RG

RAVI GREEN

CORPORATE PROFILE

RAVI GREEN ENGINEERING PRIVATE LIMITED

BRIEF PROFILE

Ravi Green Engineering (Pvt.) Ltd. was established in Lahore in the year 1990. Initially, the Company started as a fabrication workshop with a comprehensive range of machine tools and auxiliary equipment;

Designed to undertake manufacturing and repair of many diverse items of industrial units such as Pressure Vessels, Strippers, LPG vessels, Heat Treatment Furnaces, Water Treatment Plants, Evaporators, Condensers, Boilers etc. The Company has capabilities to undertake Engineering and construction services for industrial units like Sugar Mills, Power Plants, Food & Beverage Industry, Chemical & Petrochemical Plant, LPG facilities and Oil fields etc.

We forge strong long term relationships by understanding you before we turn to engineering solutions. We tailor solutions to your requirements as per the leading industry standards. Our focus on mitigation of risks and the drive for a robust solution allows us to provide our clients with an operational plan tailored to their requirements and conditions.

Management System Certified to:

Ravi Green's reputation has been built by employing some of the engineering industry's top professionals who share an unparalleled commitment to client satisfaction.

Our dedicated workforce of around 500 highly skilled, motivated and competent engineers, supervisors, welders, technicians, fitters, fabricators and machinists, proficient at working on various materials such as carbon steels, stainless steel and other alloy steels, are working day and night to ensure timeliness and client satisfaction.

AUTHORIZATIONS / CERTIFICATIONS

- ASME (American Society of Mechanical Engineers)
  - "U" Stamp for Pressure Vessels.
  - "U2" Stamp for Pressure Vessels.
  - "S" Stamp for Power Boilers
  - "A" Stamp for Power Boilers.
  - "PP" Stamp for Piping.
  - "NB" & "R" Stamp for the repair of Boilers and Pressure Vessels.
- OGRA (Oil & Gas Regulatory Authority) Authorized Manufacturer.
- MoI&P (Ministry of Industries & Production)
  - Authorized Manufacturer Department of Explosives.
  - Recommended Company Federal Boilers and Pressure Vessels Safety Board.

Ravi Green

RAVI GREEN ENERGY · GREEN NDT · CONFIDENT RESULTS · RAVI GREEN welfare trust

THE GROUP

TIMELINE

1990	Establishment date.
1996	Inauguration of Lahore Workshop.
1998	FBPV Recommendation.
2006	ISO 9001 Certification.
2007	ASME S, U, R Certification.
2008	OGRA Authorized Manufacturer.
2010	Establishment 'Green NDT Services'.
2012	Basrah Workshop.
2013	ISO 14001, 18001 Certification.
2014	Establishment 'RG Energy'.
2015	Explosives Department Certification.
2016	Establishment 'RG Welfare Trust'.
2016	ASME U2, PP, A Certification.

Ravi Green Engineering (Pvt.) Ltd. is a multidiscipline engineering and construction company which provides shop fabrication and field construction services. These services are customized to the customers' requirement and are offered as standalone packages or as part of an integrated project. The sectors served are Power Plants, Food & Beverage Industry, Chemical & Petrochemical Plants and Oil & Gas fields. The company was established in the year 1990 to cater to the growing demand for equipment like storage tanks, pressure vessels, boilers and heat exchangers for industrial units.

Green NDT Services is a Non-Destructive Testing, Inspection and Consultancy Company to serve the needs of Industries ranging from Engineering Fabrication and Construction to Marine Oil & Gas. Using our comprehensive range of in house and on-site Non-Destructive Testing Facilities we offer our expertise and product knowledge to all industry sectors.

Ravi Green Energy (Pvt.) Ltd. specializes in storage, bottling and distribution of Liquefied Petroleum Gas (LPG) and operates a state of the art LPG Storage and Bottling Facility in Kasur, Pakistan. We understand that for your home and business, an economical and consistent LPG solution is fundamental. By choosing Ravi Green Energy (Pvt.) Ltd. you select a stable partner that you can rely on.

Green Gas is the registered trade name used by Ravi Green Energy (Pvt.) Ltd. for the marketing of Liquefied Petroleum Gas (LPG).

At Ravi Green, we recognize our duty to ensure the health, safety and welfare of our employees as far as reasonably practicable.

Ravi Green Welfare Trust is our attempt to extend the application of this core principle to the general public and to establish a framework that can accommodate other stakeholders and partners to partake in our approach to CSR.

ABOUT US

Our values are integrated into the company at all levels. We believe that a mission/value statement is useless unless it is integrated into the standard operating procedures in a practical manner. So, everyone at Ravi Green practices qualities such as trust, teamwork, accountability, discipline and excellence. It is because of such values that we take pride in our achievements and speak positively about fellow employees and our organization at every opportunity.

We forge strong long term relationships by understanding you before we turn to engineering solutions. We tailor solutions to your requirements as per the leading industry standards. Our focus on mitigation of risks and the drive for a robust solution allows us to provide our clients with an operational plan tailored to their requirements and conditions.

Our Quality Program is based on established Quality Objectives at appropriate functions and levels within the organization. Defined in measurable terms, the Quality Objectives are consistent with our commitment to continual improvement and meeting requirements for our products and services.

Clear and straightforward aspirational goals for all our operations, and a team of professionals dedicated to making these aspirational goals a reality; allows us to achieve world-class Health, Safety and Environmental performance levels in all our activities. At Ravi Green, we believe that our primay responsibility is to operate with integrity and demonstrate responsible corporate governance; our reputation rests on it.

It is vital to *meet the needs of society today while respecting the ability of future generations to meet their needs.* This vision, when combined with our values, leads to what we call the**;**

Five Pillars of Corporate Responsibility:

1. Our People

Our reputation has been built by employing some of the engineering industry's top professionals. Our commitment to responsible development would not have been possible without our people. Our people are leaders. We treat them with dignity and respect, investing in their development, and providing them with a safe and healthy working environment.

2. Safety

In all our operations, we strive to reduce health & workplace and operational risks. We practice a zero accident culture and subscribe to a set of beliefs, which emphasize on every individual's responsibility towards safety and accident preventive measures.

