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GREEN MILE Co.
Design Engineering Fabrication

GREEN MILE

DESIGN . ENGINEERING . FABRICATION

» History

Green Mile Co. was established in 2004 in order to fabricate professional packages, localize and technology transferring to domestic companies in Shiraz. With a professional engineering and fabrication teams, GMC offers extensive resources for a wide range of products and providing technical & practical solutions for our customer's requirements.

Our professional team support our customers from bidding stage till operation with technical consultancies, presence in commissioning and availability during the operation for providing any required spare parts or troubleshooting.

Honest communicating has made a long term trust between GMC and our customers. We are now accepted in all main AVLs of NIOC subsidiaries. GMC is awarded as Customer Oriented company in 5th Customer Satisfaction Congress held by National Association of Consumer Rights in February 2016 and 2017.

Chemical Injection Packages

Chemical Injection Packages are widely used in Refineries, Petrochemicals and Steel Companies. Green Mile Co. as a professional manufacturer of these packages with more than 10 years' experience in design and fabrication of more than 200 Chemical Injection Packages for On-Shore and Off-Shore projects inside and outside of Iran, is the top choice of owners and clients. Chemical Injection Packages are Tailor Made. Each Package will be designed and fabricated specifically based on the project requirements and will be customized considering the type of chemical, required flow, discharge pressure, area classification and any special requirements raised by purchaser.



- Corrosion Inhibitor Injection Packages
- Anti-Foam Injection Packages
- PH Controller Injection Packages
- Hydrazine Injection Packages
- Phosphate Injection Packages
- Caustic Injection Packages
- Catalyst Injection Packages
- Hypochlorite Injection Packages
- Biocide Injection Packages
- Demulsifier and Reverse Demulsifier Injection Packages
- Oxygen Scavenger Injection Packages
- Amine Injection Packages
- KHI Injection Packages
- Scale Inhibitor Injection Packages
- Wax Inhibitor Injection Packages
- Asphaltene Injection Packages
- Sulfuric Acid Injection Packages
- Ammonia Hydroxide Injection Packages
- Flocculent Injection Packages





Refrigeration

Our specialized expertise in this area can only be acquired over years of industrial refrigeration experience. We apply this knowledge in every designing order to fabricate efficient, rugged and reliable systems for petrochemical, pharmaceutical, oil refining, natural gas processing, industrial gases, liquefied gas storage, and related markets.

These high-spec refrigeration systems comply with the requirements stringent in petrochemical Plants where higher reliability and safety are required. We comply with domestic and foreign standards and Explosion proof specifications, in addition to American Petroleum Institute (API) standards and customer's proprietary specifications.

We have successfully commissioned two first Iranian ammonia refrigeration packages for Shiraz third Urea and ammonia plant (318.3TR) and Razi third ammonia storage tank (1098.9TR) projects, which are now in service for more than one year with the client satisfaction.



The **FIRST** Approved Iranian Manufacturer
of Refrigeration Packages in **PIDMCO** AVL

The first Iranian
manufacturer with
live references in Iran

| PROJECT | FLUID | CONTRACTOR | DELIVERY DATE | LOCATION |
|---|---------|------------|---------------|----------------|
| • Shiraz 3 rd Urea & Ammonia Plant | Ammonia | PIDEC | 2014 | Shiraz, Iran |
| • Razi 3 rd Urea & Ammonia Plant | Ammonia | HEDCO | 2015 | Mahshahr, Iran |

Methanol Injection Packages

Methanol Injection Packages are normally used for Dehydration. The packages concept is similar to chemical injection packages, with special considerations for injection of methanol which requires a pressure vessel with a complete purging system for storage of Methanol and normally huge capacities of injection comparing to normal ranges of API 675 type pumps.

We have a valuable experience of designing and manufacturing such packages for South Pars SP19 on-shore facilities. Methanol Injection of 1500 to 2000 lit/hr with 90 bar discharge pressure using single and double head API 675 type pumps are already successfully under operation in different units of SP19 located in beautiful shores of Persian Gulf.

