P P ROLLING MILLS MFG CO PVT LTD

INDIAN ENTERPRISE GLOBAL STANDARDS

MOTIVATED TO ACHIEVE EXCELLENCE

Late Mr. PREM KHANNA
Chairman

Started a family run business, PP Rolling Mills Mfg. Co. is today a professionally managed company. Set up by late Mr. Prem Khanna, the youngest son of the Late Shri Dharam Chand Khanna, PP Rolling Mills Mfg. Co. Pvt. Ltd. is a tribute to the vision and enterprise of his father who set up a small factory to manufacture hand presses after partition of India in 1947.

PPRM - KEY MILESTONES & HISTORY

- Prem Eng Works was founded in 1947 to manufacture manual hand presses
- The late Mr. Prem Khanna joined Prem Engg. Works in 1962 with a focus to develop special gears as import substitutes for sugar mills, turbines and cement plants
- Under the leadership of the Late Mr. Prem Khanna, Prem Eng Works started making gear boxes for Rolling Mills in 1976
- In 1985, the Late Mr. Prem Khanna incorporates PPRM with a focus to manufacture gear boxes and Rolling Mill equipments
- In 1990, Mr. Pankaj Khanna (Managing Director) joined PPRM and started the journey towards supply of complete turnkey projects for long products
- In 2005, Mr. Praneet Khanna, Director (Operations) joined with focus on New Technologies, Operational Excellence and implementation of World Class Systems
- In 2013 PPRM signed agreement with Kobe Steel to provide Pouring Reel Solution (Garret Coiler Lines)
- In 2014 PPRM signed agreement with Kobe Steel to provide engineering for rolling mills to produce 500,000 TPA of rebars

Contents

MANTRA
LETS IMPLEMENT

Mr. Praneet Khanna Mr. Pankaj Khanna

VISION

To be among the Top Global Suppliers of Cost effective Turnkey solutions for Rolling Mills, Gear Boxes and Heavy Machine Building through Implementation of World Class Practices.

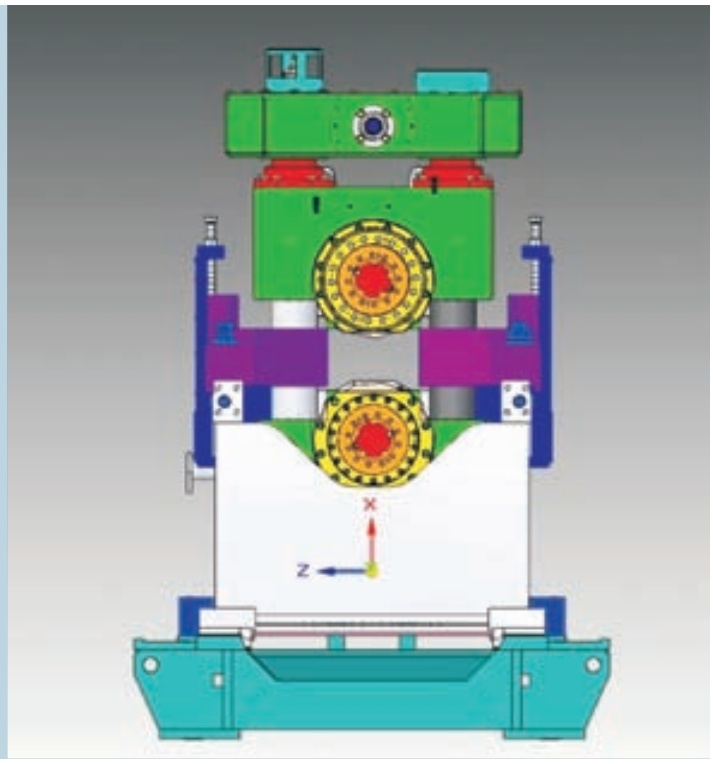
QUALITY POLICY

Meeting or exceeding customer expectations through continuous improvement.

OUR KEY PRODUCT AREAS

- Turnkey Projects: Hot Rolling Mills for Long products
- Modernization of Rolling Mills for Long products
- Quenching systems for the production of TMT bars
- Tailor-made Gear Boxes for critical applications
- Heavy Machine Building & Fabrication

RESEARCH AND DEVELOPMENT



Technical Development

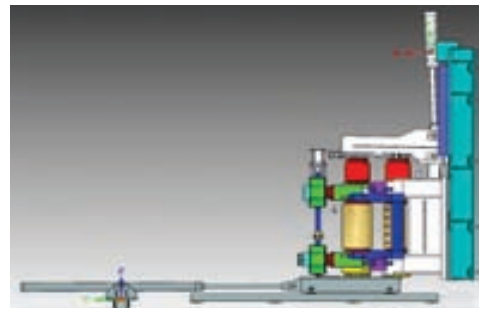
The best products originate from the best technology. We make every effort to create the most advanced technology to meet our customers process requirements.

Our R & D infrastructure includes

- A full fledged CAD based design section backed by professionals with decades of field experience
- 3D Modeling on the Solid Works and Solid Edge Platform
- Gear Design using KISSsoft gear design software
- An ERP system that allows us to effectively manage organizational resources

We are continuing to invest in upgrading our designs to improve performance and reduce overall cost to customer. Our latest efforts include:

- Housingless Mill modernization
- Cantilever stand development
- Bar counter and bar separation systems