Over the past couple of years, Ravi Green has had an excellent safety record. However, maintaining a good record is not enough. A part of continually striving to improve our performance means learning from incidents when they do happen. There are occasions where we don't always achieve the high standards we set for ourselves, when this happens, we work hard to identify the cause and address it with all of our stakeholders through open and honest dialogue.

3. The Environment

Over the past two decades, we have witnessed an increasing awareness and concern about the environmental impact/consequences of economic growth and development. We understand that through our business operations, we have an essential impact on the natural environment. Ravi Green is proud to follow environmentally responsible practices. Our wish to make a difference, to demonstrate a responsible policy and practice, has personal and strategic reasons. At Ravi Green, regulatory initiatives are never compromised; community concerns are noted and integrated into our policies/procedures. Our dedicated people are regularly reminded of the importance of our relationship with the environment.

4. Community

Our presence plays a vital role in the communities in which we operate. Corporate citizenship means contributing in a positive way to the communities' well-being. We play our part by being sensitive to local needs and priorities. We remain committed to supporting local communities through donations and employee participation.

5. Engagements

Understanding what stakeholders expect from us as a company is just as important as understanding the components that make a machine. We consider our most important stakeholder groups are employees and clients. We also value good relationships with our supply chain and sector partners, governments, NGOs and the wider community. Dialogue with our external and internal stakeholders improves our understanding of how our activities are perceived and help us in evaluating our standings.

We regularly involve employees in discussions about issues such as corporate values, performance and work-life balance, internal surveys and interviews. These discussions help us translate ideas into everyday actions.

MAJOR CLIENTELE

RANGE OF SERVICES

Plant Erection

With extensive and successful experience in mechanical erection, we provide technologically driven and economical turnkey solutions to our clients from design to commissioning of the Project. We vanguard and construct your plant to the most stringent standards; onshore and offshore ensuring successful project execution and delivery, by reducing project downtime and costs.

Pressure Piping

We specialize in the fabrication and installation of process systems, such as those used to convey steam, condensate, gases, chemicals, fuels, water and waste, for all commercial, industrial, and ultra-clean applications. Ravi Green is authorized by the American Society of Mechanical Engineers (ASME) to stamp PP to pressure piping fabricated and assembled to ASME B31.1.

Boilers

We manufacture and service complete line of solid fuel, waste, biomass, coal, gas and oil-fired boilers. Boilers are built to order using the best combination of traditional boiler making skills and modern technology. Ravi Green is authorized by the American Society of Mechanical Engineers (ASME) to stamp S to a boiler built in accordance with ASME Boilers & Pressure Vessels Code.

Plant Operation & Maintenance

Utilizing our cost-effective practices we are positioned to provide complete plant operation and maintenance services for Static Equipment, Rotary Equipment & Manpower Services. These services are available for unplanned maintenance requirements and predictive/planned maintenance programs.

Heat Exchangers

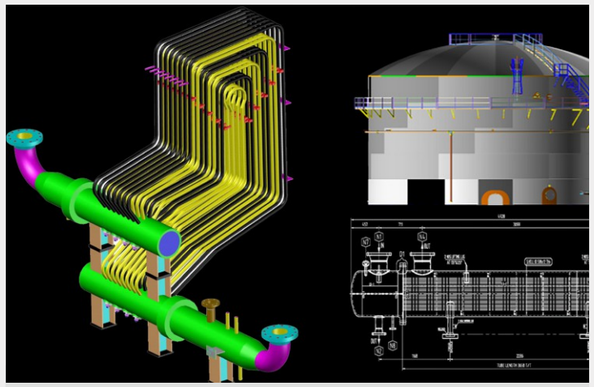
We design and fabricate shell and tube heat exchangers in conformance with the latest ASME Section VIII Div 1 and TEMA standards. We use HTRI and AutoCad for sizing, mechanical design and thermal/vibration analysis. The entire manufacturing process is done in our ASME certified workshop.

Dished-end Forming / Flanging

We manufacture dished-ends in many different configurations and form carbon steel, stainless steel, aluminum, and many other exotic materials using the finest head making equipment available today. This service is limited to dished-ends ranging from 1 meter to 5 meters in diameter and thicknesses up to 30mm.

Pressure Vessels

We have the capabilities to design and manufacture custom pressure vessels. Pressure vessels are built to specifications dictated by the client and designed for durability and top performance. Ravi Green is authorized to stamp U & U2 by ASME to pressure vessels built in accordance with the ASME Boilers & Pressure Vessels Code.



Design

We provide design services for different types of boilers, pressure vessels, heat exchangers, storage tanks, piping, conveying systems and structures. Our engineers have extensive knowledge of most applicable codes & standards and work closely with you to ensure compliance with codes and regulations.

PLANT ERECTION

Construction of twenty-one (21) API-650 Crude oil, self-supported, dome roof storage tanks, at Initial Production Facilities (IPF) Hammar, Zubair and Rafidiyah at Zubair Oilfield in Iraq.

Construction of eight (08) storage tanks and erection of structure at Rehmat Gas Field, Sindh, Pakistan.

Erection of 97 meter / 410 ton stack at BYCO Refinery, Pakistan.

Erection of Calcium Carbonate Plant including Manufacturing and Erection of Silos, Hoppers and Conveyors for Newage Chemicals Limited in Sheikhupura, Pakistan.

Ravi Green has extensive and successful experience in Plant Erection. We offer expertise in engineering, design, procurement, fabrication, field construction, mechanical installation, piping and commissioning services. We vanguard and construct your plant to the most stringent standards; onshore and offshore, ensuring successful project execution and delivery, by reducing project downtime and costs.

We are renowned for our ability to successfully execute projects, even in the most remote and logistically challenging locations. The Plant Erection services offered by Ravi Green are backed up by our highly motivated and skilled construction outfit. Over the years, we have developed our project management skills to suite management of the most complex projects. Our supervisors and technicians are fully knowledged and skilled professionals who maintain best practices and do not compromise on safety.

