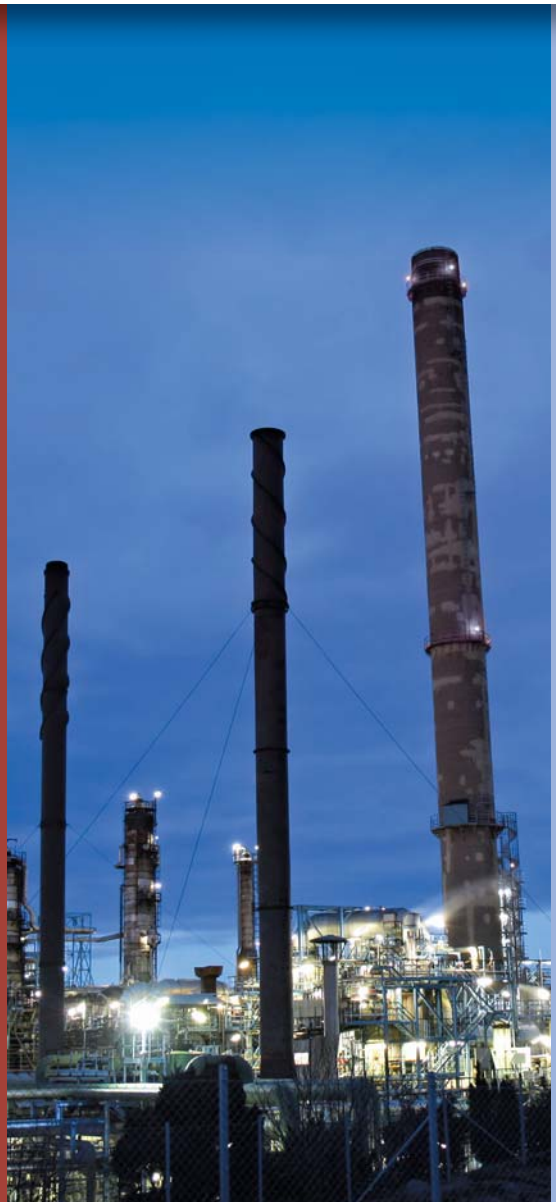
Industry Guide to Products for

REFINING



Clark·Reliance®

Your Single Source for Reliability in Level Indication & Control, Sightflow Indication, Filtration and Separation

The refining industry has looked to Clark-Reliance for decades for the most extensive product line in level measurement and control. Our Jerguson® level gaging offerings are the world's broadest. The company has recently emerged as a leader in separation and filtration for the industry as well.

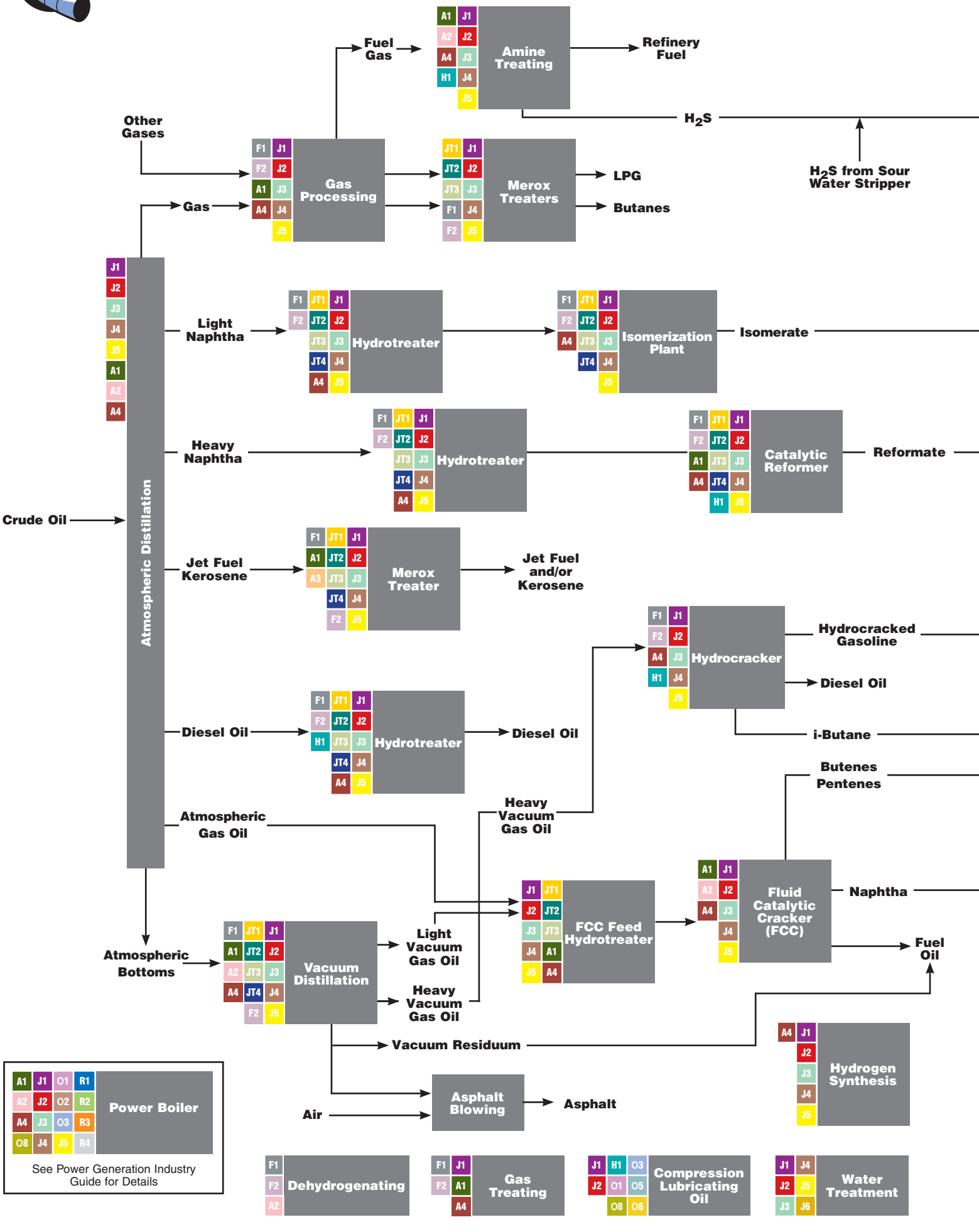
Clark-Reliance's history of innovation dates back to 1884, when the Reliance Gage Column Company introduced the company's first breakthrough product: a low water alarm for boilers. Using floats attached to a steam whistle, this revolutionary device sounded an alarm when water conditions became unsafe.

