Products Serving the Oil & Gas Industry
SPX helps customers across the oil and gas industry meet key business challenges, including the increasing demand for energy.

The SPX product portfolio includes a wide array of heavy-duty pumps, valves, filters, mixers, and other equipment for use in a variety of upstream and downstream processing of oil and gas.

SPX Flow Technology designs, manufactures and markets product solutions used to process, blend, meter, transport fluid and treat compressed air across multiple applications worldwide.

In addition to the vast product portfolio, SPX offers a wide range of Aftermarket services. Our supportive aftermarket services include training, consulting, remote diagnostics, repairs and much more. Our experienced engineers are available to fit OEM replacement parts to ensure that your process will continue to run smoothly.

From power generation to oil and gas production, our product solutions are at work behind the scenes of a wide array of everyday processes that help satisfy the world’s energy needs.

› APV™
› Bran+Luebbe™
› Copes-Vulcan™
› ClydeUnion Pumps
› Dollinger™
› GD Engineering™
› Johnson Pump™
› Lightnin™
› M&J Valve
› Plenty
› Pneumatic Products™
› Waukesha Cherry-Burrell™
MIXERS

- Lightnin
  - Mixers
  - Agitators

- Plenty
  - Side-Entry Mixers

DRYERS

- Pneumatic Products
  - Dryers

VALVES

- Copes-Vulcan
  - Control Valves
  - Trim Options
  - Desuperheaters

- M&J Valve
  - Gate Valves
  - Control Valves
  - Relief Valves

CLOSURES & PIG ALERTS

- GD Engineering
  - Closures
  - Pig Signalers
PUMPS

- **Bran+Luebbe**
  - Process Pumps
  - Metering Pumps
  - Pump Package Modules

- **ClydeUnion Pumps**
  - Pumps Solutions

- **Johnson Pump**
  - Centrifugal Pumps
  - Gear Pumps

- **Plenty Pumps**
  - Screw Pumps
  - Rotary Vane Pumps

- **Waukesha Cherry-Burrell**
  - Positive Displacement Pumps

PLATE HEAT EXCHANGERS

- **APV**
  - Plate Heat Exchangers

STRAINERS & FILTERS

- **Dollinger**
  - Filtration

- **Plenty Filters**
  - Filters

- **Plenty Process Filtration**
  - Filtration
**MIXERS**
- Lightnin
  - Mixers
  - Agitators
- Plenty
  - Side-Entry Mixers

**VALVES**
- Copes-Vulcan
  - Control Valves
  - Trim Options
  - Desuperheaters
- M&J Valve
  - Gate Valves
  - Control Valves
  - Relief Valves

**DRYERS**
- Pneumatic Products
  - Dryers

**CLOSURES & PIG ALERTS**
- GD Engineering
  - Closures
  - Pig Signalers
SPX Products Serving Offshore Oil Drilling

**PUMPS**
- **Bran+Luebbe**
  - Process Pumps
  - Metering Pumps
  - Pump Package Modules
- **ClydeUnion Pumps**
  - Pumps Solutions
- **Johnson Pump**
  - Centrifugal Pumps
  - Gear Pumps
- **Plenty Pumps**
  - Screw Pumps
  - Rotary Vane Pumps
- **Waukesha Cherry-Burrell**
  - Positive Displacement Pumps

**PLATE HEAT EXCHANGERS**
- **APV**
  - Plate Heat Exchangers

**STRAINERS & FILTERS**
- **Dollinger**
  - Filtration
- **Plenty Filters**
  - Filters
- **Plenty Process Filtration**
  - Filtration
SPX Products Serving Liquefied Natural Gas Industry

**MIXERS**
- Lightnin
  - Mixers
  - Agitators
- Plenty
  - Side-Entry Mixers

**DRYERS**
- Pneumatic Products
  - Dryers

**VALVES**
- Copes-Vulcan
  - Control Valves
  - Trim Options
  - Desuperheaters
- M&J Valve
  - Gate Valves
  - Control Valves
  - Relief Valves

**CLOSURES & PIG ALERTS**
- GD Engineering
  - Closures
  - Pig Signallers
Energy consumption accounts for a significant part of oil & gas production costs. Minimizing energy consumption through more efficient process heat recovery is critical to profitability in the face of increasing energy costs. Increasing process heat recovery efficiency delivers immediate and significant cost savings that translate directly to the bottom line.