IMPLEMENTATION OF TOYOTA PRODUCTION SYSTEM AT PPRM

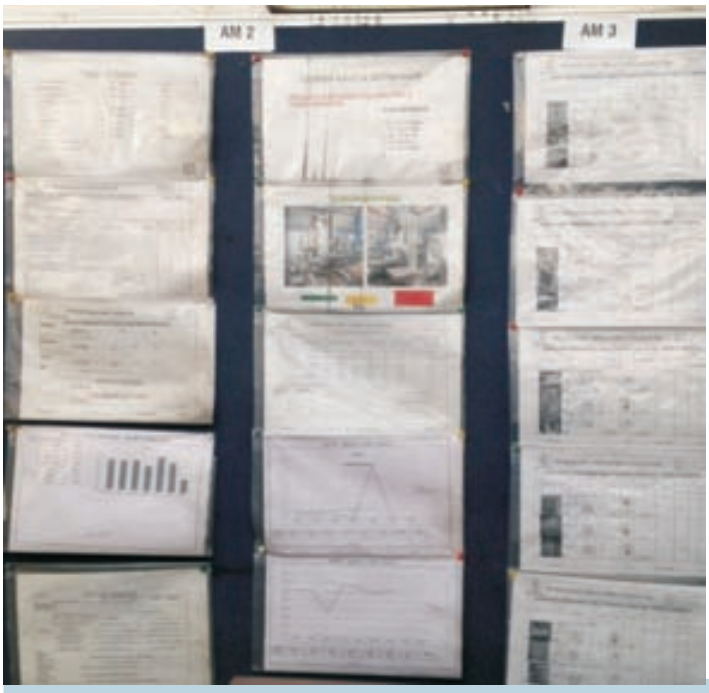
PPRM: The Kaizen Journey-Implementation of Toyota Production System

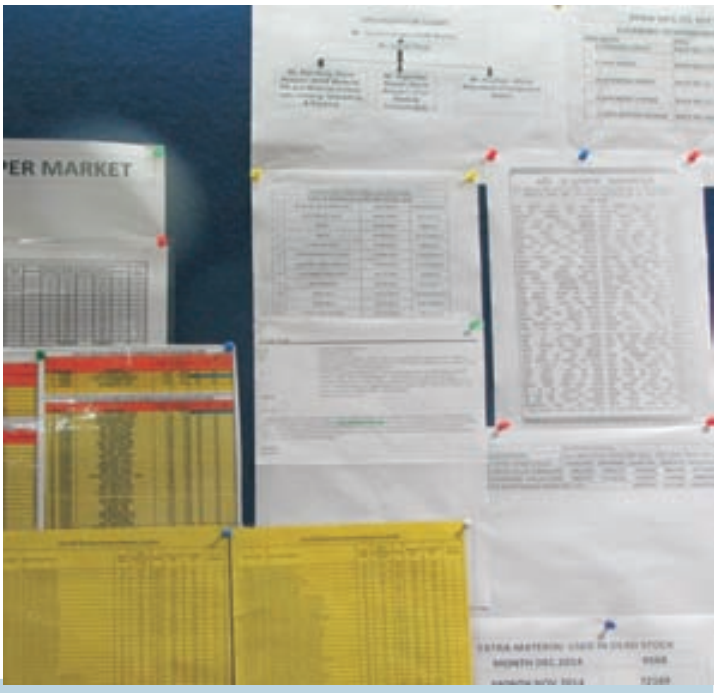
Aim to be both Competent and Competitive.

Aim to become a Quality supplier with Lowest Delivery Period and at the most reasonable Price of the Product.

Already Implemented at PPRM

- Implementation of 6S
- Implementation of Autonomous Maintenance
- Implementation of Planned Maintenance
- OEE, MTBF,MTTR
- Concept of Flow and Pull, Value Stream and Throughput Time
- Implementation of supermarket for bought outs and raw materials-Kanban System
- Development of SOP's for key business processes
- Development of workmen and staff skill matrix. Balance Score Card, Corporate Score Card
- SHE audit score





Visual Management

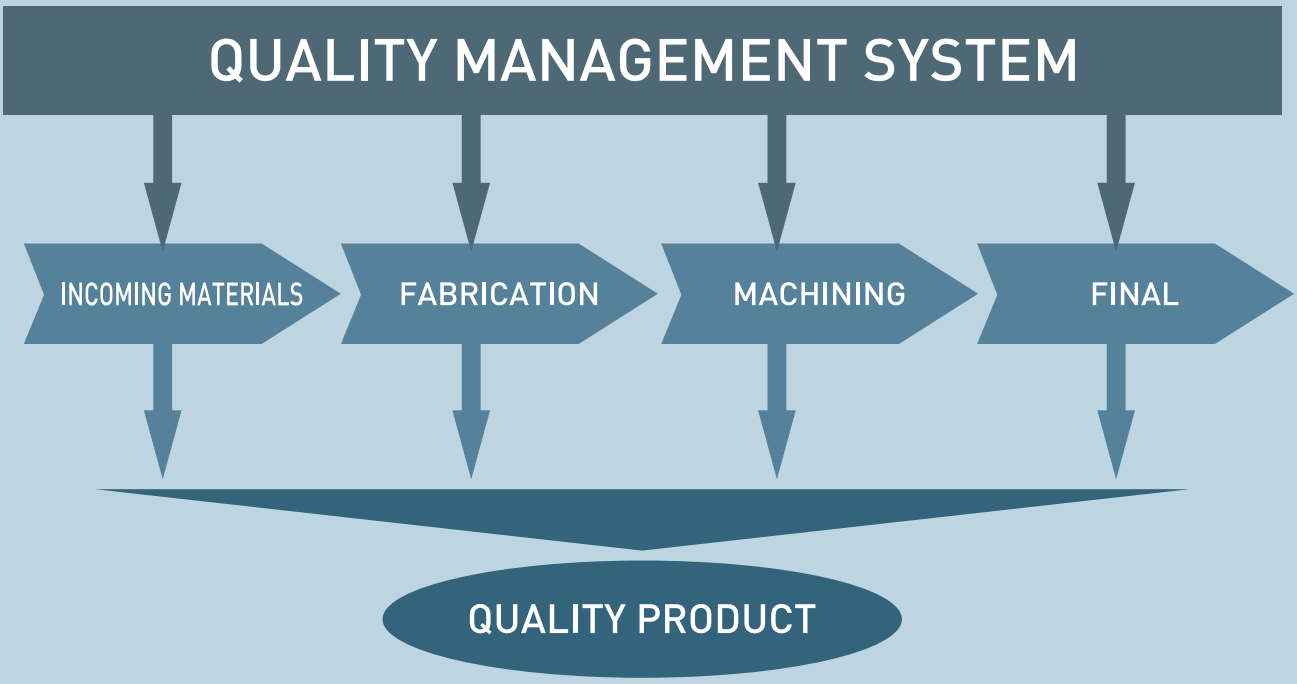
Kanban takes care of 3 things :

