Engineering & Drafting Services

For Process Industry

KED INDIA

Kanna Engineers & Drafters Pvt. Ltd.

KED INDIA

KED India is an integrated oil and gas service company, providing cost effective professional engineering and technical services to Oil & Gas, Petrochemical, Refinery, Natural Gas, Chemical & Offshore platforms.Our experts offer services and solutions that allow our customers to improve their project with respect to Safety, Cost and Schedule. We pride ourselves in successfully executing projects that are safe, high quality, cost effective and completed on-time.

Based on its accumulated knowledge capital and Expertise, KED India today stands highly capable of offering Engineering & Drafting services to the global market as part of its unique portfolio.

MISSION Our mission is to build a prosperous, diversified Engineering & Drafting services to provide professionalism, integrity and commitment to excellence in the development of Process Industries.

We eagerly await an opportunity to serve you and your company needs.

Our services

Kanna Engineers and Drafters (KED) provide a full array of basic/detail engineering solutions to assist customers with their project needs. We work closely with our customers to improve reliability, productivity, planning and work processes. Our expert solutions would result in full-service, cost-effective solutions with highest safety standards. We serve clients in the Natural Gas, Refining, Chemical and Petrochemical industries. Our considerable experience in downstream and utility projects enables us to be an integral part of a project from its conception, through completion and every stage in between.

KED India team includes highly experienced Engineers, Draftsman, Planning & Support Professionals (Technical Advisor) offering following services:

- Basic/Detail Engineering.
- CAD/Drafting Services.
- Relief System & Flare Header Design.
- Fire Protection System.
- Resource Outsourcing.
- Equipments Supply.

Engineering Services

Process Engineering

The Process engineering group undertakes complete detailed engineering of process plants based on the package provided by technology supplier. The intelligent data generated can be further integrated to develop 2D CAD Design / 3D Model. The various services covered as part of detailed engineering are as listed below:

- Process Design Basis.
- Process Simulation Study to develop Mass & Heat balances.
- Process Flow Diagrams (PFDs).
- Development Piping and Instrumentation Diagram (P&ID).
- Utility list & summary preparation.
- Process Equipment Sizing calculation: Distillation Column, Heat Exchangers, Separators, Pressure Vessel, Storage Tank, Boilers, Compressor, Dryers etc.
- Pump rating, Sizing Calculations and specifications.
- Specifications for Control Valve.
- Hydraulic and Line Sizing Calculations.

- Relief Valve Sizing Calculations and Specifications.
- Development of Process Engineering Deliverables: Line List, Static & Rotating Equipment List, Datasheet for packaged items.
- Commissioning Philosophy.
- Preparation of Control & Shut Down Philosophy Report.
- Network Analysis.
- As built Incorporation in Engineering Documents.
- Detailing support & drafting of P&ID, conceptual Equipment & Plant layout, Elevation drawing in 2D.
- Adequacy Check Reports

Piping Design

Conceptual Plot Plan for the project starts with the Piping Design activities. Plot Plan Layout of major equipment items, interconnecting pipe racks, flares, storage tanks and utility units are defined under basic engineering. The facility layout is defined under multi-discipline engineering review to consider safety and operational aspects of the plant. Piping engineering typically follow the drive through piping layout, piping modeling, 3D Model review, isometrics, preparation of material take-offs and requisitions.

Our Piping Design activity includes:

- Overall Plot Plans.
- Equipment Layouts.
- Piping & Equipment General Arrangement Drawings.
- Piping Isometrics.
- Pipe Support Details & Drawings.
- Valve Datasheets.
- Piping Material Specifications.
- Tie - In Schedules.

Instrumentation Engineering

- Instrumentation Schedules.
- I/O Lists.
- Alarm & Trip Setting Schedule.
- Cable Block Diagrams.
- Cause & Effect Charts/Diagrams.
- Functional Logic Diagrams.
- Loop Diagrams.
- Process Hookup Diagrams.
- Pneumatic Hookup Diagrams.
- Junction Box Termination Diagrams.
- Instruments Location Drawings.
- Instrument Sizing Calculations.