SPX provides advanced APV heat transfer solutions for oil and gas production in both onshore and offshore locations. Lightweight and highly efficient heat transfer surfaces combine with robust and compact designs developed by SPX engineering specialists to deliver superior and reliable performance over many years, meeting the demands of the oil & gas industries for maximum heat recovery in demanding process conditions.

Applications:
- Crude Oil Stabilization/Dehydration
- Gas Cooling and Condensing
- Gas Dehydration
- Gas Sweetening
- Regasification
- Utility Cooling

Technology
APV heat transfer solutions for the oil & gas industries are based on a complete range of plate-type heat exchanger technologies including gasketed, semi-welded and welded plate heat exchangers. These range from high-capacity, heavy-duty units to small, compact designs, and are available either as standard solutions or as customised units based on ground-breaking designs and various materials.

Superior performance in less space
Every additional degree of temperature that is recovered in the plate heat exchanger helps to reduce energy input and operating costs. APV plate heat exchangers contain more heat transfer area per volume and require less installed heat transfer area than shell and tube technology due to higher thermal efficiency (k-value). Advanced engineering and design mean higher performance in a footprint up to ten times smaller than traditional shell and tube heat exchangers. The smaller footprint means less extensive loadbearing foundations, faster installation at lower cost, and lower overall CAPEX.

Longer run times, lower maintenance costs
Designed for reduced fouling compared with in particular shell and tube technology APV plate heat exchangers have longer run times and require less service and maintenance. They provide easy inspection and maintenance access and can be cleaned using CIP, mechanical cleaning or high-pressure cleaners.

Shorter payback time and ROI
Lower CAPEX combined with longer run times and higher thermal transfer efficiency make APV plate heat exchangers the obvious choice for oil & gas companies looking for bigger savings, shorter payback times and higher ROI over a longer service life.
**Gasketed Plate Heat Exchangers**

A wide range of gasketed plate heat exchangers suited for crude stabilization, dehydration, gas sweetening, and refrigeration duties, gaseous as well as liquid, and high-capacity utility cooling solutions. The optimized plate design maximizes energy use and cost effectiveness thanks to high heat recovery effect.

- Optimized plate designs for high thermal efficiency
- Flexibility to reconfigure your heat exchanger solution to meet changing needs
- Easy operation and maintenance
- Design pressure: 0-25 bar gauge (0 - 363 psig)
- Operating temperature: -35°C - 200°C (-13°F - 392°F)
- Heat transfer area: Up to 3,800 m² (40,903 ft²)
- Flow rate: Up to 4,500 m³/h (19,800 US GPM)

**Hybrid Welded Plate Heat Exchangers**

The APV Hybrid series is a range of welded plate heat exchangers combining highly efficient, gasket-free plate-pack and a strong vessel construction. It is designed to operate under challenging process conditions where other heat exchangers may be restricted due to temperature and pressure limitations - enabling extremely low pressure drop if required. The flexible design makes it very compact, keeping weight and installed space to a minimum. Inspection and cleaning are easily accomplished by simply removing the housing covers. The unit is mechanically cleanable on the tube side and plate side is easily CIP-cleaned.

- Full utilization of pressure drop to maximize thermal efficiency
- Close temperature approach – down to 1°C (1.8°F) possible
- Standard and custom solutions available
- Design pressure: Full vacuum up to 40 bar gauge (580 psi)
- Operating temperature: -200°C – 400°C (-328°F – 752°F)
- Large heat transfer area, up to 1,800 m² per unit (19,375 ft²)

**Semi-Welded Heat Exchangers**

APV ParaWeld is a range of semi-welded plate heat exchangers consisting of plates welded in pairs. It is designed with welded channels allowing handling of aggressive fluids. Available with either conventional or special gaskets. Combining the APV Paramine™ gasket solution and the ParaWeld plate heat exchanger offer a unique plate and gasket solution for rich/lean amine interchanger duties. The Paramine™ system has been specially developed to resolve heat exchanger lifetime and reliability issues in amine and sulfinol interchanger applications and can withstand the impact of high concentrations of H₂S and CO₂.