We provide modular and conventional Plant Erection services. Our diversified workshop is a unique advantage that Ravi Green brings to the table. It allows us to offer in-house facilities for manufacturing of pre-assembled racks and units, saving time and cost while maintaining world-class quality standards. Based on your requirements, our project management teams may offer a blend of the modular and conventional approach and optimize the activities for a truly customized engineering solution.

Our expertise in the construction of storage facilities originates from the inception of our company. We build atmospheric storage tanks in line with the requirements of API 650, API 620, API 635 standards. Construction of tanks is carried out using the conventional bottom to top approach. Work at height is carried out using high boom cranes and scaffolding, maintaining the highest quality and safety standards.

Over the decades we have constructed; self-supported and supported cone roof tanks, self-supported dome roof tanks, stiffened umbrella roof tanks, internal and external aluminum and steel floating-roof tanks, welded steel pan, pontoon, or double deck floating-roof tanks, full internal contact aluminum honeycomb floating-roof tanks, open-top tanks, and elevated cone bottom tanks along with bins and silos.

Ravi Green has in-house capabilities to carry out rigging studies in line with the industry norms and best practices. We carry out rigging studies to ensure safety during Plant Erection work and deploy certified equipment with qualified operators to maintain high safety standards throughout the Plant Erection process. We specialize in the fabrication and installation of process systems, such as those used to convey steam, condensate, gases, chemicals, fuels, continued...

PLANT ERECTION

STORAGE TANKS

Construction of Condensate Storage Tanks API 650; self-supported cone roof with pontoon type internal floating roof and associated piping at Bubak Sehwan Gas Field, Sindh, Pakistan.

Construction of two (2) API-620 Crude oil, dome roof storage tanks at National Refinery Limited, Karachi, Pakistan.

Construction of eight (08) API-650 Crude oil, self-supported, cone roof storage tanks, plant piping, structure and plant erection at First Commercial Production Facility at Garraf Oilfield in Iraq.

water and waste, for all commercial, industrial, and ultra-clean applications. For details of the welding processes employed, please refer to the Welding section. Comprehensive preconstruction activities are carried out to ensure that these systems achieve the desired outcome.

Our engineers develop an Inspection and Test Plant (ITP), and a Task Risk Analysis (TRA) as a routine in their preconstruction activities. The ITP indicates the inspection criteria, stage and responsibilities of all stakeholders involved in the project. Third-party inspection agencies are also hired to cross-examine these activities. The TRA evaluates the tasks against health, safety and environmental standards established.

Ravi Green Engineering (Pvt.) Ltd. follows an Integrated Management System that comprises of ISO 9001:2015 (Quality Management System), ISO 14001:2015 (Environmental Management System), and OHSAS 18001:2007 (Occupational Health and Safety Management System). This system covers the extent of our Plant Erection operations to the entirety under the scope "Engineering, Procurement and Construction Services for Plant Erection and Manufacturing of Pressure Vessels, Boilers and Heat Exchangers."

In our experience, establishing a close collaboration with clients secures successful project operation in the shortest possible time. Punctuality of delivery is essential to today's business. Ravi Green is known for on-time delivery. With zeal and commitment, we plan, execute and inspect our work.

Our project execution tools are a culmination of decades of experience. At Ravi Green, these tools are at the disposal of highly skilled and motivated professionals who maintain the reliability expected of Ravi Green Engineering (Pvt.) Ltd.

Construction of three (03) API-650 Crude oil, self-supported storage tanks at Attock Petroleum Limited, Oil Depot in Machikey, Sheikhupura, Pakistan.

Engineering, Procurement and Construction of three (03) API-650/620 JP-8 Fuel, self-supported, honeycomb type floating roof storage tanks in Helmand Province, Afghanistan.

Engineering, Procurement and Construction of API-650 storage tank at Pakistan Petroleum Limited's Adhi Gas Field in Pakistan.

PRESSURE PIPING

Power Piping of Heat Recovery Steam Generators carried out by Ravi Green Engineering (Pvt.) Ltd. for Saphire Electric Pakistan in accordance with ASME B31.1 covering boiler-external piping for power boilers and high-temperature, high-pressure water boilers in which steam or vapour is generated at a pressure of more than 15 psig; and high-temperature water is generated at pressures exceeding 160 psig and/or temperatures exceeding 250 degrees F.

Plant Piping work at Mazrani Gas Field in Larkana, Pakistan.

Ravi Green Engineering (Pvt.) Ltd. is authorized by the American Society of Mechanical Engineers (ASME) to carry out Fabrication and Assembly of Pressure Piping (**PP-Stamp**) vide certificate number: 54,464.

We specialize in the fabrication and installation of process systems, such as those used to convey steam, condensate, gases, chemicals, fuels, water and waste, for all commercial, industrial, and ultra-clean applications.

Our piping team has the experience and dedication to identify any potential system deficiencies and provide comprehensive piping solutions throughout your facility. We ensure that your facility of piping systems are always operating at full capacity to meet your piping goals and objectives.

Our Piping services include:
- Design Services
- Construction Services
- Piping Installations
- Commercial / Industrial Service & Maintenance

We offer a complete set of preconstruction activities for your piping project like Constructability Reviews, Construction Team Coordination, Cost Studies & Life Cycle Analysis, Document Review & Analysis, Mechanical Design, Preliminary Budget Estimates, Procurement,

Schedule Development, Scope of Work Definition and Refinement, Value Analysis and Value Engineering. Providing you with the confidence that your project is being completed in an efficient and professional manner from start to finish.

Over the years we have designed and fabricated piping systems in carbon steel, stainless steel and special alloys subject to stringent quality control standards that yield the highest quality in the industry.

Our piping erection teams are led by highly experienced professions that value their reputation for successful piping erection projects. We manage our crews within the constraints of our clients' project controls or use our project controls to meet our clients' demanding schedules. We are proud of the reputation that we have earned for excellence in quality, safety and timeliness.

The pressure piping Certification Mark allows us to fabricate parts of boilers, such as superheater, waterwall, or economizer headers, where others provide complete design requirements.

