KASRAVAND

IT ALWAYS SEEMS
IMPOSSIBLE UNTIL IT'S
DONE.

INDEX

ABOUT US	03
FLARE SYSTEM & FLARE GAS RECOVERY	04
GLYCOL DEHYDRATION (TEG)	06
GLYCOL REGENERATION (MEG)	07
REFRIGERATION PACKAGE	08
GAS SWEETENING	09
MOL SIEVE DEHYDARTION	10
OIL TREATMENT	11
SEPARATORS & INTERNALS	14
CRUDE OIL DESALTERS	16
RO SYSTEMS	17
FILTRATION PACKAGES - DRYERS & CALCINERS	18
METERING PACKAGES - CHEMICAL INJECTION PACKAGES	19
WASTE WATER TREATMENT	20
WATER DESALINATION	21
PRESSURE VESSELS & HEAT EXCHANGERS	22
PIG TRAPS & CLOSURES	23
COMPANY INFORMATION	24

ABOUT US

We design & manufacture PROCESS PACKAGES such as FLARE SYSTEM & FLARE GAS RECOVERY, TEG, MEG, WATER TREATMENT, OIL TREATMNET; also we design and manufacture STATIC EQUIPMENT such as PRESSURE VESSELS, different types of SEPARATORS,FILTERS, HEAT EXCHANGERS, and PIG LAUNCHER / RECEIVER TRAPS.

We have established ISO 9001:2008 QUALITY management system, PROJECT MANAGEMENT SYSTEM (Based on PMBOK Standard), OHSAS 18001:2007 HEALTH and SAFETY management system and ISO 14001:2004 ENVIRONMENTAL management system to ensure that the highest QUALITY STANDARDS are achieved and that all projects are delivered on time to earn CLIENTS' SATISFACTION.

We also have close RELATIONSHIPS and COOPERATIONS with INTERNATIONAL and WORLD CLASS COMPANIES and make necessary PARTNERSHIP for special and technically COMPLEX PROJECTS.

GRS Certification

CERTIFICATE OF REGISTRATION

This is to certify that

KASRAVAND ENGINEERING & CONSTRUCTION COMPANY

Address:

Unit 63, Sadaf Building, North Sheikh Bahaei Avenue, Vanak Sq, Tehran, Iran

Has been assessed by Global Registration Services
And meets the requirements of international standard

OHSAS 18001:2007

This Certificate Is Valid For The Following Scope

Engineering , Procurement, Construction and Manufacturing of Process Packages and Equipment for oil, gas, petrochemical and industrial plants.

This certificate remains valid while the holder maintains their management system In accordance with the standard specified above , which will be audited by GRS Certification Services.

Certificate Expiry Date: 01 JULY 2018
Certificate Registration No:OHS 9001015/0985630
Effective Date: 01 JULY 2015

Authorised Signatory
GRSGroup LTD.
Managing Director

www.grsgroupco.com

GRS Certification

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ISO 14001:2004

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Certificate Expiry Date: 01 JULY 2018
Certificate Registration No: 9GC015/9035320
Effective Date: 01 JULY 2015

Authorised Signatory
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Managing Director

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Address:

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ISO 9001:2008

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Certificate Expiry Date: 01 JULY 2018
Certificate Registration No:QMS 9001015/9035640
Effective Date: 01 JULY 2015

Authorised Signatory
GRSGroup LTD.
Managing Director

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FLARE SYSTEM & FLARE GAS RECOVERY

The flare is a last line of defense in the safe emergency release system in a refinery or chemical plant. It is used to dispose purged and wasted products from refineries, unrecoverable gases emerging with oil from oil wells, vented gases from blast furnaces, unused gases from coke ovens, and gaseous water from chemical industries. Flares are also used for burning waste gases from sewage digesters process, coal gasification, rocket engine testing, and nuclear power plants with sodium, water heat exchangers, heavy water plants, and ammonia fertilizer plants.

KASRAVAND designs, manufactures and installs FLARE SYSTEMS and FGRUs (FLARE GAS RECOVERY UNIT) that absolutely fit customers' needs and gas characteristics. We can supply either a compressor (single or multi-stage sliding vane, or single stage liquid ring technologies) or a plug and play skidded Flare Gas Recovery Unit or even Eductor, one stage or multi stage type.
Our Flare Gas Recovery systems are designed to handle very harsh gases on the long run. Our maintenance costs are amongst the lowest in the whole market thanks to our capacity to adapt the material to the gas characteristics.