- Specially designed to resist high concentrations of sour gas
- Design pressure: 0-30 bar gauge (435 psig) on welded side
- Operating temperature: Conventional gaskets: Up to 160°C (320°F).
  APV Paramine gasket solution: Up to 210°C (410°F) depending on process conditions
- Heat transfer area: Up to 1,800 m² (19,375 ft²)

**Service and Maintenance – Optimize Lifetime Performance**

Via a global network of heat exchanger service centers combined with local service capabilities, SPX provides rapid service and maintenance assistance whenever you need it. In urgent cases, field service technicians are available round the clock to 24/7 to troubleshoot and rectify any problems, and minimize unscheduled downtime.

Our service offerings include:

- Original spare parts and rapid delivery all over the world
- Maintenance agreements to guard against unscheduled stoppages
- Heat exchanger and plate pack refurbishment or replacement
- Recommending an optimum on-site spare parts inventory, balancing risk against capital outlay
- On-site audits to help further reduce your operating and maintenance expenses
Metering Pumps, Process Pumps and System Packages

**KNOWLEDGE:**
With over 75 years of experience in the supply, installation and maintenance of these systems, SPX can offer a high level of expertise within today's worldwide industry. Bran+Luebbe pumps and turn-key process systems are used in various industries, including oil and gas applications. Every time a liquid has to be pumped as well as measured Bran+Luebbe metering pumps and systems are the ideal solution. They are suitable in various process steps producing consistent quality with high reliability.

**Applications:**
- Production
- Refining & Processing
- LNG/Gas Processing
- Gas Storage

**SERVICE:**
Downtimes cost money. That's why we strive to keep downtime to a minimum for our customers. In addition to our local stock, our central warehouse has more than 40,000 parts in stock for you from a wide range of product lines. Direct service teams and sophisticated logistics ensure the parts are delivered and installed as quickly as possible. In many cases, waiting time for spare parts is less than 24 hours.

**ANALYZING KNOWLEDGE:**
SPX designs and manufactures high-performance instruments which are used for on-line analysis in nearly every country. We provide some of the most reliable and accurate measurement available for a range of different parameters and sample types. We combine 55 years of experience in on-line analysis with the best modern components. Bran+Luebbe monitors have earned a reputation for long life, high precision and easy operation and are purpose-built for continuous use in an industrial environment.

The analyzers conform to the latest industrial standards and regulations and can be delivered individually or incorporated into a complete measurement and control system. More than 15,000 installations world-wide demonstrate the quality of the instruments and vast technical support.

**ANALYZING TECHNOLOGY:**
Fully automatic operation, self-monitoring and automatic recalibration are found in nearly every on-line monitor we offer. PowerMon uses chemical analysis to determine sample concentration, but some parameters such as dissolved oxygen, pH, redox and conductivity are measured with a special sensor. These sensors can be connected to a PowerMon to provide a combined analyzer for several parameters in which the results can be freely combined.
**NOVADOS Metering Pumps**

An extensive range of metering pumps. The NOVADOS metering pumps comprise diaphragm and plunger pumps, with drives to accommodate single or multi-stream applications using horizontal or vertical configurations.

**Flow Rate /Operating Pressure:**
- Flow rate: up to 15 m³/h (66 US GPM)
- Pressure: up to 1,000 bar (14,500 PSI)

**Features:**
- Diaphragm pumpheads with hydraulically actuated double diaphragm
- Modular design

**Double-Acting Diaphragm Pump Head Technology**

One Pump with two times the capacity: All the features of the well proven Bran+Luebbe hydraulic diaphragm designs but with double flow capability on a single head. As a single pump each unit has a much smaller footprint and with significantly less weight than an equivalent duplex pump.