PRESSURE VESSELS

Engineering, Procurement and Construction of 1000 ton LPG Storage Facility for Ayan Energy Private Limited in Faisalabad, Pakistan.

Supply of SNG systems comprising of 3.5ton LPG Tanks, Air & SNG Tanks and Vaporizers at Shahkam Industries (Pvt.) Ltd., Pakistan.

Engineering, Procurement, Construction and Commissioning of 100kg/hr LPG system for Atlas Autos Pvt. Ltd., Sheikhupura, Pakistan.

Manufacturing / Supply of Ten (10) LPG Road Bowsers, 25ton along with Three (3) Axle Tank Trailer for SSGC LPG Pvt. Limited, Pakistan.

At Ravi Green, we have the capabilities to design and manufacture custom pressure vessels. All of our pressure vessels are built to meet the specifications dedicated by the client and designed for durability and top performance.

Moreover, our pressure vessels are rigorously inspected throughout the process using pressure, ultrasonic, ultrasonic phased array and x-ray testing techniques. Our Engineering team can design a pressure vessel for all applications. We specialize in both small and large-diameter vessels, columns and towers that are compliant with Section VIII, Div 1 of the ASME code. We are considered an industry leader for providing expert engineering services and the production of custom ASME fabricated process tanks, towers and pressure vessels.

At Ravi Green, we follow the ASME organization's requirements outlined in the Boiler and Pressure Vessel Code to follow safety design rules along with rules related to the construction, operation, testing and maintenance of pressure vessels, boilers, transport tanks and other pressure systems.

We also offer services to manufacture components for pressure vessels such as; rolled and welded cylinders for shells and jackets, heads, cones and transitions. These components can be provided assembled with partial data reports. Components can then be shipped to your facility for final assembly. To begin the design process, provide Ravi Green with the following information:

- Contents of the ASME pressure vessel, requirements for food-grade pressure vessel etc.
- Volume of contents held within the ASME pressure vessel.
- Size or dimensional constraints for the pressure vessel.
- Installed configuration of the pressure vessel.
- Pressurized environment maintained within the pressure vessel, requirements for heated pressure vessel.
- Fill method required for the pressure vessel.
- Agitation method (if any) applied to the pressure vessel.
- Temperature control requirements for the pressure vessel.
- Drainage or cleaning characteristics of the pressure vessel.
- Other details that are specific to your application process.

BOILERS

Manufacturing of Water Tube Boiler Superheater for Pakistan Petroleum Limited (PPL), Sui Gas Field, Sui, Pakistan.

Capacity = 45 tph
Pressure = 417 psi

Rectification and Repair of Heat Recovery Steam Generation Modules for Sapphire Electric Company Private Limited in Sheikhupura, Pakistan.

Capacity: 31.77 kg/sec Pressure: 111 bar.

With minimal footprints and flexible configurations, we manufacture vertical and horizontal boilers that offer complete solutions for virtually every type of application. **At Ravi Green, we manufacture and service complete line of solid fuel, solid waste, biomass, coal, gas and oil-fired boilers.**

Our high-quality manufacturing processes make our boilers your preferred choice. Each boiler is individually built to order using the best combination of traditional boiler making skills and modern technology. The entire manufacturing process from plate rolling to final fitting is performed under strict quality control, in our workshop. The units are wholly tested at our facility and witnessed by an Authorized ASME Inspector before completion.

By choosing Ravi Green as your manufacturer, you are aligning yourself with a company possessing the experience necessary to produce a custom product with the high quality you require at a competitive price.

Boiler Installation
Using our own highly skilled pipefitters and welders, we manage the whole project right through to commissioning and hand over.

Boiler Maintenance
At Ravi Green, we understand just how vital it is for your business to complete boiler servicing and repairs as quickly as possible, and keep downtime to an absolute minimum.

Being a manufacturer, we can also provide a bespoke spare parts service for a whole range of articles. For example, we can supply boiler tubes cut to length or make rolled patches, hoop sections, furnaces and tube plates as well as tanks. All produced to your exact specification.

Repair Services Offered
- Furnace and Shell Repairs.
- Patch Repairs.
- Tube Replacement.
- Tubeplate Repair.
- Furnace Replacement.
- Replacement of access openings.
- Manhole and mudhole replacement.

As manufacturers, we offer incomparable boiler repair services using fully coded and highly skilled welders and raw materials at very competitive prices.

HEAT EXCHANGERS AND SEPARATORS

Thermex Heat Exchanger for ICI Pakistan Limited - Polyester plant
Type: BEM, Pressure: Shell Side 71 Psig, Tube Side 146.5 Psig,
Applicable Code / Standard: ASME Sec. VIII Div. 1 Ed. 2015 & TEMA R 9th Ed.

Manufacturing of Vacuum Condensers of Turbo Generator No.7 Installed at Sui Purification Plant; Type: Straight Tube, Pressure: 6 bar / -17.2 bar (tube / shell)
Tube Size: 14mm (Qty. 644), Material: CuNi10Fe1Mn F29

Tube Bundle for Pakistan Petroleum Limited against 03 year call-out agreement between Ravi Green and PPL for Repairing, Coating & Re-tubing of Shell / Tube Heat Exchangers.
2015 — 2018 & 2019 — 2021

At Ravi Green, we design and fabricate shell and tube heat exchangers in conformance with the latest ASME Section VIII Div 1 and TEMA Standards. Every energy demand is unique, as is every energy-efficiency improvement opportunity.

At Ravi Green, our track record includes an ability to blend time-tested, standard products with innovative, custom-engineered solutions. We design, manufacture, and install energy recovery systems that decrease your energy consumption, reduce operating costs and maximize return on investment.

We can assist you in determining the size or type of heat exchanger appropriate for your project; our team of engineers can guide you through the design process whether you need a heat exchanger to replace an existing field unit or a completely new heat exchanger installation. Our staff has the skills and experience to develop the best solution for your project.

Process Design:

- TEMA B, C, R, API 660.
- Thermal Rating & Design.
- Machining and Drilling.
- Positive Materials Identification.
- Weld Process Consideration.
- Modular Systems & Configuration.

