Lloyd SE) GL System Certification for Fabrication & Manufacture of Heavy Boiler Component & Structural Fabrication of Tubular Tower Sections for Wind Mill & Other Industrial Application

RDSO Approved supplier for Cast Manganese Steel Crossings (1:8.5 and 1:12, 52 & 60 Kg)

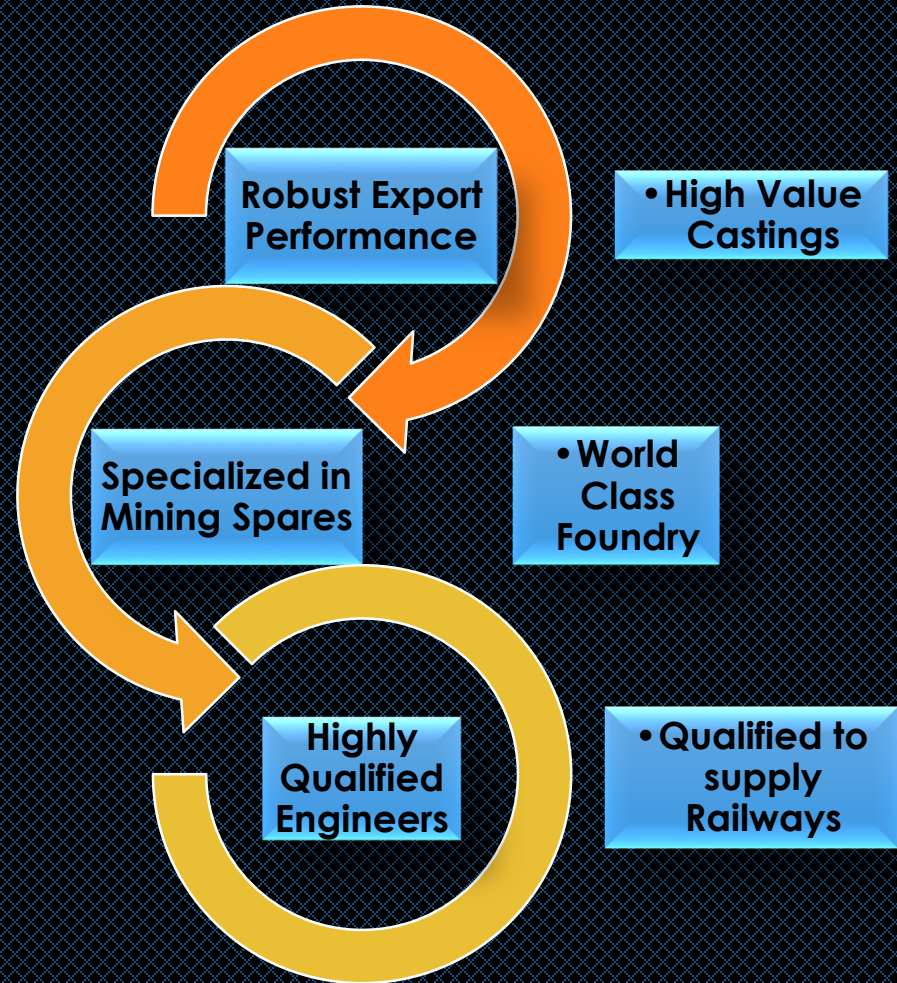
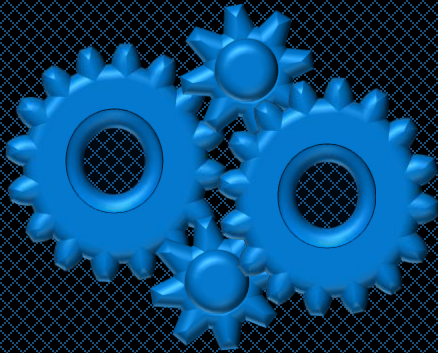


Recognition & Certificates

Closing Remarks



Professionally
Managed Company



We desire to build best solutions that work for you.

Sudeep Gupta
BEC Steel Foundry Division.
Bhilai Engineering Corporation Limited
Hathkhaj Village, Industrial Area,
Bhilai – 490026, Dist. – Durg,
Chhattisgarh, INDIA
Tel No.: +91 9329730535;
Fax No.: +91 788 2285499
Email: sudeep.gupta@bec-group.com
marketing.foundry@bec-group.com
Website: www.bec-group.com



Neera Gupta
Bhilai Engineering Corporation Limited
BEC House
13 Masjid Moth DDA Commercial Complex,
New Delhi -110048, India
Cell No.: +91 9810205022;
Fax No.: +91 11 26803521
Email: neera@bec-group.com
Marketing.foundry@bec-group.com
Website: www.bec-group.com



**We would like to extend our gratitude
and thanks to all for viewing this
presentation with us.**



BEC has long made it a priority to reduce its environmental impact. At our facilities, we are constantly seeking new ways to recycle and reduce energy consumption.