**Operating Pressure:**
- Pressure: up to 400 bar (5,800 PSI)

**NOVAPLEX Process Pumps**

NOVAPLEX pumps are powerful diaphragm process pumps used for a variety of applications. They are best suited for high pressure installations and when the capability of classical metering pumps is exceeded.

**Flow Rate /Operating Pressure:**
- Flow rate: up to 70 m³/h (305 US GPM)
- Pressure: up to 1,000 bar (14,500 PSI)

**NOVALINK-CSM 2 - Pump Diagnostic System**

Continuous (24/7) local monitoring of pump operation can provide the basis for long term wear assessment and gives valuable advance warning of imminent failures so that unplanned pump down time can be minimized. A worldwide remote diagnosis service is available as an option.

**Chemical Injection Systems**

Requirements for chemical injection packages are very diverse - depending on the application, location, number of chemicals, multi-point injection, increases in production output and changes in production conditions. With unmatched experience and expertise, SPX is capable of designing, manufacturing, testing and certifying chemical injection systems to meet growing customer and industry needs globally.
Specialized Pump Solutions

KNOWLEDGE:
The two main brands that form ClydeUnion Pumps both have a rich heritage and impressive track record. Clyde Pumps was formed in May 2007 when the Weir Pumps (Glasgow) business was acquired from the Weir Group plc, but its roots go back to 1871 when two brothers, George and James Weir, founded the engineering firm of G. & J. Weir. Union Pump has an equally impressive pedigree and has been producing advanced pumps since its inception in 1885 in Michigan, USA.

Today ClydeUnion Pumps is part of SPX and is structured into customer focused business units. Our business units provide expertise across the upstream oil, downstream oil, power generation, water and industrial, minerals and mining and offshore and marine sectors. In addition our truly global aftermarket capability ensures that our customers optimize their processes at all times.

Applications:
• Drilling & Exploration
• Production
• Refining & Processing
• Liquid & Gas Storage
• Liquid & Gas Transport
• Oil Sands
• Shale Gas
• LNG
• Gas Processing

TECHNOLOGY:
ClydeUnion Pumps is a leading manufacturer of centrifugal and reciprocating power pumps for both onshore and offshore applications. Pumps are designed to API 610 and 674 standards and are utilized in offshore oil and gas platforms, FPSOs, onshore production facilities, refineries, gas plants and pipelines around the world. Pump packages are commonly supplied as complete engineered solutions inclusive of advanced API seals and seal systems, lubrication systems, instrumentation and various drive train options. A wide choice of materials is available for all product lines.

Overhung (OH) Pumps
The single stage overhung type pumps are the workhorse of any refinery and the ClydeUnion Pumps radially split CUP-OH2 through to CUP-OH5 are designed with versatility in mind. Their rigid construction makes them suitable for the full range of process applications as well as the boosting, transfer and storage of product. All units comply with API 610.
**Between Bearings (BB) Pumps**

Our extensive range of between bearings pumps cover process critical applications such as high pressure injection, transport pipelines, complex refinery processes and pressure boosting. These heavy duty, API 610 compliant pumps include single or double stage CUP-BB1s & CUP-BB2s through to multi-stage CUP-BB3 and CUP-BB5 configurations, having impeller(s) mounted on a shaft between bearings at both ends. The BB range boasts optimized rotodynamic stability, increasing reliability and mean time between overhauls.

**Vertically Suspended (VS) Pumps**

VS products are ideally suited for key applications such as sump drainage, cryogenic processes, seawater lift and firewater duties. These centrifugal pumps may be single or multi-stage configurations with impeller(s) situated vertically on the shaft and supported by robust bearing arrangements as required for the product and application. A comprehensive product portfolio, all of which comply to API 610, is inclusive of lineshaft type CUP-VS1s and CUP-VS4s through to canister type CUP-VS6s and submersible motor type pumpsets. Volute/diffuser style hydraulic variants further enhance our capability offering.