1. No stock out
2. Controls the inventory. Inventory can never cross the maximum kanban quantity
3. No generation of purchase requisition is required

Four Principal Elements of Lean Daily Management The lean management system consists off our principal elements:

1. Visual controls -Transmission-To move ahead
2. Daily accountability process -Gas Pedal
3. Leader standard work and Check List –Steering Wheel
4. Leadership discipline- Fuel

Daily Management Work at PPRM



QUALITY POLICY

We the management, staff and employees of PPRM strive to continuously improve the effectiveness of our quality management system

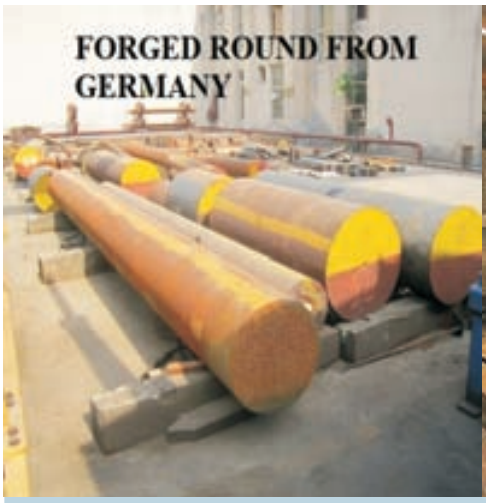
We are also committed to fulfill the needs of our customers with the highest degree of commitment to ensure total customer satisfaction

Continuos improvement & on time delivery

Right quality first time every time

Quality Certification

- ISO 9001:2008 (QMS)
  Valid from 12.12.2014 to 11.12.2017
- ISO 14001:2004(EMS)
- ISO 18001:2007(OHSAS)



To Achieve a Quality Product we do inspection at different stages

Incomming & at supplier end.

- Plates
- Structural Steel
- Forging
- Casting
- Bop
- Machining

Final Inspection

- Fabrication
- Machining
- Assembly
- Testing

Inprocess in Shop

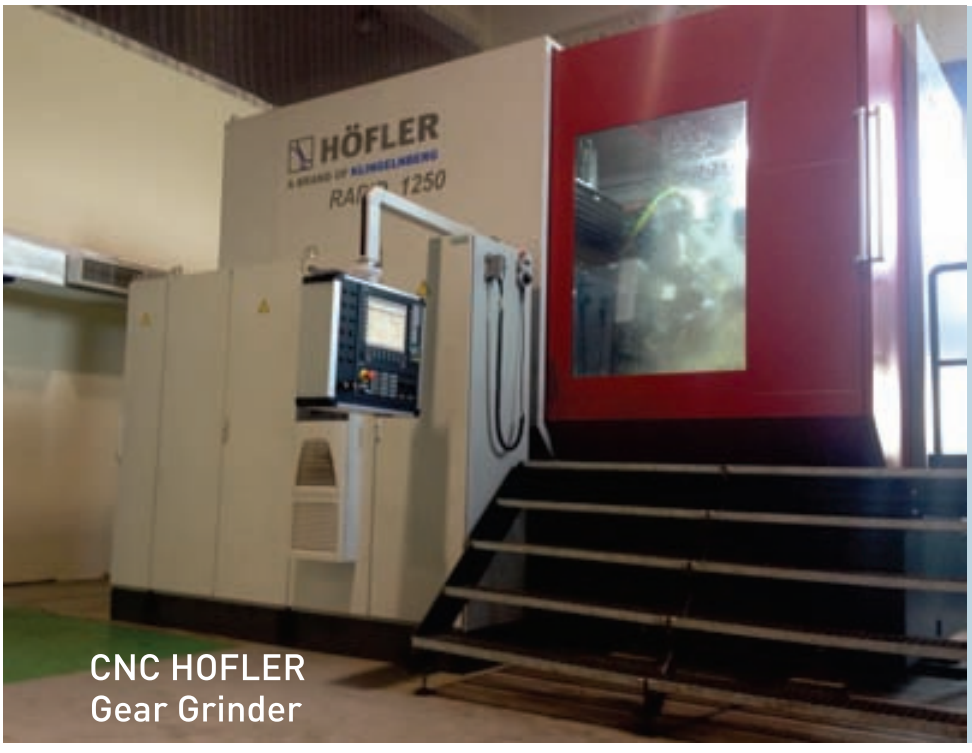
- Fabrication
- Machining
- Sub-Assembly
- Assembly

Final Packing & Despatch Clearance

NCR Handling

In case of NCR (defect/deviation beyond the acceptable limit) we follow the following:

- Record the defect/ deviation in form of NCR
- We forward the NCR to our customer
- As per customer recommendation we take the corrective action
- Based upon analysis the defect we identify the preventive action
- To ensure the effectiveness of preventive action. We check the future jobs



CNC HOFLER
Gear Grinder

PPRM INFRASTRUCTURE

We are a multi - site business, developed over the years to ensure the highest level of efficiency and product quality while delivering optimal cost solutions to the customer. Our facilities consist of:

- Machine Shop-1,20,000 Sq. ft.
- Assembly- 80,000 Sq.ft.
- Gear Shop- 22,000 Sq.ft.
- Fabrication-40,000 Sq.ft.
- Paint Shop-11,000 Sq. Ft.
- Shot Blasting and Stress Relieving facility-5000 Sq. ft.