Electrical Engineering

- Electrical Single Line Diagram.
- Electrical Cable Laying, Cable Trench & Trough Routing Layout.
- Protection & Control Schematics.
- Electrical Equipment Layout Drawings.
- Transformer & Switch Board Sizing.
- Electrical Load Lists.
- Cable Sizing Calculations.
- Lighting And Small Power Layout Drawings.
- Lighting Calculations.
- Electrical Equipment Sizing Calculations.
- Load Schedules.
- Earthing Layouts.
- Bulk MTO

Other Activities

- Process optimization & debottlenecking.
- Feasibility study of the plant.
- Distillation column debottlenecking & Retrofit.
- Overall process plant modifications.

CAD/Drafting Services

At Kanna Engineers and Drafters, we provide provides array of design services with wide range of experience that could get your projects completed in accurate and timely manner.

P&ID's are the most critical document in the project. Its correctness and completeness is very much essential in successful execution of any project. This document has to go through various internal and client reviews and is generally issued for IFCC (issued for client comments), IFA (Issued for Approval), IFH (Issued for Hazop), IFD (Issued for Design), IFC (Issued for Construction) etc. It is important that these drawings are reviewed by someone who could get familiar with the process with short description of project.

Our experienced Process Engineers and CAD personnel ensure Quality and Accuracy, which are known pre-requisites for the 2D CAD Drafting and As-Built Updating projects. We provide a diversified multi-software environment and utilize different types of Drafting & Data Conversion techniques to meet the specific needs of our clients.

We specialize in following range of 2D CAD Drafting & As-Built Updating services for Process industries:

- P&ID/PFD Drafting.
- Review & Updation of redlined client mark-ups.
- Paper to CAD conversion.
- Plant Layout Drawings.
- Equipment Fabrication Drawings.
- Generation of Isometric drawings.
- PDS (Plant Design Software) work.
- 2D Drawing Preparation.
- Intelligent P&ID Conversion & generation of Tag Database.
- 3D Models from P & ID, 2D Layouts.

Relief System & Flare Header Design

Pressure relief and effluent handling systems are the last lines of defense against equipment overpressure and the subsequent consequences of loss of containment. Relief system design and design basis are specifically defined as process safety information in OSHA's 1910.119 Process Safety Management.

KED India has extensive experience in relief system and flare header design for upstream (onshore and offshore), midstream, downstream (refining), and chemical assets and facilities.

Specific relief system and flare header solutions include the following:

- Development of corporate relief system and flare header design guidance documents.
- Gap analysis of existing relief system and flare header design bases.
- Relief system and flare header design of new assets and facilities.
- Revalidation of relief system and flare header design bases of existing assets and facilities.
- Resolution of relief system and flare header concerns identified by revalidation efforts of existing assets and facilities.
- Independent third-party assurance of relief system and flare header design quality.
- Training on relief system and flare header design.

Fire Protection System

KED India team includes experts in providing conceptual & detail engineering for fire protection system. We provide fire protection for a variety of industries, including Oil & Gas, Refineries and Other chemical industries.

The fire protection system is designed for hazards which are common to a various industries including Petrochemical, Chemical, Oil and Gas, Offshore, Manufacturing and Transportation.

- Flammable Liquid Storage.
- Refineries.
- Gas station.
- Processing Areas.
- Dike Areas.

Scope of Engineering & design services include:

- Complete Service on Foam Agents, Storage Tanks & Discharge Devices.
- We design fire protection systems that comply with theNational Fire Protection Association(NFPA) and local fire codes, as well as with client-specific insurance requirements.
- Selection of Foam Chamber, Sprinkler, Line size & Pump hydraulic calculations.

Resource Outsourcing

Many engineering organizations today seek both the flexibility to obtain human resources "as and when" needed and the ability to "gear up" for projects that require specialized application skills that are outside their 'primary" capability and/or focus area.KED India can help you launch your projects quickly and mobilize faster with the appropriate skill-sets and technical experience that accelerates the project initiation phase and allows the core Project Management Team to concentrate more on establishing the correct execution approach for their critical project(s) which help a long way in minimizing the delivery pressures, quality & safety concerns and more importantly, the cost and time required for in-house training and skill development.