Today, after acquiring a number of distinguished product lines, we offer an integrated, unified, service-driven approach to instrumentation, control and filtration. Our broad product offering can provide the convenience and responsibility of a single source for many products for your plant.

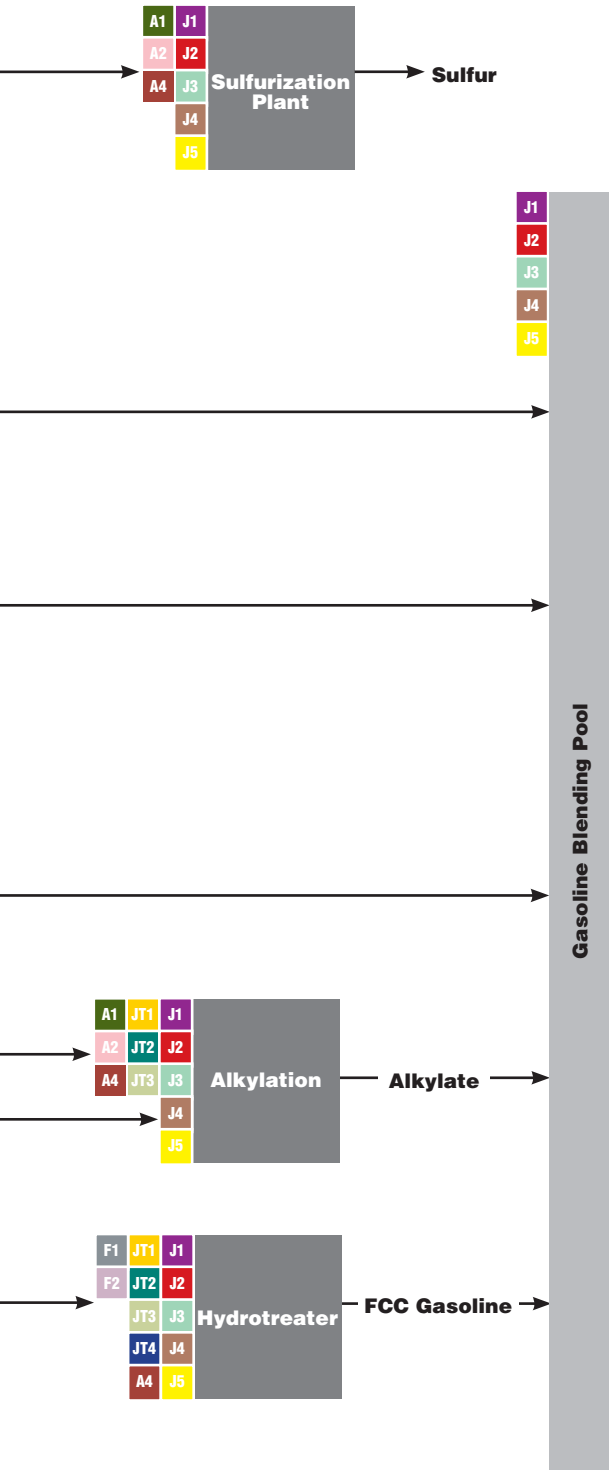
Despite their far-ranging variety, all Clark-Reliance products share a common attribute: they provide the reliability essential to critical applications throughout your operation.

Clark·Reliance®

Clark-Reliance product information is presented three ways in this brochure:


Fuel Gas
Amine Treating
Refinery Fuel
H2S
Other Gases
Gas
Gas Processing
Merox Treaters
LPG
Butanes
H2S from Sour Water Stripper
Light Naphtha
Hydrotreater
Isomerization Plant
Isomerate
Heavy Naphtha
Hydrotreater
Catalytic Reformer
Reformate
Crude Oil
Atmospheric Distillation
Jet Fuel Kerosene
Merox Treater
Jet Fuel and/or Kerosene
Hydrocracked Gasoline
Hydrocracker
Diesel Oil
i-Butane
Diesel Oil
Hydrotreater
Diesel Oil
Butenes
Pentenes
Heavy Vacuum Gas Oil
Atmospheric Gas Oil
FCC Feed Hydrotreater
Fluid Catalytic Cracker (FCC)
Naphtha
Fuel Oil
Atmospheric Bottoms
Vacuum Distillation
Light Vacuum Gas Oil
Heavy Vacuum Gas Oil
Vacuum Residuum
Hydrogen Synthesis
Air
Asphalt Blowing
Asphalt
Power Boiler
See Power Generation Industry Guide for Details
Dehydrogenating
Gas Treating
Compression Lubricating Oil
Water Treatment

PRODUCTS OFFERED



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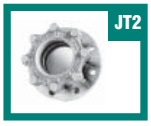

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J1

Jerguson®
Glass Level Gages

Direct reading reflex and transparent Flat Glass Gages for liquid level management feature a recessed gasket surface for improved reliability and ease of maintenance. Improve visibility of transparent gages, especially when mica shields are required, with an intense white LED illuminator, model EPL-100. A variety of gage valves are available with safety ballchecks along with a broad range of accessories as required per application.