Unit III

Our modern machine shop consists of some of the best European made machines including:

- CNC Machining Centers
- Horizontal and vertical borers
- CNC Gear grinding machines
- Gear hobbing machines
- CNC Gear testing machines
- Cylindrical grinding machines
- Dynamic Balancing machine
- Lathe and Milling machines
- CNC Profile cutting & welding machines
- CNC Lathes

Unit I

Unit II

OUR TECHNOLOGY PARTNER: **KOBE STEEL**

Technology Agreement with M/s Kobe Steel, Japan

PPRM is collaborating with KOBE Steel, Japan to provide Rolling Mills upto 1,000,000 TPAfor long products. The first project being supplied to KSA for 500,000 TPA to produce Rebars

6 Stand Wire Rod Block for Kobe Steel, Japan

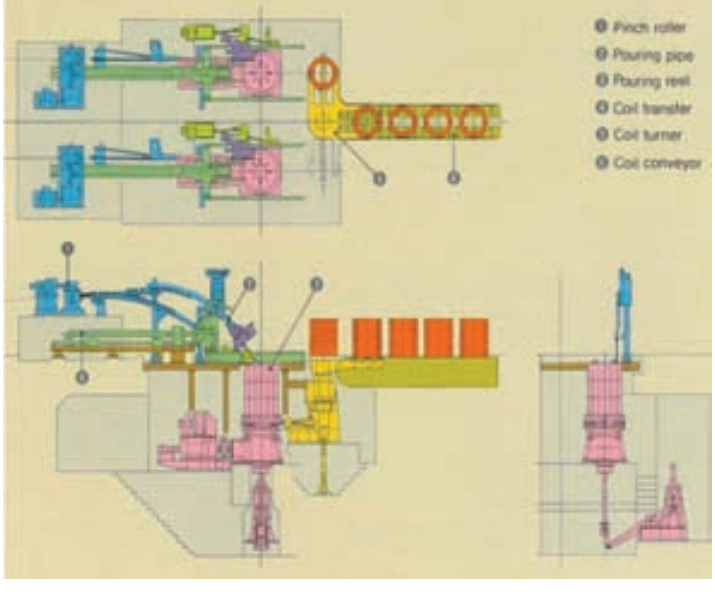
Kobe Team at PPRM works

Housingless Mill Stand

Pouring Reel under license from Kobe Steel

Pouring Line manufactured under license from Kobe Steel

- Under License from Kobe Steel, Japan, PPRM has taken up development of finishing line for bar Pouring Reels (Garret Coiler Lines) for Alloy Steel, Stainless Steel, Tool Steel, TMT bar etc. The line includes fast cooling, retarded cooling and normal cooling
- The size ranges from Dia 12 mm to Dia 50 mm & coil weight upto 2500 kgs



Pouring Reel Layout

H-V Stand at Hospet Steel Bellary, India

ROLLING MILLS:
COMPLETE MILL DESIGN

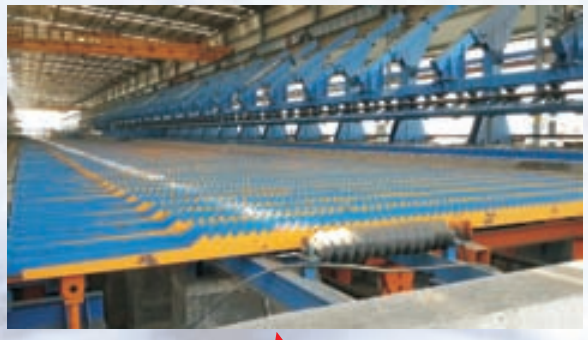
COMPLETE TURNKEY PROJECTS FOR THE HOT ROLLING MILL INDUSTRY

- PPRM has been providing complete project solutions (Design, Manufacture & Mill Commissioning) for Bar, Rod and Section mills Since 1985
- Our team of highly qualified and experienced design engineers are instrumental in providing value added solutions for the Hot Rolling Mill industry
- PPRM has modern facilities with some of the best European made machines equipped with latest CNC and digital readout systems. This coupled with strict Quality Control procedures ensure quick and smooth implementation of projects

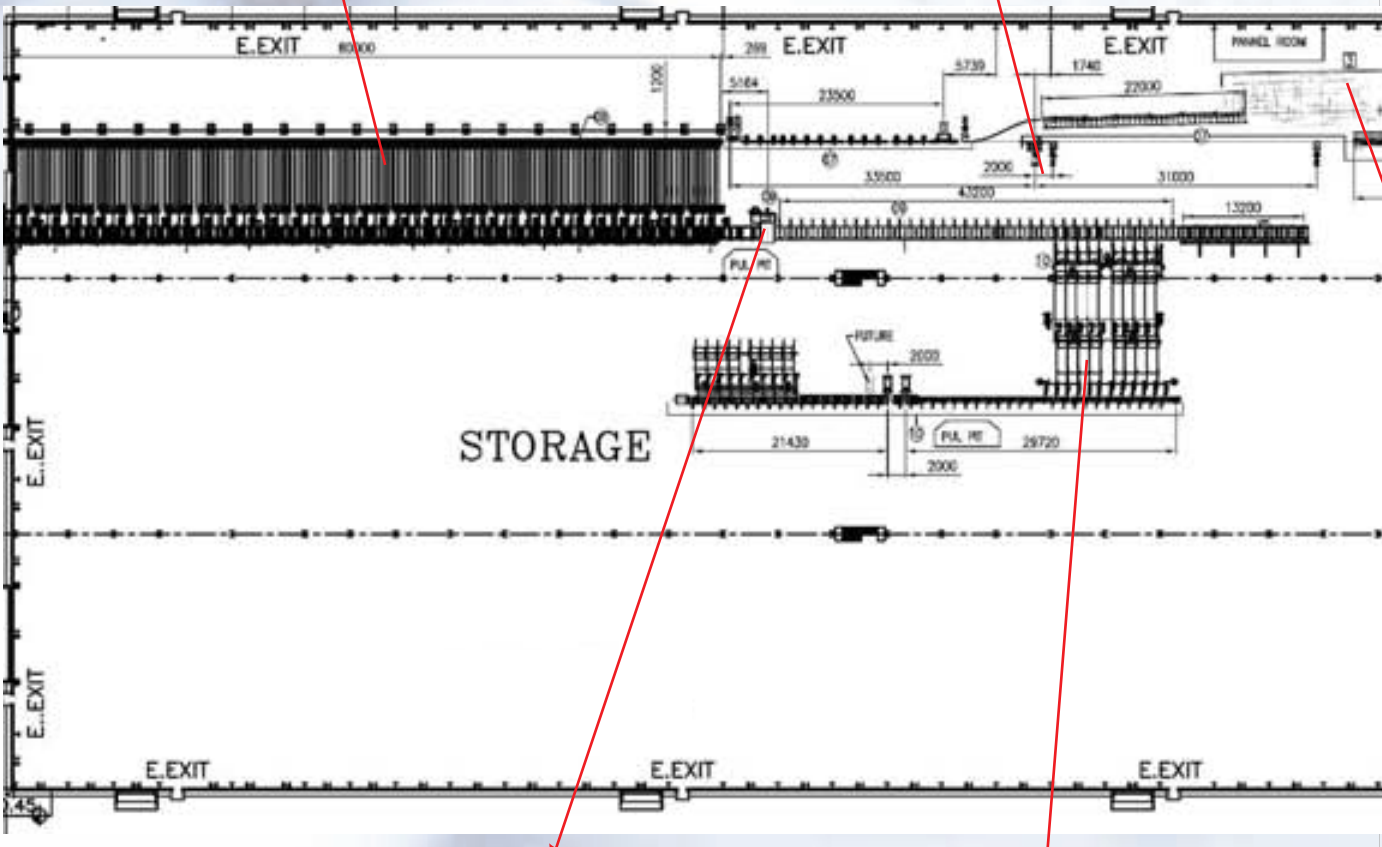
We specialize in the supply of various equipments for high productivity mills including:

- H-V Housingless Stands
- Start-Stop and continuous operating shears
- Cold Shears upto 500T cutting force
- Automatic Cooling Bed and Bar Handling Equipments

Cooling Bed



TMT Shear



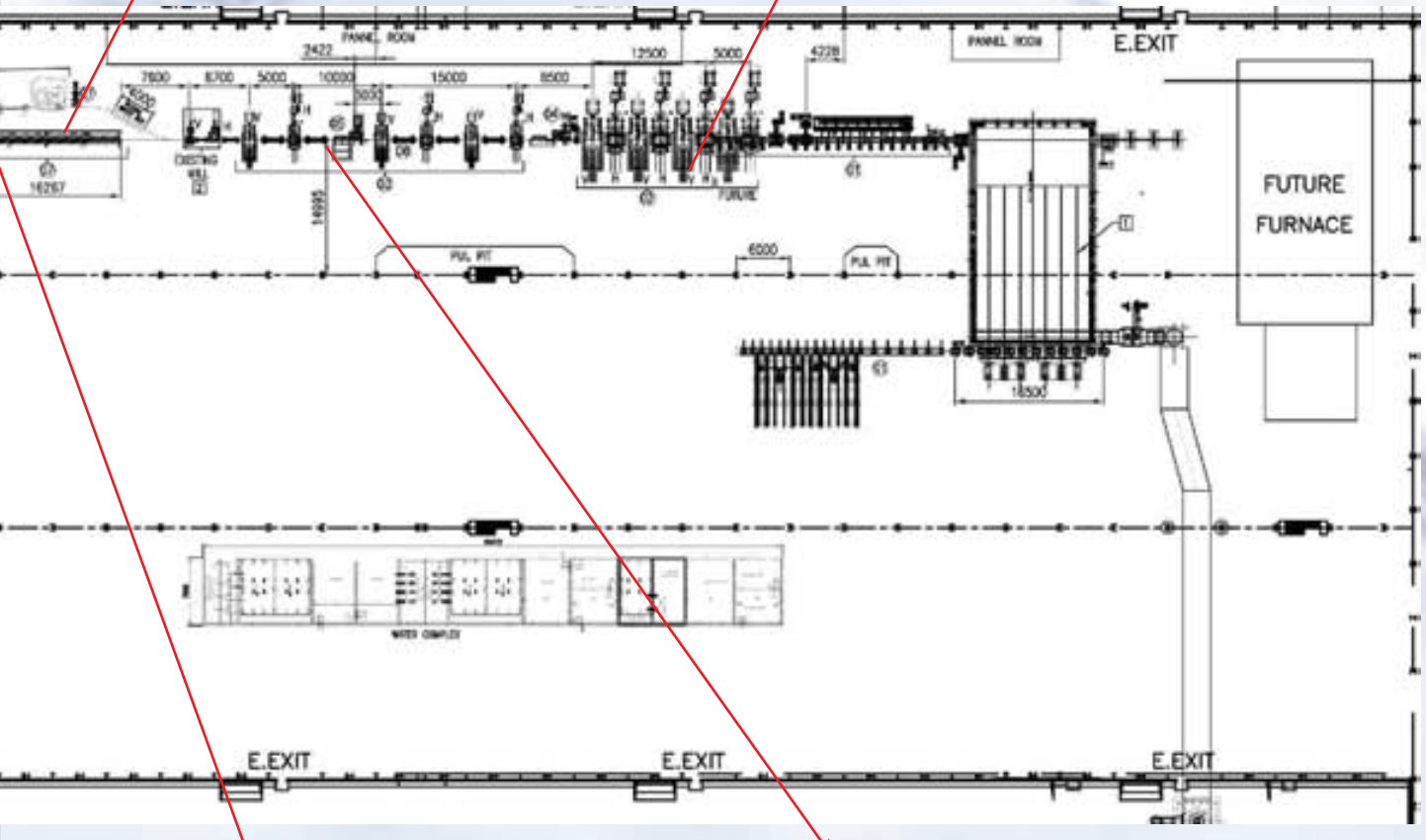
Cold Shear

Bar Counter & Seperator

Typical layout for a 500,000 TPA Rebar Mill

Quenching System

H-V Mill Stand



Block Mill

Crop & Cobble Shear

ROLLING MILLS: MILL STANDS

HOUSINGLESS MILL STANDS

High rigidity, reliability and quick roll change capabilities are the key features of these state of the art mill stands, which are designed for producing bars, wire rod, angles, flats, channels, and universal beams. The connection and disconnection of the spindles and all the fluid utilities are fully automatic and therefore the stands can be interchanged very quickly. Different versions including horizontal, vertical & convertible which converts a horizontal to a vertical) are in operation, allowing rapid adaptation to the variety of the rolled products needed to fulfil stringent market demands. Line flexibility allows rolling with low-temperature, high-alloy, & wide forming passes.