KASRAVAND follows the needs of Oil & Gas customers and will shortly bring to market:

- A full FGRU package by latest EDUCTOR technology with low maintenance cost and easy operation.
- A fully monitored compressor that tells you when to carry out the maintenance (Oil, vanes, metallurgy check etc.).

We use updated and latest version of standards and softwares to design the complete packages and follow latest maintenance and operation experience of installed packages.

GAS PROCESS

GLYCOL DEHYDRATION (TEG)

GAS PROCESS

Glycol dehydration has stood the test of time as the preferred way to remove water from natural gas. The design of glycol systems such as TEG / MEG / DEG are unique for each application as the overall package design will vary to meet the specified moisture content of the gas at the process conditions.
Ethylene glycols (mono, di and tri ethylene glycols) are commonly used for dewatering applications due to their ability to absorb water (hygroscopic liquid) and leave pipelines etc. dry ready for carrying oil, gas, or produced fluids. GLYCOL WATER mixes (supplied in all ratios up to %80 MEG) can be used as a cheaper alternative to %100 Glycol, dependent on the amount of water expected in the line.

KASRASVAND custom designs and builds each system as a complete turn-key package with particular emphasis given to:

- Discharge gas moisture content
- High gas dehydration capacity
- Minimum glycol losses
- Minimum power consumption
- Optimum plant efficiency and design integrity
- Compliance with SHEQ requirements

GLYCOL REGENERATION (MEG)

GAS PROCESS

KASRAVAND custom designs glycol regeneration packages to recondition glycol used for processes such as hydrate inhibition and gas dehydration.
The formation of gas hydrates can lead to significant production and safety issues in drilling operations as the solid hydrate material can plug flow lines and equipment. Therefore, to suppress the formation of hydrates glycol, typically mono ethylene glycol (MEG), is injected into the well.

The MEG that returns from the well is termed Rich MEG and contains significant quantities of water, dissolved salts and other contaminants. KASRAVAND custom designs glycol regeneration systems to strip the absorbed water, salts, and contaminants from the Rich MEG to produce Lean MEG that can be recycled to storage tanks and production wells.

REFRIGERATION PACKAGE

GAS PROCESS

Generally, refrigeration is used for temperature requirements from 85 – 80 F to as near absolute zero as the process demands. The petrochemical and chemical range does not go much below 200- F. Refrigeration process consists of five component equipment, they are:

1. Compressor
2. Evaporator
3. Condenser
4. Expansion Valve
5. Refrigerant

The most widely used refrigerating designs, all proposed by KASRAVAND, are:

1. Mechanical Refrigeration.
2. Steam Jet Refrigeration.
3. Absorption Refrigeration.

All of the methods apply similar process philosophy to produce refrigeration effect which is Evaporation, Condensation, and Expansion. The difference between them is in the refrigerant compression method.

GAS SWEETENING

GAS PROCESS

KASRAVAND offers a range of solutions to remove acid gas components (CO_2 and/or H_2S) from natural gas customized to meet each client's specific process requirements. The most common methods for acid gas removal are via amines, physical solvents, or membranes, the choice of which depends on the levels of impurities to be removed.

KASRAVAND works with major solvent suppliers to ensure each plant is optimized to:

- Meet sales gas CO_2 and H_2S specifications
- Remove impurities to minimize foaming
- Operating efficiency
- Materials compatibility
- Minimize solvent losses

If you do not wish to use proprietary solvents then KASRAVAND will optimize your gas sweetening plant for use with readily available, generic solvents.

MOL SIEVE DEHYDARTION

GAS PROCESS

Molecular Sieve Dehydration Units work on the principle of adsorption. Molecular Sieve Dehydration units typically have higher initial capital investments than comparable glycol units but also are able to achieve very low dew points which are required for cryogenic plants. Additionally, Molecular Sieve Units can also handle large flow variations as well as higher inlet gas temperatures.
Where very low water dew points are required molecular sieve dehydration is the preferred technology over glycol dehydration.
Certain applications, such as LNG processing, are suited to the use of solid desiccant adsorbents like molecular sieves and silica gels.
KASRAVAND custom designs and builds each system as a complete turn-key package with particular emphasis given to:

- Discharge gas moisture content and optimized absorption cycles
- Reduced maintenance via the use of specialty equipment, such as Rising Stem Switching Valves

Minimum power consumption, Optimum plant efficiency and design integrity Compliance with SHEQ requirements, environmentally conscientious design.