PLANT APPLICATIONS:

- Atmospheric Distillation
- Gas Processing
- Amine Treating
- Merox Treaters
- FCC Feed Hydrotreater
- Hydrocracker
- Sulfurization Plant
- Hydrotreater
- Isomerization Plant
- Reformers
- Alkylation
- Catalytic Cracking
- Hydrogen Plants
- Water Treatment
- Gasoline Blending & Sampling
- Power Boiler
- Gas Treating
- Compression Lubricating Oil

J2

Jerguson
Magnetic Level Gages

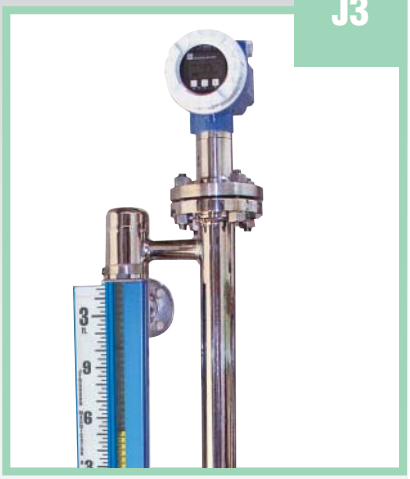
Watch the video!

Jerguson Magnicator® Magnetic Level Gages feature the most reliable magnetic circuit available through the use of a patented float magnet arrangement and a highly vibration-resistant indicator flag assembly. Magnetic gages offer improved visibility and reduced maintenance compared to glass level gages. Integrate the Magnetic Level Gage to your control system using a variety of point level switches or externally mounted continuous output transmitters. All gage designs meet the requirements of ASME B31.1 & B31.3 as a standard. Specify FlashProof chambers for cryogenic or light end applications to eliminate false level indications.

PLANT APPLICATIONS:

- Atmospheric Distillation
- Gas Processing
- Amine Treating
- Merox Treaters FCC Feed Hydrotreater
- Hydrocracker
- Sulfurization Plant
- Hydrotreater
- Isomerization Plant
- Reformers
- Alkylation
- Catalytic Cracking
- Hydrogen Plants
- Water Treatment
- Gasoline Blending & Sampling
- Power Boiler
- Compression Lubricating Oil

J3



Jerguson
Model MGWR Gages

Redundant level measurement package featuring indirect reading Magnetic Level Gage and independent Guided Wave Radar transmitter. Guided Wave Radar transmitters provide highly accurate and reliable level measurement in light hydrocarbon applications and are not dependent upon the Magnetic Gage Float for deriving a level signal. Custom bridles available to create double or triple redundant GWR transmitters with a direct reading glass or magnetic gage in a single package.

PLANT APPLICATIONS:

- Atmospheric Distillation
- Gas Processing
- Amine Treating
- Merox Treaters
- Feed Hydrotreater
- Hydrocracker
- Sulfurization Plant
- Hydrotreater
- Isomerization Plant
- Reformers
- Alkylation
- Catalytic Cracking
- Hydrogen Plants
- Water Treatment
- Gasoline Blending & Sampling
- Power Boiler

J4

Jerguson®
External Cage Level Switches

Watch the video!

Jerguson External Cage Level Switches feature a unique, tri-magnet switch mechanism that provides a snap-action switch strictly through the use of repelling magnetic fields. Float operated models are available up to 1000˚F (537˚C) providing a reliable switch in high temperature applications without the use of springs (as with displacer switches). All designs comply with ASME B31.1 & B31.3 as standard.

PLANT APPLICATIONS:

- Atmospheric Distillation
- Gas Processing
- Amine Treating
- Merox Treaters
- FCC Feed Hydrotreater
- Hydrocracker
- Sulfurization Plant
- Hydrotreater
- Isomerization Plant
- Reformers
- Alkylation
- Catalytic Cracking
- Hydrogen Plants
- Water Treatment
- Gasoline Blending & Sampling
- Power Boiler

J5

Jerguson
Displacer Level Transmitters

Jerguson Displacer Level Transmitters feature LVDT (Linear Variable Differential Transformer) technology to provide reliable level indication and avoid issues with wear points and drift that occur with other technologies. All pressure chambers are designed in accordance with ASME B31.1 & B31.3 as a standard.

PLANT APPLICATIONS:

- Atmospheric Distillation
- Gas Processing
- Amine Treating
- Merox Treaters
- Sulfurization Plant
- Hydrotreater
- Isomerization Plant
- Reformers
- Alkylation
- Catalytic Cracking
- Hydrogen Plants
- Water Treatment
- Gasoline Blending & Sampling
- Power Boiler

J6

Jerguson
UltraSonic Transmitters

Jerguson UltraSonic Transmitters offer a low cost level measurement solution for low pressure applications such as water treatment or inlet water level monitoring. Products are available from compact 4-20mA output only through a complete system with control module that accepts multiple transmitter inputs and cycles through (5) programmable relays. Units are available for level or open channel flow and contain pre-programmed tables for indication in non-linear vessels.

PLANT APPLICATIONS:

- Water Treatment

JT1

Jacoby-Tarbox®
Sight Flow Indicators

Jacoby-Tarbox Sight Flow Indicators are designed in accordance with ASME B31.1 and B31.3 using only listed metals within their construction to ensure full specification compliance and meet more specifications "out of the box" than any manufacturer. This includes NACE compliance, standard for wetted materials. Jacoby-Tarbox units offer unique features that allow them to have the longest duty cycles in the industry. Jacoby-Tarbox also offers a variety of API 614 compliant solutions for lubricating systems on rotating equipment.

