Design Examination Services
INTRODUCTION
TU V India’s Design Examination Center (DEC) is one of the leading design examination service providers for the mechanical engineering sector, with enhanced expertise in pressure equipment design verification. We perform independent verification of designs and calculations to ensure compliance to various Codes, Standards and Regulations. DEC with strong competencies is derived from a tradition established in Germany around 140 years ago. Our special concern has always been the constant improvement of our customers’ processes and quality mechanisms to ensure protection of people, property and environment from the hazards and detrimental effects. Personnel and quality systems at DEC are rigorously scrutinized and continuously monitored through an internal system and by our parent company in Germany to ensure that only the highest level of value added service is delivered to our patrons.

Our key clients include L&T, Godrej, RIL, Samsung, TOYO - to name a few. Variety and criticality of the designs examined by us as listed below gives us a unique depth of experience which we offer to all industries.

■ Verification Services for Statutory Compliance
- Indian Boiler Regulation - IBR 1950
- SMPV (Unfired) Rules 1981 - India
- Gas Cylinder Rules 2004 - India
- Ministry of Manpower - Singapore
- Factories & Machinery (Steam Boiler and Unfired Pressure Vessels) Regulations, 1970 - Malaysia (DOSH)
- Pressure Equipment Directive 2014/68/EU - European Union
- Simple Pressure Vessel Directive 2014/29/EU
- Canadian Registration Number (CRN)
- NR-13 Boilers and Pressure Vessels - Brazil
- ASME Stamped Boilers and Pressure Vessels

■ Pressure Equipment / Accessories Examined
- Heat Exchangers
  - Shell and Tube Heat Exchanger
  - Plate Type Heat Exchanger
  - Air Cooled Heat Exchanger
- Pressure Vessels
  - Reformers
  - Reactors
  - Multi Wall Reactors
  - Converter Vessels
  - Filters
  - Agitators
  - Mounded Bullets
  - Coal Gasifiers
  - Coke Drums
  - Horten Spheres
  - Fired Heaters
  - Autoclaves
- Piping
  - Boiler External Piping
  - Process Piping
  - Gas transmission piping
- Valves
  - Safety relief valve
  - Gate /Globe/Check Valve
  - Angle valve
  - Control valve
  - Piston valve
- Boilers
- Columns
- Storage Tanks
- Screw Plug Closures
- Quick Opening Closures
- Expansion Joints
- FRP Storage Tank and Vessels

■ Other Services
- Steel Structures
- RCC Structures / Foundation
- Steel Chimney
- Cranes & Hoist Structures
- Residual Life Assessment (RLA) of Equipment in Service
- Steel Chimney

■ Codes and Standards
- AD2000 Merkblatt
- PD- 5500
- EN 12952
- EN 12953
- EN -13445
- EN-12516-1
- BS 2790
- BS 4994
- IS 6533
- IS 2825
- IS 3177
- IS-803
- IS 807
- GOST R 52857
- IBR 1950
- ASME Sec I
- ASME Sec VIII Div. 1
- ASME Sec VIII Div. 2
- ASME B 31.3
- ASME B 31.1
- ASME B 31.8
- ASME BPE
- ASME B 16.34
- API-650
- API-620
- TEMA
- ASCE-97, IBC-2006, UBC-97
- WRC 107, WRC 297
Critical /Specialized Equipment Examine

- Ammonia Converter (Urea Application)
- Syngas Cooler (Coal Gasification Application)
- Secondary Reformer (Urea Application)
- DHDS Reactor (Refinery Application)
- Coke Drum (Refinery Application)
- HP Urea Stripper (Urea Application)
- O₂ Feed Mixer
- Coal Gassifier
- HRSG
- Waste Heat Recovery Boiler
- Methanator Trim Heaters
- Tubular Reactor (Petrochemical Application)
- Mounded Storage Bullet (LPG Storage Application)
- Vapor Absorption Machine (Chiller)
- Coriolis Mass Flow Meter
- Residual Life Assessment of Pressure Vessel and Piping

Industries

Our design examiners have an extensive experience in performing design verification of critical equipment meant for use in a multitude of process operations such as:

- Oil and Gas, Power Generation and Distribution
- Water Treatment and Distribution
- Pipelines
- Refineries
- Chemicals and Petrochemicals
- Fertilizers
- Pharmaceuticals
- Machinery
- Infrastructure
- Telecom
- Transportation
- Natural Gas
- Aerospace
- Cryogenic Gas Storage
- Defence
- Nuclear

Design by Analysis & Calculations

In addition to in-depth knowledge of various Codes/Standards and Regulations, our highly skilled and experienced design engineers use the latest version of the advanced (licensed) software:

- ANSYS
- AutoPIPE V8i (Microprotol)
- DIMy (software developed by our own parent company)
- Self developed formula based spreadsheets for supporting calculations

Special Analysis Services

We offer expertise in specialized stress analysis simulations for your particular applications:

- Elastic / Plastic Analysis for tube sheets
- Linear Elastic Analysis at nozzle openings
- Non-Linear Elastic / Plastic Analysis at nozzle openings with external loads
- Multiple Openings on reactor heads
- Multi-Wall Pressure Vessel Shells
- Boiler Stay Plates
- Isotropic Shell Buckling under compressive loads
- Structural Analysis using STAAD Pro.
- Thermal Analysis using HTRI
- Infrastructure Stability Analysis
- Instrumentation Performance Analysis
Design Verification of Piping System
Our design engineers have in-house expertise to verify the piping systems like:
- Piping Layout, Pipe Routings
- Skid based Pipe System
- Analysis of Piping Supports
- Review of Isometric Drawings
- Pipe Thickness Calculation as per
- ASME B 31.3: Process Piping
- ASME B 31.3: Power Piping
- ASME B 31.8: Gas Transmission and Distribution Piping
- Pipe Stress Analysis using CAESAR-II

Why choose us?
- Competent human resources with extensive experience in certifying pressure equipment and related components
- Fast global market access for your product
- Wide range of pressure equipment certification
- Support throughout accreditation, fabrication and inspection
- Technically competent and updated interpretation of code requirements
- Quick response time
- Value added services
- Open minded to new designs

ABOUT US
With over 14,000 employees, TÜV NORD GROUP is one of the largest independent technical service providers, offering its advisory, service and inspection expertise in over 70 countries throughout the world. Areas of activity include Industrial Services, Infrastructure, Certification, Testing, Product Certification, Mobility, Training, and IT. TÜV NORD GROUP occupies a unique position in the sector based on its work in the fields of natural resources and aerospace and is firmly committed to its guiding principle and watchword: “Excellence for your business”.

TÜV India Pvt. Ltd. was established in 1989 as part of the German RW/TÜV group’s Indian operations, now part of the TÜV NORD GROUP, as one of the first Certification Bodies to start operations in India; since then, it has been closely associated with the quality revolution in India. With over 500 employees in more than 25 locations and laboratories across India, TUV India is never far from its customers.

TÜV India offers diverse range of technical services to its large clientele which includes leading corporate houses, public sector organizations, and small and medium scale enterprises.

Our Services Portfolio
- Laboratory Testing
- Industrial Services
- Automotive Services
- Sustainability Services
- Product Testing and Certification
- Management System Certification
- Food Safety Certification and Inspection

Our Slogan
Making our world safer

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