Ravi Green can manufacture Filter separators designed following ASME Section VIII Div.1 Stamped Vessels in both horizontal and vertical vessel orientation for natural gas, chemical and petrochemical industries and refineries.

We have manufactured separators for applications such as protection of turbines, gas compressors, instrumentation, to recover product, to prevent cylinder wear, to remove oil from steam and to minimize foaming and other applications.

The filter vessels are manufactured following the latest edition of the ASME codes with the stamp, BS, TUV standard as per customer requirements. Stress-relieving and all types of non-destructive testing (such as dye penetrant, ultrasonic and x-ray) are performed under the inspection of Ravi Green Quality Control.

Our unique advantage of having an ASME certified diverse range workshop makes us your number 1 choice for filter separators.

Maintenance of MEA Reactivator at Sui Purification Plant for Pakistan Petroleum Limited (PPL).

PLANT OPERATION & MAINTENANCE

Utilizing our cost-effective practices, we are positioned to provide complete plant operation and maintenance services for the following:

Static Equipment
- Heat Exchangers.
- Fin Fan Coolers.
- Plate Type Coolers.
- Pressure Vessels.
- Strippers & Columns.
- Storage Tanks.
- Heat Recovery Steam Generators.
- Boiler Economizers.

Rotary Equipment
- Pumps.
- Gear Boxes.
- Compressors.
- Turbines (Gas & Steam).
- Blowers.
- Motors.

Skilled Manpower
- Operation.
- Maintenance.
- Shut Down.

Our services promote reliable and economical plant operation that mitigate risks and help contain expenses. These services are available for unplanned maintenance requirements and predictive/planned maintenance programs. Ravi Green maintains mobile and highly skilled workforce of technically trained service personnel to deliver world-class plant O&M services to our customers. In addition to the above, we provide services such as maintenance of Valves; PSV, NRV, Globe, Gate, Ball, Butterfly etc.

Fabrication of Flanged Cone

DISHED-END MANUFACTURING

At Ravi Green, we manufacture tank heads in many different configurations and form carbon, stainless, aluminum, and many other exotic materials using the best head making equipment available today.

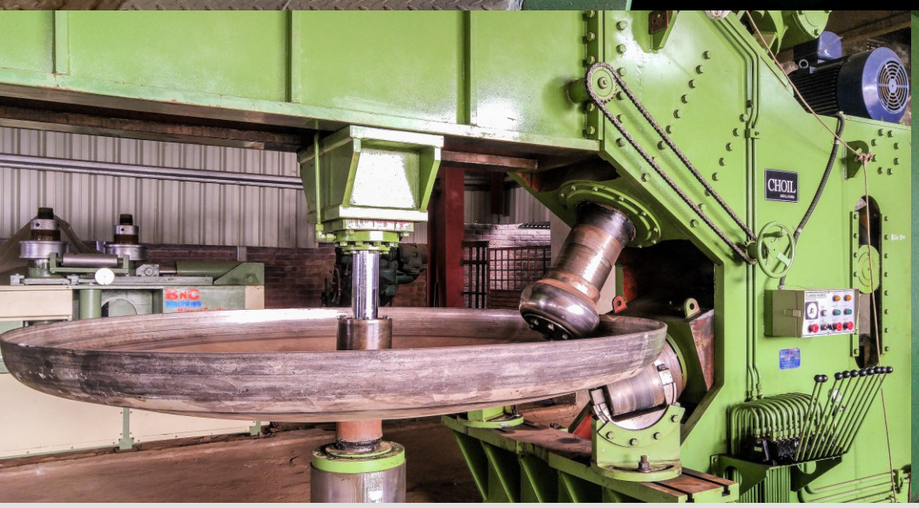
We possess capability to manufacture ASME® and non-code tank heads for various industries and applications like Semi-elliptical tank heads, ASME® flanged and dished tank heads, ASME® 10-10 flanged and dished tank heads, ASME® high crown flanged and dished tank heads, standard flanged and dished tank heads, flanges and shallow dished tank heads, flanged only tank heads, and dished only tank heads.

The production of heads and bottoms is through the cold forming process that involves dishing and flanging forming processes.

The first forming process "dishing" (excluding flat bottoms) is carried out on modern hydraulic dishing presses. Our workshop in Lahore possesses hydraulic presses with up to 1000 ton force capacity.

After shaping the crown through dishing, the bottom or head is given its final shape by flanging the knuckle radius. We possess the capability to flange dishes ranging from 1 meter to 5 meters in diameter and thicknesses up to 30mm. Here, the material forms between a forming and pressure roller such that the dish exhibits a straight flange at the point of connection with vessel shell.

Once dishing and flanging are complete, the next step is edge preparation. We process these edges utilizing plasma or thermal cutting, or through mechanical abrasion. The type of edge processing takes place per your wishes.