PLANT APPLICATIONS:

Hydrotreater
Isomerization Plant
Catalytic Reformer
Merox Treater
Alkylation
Vacuum Distillation
FCC Feed Hydrotreater

JT2

Jacoby-Tarbox
Sight Windows

Jacoby-Tarbox Sight Windows are used for process observation on various treaters and with processes that involve mixed, blended, distilled, or potentially stratified material. Sight windows are an optional solution for API 614 compliance in lubricating systems on rotating equipment.

PLANT APPLICATIONS:

Hydrotreater
Isomerization Plant
Catalytic Reformer
Merox Treater
Alkylation
Vacuum Distillation
FCC Feed Hydrotreater

JT3

Jacoby-Tarbox
Phaeton® XTL Lighting

Watch the video!

Jacoby-Tarbox Phaeton XTL LED Tank Lighting offers a long-lasting, low operating cost solution to tank and sight flow indicator lighting needs. Vibration resistant, long-life LED's virtually eliminate maintenance.

PLANT APPLICATIONS:

Hydrotreater
Isomerization Plant
Catalytic Reformer
Merox Treater
Alkylation
Vacuum Distillation
FCC Feed Hydrotreater

Jacoby-Tarbox®
Eductors

JT4

Jacoby-Tarbox in-tank Eductors are used in process tanks requiring mixing, blending, or to prevent material stratification. In-tank eductors work independently, or in concert with other mixing technologies. In-line eductors are used in various applications, the most common being an alternative means to transport media to and from processes, or to combine liquids or gases while in-line instead of in-tank.

PLANT APPLICATIONS:

Hydrotreater
Vacuum Distillation
Isomerization Plant
Catalytic Reformer

FILCOA®
Gas Coalescer Elements

F1

Gasses in the refining process can contain process liquids, hydrocarbons, and particulate. These contaminants can foul final products and process equipment such as compressors, furnaces, boilers, and turbines. FILCOA coalescer elements include a comprehensive range of absolute-rated micro-glass filters with broad chemical compatibilities and special end fittings specifically designed to fit existing vessels.

PLANT APPLICATIONS:

Catalytic Reformer
Hydrocracker
Hydrotreater
Dehydrogenation
Vacuum Distillation
Gas Processing
Merox Treater
Gas Treating
Isomerization

FILCOA
Liquid Lube Oil Filters

F2

Process and lubrication liquids often require absolute particle removal to ensure product quality and protection of equipment. The installation of absolute-rated Clark-Reliance FILCOA filters makes it possible to improve process efficiencies and provides optimal process protection. The graded-density structure of FILCOA filter products for liquids remove solids and deformable contaminants that would quickly plug competitive filter elements.

PLANT APPLICATIONS:

Catalytic Reformer
Hydrocracker
Hydrotreater
Dehydrogenation
Vacuum Distillation
Gas Processing
Merox Treater
Gas Treating
Isomerization

R1

Reliance®
Electro Eye-Hye® Remote Drum Level Indication System

The Electro Eye-Hye Drum Level Indication System provides remote indication of the drum level for steam and water applications up to 3000 PSI (207 Bar) and 695 degrees F (368 degrees C). This system consists of three components: 1) An Electrolev Column with 10, 12 or 20 conductivity probes located at specified levels, with 1" male pipe size (standard) vessel connections (flanged or female socket weld connections are also available); 2) a Control Unit that provides a switch contact for each probe level for High or Low Alarm and High or Low trip functions; 3) a Panel Indicator with Miniature Bi-Color (Red/Green) LED type or Tri-Color LED Indicator. Either type is designed for panel mounting in a control room or may be specified in a weatherproof enclosure for installation near the boiler.

PLANT APPLICATIONS:

Auxiliary Boilers Power Boilers Process Steam Boilers

R2

Reliance
Water Columns and Standpipes

Water Columns and Standpipes are primarily used to support Water Gage Glasses. Water Columns are available in cast iron models for applications to 250 PSI (17 Bar) and steel models for applications up to 3000 PSI (207 Bar). Water Columns generally include conductivity probes for High & Low Alarms and Low Water Cutout functions. Standpipes support Water Gage Glasses, the same function as a Water Column, without probes. A Water Column or Standpipe provides the proper support for mounting a Water Gage Glass and assures stable observation of the drum level. An Electrolev Column may also serve as a Water Column to support a Water Gage Glass. This combination forms a “LevelMax” System for remote and local level indication in one assembly.

PLANT APPLICATIONS:

Auxiliary Boilers Power Boilers Process Steam Boilers

R3

Reliance
Water Gage Glasses
Prismatic (Reflex), Flat Glass, and Simpliport® Bi-Color

Watch the video!

Prismatic Water Gage Glasses for applications up to 350 PSI (24 Bar) present the water as black up to the meniscus line. Flat Glass (Transparent) Water Gage Glasses with DuraStar LED Illumination for applications up to 2000 PSI (138 Bar) provide a bright “star-like” image at the water level, and Simpliport Bi-Color Ported Type Water Gage Glasses for applications up to 3000 PSI (207 Bar) with “Simpliport 180” Wide Angle LED Viewing System provide a bright green image up to the water line and red image for the steam indication above the water level.

PLANT APPLICATIONS:

Auxiliary Boilers Power Boilers Process Steam Boilers

R4

Reliance®
Levalarms

Float or Conductivity Probe Type Level Switch used for primary or auxiliary low water cutouts. This device can also be used as a level alarm switch. Float actuated models are available for applications up to 800 PSI (55 Bar). Conductivity Probe type models are available for applications up to 1800 PSI (124 Bar).