FEATURES

- High component rigidity
- Reduced stress path
- Fully automatic operation
- Axial roll adjustment
- Automatic screw-down system
- Possibility for adjustment under load
- A roll balance system, which eliminates backlash
- Minimum wear and positive engagement due to self-balancing spindle support
- Long bearing life
- Automatic utility connections

SHIFTABLE REVERSING MILL STANDS

Modern 2-high shiftable stands are fully automated. They represent an innovative solution for roughing and intermediate mills and constitute the latest stage of 3-high stand evolution.

FEATURES

- A fixed rolling line with shiftable stands to match the exact groove according to pass design reduced roller table width
- Advanced billet manipulation system
- Automatic roll gap adjustment
- Simple foundations
- Reduced bite angle due to adjustable entry speed

CONVERTIBLE STANDS

Today's mills can be used in a wide range of configurations in order to provide an unlimited selection of products from a single mill layout. It is possible to change from one unrelated product to another by simply pushing buttons and without the lengthy procedures needed for an old style mill change over. Convertible stands allow either horizontal or vertical positioning of the intermediate and finishing trains in accordance with production requirements.

FEATURES

- Less than two minutes to change position
- Reduced foundation depth
- Excellent stand rigidity
- Quick stand change system without crane requirement

UNIVERSAL STANDS

These stands are used when rolling structural shapes. In addition to the horizontal rolls, the stands are fitted with a set of idler rolls to work the flanges.

FEATURES

- Fast stand and roll change
- Modular design to reduce crane requirement
- Hydraulic vertical and horizontal roll adjustment
- Highest **rigidity** with housing less design

550 mm Housingless Mill Stand

H-V Cantilever Stand

GEAR BOXES

In order to meet the enhanced reliability and delivery requirements of the growing industrial applications we have gone for a major expansion and increase in capacity. We have the required expertise in to manufacture precision gearboxes and have among the best facilities for the entire process. Our team of engineers, metallurgists, modern manufacturing and testing facilities allow us to provide reliability meant for heavy duty and critical applications.

Our passion for manufacturing excellence and commitment to world class quality and on-time delivery is clearly reflected in our state of art the manufacturing facility which includes:

- G& E, Libherr and Pfauter gear hobbing machines
- HOFLER gear grinding machines up to 2000 mm and 25 modules
- CNC SCHARMAAN Horizontal Boring machines
- CNC MAAG gear profile testers
- The best names in OD, ID and surface grinding
- Stress relieving and shot blasting
- KISSOFT based gears design
- Schenk Dynamics Balancing Machines
- Sealed Quenched Furnace with Sub Zero Facility
- Hand Held Digital Vibration Meter
- Mitutoyo Model SJ-301 Portable Surface Roughness Measurement Surftest

APPLICATIONS

We provide a variety of solutions for:

- High Speed Gear Boxes tested up to 10,000 rpm
- Steel rolling mills
- Cement Industry
- Sponge iron plants
- Sugar mills
- Paper industry
- Agriculture
- Other diversified industries