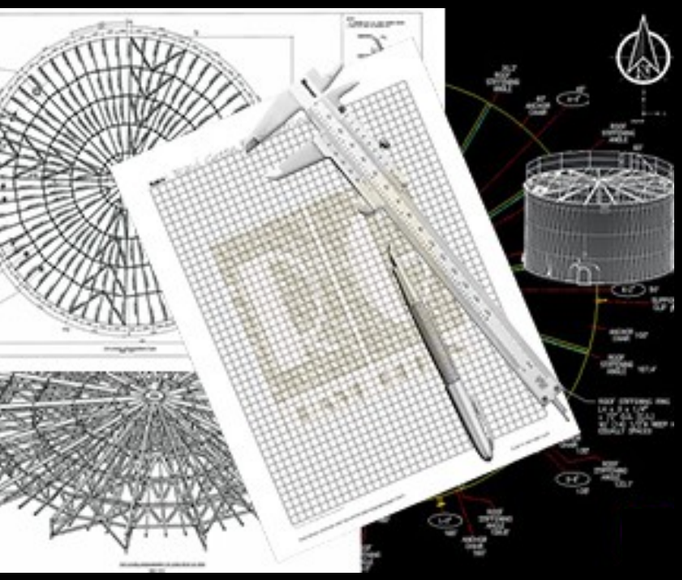


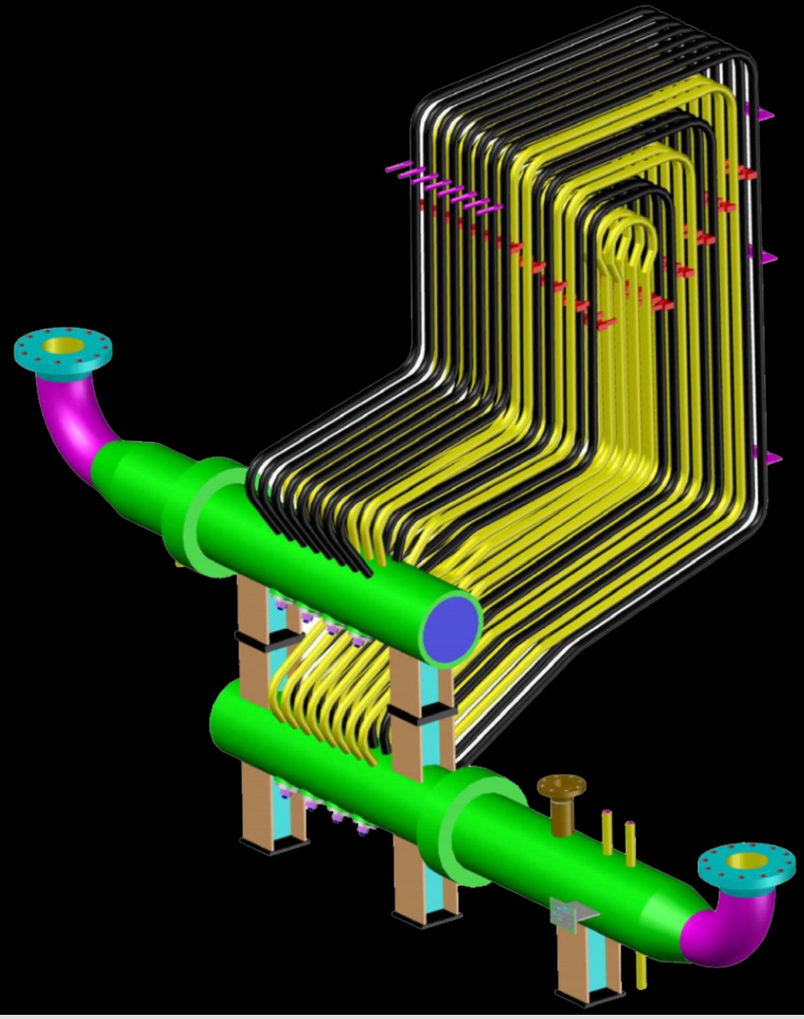
Flanging machine used for forming of dished-ends at Ravi Green Workshop in Lahore, Pakistan.

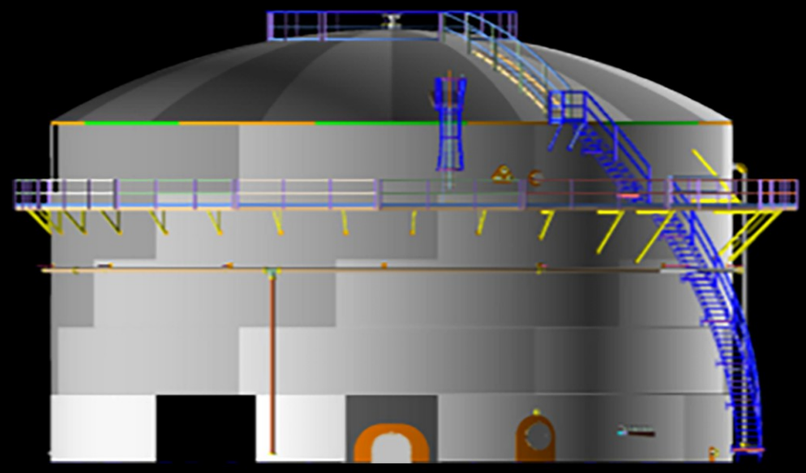
1000 ton force hydraulic press used for dishing of dished-end at Ravi Green Workshop in Lahore, Pakistan.

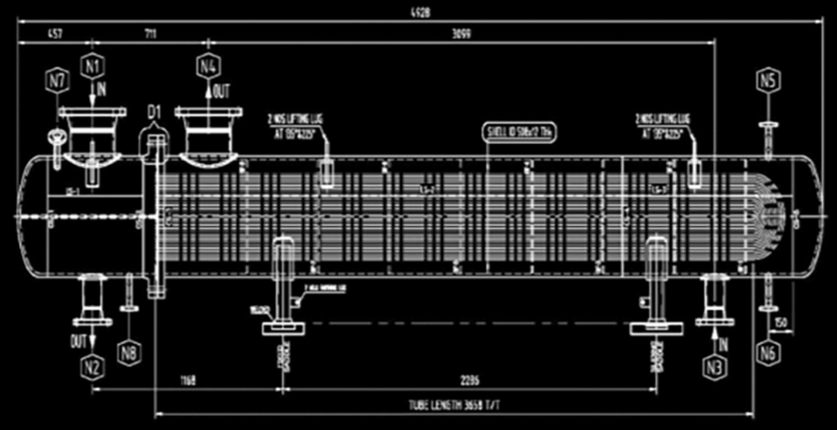
2:1 Elliptical Flanged and Dished, dished-ends for Water Engineering Management Pakistan.

DESIGN









CODE COMPLIANCES INCLUDE:

- **ASME SECTIONS**
- **ASTM**
- **ANSI "B" SERIES**
- **ASME "B" SERIES**
- **AWS**
- **NBIC**
- **SSPC**
- **DIN**
- **TRD**
- **EN**
- **API**
- **AISC**
- **TEMA**
- **NACE**
- **ASNT TC 1A**
- **ISO**

At Ravi Green, we provide Design Services for different types of Boilers, Pressure Vessels, Heat Exchangers, Storage Tanks, Piping, Conveying Systems, Structures.