Like other chemical injection packages, Methanol injection packages are also special design packages and will be designed based on project requirements with wide ranges of capacities and discharge pressures.



Sprinkler Packages

Sprinkler systems are used to protect areas from fire distribution based on F&G philosophy of industrial areas. Package location and distribution and allocation of Spray Nozzles could be designed and supplied by us. Our best reference in this field is the Sprinkler systems for South Pars Off-Shore Platforms of phases 19, 20 and 21.



Desuperheater & Injection Nozzle System



Spray Nozzle is a device which is used for injection of different chemicals in pipelines. For some chemicals this is to provide an injecting connection and in others like Methanol injection, there is not only a need for injection but also Spraying inside the pipeline. Green Mile Co. is a professional manufacturer of lances and injectors for different applications.



Boiler Chemical Injection Train



For each boiler set in Power Plants, one train of Chemical Injection Packages including Hydrazine, Ammonia, HP and LP Phosphate are required. Green Mile Co. is the first and only Iranian manufacturer of these packages which is approved by Mapna and supplied many sets of packages for different projects done by Mapna Boiler Group in Iran.



Nitrogen Packages



Green mile company is an expert designer and Manufacturer of nitrogen packages used to reach 99 and higher percentage of nitrogen from air by using proper desiccants to remove other gases from air.

Actrene Addition Package



Packages with special designs are also Tailor Made for different usages. Actrene Addition Package is fabricated for injecting Actrene which is a harmful and toxic liquid. Two intermediate bulk containers (IBC) are considered for the package with UN Approval BAM 6903 certified for the transportation of dangerous goods. IBCs are easily detachable from the package for refilling. This could also be used for any other chemicals that is preferred to be supplied in huge amounts in IBCs instead of barrels.

Dry Gas Seal Panels



The dry gas seal panel is a critical part of a dry gas seal system. Once a seal configuration has been selected, a panel must be designed to support the dry gas seal cartridge. The panel design must deliver sufficient and proper seal supply gas to the dry gas seal. The panel consist of filters, pressure/flow control valves and various devices to condition, control, and monitor the gas into and out of the dry gas seals. Panel is designed to supply seal buffer gas to the shaft seals of various rotating compressors, providing containment of these process gases.

LPG

Odorant Package odorizer

■ Odorant Packages are used to add aromatic agents to gases. The most usual usage is adding Ethanethiol (Ethyl Mercaptan) which has a distinct odor to LPG to make any possible leakage noticeable. Ethanethiol is intentionally added to butane and propane to impart an easily noticed smell to these normally odorless fuels that pose the threat of fire, explosion, and asphyxiation.



GREEN MILE



OUR PRODUCTS
COMPLETED BY THE BEST
AFTER SALES SERVICES



Compressor Offline Washing System



Compressor cleanliness can be maintained using a routine program of water washing. There are two water wash maneuvers performed on gas turbines: offline and online. An offline maneuver is conducted with the gas turbine in a cooled state using cranking speed, while an online maneuver is conducted with the machine at operating temperature and uses water only. Both operations use highly atomized water spray patterns designed to completely enter the compressor core. The offline system cleans the entire core and recovers lost performance, while the online system cleans the early stages and maximizes the period between needed offline washing to provide peak availability. Green Mile Company is an expert designer and manufacturer of water washing systems comply with domestic and foreign standards and Explosion proof specifications, in addition to American Petroleum Institute (API) standards and customer's proprietary specifications.

Phosphate Injection Package

designer and fabricated for "Foulad Mobarake" Steel Company. We are designed and manufacturer of such packages for Steel Companies based on related process requirements.