**Reciprocating Pumps**

Specialists in the design and manufacture of API 674 reciprocating power pumps and pumping packages, SPX reciprocating pumps provide optimized reliability in the most severe duty applications and are designed to handle all types of industry related fluids. Our pumps are designed with exceptional versatility to efficiently meet the requirements of a wide variety of pumping applications.

**Specialist Pumps**

The HSP and MUTUP hydraulic turbine driven pump technologies offer innovative and proven, highly reliable solutions for single and multiphase fluids, for either in-well lift or seabed boosting applications. The culmination of many years of in-house research covering multiphase fluid pumping and materials development, these technologies provide performance that can free up the field development thinking to reduce CAPEX and OPEX for new and existing oil field development opportunities.

**Auxiliary and Specialist Sealing Systems**

Included in our range of auxiliary systems is the E~Z lift automated reel system which is designed to meet the raw sea water supply requirements of typical jackup rigs, production platforms, semi-submersibles, self-elevating heavy lift crane barge and wind turbine installation vessels.

The patented CP system improves safety, reliability and eliminates fugitive emissions without the need for external power or a nitrogen gas source. Our CP systems are operating worldwide in cryogenic and non-cryogenic applications, providing a simple means of pressurizing double, back-to-back & dual pressurized mechanical seals. The unit maintains constant differential pressure across the inboard seal, regardless of fluctuations in suction or discharge pressure.
Centrifugal and Gear Pumps

**KNOWLEDGE**

SPX’s Johnson Pump brand centrifugal and gear pumps have been moving water and other liquids for more than 75 years. Our pumps are found in many applications; from hospitals, industries and high rise buildings to ocean-going ships, swimming pools and zoos. Whether water is a vital component or a waste product of your industrial process, SPX provides a full range of centrifugal and positive displacement pumps to suit your needs. For waterborne heating and cooling applications you’ll find Johnson Pump products efficiently performing their duties in factories, homes and offices, boats, buses and greenhouses.

**Applications:**
- Production
- Gas Storage
- Gas Transport
- Liquid Storage
- Liquid Transport

**TECHNOLOGY:**

The modular design of our centrifugal pumps allows customers to be served in an optimal way by supplying the correct design for each specific application. We take pride in the close cooperation we have between our application engineers, R&D and our customers. A recent example is the development of pumps for an innovative project involving the purification of wastewater to be injected into mature oil fields for residual oil extraction.

**SERVICE:**

SPX focuses on quality and low life-cycle costs (LCC) for our products. Our pumps are serviceable without having to remove the pump from the pipework. Service is carried out via authorized service partners using genuine SPX parts.
**CombiPro Centrifugal Pumps**

CombiPro is a series of horizontal center line supported centrifugal pumps. The design of CombiPro is based on the American Petroleum Institute standard API 610. The CombiPro meets the high level performance requested by refineries and petrochemical industries.

The CombiPro is part of the CombiSystem, a modular concept of single stage end-top centrifugal pump families, all sharing the same basic hydraulic design with a high degree of interchangeability between parts and subassemblies. The seal chamber is designed to fit all types of seals, especially API 682 cartridge seals. The multifunctional pump cover and the integrated design of the pump, base plate and accessories enable the use of standard constructions for all API 682 seal plans.

Each CombiPro pump is mounted on a sturdy welded steel base plate with reinforced pedestals and bracket support, conforming to API 610. This reliable rigid construction extends the duty life of bearings and seal and enables trouble-free operation under severe process conditions. Its sturdy construction, specially designed ‘tailor-made’ base plate and versatility to fit a great number of seals or magnetic coupling enable trouble-free operation under numerous process conditions, resulting in long mean time between failure and low cost of ownership.

**CombiSump Submersible Pumps**

The CombiSump is a range of centrifugal sump pumps, with the pump casing submerged into the liquid and a dry motor construction. The hydraulic parts of these submersible pumps make use of the pump casings and impellers of the CombiPro, CombiChem or CombiNorm pumps. Their respective hydraulic fields meet API 610, ISO 2858 (EN 22858 / DIN 24256) and EN 733 (DIN 24255).