Oil TREATMENT

OIL TERATMENT

KASRAVAND offers a range of crude oil dewatering and desalting technologies that covers most typical processing requirements depending on the salt level required. Following primary oil/water separation, crude oil still contains residual amounts of water containing unwanted salts that need to be removed in order to avoid undesirable effects downstream such as fouling.

Automated Oil Treatment Packages are designed for gathering and treatment of fluids from oil producing wells by providing deep dehydration, desalting and oil vapor pressure reduction to achieve the required quality of marketable oil and that of separated water.

Our products include:

- Free water knock out drums
- Heater treaters
- Dehydrators
- Coalescers
- Electrostatic desalters
- Degassers

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SEPARATORS & INTERNALS

KASRAVAND designs and manufactures different types of separators such as:

- Test Separators
- 3 Phase Separators (Gas/Oil/Water)
- 2 Phase Liquid Separators (Oil/Water)
- Flash Drums / Knock Out Drums (Gas/Liquid)
- Filter Separators (Gas/Liquid), (Gas/Solid)

Our engineering department consists of capable and qualified engineers who are able to do process calculation and CFD modelling for different types of separators which can be 2 phases or 3 phases. The PROCESS and PERFORMANCE GUARANTEE are provided for our separators.

KASRAVAND offers high efficiency internals that make desirable separation such as:

- Vane Type Mist Eliminator
- Cyclone Tube
- Wire Mesh Mist Eliminator
- Inlet Devise
- Drained Mesh-pad Agglomerator
- Plate Pack Coalescers
- Swirl Tube Mist Eliminator

OIL TERATMENT

CRUDE OIL DESALTERS

WATER TERATMENT

Crude oil introduced to refinery processing contains many undesirable impurities, such as sand, inorganic salts, drilling mud, polymer, corrosion byproduct, etc. The salt content in the crude oil varies depending on source of the crude oil. When a mixture from many crude oil sources is processed in refinery, the salt content can vary greatly.

The purpose of desalting is to remove these undesirable impurities, especially salts and water, from the crude oil prior to distillation.

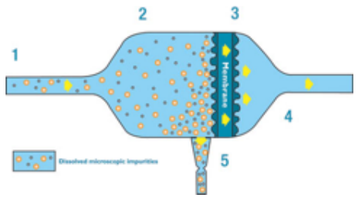
Benefits of Crude Oil Desalting

- Increased crude throughput
- Less plugging, scaling, coking of heat exchanger and furnace tubes
- Less corrosion in exchanger, fractionators, pipelines, etc.
- Better corrosion control in CDU overhead
- Less erosion by solids in control valves, exchanger, furnace, pumps
- Saving of oil from slops from waste oil

RO SYSTEMS

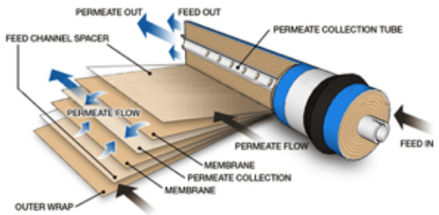
WATER TERATMENT

Reverse osmosis is a process that industry uses to clean water, whether for industrial process applications or to convert brackish water, to clean up wastewater or to recover salts from industrial processes.
Reverse Osmosis can be very effective at removing products such as trihalomethanes (THM›s), some pesticides, solvents and other volatile organic compounds (VOC›s).



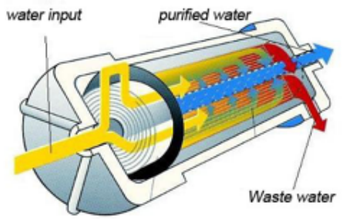
RO MEMBRANE PROCESS

Reverse osmosis water filtration systems work by using high pressure to force water through a semipermeable *reverse osmosis membrane element.* RO membranes are made of a thick polyamide film that contains tiny pores through which water can flow. RO membrane element pore sizes can vary from 0.1 to 5,000 nanometers (nm) depending on application. The pores in the RO membrane are small enough to restrict organic compounds such as minerals and salt, but allow water molecules to pass through. *Reverse osmosis membranes* are also porous and restrictive enough to filter out disease causing pathogens and bacteria from water.