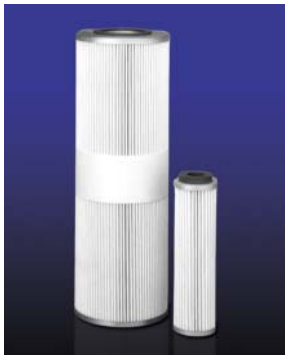
PLANT APPLICATIONS:

Auxiliary Boilers

H1

HYCOA Liquid Filters

Process and lubrication liquids often require absolute particle removal to ensure product quality and protection of equipment. The installation of absolute-rated Clark-Reliance HYCOA filters makes it possible to improve process efficiencies and provides optimal process protection. HYCOA elements are available in micro-glass, polyester, and polypropylene. The graded-density structure of HYCOA filter products for liquids remove solids and deformable contaminants that would quickly plug competitive filter elements.



PLANT APPLICATIONS:

Compressor Lubricating Oil
Amine Treating Liquid-Liquid Contactor Inlet
Amine Treating Charcoal Filter Inlet
Tail Gas Gas-Liquid Contactor Outlet
Tail Gas Charcoal Filter Inlet
Tail Gas Hydrogen Compressor Lubricating Oil
Catalytic Reforming Compressor Lubricating Oil
Hydrotreater Compressor Lubricating Oil
Hydrocracker Compressor Lubricating Oil

A1

Anderson®
AVS and AVGS Vane Separators

Anderson Vane Separators are used in applications where efficient liquid-gas separation is required. Anderson AVS and AVGS Vane Separators utilize the pocket type vane element to efficiently remove liquid contaminant from air and gas streams as well as steam flows. Pocket type vanes provide higher capacity with minimum pressure drop.

PLANT APPLICATIONS:

Amine Treating Main Gas Inlet
Dessicant Bed Main Gas Inlet
Gas Processing
Alkylation
Atmospheric Distillation
Catalytic Reformer
FCC Feed Hydrotreater
Fluid Catalytic Cracker (FCC)
Gas Treating
Merox Treater
Vacuum Distillation
Power Boiler
Sulfurization Plant

A2

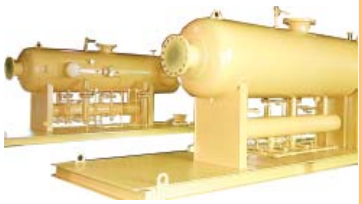
Anderson®
AVB Steam Drum Vane Separator

Anderson AVB Steam Drum Vane Separators are designed specifically to provide clean, dry steam. The Anderson AVB Steam Drum Vane Separator utilizes the pocket type vane element to efficiently remove liquid particles from steam flows. This type of separator provides maximum protection for downstream equipment.

PLANT APPLICATIONS:

Amine Treating
Atmospheric Distillation
Vacuum Distillation
Fluid Catalytic Cracker (FCC)
Power Boiler
Dehydrogenating
Sulfurization Plant
Alkylation

A3



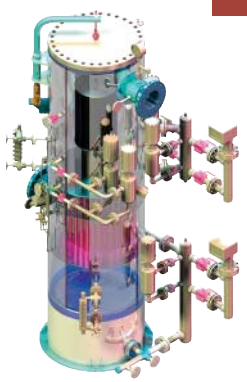
Anderson
AFS Filter Separator

The Anderson AFS Filter Separator is a two stage device utilizing high efficiency filter elements in conjunction with a second stage mechanical separator to achieve high efficiency removal of both liquids and solids from natural gas streams. These separators can be oriented in either vertical or horizontal configurations. They are designed to handle high contaminant loading and potential slugs of liquids.

PLANT APPLICATIONS:

Merox Treater

A4



Anderson
ACF Coalescing Filter

The Anderson ACF Coalescing Filter is a two stage device that provides the optimum level of protection for fuel gas equipment by utilizing a first stage mechanical style separator followed by a second stage consisting of the highest efficiency coalescing filter elements available to provide virtually contaminant-free gas to downstream equipment.

PLANT APPLICATIONS:

Atmospheric Distillation
Amine Treating Gas-Liquid Contactor Inlet
Amine Treating Gas-Liquid Contactor Outlet
Tail Gas Reflux Accumulator Outlet
Tail Gas Hydrogen Main Inlet
Tail Gas Hydrogen Compressor Inlet
Tail Gas Hydrogen Compressor Outlet
Tail Gas LP Separator Outlet
Isomerization Plant
Catalytic Reforming Hydrogen Compressor Inlet
Catalytic Reforming Hydrogen Compressor Outlet
Hydrogen Synthesis
Fluid Catalytic Cracker (FCC)
Hydrotreater Main Hydrogen Inlet
Hydrotreater Hydrogen Compressor Inlet
Hydrotreater Hydrogen Compressor Outlet
Hydrocracker Main Hydrogen Inlet
Hydrocracker Hydrogen Compressor Inlet
Hydrocracker Hydrogen Compressor Outlet
Dessicant Bed Main Gas Inlet
Regeneration Gas Compressor Outlet
Alkylation
Merox Treater
Vacuum Distillation
FCC Feed Hydrotreater
Power Boiler
Gas Treating
Sulfurization Plant

01

OFS

Vacuum Dehydration Oil Purification System (VDOPS)

A Vacuum Dehydration Oil Purification System (VDOPS) is designed to remove dissolved, emulsified, and free water from a variety of oils ranging from Lube, Hydraulic, and High Viscosity Gear Oils. A VDOPS will also remove particulate by use of its high efficiency particulate removal filter, typically rated 5 micron Beta(c) > 1000 per ISO 16889. A VDOPS uses vacuum, heat, and mass transfer to remove water from oil by changing it to a gas. Most water is put back in the atmosphere as water vapor and some is condensed into a holding chamber. A VDOPS is designed to recirculate or kidney loop reservoirs and maintain oil as low as 20 PPM on a continual basis. Particulate can be maintained as low as ISO 15/14/11.