REFERENCE LIST

| PROJECT | SUBJECT | QTY | OWNER | CONTRACTOR | LOCATION |
|---|-------------------------------|-----|-------------|--------------------------|--------------------|
| Razi 3 rd Urea & Ammonia Plant | Chemical Injection Packages | 3 | NPC/ PIDMCO | PIDEC | Mahshahr, Iran |
| Abadan Refinery | Chemical Injection Packages | 10 | AORC | PIDEC | Abadan, Iran |
| Kenya Power Plant | Chemical Injection Packages | 1 | KenGen | FARAB | Nairobi, Kenya |
| Shiraz Urea & Ammonia Plant | Chemical Injection Packages | 4 | NPC/ PIDMCO | PIDEC | Shiraz, Iran |
| Kharg MEG | Chemical Injection Packages | 3 | NPC/ PIDMCO | PIDEC | Kharg Island, Iran |
| Abadan Refinery | Chemical Injection Packages | 4 | AORC | PIDEC | Abadan, Iran |
| Abadan Refinery | Chemical Injection Packages | 3 | AORC | PIDEC | Abadan, Iran |
| Isfahan Refinery | Chemical Injection Packages | 1 | EORC | NAMVARAN | Isfahan, Iran |
| Abadan Refinery | Chemical Injection Packages | 3 | AORC | PIDEC | Abadan, Iran |
| Bandar Abbas Refinery | Chemical Injection Packages | 20 | NIOEC | PIDEC | Bandar Abbas, Iran |
| Shiraz 3 rd Urea & Ammonia Plant | Ammonia Refrigeration Package | 1 | NPC/ PIDMCO | PIDEC | Shiraz, Iran |
| South Pars Gas Field Development, Phase 19 On-Shore | Chemical Injection Packages | 32 | POGC | PETROPARS, SAZEH, NARGAN | Assaluyeh, Iran |
| Iran LNG | Chemical Injection Packages | 10 | IRAN LNG | NARDIS | Assaluyeh, Iran |
| Lorestan Petrochemical Co. | Chemical Injection Packages | 3 | NPC/ PIDMCO | AZARAB | Lorestan, Iran |

REFERENCE LIST

| PROJECT | SUBJECT | QTY | OWNER | CONTRACTOR | LOCATION |
|---|-------------------------------|-----|---------------|--------------------------|--------------------|
| Mahabad Petrochemical Co. | Chemical Injection Packages | 3 | NPC/ PIDMCO | AZARAB | Mahabad, Iran |
| Gachsaran New Gas Compressor Station | Chemical Injection Packages | 1 | NISOC | DARYA SAHEL | Gachsaran, Iran |
| Homs Refinery | Chemical Injection Packages | 3 | HOMS REFINERY | AZARAB | Homs, Syria |
| Razi 3 rd Urea & Ammonia Plant | Ammonia Refrigeration Package | 1 | NPC/ PIDMCO | HEDCO | Mahshahr, Iran |
| South Pars Gas Field Development, Phase 19, 20 & 21 Off-Shore Platforms | Chemical Injection Packages | 12 | POGC | IOEC | Persian Gulf, Iran |
| Khesht Oil Field | Chemical Injection Packages | 4 | ICOFC | SADRA-OEID | Khesht, Iran |
| Kharg NGL | Chemical Injection Packages | 3 | IOOC | PETROSAHEL IRITEC-IRASCO | Kharg Island, Iran |
| South Pars Gas Field Development, Phase 20 & 21 On-Shore | Chemical Injection Packages | 3 | POGC | MOJAN-OIEC | Assaluyeh, Iran |
| Morvarid Petrochemical Co. | Chemical Injection Packages | 2 | NPC/ PIDMCO | PIDEC-MES | Assaluyeh, Iran |
| Naein/ Kashan/ Rey Pipeline | Chemical Injection Packages | 1 | NIOEC | DANIAL PETRO | Naein, Iran |
| Entekhab Petrochemical Co. | Chemical Injection Packages | 3 | Entekhab Co. | ARKAN SAKHTAR BARTAR | Assaluyeh, Iran |
| South Pars Gas Field Development, Phase 13, 22 & 24 On-Shore | Dry Gas Seal Panel | 8 | POGC | TUGA (MAPNA) | Assaluyeh, Iran |
| South Pars Gas Field Development, Phase 19 Off-Shore Platform | Sprinkler Package | 2 | POGC | IOEC | Persian Gulf, Iran |
| Bushehr Methanol Plant | Chemical Injection Packages | 4 | BUPC | PIDEC | Assaluyeh, Iran |