RO MEMBRANE LIFE TIME

Typically RO membranes have an estimated life expectancy of about 2 years. There are many variables that come into play in determining a *RO membrane's life expectancy,* such as feed water quality and amount of use. There are methods for *cleaning a reverse osmosis membrane* but often are not cost effective for residential RO systems.



FILTRATION PACKAGES

In order to purify the product through the line, KASRAVAND designs and manufactures different types of filtration packages concluding of various filter types as mean to reach the required specification for outcome and this could be accomplished based on our experiences in many projects before. We could also offer our clients with suitable solutions in which our technical and commercial team have foreseen the constraints imposed by the project to earn the end user full satisfaction.

KASRAVAND's technology of dryers' production allows proposing, for each type of product to be treated, the most suitable thermal dryer, such as:

- Direct Rotary Dryers which can use, as heating media, flue gases for sand, clay, mineral products treatment; hot air produced by heat exchangers for the drying of plastic material and heat sensible products and which cannot come in direct contact with flue gases.
- Indirect Rotary Dryers which are internally contained to a refractory furnace which is crossed by flue gases, for carbon black drying.
- Steam Tube Rotary Dryers for melamine and soya bean.
- Flue Gas Tube Rotary Dryers for drying of dusty materials with initial low moisture, such as talcum and carbon.

For heating material up to high temperatures, also more than 1000 °C, rotary calciners/ Dryers are used. They are classified as:

DRYERS & CALCINERS

- INDIRECT DRYERS
- STEAM TUBE ROTARY DRYERS
- FLUE GAS TUBE ROTARY DRYERS

METERING PACKAGES

KASRAVAND supplies Fiscal Metering Systems, Allocation Metering and Custody Transfer Metering Systems for a wide range of fluids including oil, gas and condensate. Typical applications include production, transmission/distribution pipelines, import/export for oil, gas and LNG terminals and storage facilities.
Our systems are provided compliant with DECC & NPD requirements for fiscal measurement requirements in scope of supply. Our computation and reporting packages can range from simple flow computer to full supervisory systems with graphical control functions and communication with DCS, ICSS or other systems.
All of our systems are built, assembled and flow tested at our own fabrication facilities

- Bi-Directional Provers
- Compact Provers
- Analyzer Packages
- Ancillary Equipment
- Diagnostics

CHEMICAL INJECTION PACKAGES

The Chemical Injection Package serves the purpose of injecting a precise and accurate amount of chemicals into a system with the required back pressure, either continuously or intermittently.

PURPOSE

The purpose of injecting the chemicals into a system is to protect the mechanical integrity of the system from accelerated corrosion and prevent scale formation.
The aim is also to control hydrate formation, prevent oxygen induced corrosion, emulsion breaker for rapid and sharp separation of water from oil, reduce wax formation, water treatment, Odorization, foam control and etc.
KASRAVAND specializes in designing and manufacturing all types of chemical injection packages in line with customer requirements and various industry standards.
The main chemicals that used for oil & gas and water are:

- Corrosion inhibitors
- Demulsifiers
- Oxygen scavengers
- Scale inhibitors
- Methanol
- Ethanol
- Glycol (EG, MEG, TEG)
- Biocides
- Flocculants
- De-oilers
- Anti-foaming agents
- Closed drains

WASTE WATER TREATMENT

WATER TERATMENT

Wastewater treatment is a process used to convert wastewater - which is water no longer needed or suitable for its most recent use - into an effluent that can be either returned to the water cycle with minimal environmental issues or reused. The latter is called water reclamation and implies avoidance of disposal by use of treated wastewatereffluent for various purposes.

Treatment means removing impurities from water being treated; and some methods of treatment are applicable to both water and wastewater. The physical infrastructure used for wastewater treatment is called a wastewater treatment plant.
KASRAVAND Environmental offers a wide array of services to help you achieve these and many other goals with your water and wastewater treatment systems. We engineer, design, manufacture, install, and service all of the equipment and systems that you see below.

KASRAVAND also offers a variety of engineering, assessment, evaluation, and design services to help engineers, operators, and plant personnel get the most out of their wastewater treatment systems.