PLANT APPLICATIONS:

- Compressor Lube Systems
- Main Turbine Lube Oil Systems
- Boiler Lube Systems
- Hydraulic Systems
- Bearing Lube Systems
- Gear Boxes
- Mixer Lube Systems
- Hydraulic Power Units

02

OFS

Fuel Coalescers (FC)

Fuel Coalescers (FC) are designed to remove free and emulsified water from Fuel Systems. Water is removed by coalescing water droplets and gravity-separating them. Water is collected at the bottom of a coalescing vessel and drained by manual or automatic means. A FC will also remove particulate by use of its high efficiency particulate removal filter, typically rated 5 micron Beta(c) > 1000 per ISO 16889. Water in fuel can be maintained as low as 30 PPM and particulate as low as ISO 15/14/11.

PLANT APPLICATIONS:

- Main Fuel Tanks
- Outside Storage Tanks
- Generator Belly Tanks
- Main Fuel Supply to Turbine Generator

03

OFS

Filter Carts & Low Flow Filtration

Filter Carts and Low Flow Filtration Systems are typically used to recirculate and kidney loop smaller lube, hydraulic, gear box reservoirs and fuel tanks. They can also be used to transfer new or make-up oil into reservoirs. Filter Carts are primarily designed to remove particulate by use of their high efficiency particulate removal filters, typically rated 5 micron Beta(c) > 1000 per ISO 16889. Particulate levels can be maintained as low as ISO 15/14/11.

PLANT APPLICATIONS:

- Compressors
- Main Turbine Lube Oil Reservoirs
- Boiler Feed Pump Lube Oil
- Speed Control Hydraulic Systems
- Force Draft Fan Bearing Lube Systems
- Cooling Tower Gear Boxes
- Mixer Lube Systems
- Heat Transfer Systems
- Hydraulic Power Units & Fuel Tanks

O5

OFS

Varnish Removal Systems (VRS)

Varnish Removal Systems (VRS) were developed to address the need to properly remove varnish (also known as lacquer, sludge, or tar) commonly found in various lubrication and hydraulic systems. The process utilizes a technology by Fluitec® called Electrophysical Separation Process™ (ESP), which is a patent-pending technology that absorbs dissolved and suspended oil degradation products – the cause of varnish. Varnish removal is accomplished with an oxidatively-stable filter media, engineered to selectively remove only the varnish-causing contaminants without disturbing the fluid's additives.

PLANT APPLICATIONS:

Compressor Lube Systems
Main Turbine Lube
Boiler Feed Pump Lube
EHC Speed Control Systems using Fire Retardant Fluids

O6

OFS

Filter Vessels - Simplex & Duplex

The harmful effect of particulate contamination in oils, fuels, and other hydrocarbons have been well documented. By maintaining absolute fluid cleanliness, the life of critical wear components can be dramatically increased, minimizing downtime and maximizing profitability. Simplex and duplex single and multi-element filter housing assemblies are available. Simple and reliable, these filter housing assemblies provide the needed framework for an outstanding filter system. Housings can be equipped with a multitude of filters from pleated micro-glass, resin impregnated cellulose, string wound, nylon mesh bag to stainless steel strainers.

PLANT APPLICATIONS:

Compressor Lube Systems
Main Turbine Lube Oil Reservoir
Boiler Feed Pump Lube Oil
Speed Control Hydraulic Systems
Force Draft Fan Bearing Lube Systems
Cooling Tower Gear Boxes and Fuel Systems
Polishing of Downstream Hydrocarbons

O8

OFS

Rental Equipment and Services for Industrial Fluid Purification

OFS maintains a large fleet of rental equipment, ready for deployment anywhere. Additionally, we can provide factory-trained crews to perform oil flushing and filtration services at your plant.

PLANT APPLICATIONS:

Bearing Lube Systems
Boiler Feed Pump Lube Oil
Boiler Lube Systems
Compression Lubricating Oil
Compressor Lube Systems
Cooling Tower Gear Boxes & Fuel Systems
EHC Speed Control Systems using Fire Retardant Fluids
Force Draft Fan Bearing Lube Systems
Gear Boxes
Generator Belly Tanks
Heat Transfer Systems
Hydraulic Power Units
Hydraulic Systems
Main Fuel Supply to Turbine Generator
Main Fuel Tanks
Main Turbine Lube Oil Systems
Mixer Lube Systems
Outside Storage Tanks
Polishing of Downstream Hydrocarbons
Power Boilers
Speed Control Hydraulic Systems

Alkylation

Alkylation, in petroleum refining, is a chemical process in which light, gaseous hydrocarbons are combined to produce high-octane components of gasoline. The light hydrocarbons consist of olefins such as propylene and butylene and isoparaffins such as isobutane. These compounds are fed into a reactor, where, under the influence of a sulfuric-acid or hydrofluoric-acid catalyst, they combine to form a mixture of heavier hydrocarbons.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Jacoby-Tarbox Sight Flow Indicators
Jacoby-Tarbox Sight Windows
Jacoby-Tarbox Phaeton XTL Lighting
Anderson AVS and AVGS Vane Separators
Anderson AVB Steam Drum Vane Separators
Anderson ACF Coalescing Filters
Jerguson Glass Level Gages
Jerguson Magnetic Level Gages
Jerguson Model MGWR Gages
Jerguson External Cage Level Switches
Jerguson Displacer Level Transmitters

Amine Treating

Amine Treatment removes hydrogen sulfide and carbon dioxide from natural gas. Amines have a high affinity for both hydrogen sulfide and carbon dioxide, making this a very effective removal solution.