We have an established team of skilled Engineering, 2D/3D CAD resources that are trained on a comprehensive workflow & methodology and a variety of industry standard 2D and 3D Engineering Design/Modeling systems such as AutoCAD, PDMS, PDS Depending upon the resource outsourcing model preferred by our clients, KED India can provide the required number of trained and experienced Engineering, 2D/3D CAD personnel to work under your direction to satisfy your compelling project requirements and maintain the desired level of flexibility to fulfill the staffing needs as suitable to your project timelines.

Equipments Supply

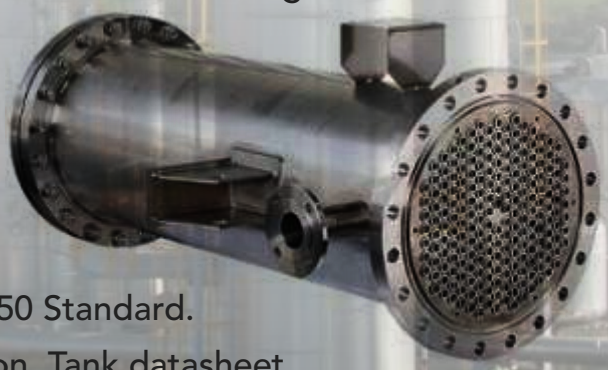
We design & supply following process equipmentsas per international Standards required by the client.

Distillation Column

- Simulation & design of Tray column & Packed Column with respect to process.
- Column debottlenecking & retrofitting.
- Development of GA Drawing.
- Review of Distillation column datasheet.

Heat Exchanger

- Design & supply of different types of Heat Exchanger as per the process.
- Heat exchanger rating using different software& retrofitting.
- Review of Heat exchanger datasheet.



Pressure Vessel

- Vessel sizing as per code.

Storage Tank

- Design of tank for oil storage with API-650 Standard.
- Review of GA Drawing, Nozzle orientation, Tank datasheet.

Industries

Natural Gas Processing

KED India has extensive experience in providing engineering design of natural gas plants from the wellhead to the pipeline. We have experience in working on following type of projects:

Natural Gas Liquids Recovery

Natural gas coming directly from a well contains many natural gas liquids that are commonly removed. In most instances, natural gas liquids (NGLs) have a higher value as separate products, and it is thus economical to remove them from the gas stream. The removal of natural gas liquids usually takes place in a relatively centralized processing plant and uses techniques similar to those used to dehydrate natural gas. It is also important to remove NGL's which could potentially condense and cause issues in transmission of the gas.

Gas Sweetening

This process is also known as Amine Treating and Acid Gas Removal. A typical amine gas treating process includes an absorber and a regeneration tower. It is essential to remove sour gases such as H2S and CO2 from the natural gas stream to avoid corrosion issues with downstream processes and equipment. The most commonly used Amines include Diethanolamine (DEA), Monoethanolamine (MEA), Methyldiethanolamine (MDEA).

Dehydration

Triethylene glycol (TEG) is the most commonly used to remove water from the natural gas stream in order to meet the pipeline quality standard gas. This process is required to prevent hydrates formation at low temperatures or corrosion problems due to the presence of carbon dioxide or hydrogen sulfide (regularly found in natural gas). Glycol dehydration units depress the hydrate formation point of the gas through water removal.

Upstream Oil & Gas Processing

KED India employees have served oil & gas industry for over a decade. We offer a comprehensive range of EPC services for the upstream oil & gas sector, with a focus on:

- Oil & gas field production / treatment.
- Gathering systems.
- Onshore pipelines.
- Gas compression system.
- Metering skids.
- Condensate treatment system

Within these focus areas, KED India can provide any combination of front-end design, engineering, procurement and project management services across all phases of the project life cycle.

Refinery

KED India provides full range engineering services to our clients with the highest quality and safety. Our team of seasoned Process Design Engineers customizes front-end engineering packages for bench scale, pilot plant & full scale plants. Our services extend from initial business evaluation studies, detailed feasibility studies, front-end engineering package development and detailed engineering to final commissioning and start-up for primarily expansion and revamp projects.

Petroleum Refining Experience Includes:

- Crude units and Desalting.
- Vacuum Distillation units.
- Vapor Recovery Unit.
- Reforming.
- Tank Farms.
- Sulfur Recovery Unit.
- Gasoline Blending.
- Flare Gas Recovery.

Storage Terminals

Our experienced project teams deliver solutions for Storage terminals while meeting stringent safety, environmental and schedule objectives.