- Polishing Water Packages
- Potable Water Packages
- CPI
- Deoiling Hydro Cyclone
- Gas Floatation
- Clarification
- Filtration
- Softening

WATER DESALINATION

WATER TERATMENT

Water desalination processes separate dissolved salts and other minerals from water. Different processes are used for this matter, such as vacuum distillation and membranes to desalinate. Membrane separation requires driving forces including pressure (applied and vapor), electric potential, and concentration to overcome natural osmotic pressures and effectively force water through membrane processes.

Examples of such filtration devices include:
- Cartridge filters
- Bag filters
- Sand filters
- Multimedia filters

FEATURES

Seawater desalination has the potential to reliably produce enough potable water to support large populations located near the coast. Reverse osmosis (RO) and Nano filtration (NF) are the leading pressure driven membrane processes. Operating pressures for RO and NF are in the range of 50 to 1000 psig (3.4 to 68 bar, 345 to 6896 kPa). Conventional macro-filtration of suspended solids is accomplished by passing a feed solution through the filter media in a perpendicular direction.

AN OVER VIEW ON STATIC EQUIPMENT

PRESSURE VESSELS & DRUMS

KASRAVAND has the expertise and experience to design, fabricate and install a variety of different types and sizes of pressure vessels especially with different kinds of INTERNALS.
Over the years we have worked on numerous pressure vessels with more than 100 mm wall thickness and 5000 mm diameter.
Vessels are designed and engineered using latest versions of standards and software such as ASME, EN, BS and PV-Elite, COMPRESS, NozzlePRO also finite element analysis and solid modelling. Range of materials includes carbon steel, stainless steel, monel, inconel and other exotic materials.

PIG LAUNCHERS & RECEIVERS

KASRAVAND designs and manufactures Launchers and Receivers for off-shore and onshore projects according to pipeline and vessel design codes including NACE, ASME VIII, BS 5500 and ASME B31.3, B31.4, B31.8.
Our capacity ranges from 6" NS to 56" NS, ANSI Ratings #150 to #2500 and API, using regular carbon steel, or with different cladding and alloy steel materials.
Optional features and accessory equipment include:

- Complete SKID MOUNTED UNITS.
- PIG HANDLING SYSTEMS (manual or automatic)
- PIG SIGNALLERS (manual or automatic, remote or local)
- RELEASE FINGERS. (Manual or motorized)
- ACTUATED VALVES, CONTROLS, DRIVES and Instrumentation

SHELL & TUBE HEAT EXCHANGERS

KASRAVAND has gathered knowledge and expertise in the fabrication of heat exchangers in a variety of sizes. Our shell type heat exchanger is made using the best equipment and is available at COST EFFECTIVE PRICES.

We have in-house expertise for the thermal and mechanical design of SHELL and TUBE heat exchangers based on relevant codes and standards such as TEMA, ASME and API. Design and engineering is performed using CAE and CAD systems (including finite element analysis) such as HTFS, Aspen B-JAC and Ansys.

QUICK OPENING CLOSURES

KASRAVAND is a world leader in the manufacture of quick opening closures and hundreds of our QOC closures are in operation throughout the world.
Quick opening closures are pressure retaining structures designed to provide access to pipelines and pressure vessels.
Our QO Closures provide safe and quick access to pipeline and pressure vessels. They are built to meet all required international design codes and can be used in horizontal, vertical, inclined or declined applications.

Types:

- Rapid Opening Closure
- Double Bolt Closure
- Swing-Bolt Closure
- CAMLOCK Bolt Closure

COMPANY INFORMATION

Head Office
Unit 63&64, Sadaf Tower, Shaikh Bahaei Sq.,
North Shaikh Bahaei Ave, Molasadra St.,
Tehran, Iran.

Telefax
+9821 88212776
+9821 88212350
+9821 88606251 - 2

Email
info@kasravand.com

Sales Department
sales@kasravand.com

Shop 1
No. 11, Golbarg 11 St., Narenjestan Blvd.,
ShamsAbad Industrial Park,
35th Km Tehran - Qom Highway, Tehran, Iran.

Telefax
+9821 88606251 - 2

Shop 2
No. 3, Talash 1 St., Talash Blvd., Phase 2,
Ivanaki Industetial Park, 45th km Tehran - Semnan Highway, Tehran, Iran.

Telefax
+98 23 34583716

THANK YOU

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KASRAVAND Co.

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