The pump is driven by a customer specified or standard IEC flange electric motor ‘V1(IM3011)’ placed on a lantern piece mounted on the base plate. The power is transmitted through a flexible coupling and a long shaft. The pump casings’ pressure flange is connected to a discharge connection on the base plate.

**TopGear Internal Gear Pumps**

Johnson Pump’s gear pump design is based on an internal idler gear rotating inside of a larger rotor. Internal gear pumps are robust, give an even flow, handle both low and high viscosity products, are capable of high pressure and are self-priming.

TopGear H-series is for high demanding applications and is available in nine different sizes. The modular design gives a wide range of possibilities. Shaft seal options include single and double mechanical seals as well as packed gland and cartridge seals. Heating and cooling jackets are available for pump cover and around shaft seal. Single or double safety relief valves are available built-on. Connections from 32 to 150 mm (1.25” to 6”).

CombiPro Centrifugal Pump

CombiSump Submersible Pump

TopGear Internal Gear
Screw and Rotary Vane Pumps

KNOWLEDGE
With decades of experience in designing and manufacturing rotary positive displacement pumps, SPX’s Plenty Mirrlees Pumps have built an excellent reputation for reliable pumping equipment for the oil processing industries. With Plenty Mirrlees Pumps, SPX has a solution for most pumping applications with a range that includes two screw (TWINRO), three screw (TRIRO) and our 2000 series vane pumps incorporating the unique variable flow feature.

Applications:
- Drilling & Exploring
- Production
- Refining & Processing
- Gas Storage
- Gas Transport
- Liquid Storage
- Liquid Transport

TECHNOLOGY:
Screw pumps provide a smooth, pulse-free flow and are designed to pump oils. The pump has an axial, pulse-free flow and silent operation for sensitive forced lubrication, seal oil circulation and oil firing systems. TWINRO screw pumps provide an axial flow and are used in all bulk transfer duties where large volumes of liquid are required to be moved. They have features designed for emptying tanks, good suction conditions, excellent cargo stripping capabilities and are available in both horizontal and space saving, vertical configurations.

Vane pumps are rotary pumps with a unique construction of eight blades with flat tips sliding in a precision machined rotor which provides low-shear, low-pulse flow with high volumetric and mechanical efficiency. The design enables low or highly viscous liquids to be pumped. The robust construction ensures very low vibration, quiet running and a long service life. They are designed to operate at low speeds, offering high resistance to wear.

SERVICE:
Our trained and experienced staff are able to offer technical pre- and post-sales advice on all pumps and systems, training throughout all stages of pump assembly, and support through to on-site installation and commissioning.

Our network of technicians provide planned and comprehensive on-site service, repair and refurbishment programs for most types of pumps. Whether servicing takes place in the field or at our service center, the same standards of excellence apply, ensuring that our customers’ pumps are back in the field quickly and operating at maximum efficiency.

Our service center maintains a stock inventory of the most common wearing components. Parts required for emergency breakdown situations can be manufactured upon request quickly and accurately at our manufacturing facilities.
**Twinro Pumps**

The Twinro utilizes two contra rotating screws providing a smooth, pulse free flow. Each screw is accurately located between bearings providing a physical gap between each screw and between the screwset and casing, eliminating the need for internal lubrication from the pumped liquid.

- Flow range: 0.1 to 750 m³/hr (44 to 3,300 US GPM)
- Temperature range: -40 to + 200°C (-40 to + 392°F)
- Operating pressure: Up to 14 bar (200 PSI) (higher pressures on application)
- Viscosity range: 1 to 7,000 cSt

**TRIRO Pumps**

The TRIRO pump is a positive displacement axial flow screw type pump design with only three moving parts - a power rotor and two idler rotors. These three rotors have machined, precisely intermeshing threads which enclose the liquid being pumped and act as seals in relation to each other and to the pump body or sleeve in which they rotate. Designed to pump oils, the pump has an axial, pulse free flow and silent operation for sensitive forced lubrication, seal oil circulation and oil firing systems.