Our Engineers have extensive knowledge of most applicable Codes & Standards and work closely with you to ensure all components and instrumentation comply with requirements including local codes, offshore regulations etc.

Services Offered

- Process Simulations using Hysys.
- Heat Exchangers thermal design using HTRI.
- Process Equipment Design- Tanks, Pressure Vessels, Heat Exchangers.
- Piping Design and Stress Analysis.
- Structure Analysis.
- Multidisciplinary Engineering - Process, Mechanical, E&I, Civil & Architectural.

Boilers

Following types of Boilers Design Services of various capacity & pressure are available by us:

- Power Boilers
- Water & Fire Tube Boilers
- Sugar Mills (Bagasse Fired) Boilers
- Hot Water Boilers
- Heat Recovery Steam Generator
- Thermal Design of Boilers etc.

Heat Exchanger

- Thermal Design using HTRI
- Design and Fabrication of heat exchangers as per TEMA standards.

Pressure Vessels

- As per ASME various types of and thin wall, horizontal and vertical Pressure Vessels for Oil and Gas sector, Chemical Plants and Refineries.

- LPG Tanks, Air Receivers, Columns, 3-Phase Test Separators, 3-Phase Low-Temperature Separators, Buffer Vessels, Knockout Vessels, Deaerators, Chlorine Containers, Ammonia Containers, Bowsers etc.

Storage Tanks

- Welded Steel Tanks for Oil Storage per API 650.
- Large, Welded, Low-Pressure Storage Tanks as per API 620.

OUR WORKSHOP

Location

20th km (Pajian) Raiwind Road,
Lahore, Pakistan.

Year Established
1996

Certifications

- ISO 9001:2015
- ISO 14001:2015
- OHSAS 18001:2007

- Construction & Repair of Boilers and Pressure Vessels in accordance with the requirements of ASME Boiler and Pressure Vessel Code with Certification Marks 'U' 'U2' 'S' 'PP' 'A' 'NB' & 'R'.

Covered Manufacturing / Assembly Area Dimensions (including roof height)

Bay 1 = 375 sq. meter x 08 meter height
Bay 2 = 897 sq. meter x 10 meter height
Bay 3 = 518 sq. meter x 07 meter height
Bay 5 = 892 sq. meter x 12 meter height

CNC Shed 1 = 230 sq. meter x 08 meter height
CNC Shed 2 = 098 sq. meter x 08 meter height

Open air Manufacturing / Assembly Area

Bay 4 = 722 sq. meter

Yard 1 = 2,787 sq. meter
Yard 2 = 3,660 sq. meter
Yard 3 = 2,769 sq. meter
Yard 4 = 1,097 sq. meter

Office Area
Block 1 = 225 sq. meter
Block 2 = 350 sq. meter

Workshop Utilities = 300 sq. meter

Total Area = 14,925 sq. meter

OUR WORKSHOP

Fabrication of Transition Duct, Y-type, Round to Rectangular, for DG Cement, Hub, Pakistan.

Our fabrication workshop started with a comprehensive range of machine tools and auxiliary equipment. It is designed to maximize quality and to minimize any undesirable effect on the safety, efficacy and quality of products manufactured.

It is designed to undertake manufacturing and repair of many different items of industrial units such as Pressure Vessels, Strippers, LPG vessels, Heat Treatment Furnaces, Water Treatment Plants, Evaporators, Condensers and Boilers, Steel Structure etc.

We can undertake fabrication services for industrial units like Sugar Mills, Power Plants, Food & Beverage Industry, Chemical & Petrochemical Plant, LPG facilities and Oil fields etc.

Ravi Green Engineering (Pvt.) Ltd., by virtue of its unique advantage of having a diversified workshop covering 14,925 sq. meter backed up by a highly motivated construction outfit, certified by the International Standards Organization (ISO), the American Society of Mechanical Engineers (ASME), and the Oil & Gas Regulatory Authority (OGRA) is a serious competitor to Contractors in Pakistan.

Fabrication of CW Pipe miter cut at 45 degrees for SEPCO-1 Power Plant, Jhang, Pakistan.

Double Wall Underground Tank manufactured to UL-58 / UL1746 for Total-Parco Pakistan Limited.

EPC of Pig Launcher / Receiver, Mobile Skids, for OMV (Pakistan) Exploration G.M.B.H

Fabrication of Bottom Cone of Silos for Newage Chemicals Private Limited

Engineering, Procurement and Construction of Condensate Loading Skid for down hole corrosion inhibitor system designed and manufactured for OMV (Pakistan) Exploration G.M.B.H

Ravi Green ensures quality services and focuses on continual improvement to meet or exceed our customers' expectations by conformance to zero defects with on-time delivery.

Our top management remains committed to being recognized as a leader in engineering services and manufacturing.

- Quality Policy Statement

QUALITY

Our Quality Control Program is based on establishing the quality standards for all materials, equipment and services necessary for the successful execution of all the Projects, followed by systematic measurement of quality achieved, compared with the standards and corrective actions taken. Quality is an essential, inseparable part of every process at Ravi Green.

Ravi Green Engineering (Pvt.) Ltd. is an ISO 9001:2015 certified company, with quality objectives at appropriate functions and levels within the organization. These objectives are defined in measurable terms. The quality objectives are consistent with the quality policy and the commitment to continual improvement and meeting requirements for products.

Ravi Green is also authorized by ASME for the Shop, Field Assembly and Construction of Pressure Vessels as per ASME Section VIII Div.1 (U), Power Boilers to ASME Section I (S), and Repair & Alterations of Pressure Vessels and Power Boilers in accordance with the National Board inspection Code ANSI/NB 23 (R).

We enforce our Quality Management Policy by continuously monitoring and interfacing with all our vendors and sub-contractors towards ensuring receipt of good quality materials and execution of the job strictly in line with the specified requirements.

Magnetic Particle Testing (MPT) conducted on the vertical joint of a storage tank.

At Ravi Green, it is common practice to motivate & train employees and encourage their involvement at all stages of operations to ensure full compliance with the guiding parameters of various functions.