REFERENCE LIST

| PROJECT | SUBJECT | QTY | OWNER | CONTRACTOR | LOCATION |
|--|-----------------------------------|-----|----------------------------|--------------------------------|--------------------|
| South Pars Gas Field Development, Phase 20-21 Off-Shore Platform | Sprinkler Package | 2 | POGC | IOEC | Persian Gulf, Iran |
| South Pars Gas Field Development, Phase 13, 22 & 24 On-Shore | Compressor Water Washing System | 1 | POGC | TUGA (MAPNA) | Assaluyeh, Iran |
| Parand Power Plant | Chemical Injection Packages | 12 | IRAN POWER DEVELOPMENT Co. | Mapna Boiler & Equipment | Tehran, Iran |
| Assaluyeh Power Plant | Chemical Injection Packages | 12 | IRAN POWER DEVELOPMENT Co. | Mapna Boiler & Equipment | Assaluyeh, Iran |
| Kashan Power Plant | Chemical Injection Packages | 3 | IRAN POWER DEVELOPMENT Co. | Mapna Boiler & Equipment | Kashan, Iran |
| Hengam Fertilizer Plant | Chemical Injection Packages | 8 | Hengam Petrochemical | PIDEC | Assaluyeh, Iran |
| 14" Fuel Pipeline to Chabahar Power Station | Chemical Injection Packages | 1 | NIOEC | Shiraz Sadid | Chabahar, Iran |
| Bandar Abbas Gas Condensate Refinery | Odorizing Packages | 1 | Persian Gulf Star Oil Co. | Faradast Energy Falat | Bandar Abbas, Iran |
| Kangan Utility & Offsite | Chemical Injection Packages | 3 | Kangan Petro Refining | EIED/ Mapna Boiler & Equipment | Kangan, Iran |
| JAM ABS & Rubber Plant | Actrene Injection Package | 1 | Jam Petrochemical Co. | Jondishapour | Assaluyeh, Iran |
| Isfahan Oil Refinery | Red & Blue dye Injection Packages | 2 | Isfahan Refinery | Neyr Perse | Isfahan, Iran |
| Tous Power Plant | Chemical Injection Packages | 12 | IRAN POWER DEVELOPMENT Co. | Mapna Boiler & Equipment | Tous, Iran |
| Bushehr Methanol Plant | Injection Nozzle | 7 | BUPC | EIED | Assaluyeh, Iran |
| Mobarakeh Power Plant | Chemical Injection Packages | 1 | Mobarakeh Steel Company | Mapna Boiler & Equipment | Isfahan, Iran |

REFERENCE LIST

| PROJECT | SUBJECT | QTY | OWNER | CONTRACTOR | LOCATION |
|---|-----------------------------|-----|-------------------------------------|--|-----------------|
| Sabalan combine cycle power plant | Chemical Injection Packages | 12 | SABALAN BARGH OMID Co (SBO) | Mapna Boiler & Equipment | Ardabil, Iran |
| Assaluyeh Condensate Storage Tank Farm | Chemical Injection Packages | 1 | P.O.G.C. | NARDIS | Assaluyeh, Iran |
| Isfahan Oil Refinery | LPG Odorant Injection | 1 | Isfahan Refinery | Neyr Perse | Isfahan, Iran |
| Parsian C2 Recovery & Fractionation Project | Chemical Injection Packages | 5 | Palayesh Parsian Sepehr Co. (PPSC) | HEDCO | Assaluyeh, Iran |
| KANGAN Utility & Offsite | Chemical Injection Packages | 5 | Kangan Petro-Refining Co. as "KPRC" | EIED | Kangan, Iran |
| Shiraz Refinery | Chemical Injection Packages | 1 | Shiraz Refinery | Shiraz Refinery | Shiraz, Iran |
| Industrial Turbine Washing Skid | Water Washing System | 7 | MAPNA | TUGA | - |
| ILAM OLEFIN PLANT PROJECT | Water Chamber | 10 | ILAM PETROCHEMICAL Co. | Radman Process Control Company "RAPCO" | Ilam, Iran |
| MOKRAN BOILER PLANT | Injection Package | 3 | MAPNA | Mapna Boiler Company | Chabahar, Iran |
| KAVEH METHANOL PLANT | Injection Spray Nozzle | 1 | KAVEH METHANOL Company | PIDEC | Dayyer, Iran |
| URMIEH BOILER PLANT | Injection Package | 9 | MAPNA MD2 | Mapna Boiler Company | Urmieh, Iran |
| RUMAILA BOILER PLANT | Injection Package | 9 | AFAGH ENERGY PARS | Mapna Boiler Company | Rumaila, Iran |