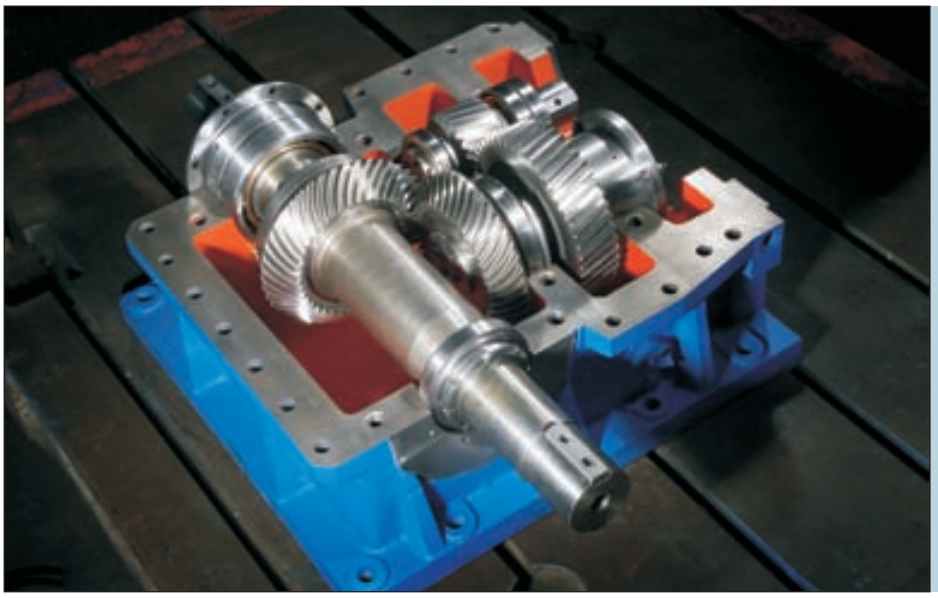
Gear Box for Vertical Mills

Gear Box with reduction in Vertical Axis

PRODUCT RANGE

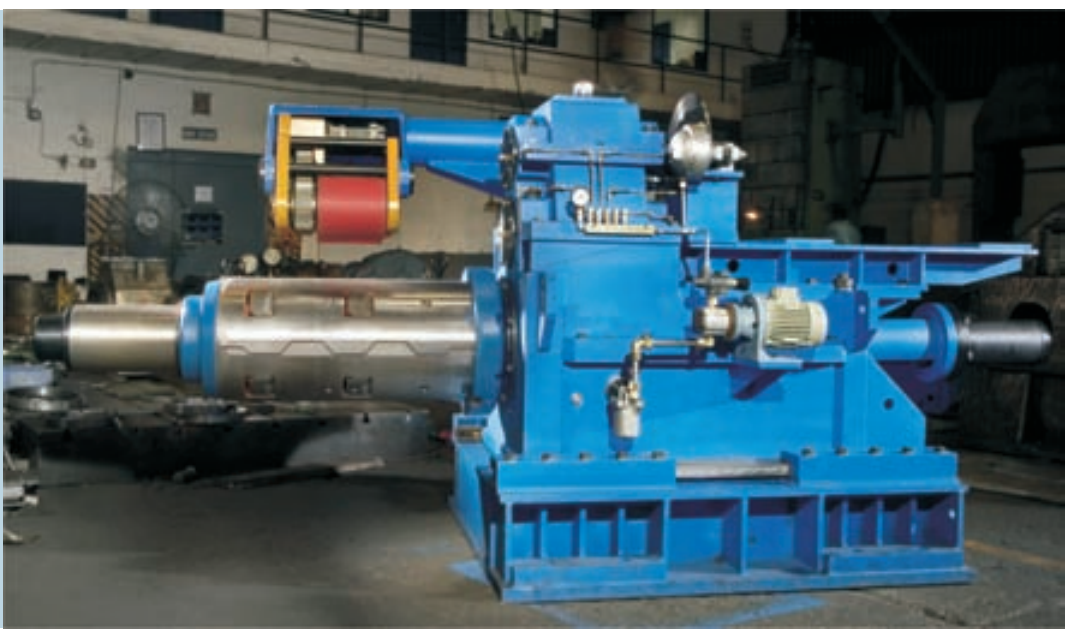
The range of our gear boxes covers the following:

- Sequential gearboxes
- Helical Gearboxes
- Planetary Gearboxes
- Bevel Gearboxes



Bevel-Helical Gear Box

Gearbox with
Tension Reel Mandrel



Gear Box for Convertible Mill

Bevel Gear Box for Convertible Mill

QUENCHING SYSTEM

- Over 125 Quenching systems to produce TMT bars alongwith flying shears have already been commissioned.

QUENCHING SYSTEMS

- Quenching system upto 150 Tons per hour
- Self Tempering Process that ensures High Weldability
- TMT Bars of Fe 415, Fe 500,Fe 550 & Fe 600 grades
- "TEMPCORE" endorsed production process
- Technical Partnership with Herbert Rothe of Germany
- TMT approved by SAIL and MES

PPRM Quenching System

ROLLING MILLS : SHEARS AND SAWS

SHEARS

CROP & COBBLE SHEAR

The Shears are used in Hot Rolling mills to Crop Front End, Tailend and as well as to cobble cutting in case of eventualities. These Shears are start / stop type and are DC motor driven. These Shears are controlled through PLC System and provide very close tolerance of the cut length.

COOLING BED DIVIDING SHEAR (TMT SHEAR)

These Shears are used to cut cooling bed lengths. (Surface temperature around 350C^0 min.) and are installed after the Quenching line & before entry to Cooling Bed.

Shears are Stop/ Start and Continuous Operating type are DC Motor driven
These are controlled through PLC System. Hence very close tolerance of cut length is achieved.

COLD SHEARS

PPRM designs flying and static type cold shears with clutch and brake or direct drive, to produce the ultimate end product.

Features

- Both open and closed side types are available
- Extremely precise cutting
- Quick-change device for blade replacement
- Handles quenched rebar and high alloy steels
- Available with start-stop drive

HOT SAWS

The Hot Saws are used in Hot Rolling Mills to cut desired length and as well as to trim front & Rear End. These shears are capable of cutting section size ranging from 80 to 600mm (Beam Channel Angle) and as well as Square, Rounds of 40 to 250 mm. These hot saws presently are of two types: Pendulum swinging type and horizontal sliding type.

300T Cold Shear 750 mm BL

Travelling Type Hot Saw

Continuously Operating Shear

Crank Type Dividing Shear

ROLLING MILLS: BLOCKING MILLS

X-Type No-Twist Block Mill for Wire Rod, JAGDAMBA Steel, Nepal

PPRM provides the complete range of equipment needed for today's modern wire rod mill operations with specific solutions for carbon steel, stainless steel and special steel comprising HEEP Technology.

Our finishing blocks with design speeds of up to 80 m/second are in operation, offering maximum reliability and efficiency, as well as maintaining close tolerances.

WIRE ROD BLOCK

MACHINE DESIGN

The wire rod block has 3 main design characteristics:

- **1st -** All roll units are driven via a group drive with non adjustable permanent relation between the roll rpm of the roll units.
- **2nd** - It is designed for twist free rolling between the roll units therefore the alternate roll shafts are oriented by 90 degree from each other
- **3rd** - The roll units are of the cantilever type, facilitating easy and quick changing of Rolls

FEATURES

- Low-cost production even for small order lots
- Most compact stand design available on the market
- Rigid cassette-type stands for rigid & consistent product tolerances
- Reduced bay height requirement
- Fast cassette change with standard mill crane; open access to top of cassette
- Fast roll change, with out any need for special equipment

Laying Head

Disc & Drum Shear

High Speed Pinch Rolls

ROLLING MILLS: COOLING BEDS

Automatic Rake - Type Cooling Bed with layer transfer, Action Ispat, Odisha, India

Cooling beds naturally cool the material as well as cross transfer towards the discharge end. PPRM cooling beds are designed using standard modules that can be combined in accordance with plant product mix requirements and production capacity.