CLARK-RELIANCE PRODUCTS EMPLOYED:

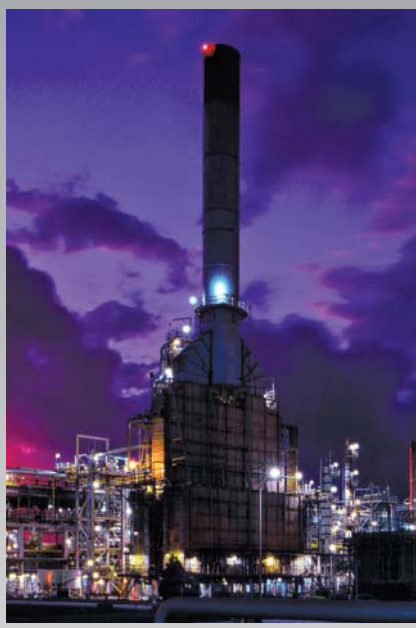
Jerguson Glass Level Gages
Jerguson Magnetic Level Gages
Jerguson Model MGWR Gages
Jerguson Cage Level Switches
Jerguson Displacer Level Transmitters
Anderson AVS and AVGS Vane Separators
Anderson AVB Steam Drum Vane Separators
Anderson ACF Coalescing Filters
HYCOA Liquid Filters

Atmospheric Distillation

Atmospheric Distillation is the most basic petroleum refining process. Crude oil is heated and fed into a large tower containing a vertical series of complex trays. As the lighter hydrocarbon components boil out of the crude and their vapors rise in the tower and cool, they collect in trays at different levels based on the critical temperature of each different fluid. For example, the heavier oils and straight-run gasolines will condense into liquid at a lower level (and higher temperature) than butane, propane, and other light end gases.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Jerguson Glass Level Gages
Jerguson Model MGWR Gages
Jerguson Displacer Level Transmitters
Jerguson Magnetic Level Gages
Jerguson External Cage Level Switches
Anderson AVB Steam Drum Vane Separators
Anderson AVS and AVGS Vane Separators
Anderson ACF Coalescing Filters



Catalytic Reformer

Catalytic Reforming is a process in which heavy-run gasolines and naptha are reacted in the presence of catalysts to produce higher-octane gasolines. Catalytic Reforming rearranges the molecular structure of the hydrocarbon chain rather than cracking it as in other processes.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Jerguson Glass Level Gages
Jerguson Model MGWR Gages
Jerguson Displacer Level Transmitters
Jerguson Magnetic Level Gages
Jerguson External Cage Level Switches
Anderson ACF Coalescing Filters
Anderson AVS and AVGS Vane Separators
Jacoby-Tarbox Sight Windows
Jacoby-Tarbox Eductors
Jacoby-Tarbox Sight Flow Indicators
Jacoby-Tarbox Phaeton XTL Lighting
FILCOA Gas Filters and Coalescing Elements
FILCOA Liquid Filters
HYCOA Liquid Filters

Dehydrogenation

Dehydrogenation involves the elimination of hydrogen from a compound to produce a less saturated analog chain and can be effected thermally or catalytically. Thermal dehydrogenation is best exemplified by the pyrolysis of hydrocarbons to produce olefins, usually in the presence of steam, in pyrolysis furnaces or steam crackers at elevated temperatures.

CLARK-RELIANCE PRODUCTS EMPLOYED:

FILCOA Gas Filters and Coalescing Elements
FILCOA Liquid Filters
Anderson AVB Steam Drum Vane Separators

FCC Feed Hydrotreater

FCC Hydrotreating is a chemical process to stabilize petroleum products in the presence of hydrogen and a catalyst. Also see Hydrotreater.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Jacoby-Tarbox Sight Flow Indicators
Jacoby-Tarbox Phaeton XTL Lighting
Jacoby-Tarbox Sight Windows
Jerguson Glass Level Gages
Jerguson Magnetic Level Gages
Jerguson Displacer Level Transmitters
Jerguson Model MGWR Gages
Jerguson External Cage Level Switches
Anderson AVS and AVGS Vane Separators
Anderson ACF Coalescing Filters

Fluid Catalytic Cracker (FCC)

Fluid Catalytic Cracking converts heavy oils into higher value gasoline and lighter products by cracking heavy oil feed in the presence of a fine particle catalyst. The term “fluid” is used because the catalyst is very fine particles, which behave as a fluid when aerated with a vapor.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Jerguson Glass Level Gages
Jerguson Model MGWR Gages
Jerguson Displacer Level Transmitters
Jerguson Magnetic Level Gages
Jerguson External Cage Level Switches
Anderson ACF Coalescing Filters
Anderson AVS and AVGS Vane Separators
Anderson AVB Steam Drum Vane Separators

Gas Treating

Gas Treating is a general term referring to removing unwanted or harmful substances from gas streams. See Amine Treating for one such process.

CLARK-RELIANCE PRODUCTS EMPLOYED:

FILCOA Gas Filters and Coalescing Elements
FILCOA Liquid Filters
Jerguson Glass Level Gages
Anderson ACF Coalescing Filters
Anderson AVS and AVGS Vane Separators

Gas Processing

Gas Processing is a general term referring to the separation and treatment of gas into various higher value products and the removal and treatment of water and other undesirable or toxic components.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Jerguson Glass Level Gages
Jerguson Model MGWR Gages
Jerguson Displacer Level Gages
Jerguson Magnetic Level Transmitters
Jerguson External Cage Level Switches
FILCOA Liquid Filters
FILCOA Gas Filters and Coalescing Elements
Anderson AVS and AVGS Vane Separators
Anderson ACF Coalescing Filters

Gasoline Blending Pool

The Gasoline Blending Pool is where intermediate streams are combined to form a variety of on-demand finished products. The advantage of the blending pool is that product output can be easily varied based on fluctuating demand.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Jerguson Glass Level Gages
Jerguson Model MGWR Gages
Jerguson Displacer Level Transmitters
Jerguson Magnetic Level Gages
Jerguson External Cage Level Switches

Hydrocracker

Hydrocracking is a process combining catalytic cracking and hydrogenation, wherein heavier feedstocks are cracked in the presence of hydrogen to produce more desirable products. The process employs high pressure, high temperature, a catalyst, and hydrogen. Hydrocracking is used for feedstocks that are difficult to process by either catalytic cracking or reforming.