GREEN MILE Project's Locations in Iran



GREEN MILE EQUIPMENT

A Great GMC branch, specialist in supplying oil, Gas and petrochemical industry items comprising instrument, electrical, special equipment and piping raw material fields.



■ Flame Arrestor



■ PG



■ RTD



■ RTD with local indicator



■ DPI



■ TG



■ DPI

Instruments
Representative of

PRISMA
instruments
& Gauge Bourdon France

Special Tools and Accessories



Pump Diaphragm
Vacuum Device



Pulsation Dampener
Charging Kit



Calibration Pot



Sight Glass



Pulsation Dampener



Pressure Safety Valve

Agitators and Static Mixers Joint Venture



Agitator GreenLine ACT
Three blades impeller
3PM-0134/HURRICANE
Slow speed, with coaxial
gear
Supporting coaxial axis
gear reducer
Sleeve rigid joint with
epoxy paint



Agitator GreenLine AII
Marine propeller
High speed without gear
speed reducer
Three phase, single
phase and air motor
Supporting lantern



Agitator GreenLine ADH
Marine propeller
High speed - without
gear speed reducer
Three phase, single
phase and air motor
Shaft, rigid coupling and
propeller in SS316L with
height-adjustable pro-
peller



Agitator GreenLine AVP
Turbine with 4 blades in-
clined at 45°
Slow speed, with worm
gear box
Shaft and impeller in
SS316L, with height-adjust-
able turbine



Agitator GreenLine ACP
Turbine with 4 blades in-
clined at 45°
Slow speed, with coaxial
gear
Supporting coaxial axis
gear reducer
Sleeve rigid joint with
epoxy paint



Agitator GreenLine ACE
Two blades special
paddle 2PM-0650/PREM-
UNA
Agitator for flocculation
Version "U" for surface
water, with inverter
built in electric motor
Slow peripheral speed,
with coaxial gear



GREEN MILE Co.

Green Mile is located in Shiraz, Iran. Our shop area is almost 4000 Sq.m., with two 2000 Sq.m roofed fabrication saloons. Over 180 Injection Packages are delivered to different on-shore and off-shore projects, inside and outside of Iran till end of 2017. We have worked with and delivered our packages to almost all main contractors in Iran for years, among them are Mapna Boiler, Mapna TUGA, Petro Pars Iran (PPI), PIDE, Sazeh, Nargan, Iranian Offshore Engineering and Construction Company (IOEC), OEID, EIED, Nardis, Azarab, Farab, Sadra, Hedco, Faradast Energy Falat, Jondishapour and also Technimont, the international contractor.

GREEN MILE

OUR PRODUCTS

completed by the best after sales services





R & D

Our R&D department has focused to localize some complicated packages. Our first new successful gain was Ammonia Refrigeration Packages for which we are the first Iranian Manufacturer. We are thoroughly working on different on-skid packages. Our R&D department is eager to cooperate with clients and customers to localize various product to satisfy different projects requirements.

Quality Assurance

Our QA department has established fundamental Quality Assurance System in GMC for all aspects covering engineering to fabrication and final test. GMC is certified for below System Certificates:

Customer Satisfaction Certificate 2016-2017



ISO 9001: 2008
Quality System
Certificate



ISO 14001: 2004
Environmental
Management
System Certificate



ISO 18001: 2007
Health & Safety
Management
System Certificate



ISO/TS 29001: 2010
Quality System
Certificate



55
Quality System
Certificate