Full mechanical component standardization assures constant equipment quality, as well as high performance levels. Depending on differing speed requirements, cooling bed entry can be completed with lifting aprons and natural braking, magnetic braking, or twin channel and mechanical braking. For special applications, the cooling beds are provided with slow cooling by insulated covers and forced cooling by water spray systems or water tanks. A twin or double-twin channel system for extremely high rolling speeds is available The types available are:

- Automatic rake type cooling bed which transfer the material by one pitch for every rake movement. These are provided with twin channel bar delivery system or run in table with apron type diverters. The bed is provided with bar aligning arrangement, layer frming and transfor

- Turn-over type cooling bed for alloy steel which rotates the bars every time the rake moves by a pitch These imparts superior straightness in material, improvised metallurgical properties as the bars are uniformly cooled

Layer Transfer Arrangement

ROLLING MILLS:
TWIN CHANNEL

The twin channel offers solution to bar handling at cooling bed at high speeds. Twin channels are available for bar sizes up to 40mm in dia and stock speeds as high as 30 mtrs per second. This carries the bar in a closed channel until the material comes to a stand still position and discharges it to the bed below automatically.

This is an excellent system as it carries the bar in a closed channel, minimizing the risk of accident. Its design feature makes it possible to work in conjunction with braking pinch rolls, minimizing the length of run-in. The operations of twin channel are automated and are guided by the discharge of the rods from dividing shear. An Innovative idea from PPRM for cast iron centre boxes has drastically brought down maintenance time and water requirement.

Lifting Aprons at UNIROL, Bahrain

ROLLING MILLS: BAR HANDLING AREA

Bar Counter & Seperator

Finishing equipment includes the automatic counting, stacking, bundling, binding, weighing and labelling of rolled products.

STACKER AND BUNDLING SYSTEMS

Stackers suited to handling straight and reverse layers are available for all type of sections. Handling of the straight and reverse layer can be mechanical or agnetic with high speed stacking.

All stackers have a built-in bundling function. Bundlers for round and flat bars are available together with bar counting for rounds and small bundle systems.

The packing form can be round, square, rectangular and hexagonal.

BINDING SYSTEMS

Automatic binding of the packages and bundles is available with wire or strapping.

WEIGHING AND LABELLING

All bundles can be automatically weighed and further labelled for quality assured delivery of the finished products.

Bar Counter

CNC ROLL TURNING &
CNC ROLL NOTCHING & NAME WRITING MACHINE

CNC RollTurning Lathe

- Siemens 802D CNC controller with 0.001 resolution
- 1100mm width 4 guideways bed for better rigidity
- Large size spindle bore and heavy duty tail stock
- Hardened and ground guideways with Turite-B for longer life

CNC Roll Notching & Name Writing Machine

- Single Machine that does both Roll notching and name writing
- Swivel head for accurate name engraving
- Fly milling head for smooth notching
- SIEMENS CNC controller with easy to use software
- All international rolled ribbed bars standards can be engraved

HEAVY MACHINE BUILDING & FABRICATION

Tailor made to customer design and specifications for Steel/ Tube/ power/ sugar/ chemical plants.

"Cost Effectiveness" of an equipment builder would greatly depend on his in-house facilities and man power competence, which in the ultimate analysis, would determine Quality of equipment and timely delivery.

Complete infrastructure and machines are available in-house, to handle a wide range of jobs and tasks. We also specialize in machining of heavy jobs on Horizontal Boring, Vertical borings, Gear Hobbings to name a few. These machines are well supported by EOT cranes with a maximum capacity of 40 Tons having a lift of 8.5m. Our facilities are backed by 100% stand by emergency power supply.

Our inspection department is fully equipped with the required measuring instruments, which are regularly calibrated. Our competent team of Quality Control engineers regularly undergo training programs, making them aware of the latest developments in the field. These departments take utmost care to ensure that every job strictly adheres to the customers' specific quality standards/requirements.

Satisfied customers include industry leaders, like Larsen & Toubro Ltd. & TISCO growth shop for Steel Plant and Bulk Material handling Equipment ,Flovel Hydro ltd. and Andritz for Power Plants, Mecon & Flat products(I) Ltd. For Cold Rolling Mills, Krupp (India) Ltd. For Sugar plants, Siemens VAI & Danieli for steel plant equipment.

Certificate

Standard	**ISO 9001:2008**
Certificate Registr. No.	**85 100 001 14129**

TÜV Rheinland (India) Pvt. Ltd. Certifies:

Certificate Holder:

P P ROLLING MILLS MFG CO. PVT. LTD.
H. O.: Plot No.-I-42, DLF Industrial Estate, Phase-1, Faridabad - 121 003, Haryana, India.

Unit-1: Plot No.-39, Sector-27 C, Faridabad – 121 003, Haryana, India.

Unit-2: Plot No.-70, Sector-25, Faridabad – 121 004, Haryana, India.

Unit-3: Plot No.-928-956, Sector-58, Faridabad – 121 001, Haryana, India.

Scope:

Design, Manufacture & Installation of Rolling Mill Plants. Fabrication and Machining of Heavy & Light Equipments.

An audit was performed, Report No. 14129. Proof has been furnished that the requirements according to ISO 9001:2008 are fulfilled.
The due date for all future audits is 20 - 08 (dd.mm).

Validity:

The certificate is valid from **2014-12-12 until 2017-12-11.**

Bangalore 2014-12-12

The Certification Body of
TÜV Rheinland (India) Pvt. Ltd

The validity of this certificate is subject to timely completion of Surveillance audits as agreed in the Contract.
The validity of the Certificate can be verified under www.tuv.com with the identification No. 0100044135

www.tuv.com

TÜVRheinland®
Precisely Right.

OUR GLOBAL PRESENCE

- Azerbaijan
- Bahrain
- Bangladesh
- Bulgaria
- Cameroon
- Congo
- Cote D'Ivoire
- Egypt
- Gabon
- Ghana
- India
- Iran
- Iraq
- Italy
- Ivory Coast
- Japan
- Jordan
- Kenya
- Mexico
- Nepal
- Nigeria
- Pakistan
- Qatar
- Saudi Arabia
- Spain
- Tunisia
- UAE

P P ROLLING MILLS
MFG CO PVT LTD

D-820, New Friends Colony, New Delhi-110065, India.
Ph.: +91-129-4181100
Fax: +91-129-4181124
E-mail: sales@pprm.in
www.pprm.in