·Design API-650 storage tanks for Refinery, StorageTerminals, Docks and Tank Farms.
·Design heated storage tanks to store high viscous fluids.
·Design API / Non-API pumps for fluid transfer.
·Perform hydraulic study to design multiple interconnecting pipelines.
·Design of Jets and Diffusers nozzles as per requirements.
·Tank venting requirements as per API-2000.
·Design of Dyke wall & Fire protection system as per applicable codes and standards.
·Pump interconnecting piping for optimum fluid handling.
·We also inspect storage tanks as per API-653 standard.

Biodiesel

KED India has gained expertise in cutting edge alternative and renewable energy plant design. As Consulting Engineers, we are in the forefront of renewable and alternative energies. We focus our attention on design services for Biodiesel in support of alternative energy projects. To help our clients reach their goals we provide cost effective plant design unparalleled in the industry, offering environmentally sound, low polluting plants that utilize fresh or waste vegetable oils and animal fats as feed stocks for the production of biodiesel. Based on numerous site assessments one plant design does not fit every situation. Our engineering services determine exactly what is needed for your facility.

What We Offer:

KED India understands the inherent problems regarding the use of methanol. We design completely safe facilities that fully comply with the National Electric Code, NFPA guidelines, ASME codes, API codes, OSHA and local and state requirements. We offer multiple reaction technologies along with a complete post-trans esterification treatment technology. Our designs remove trace sodium and potassium catalysts, sodium and potassium soaps and trace glycerin. The Recovery of methanol is by distillation followed by dehydrating the methanol for recycling back to the front of the plant.

We offer state of the art preprocessing which can expediently convert the widest range of animal fats, vegetable oils, yellow grease and nontraditional plant oils including jatropha, camelina, castor bean and algae to ASTM biodiesel.

Our highly experienced engineers provide plant design, start-up support, troubleshooting, second opinion reviews and revamp services that increase biodiesel plant capacity. Because our standing in the biodiesel community precedes us, countless businesses from a multitude of industries are benefiting from our expertise and have come to depend upon our far-reaching expertise. If you are ready to learn more about Biodiesel, we are prepared to assist you with the design of your facility.

Ethanol

Distillery / Fuel Ethanol Plants
Fermentation

We offer fermentation systems suitable for various feedstocks. We handle maize/corn, molasses, broken rice, Jawar, Sweet shorgum, sugarcane and many more with highest efficiency. Depending upon feedstock and various conditions, we offer most suitable fermentation systems to our clients.

Advantages of our fermentation system

- High yield.
- Least maintenance.
- Precise but easy control.
- Less manpower.
- Fully automatic.

We offer

- Batch Fermentation.
- Fed-Batch Fermentation.
- Continuous Fermentation.

Distillation

Energy efficient distillation section in the distillery directly defines the profitability of the distillery. Efficient distillation saves a lot on fuel cost and also decides the final product quality.

We have tailor made systems for the different products:

- Rectified Spirit Plants.
- Neutral Alcohol Plants.
- Extractive distillation plants.
- Azeotropic Distillation plant.
- Impure Spirit Re-distillation Plants.

Our distillation designs are based on following objectives

- Best Quality of Product.
- Least steam consumption.
- Simple but Fully Automatic Plants.
- Least Maintenance.
- Highest safety.
- Flexible Tailor-made Systems.
- More equipment life.

Dehydration

Dehydration of hydrous alcohol is required to produce fuel grade ethanol or anhydrous alcohol required in other industry. After azeotropic formation it is not possible to convert it to anhydrous with simple distillation. There is three methods to produce anhydrous alcohol :

- Azeotropic Distillation.
- Pressure Swing Adsorption (Molecular Sieve Technology).
- Membrane Separation.

We offer either of technology as per client requirement and budget. Pressure swing adsorption technology is widely used due to various reasons. We offer Molecular sieve pressure swing adsorption system with various advantages. Our well-engineered systems has following advantages:

- Lowest Energy Consumption.
- Maximum Alcohol Recovery.
- Consistent product quality.
- High turndown ratio.
- Fully automatic single operator system.
- Use of best desiccants.

"We aim to provide innovative, safe and cost effective solutions for process industry to reach the pinnacle of client satisfaction"

KED INDIA

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