CLARK-RELIANCE PRODUCTS EMPLOYED:

FILCOA Liquid Filters
FILCOA Gas Filters and Coalescing Elements
Anderson AFC Coalescing Filters
HYCOA Liquid Filters
Jerguson Glass Level Gages
Jerguson Model MGWR Gages
Jerguson Magnetic Level Gages
Jerguson External Cage Level Switches
Jerguson Displacer Level Transmitters

Hydrotreater

Hydrotreating is a process in which contaminants are removed from product streams to produce either finished product or clean product for further processing. The process employs pressure and temperature, however the temperature is generally kept below 800°F to minimize cracking.

CLARK-RELIANCE PRODUCTS EMPLOYED:

- Jerguson Glass Level Gages
- Jerguson Model MGWR Gages
- Jerguson Displacer Level Transmitters
- Jerguson Magnetic Level Gages
- Jerguson External Cage Level Switches
- Anderson ACF Coalescing Filters
- HYCOA Liquid Filters
- Jacoby-Tarbox Sight Windows
- Jacoby-Tarbox Eductors
- Jacoby-Tarbox Sight Flow Indicators
- Jacoby-Tarbox Phaeton XTL Lighting
- FILCOA Liquid Filters
- FILCOA Gas Filters and Coalescing Elements

Hydrogen Synthesis

Hydrogen Synthesis units produce hydrogen for use in treating and cracking process units. The hydrogen process typically involves the steam reforming of light end gases such as methane. The process typically involves four stages: reforming, conversion, purification, and methanation.

CLARK-RELIANCE PRODUCTS EMPLOYED:

- Jerguson Glass Level Gages
- Jerguson Model MGWR Gages
- Jerguson Displacer Level Transmitters
- Jerguson Magnetic Level Gages
- Jerguson External Cage Level Switches
- Anderson ACF Coalescing Filters

Isomerization Plant

Isomerization is the chemical process by which a compound is transformed into any of its isomeric forms, i.e., forms with the same chemical composition but with different structures or configurations and, hence, generally with different physical and chemical properties. An example is the conversion of butane, a hydrocarbon with four carbon atoms joined in a straight chain, to its branched-chain isomer, isobutane, by heating the butane to 100°C or higher in the presence of a catalyst.

CLARK-RELIANCE PRODUCTS EMPLOYED:

- Jerguson Glass Level Gages
- Jerguson Model MGWR Gages
- Jerguson Displacer Level Transmitters
- Jerguson Magnetic Level Gages
- Jerguson External Cage Level Switches
- Anderson ACF Coalescing Filters
- Jacoby-Tarbox Sight Windows
- Jacoby-Tarbox Eductors
- Jacoby-Tarbox Sight Flow Indicators
- Jacoby-Tarbox Phaeton XTL Lighting
- FILCOA Liquid Filters
- FILCOA Gas Filters and Coalescing Elements

Merox Treater

Merox Treatment is a process in which mercaptan sulfur is removed from gas streams by contact-reacting feed with a caustic solution.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Jerguson Glass Level Gages
Jerguson Model MGWR Gages
Jerguson Displacer Level Transmitters
Jerguson Magnetic Level Gages
Jerguson External Cage Level Switches
FILCOA Liquid Filters
FILCOA Gas Filters and Coalescing Elements
Jacoby-Tarbox Sight Windows
Jacoby-Tarbox Eductors
Jacoby-Tarbox Sight Flow Indicators
Jacoby-Tarbox Phaeton XTL Lighting
Anderson ACF Coalescing Filters
Anderson AVB Steam Drum Vane Separators
Anderson AVS and AVGS Vane Separators

Power Boiler

Power Boilers are used to generate the steam required for plant processes or for the generation of electricity for use in the facility. These Power Boilers are generally designed and manufactured to meet the requirements of the ASME Boiler Code or applicable Boiler Code for the country of installation.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Reliance Electro Eye-Hye Remote Drum Level Indication Systems
Reliance Water Columns
Reliance Levalarms
Reliance Water Gage Glasses
Anderson AVS and AVGS Vane Separators
Anderson AVB Steam Drum Vane Separators
Anderson ACF Coalescing Filters
Jerguson Magnetic Level Gages
Jerguson External Cage Level Switches
Jerguson Glass Level Gages
Jerguson Model MGWR Gages
Jerguson Displacer Level Transmitters
OFS Fuel Coalescers
OFS Vacuum Dehydration Oil Purification Systems
OFS Filter Carts and Low Flow Filtration Systems
OFS Rental Equipment

Sulfurization Plant

Sulfur recovery processes are used to strip elemental sulfur from toxic Hydrogen Sulfide gas.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Jerguson Glass Level Gages
Jerguson Model MGWR Gages
Jerguson Displacer Level Transmitters
Jerguson Magnetic Level Gages
Jerguson External Cage Level Switches
Anderson AVS and AVGS Vane Separators
Anderson AVB Steam Drum Vane Separators
Anderson ACF Coalescing Filters

Vacuum Distillation

Vacuum Distillation is the same process as Atmospheric Distillation except that the tower is under vacuum so that higher temperatures can be achieved to boil the heavy crude that passes through the Atmospheric Distillation process.

CLARK-RELIANCE PRODUCTS EMPLOYED:

Jerguson Glass Level Gages
Jerguson Model MGWR Gages
Jerguson Displacer Level Transmitters
Jerguson Magnetic Level Gages
Jerguson External Cage Level Switches
FILCOA Liquid Filters
FILCOA Gas Filters and Coalescing Elements
Jacoby-Tarbox Sight Windows
Jacoby-Tarbox Eductors
Jacoby-Tarbox Sight Flow Indicators
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Industry Guide to Products for

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