Personnel

We have a pool of qualified, trained and experienced field Inspection personnel who carry out consistent inspection works in the toughest terrains and situations. Our annual training and re-training program ensures that the inspection work is compatible with the latest editions of the standards and our quality assurance procedures. We also have Qualified Level I, II & III (RT, UT, MT, PT & Visual Testing) Examiners/Inspectors.

Our NDT Team has certified Level III Examiner (from Germany) and Level I&II inspectors in RT, UT, MT & PT not only certified as per ASNT SNT-TC-1A-96 but also certified from Atomic Energy Commission of Pakistan.

NDT Services

Following NDT services are utilized and provided by us:

- Phased Array Ultrasonic Testing (PAUT)
- Time of Flight Diffraction (TOFD)
- Radiographic Testing (RT)
- Ultrasonic Flaw Detection (UT)
- Ultrasonic thickness measurements (UT)
- Magnetic Particle Testing (MPT)
- Liquid Penetrant Testing (PT)
- NDT Consultancy
- NDT Services

Other Services

- Thickness measurements
- Light intensity measurements
- Painting inspection
- Sandblasting Inspection
- Third-party inspection
- Hardness Testing
- Training & Education in NDT & DT Methods
- Training, Qualification & Certification for Level II Inspectors as per ASNT in NDT Methods (RT, UT, MT, PT & Visual Testing) by Level III Examiner.
- Manpower supply (Level II Inspectors for RT, UT, MT, PT & Visual Examination)
- Pre & Post Weld Heat Treatment consultancy especially as per ASME Section VIII-1, ASME Section I, BS 5500, BS 2790, TRD, ASME B31.1, ASME B 31.3
- Review of NDT Procedures, as per the latest ASME Codes

Quality and HSE Management

Ravi Green's NDT Lab has ingrained Quality and HSE as an integral part of all management and executive functions. This culture is designed with the characteristics of self-sustainability and continuous improvement commensurate with the company’s quality and HSE policies.

Vacuum box test conducted on the bottom plate joint of a storage tank.

Welding

In Ravi Green the welding processes employed for the fabrication of pressure vessels, piping, structures etc. are SMAW, SAW, GMAW, GTAW and FCAW. All welding is done with qualified & approved welding Procedures by qualified welders and welding operators. Welders are qualified for each welding position, welding process and different materials to be welded. Welding procedures and welders are qualified and approved from the client before the start of welding.

Automatic Girth Welding Machine used for circumferential welding of a Storage Tank.

Ravi Green Engineering (Pvt.) Ltd. aims to achieve world-class health, safety and environmental performance levels in all its business activities.

The Company believes that all injuries, accidents, occupational illness and adverse environmental impacts can be prevented. RG is committed to managing its health, safety and environmental issues in a manner that meets the expectations of the stakeholders, which includes employees, community, our clients and customers.

Ravi Green integrates environmental considerations into corporate activities and actively strives to meet high conservation standards in fulfilling its responsibilities as a good corporate citizen. Harmony with the environment is one of the highest priorities of Ravi Green Engineering (Pvt.) Ltd.

To meet these standards and expectations, RG's HS&E policy contains clear and straightforward aspirational goals for all our operations and a team of professionals dedicated to making these aspirational goals a reality. Ravi Green gives HS&E, including Occupational Health, the equal priority with all other business issues. All employees are expected to accept their responsibility to work safely, adhering to safety rules and work procedures, using the safety equipment provided, and generally to contribute to the maintenance of a safe and healthy workplace. They also have a duty to be environmentally responsible and to have regard for environmental controls.

Safety Program

Ravi Green Engineering (Pvt.) Ltd. has an exemplary track record with construction safety and recognizes the importance and necessity of safe working conditions and is cognizant of proper safety practices. Safety is just as important as technical excellence, quality of workmanship or timely project completion and all form equally key elements in all projects undertaken by Ravi Green.

Our safety record comes from a strong, dedicated team effort on everyone's part; from on-site construction tradespeople through project management and into the office. The people at Ravi Green are proud of their long-standing record and suspect that the record is unique. Ravi Green will continue its efforts to exemplify "the best in safety" in coming years

A Specific Safety Program is established on each project to minimize accidents and raise safety awareness. It comprises as a minimum the following features:

Orientation/Training

Each employee participates in a Safety Orientation Course and is provided with safety orientation information applicable to this specific project. Full training is given to all employees to ensure that they are capable of doing their jobs safely and can operate successfully in our culture of safety awareness.

Training session of Ravi Green workforce with National First Response / Rescue 1122 being carried out at our workshop in Lahore, Pakistan.

HEALTH, SAFETY & ENVIRONMENT

The Company is committed to promote environmental awareness and provide appropriate health and safety information to employees to enhance their understanding of the issues and enable them to meet the required standards of performance.

Everyone is responsible for health, safety and the environment. It is our duty to do the right things and obligatory on us to take the time to do it right the first time.

Safety Committees

A Safety Committee of both management and labour is maintained to conduct inspections, perform investigations, monitor safety practices and resolve safety-related problems.

Pre-Job Safety Meeting

Ravi Green Engineering (Pvt.) Ltd. meets with the Client before start-up to discuss in detail all matters pertaining to safety rules and expectations.

Tool Box Meetings

Each trade holds weekly Tool Box meetings to identify hazards, improper work methods, protective equipment requirements, and to plan their work safely. The results of these meetings are reported to management.

Inspections

Ravi Green conducts regular safety inspections and audits and cooperates at all times with Occupational Health and Safety Inspectors and implements without delay any corrective action or suggestions.

Senior Management Interest

Senior management takes the lead role in driving the company focus on safety, making personal efforts to enlist the support of all staff in building positive and proactive health and safety culture.

We practice a zero accident culture and subscribe to a set of beliefs, which state that:

- “There is nothing so important that we cannot take the time to do it safely.”
- “All accidents are predictable and therefore, preventable.”
- “Do the right things, right the first time.”
- “Everyone is responsible for safety.”
- “Never ignore an unsafe act or condition.”

ZERO ACCIDENTS

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