- Flow range: 0.1 to 750 m³/hr (44 to 3,300 US GPM)
- Temperature range: -20 to + 200°C (-40 to + 392°F)
- Operating pressure: Up to 138 bar (2,000 PSI)
- Viscosity range: 1 to 7,000 cSt
- Viscosity range: 2 to 5,000 cSt

**Vane Pumps**

The “U” (Universal) 2000 offers infinitely variable flow from zero to 100% by varying the eccentricity of the shaft-to-rotor mechanism within the pump. The eccentricity can be varied in three ways: manually at the pump by a handwheel situated on top of the pump; remotely from a control center with a pneumatic or electric stroke actuator on top of the pump or automatically by C.P.C. (Constant Pressure Control) where pump flow is automatically adjusted.

- Flow range: up to 500 m³/hr (2,200 US GPM)
- Temperature range: -30 to + 260°C (-22 to + 500°F)
- Operating pressure: 14 bar (200 PSI) standard
  up to 25 bar (362 PSI) special construction
- Viscosity range: 2 to 75,000 cSt (standard)

**Large Flow Terminal Transfer Twinro Pumps**

- Specifically developed for the bulk transfer of liquids
- For ship-to-shore, shore-to-ship transfer
- For fuel oils – both heavy and light, chemicals, additives etc.
Positive Displacement Pumps

KNOWLEDGE
For more than half a century, SPX through its Waukesha Cherry-Burrell brand has been at the forefront of the design, manufacturing and application of external circumferential piston (ECP) style, rotary positive displacement pumps. Users of Waukesha Cherry-Burrell PD pumps benefit from decades of continuing product improvement. Steady advances in design, metallurgy and fabrication techniques have yielded progressively higher levels of performance and service life.

Applications:
• Crude Oil
• Bunker Oil
• Fuel Oil
• Greases
• Oil Additives

TECHNOLOGY:
In the Waukesha Cherry-Burrell design, arc-shaped “pistons” (rotor wings) travel in annular-shaped cylinders machined in the pump body; the resulting long sealing path reduces slippage and produces a smooth flow of product without destructive pulses or pressure peaks and without valves or complex parts. For low viscosity fluids, rotors, made of exclusive Waukesha “88” alloy, can be run with close clearance to the 316 stainless steel fluid head, without galling or seizing should inadvertent pressure surges cause contact.

SERVICE:
The remanufacture program provides remanufacturing to standard oversized tolerances. This option maximizes interchangeability of parts within the customer’s operation. With convenient pump exchange policies, you save additional time and expense because downtime is minimized.

SPX’s factory inspect and advise program also enhances the life of your pump with custom repair or reconditioning after consultation with factory-trained technicians that match your performance and budget needs.

Universal II Series Positive Displacement Pumps
The U2 pumps provide a compact, lightweight, cost-efficient means of transferring, loading and unloading liquids on floating offshore drilling and production units.

• 316 stainless steel pump body and cover; 316L optional
• Up to 500 psi (34.5 bar) pressure capability
• Bi-directional flow.
• Rotors, locked with unique washers and torqued nuts, rotate securely in either direction.
• Non-galling Waukesha “88” alloy rotors; permits running at tighter clearances and pumping a wide range of viscosities.
• No internal rotor contact eliminates need to rely on pump fluid as a lubrication

5000 Series Positive Displacement Pumps
High-efficiency rotary PD pump, ideal for pumping low viscosity and non-lubricating fluids, for metering fluids, for gentle pumping of shear-sensitive fluids or for pumping high-viscosity fluids.

• 316 stainless steel body, cover and shafts
• 200 psi (13.8 bar) pressure capability
• Non-galling Waukesha “88” alloy rotors standard, permits running at tighter clearances and pumping a wide range of viscosities.
• Heavy duty bearing frame
• Grease lubed bearings for positive lubrication to all bearings over entire speed, temperature and pressure range
Side Entry Mixers

KNOWLEDGE
The Plenty name is widely recognized in the market for side entry mixers. SPX has combined the strengths and capabilities of its two well known mixing brands, LIGHTNIN and Plenty to offer the most comprehensive range of products and solutions for side entry fluid mixing applications with a combined experience of over 130 years in the side entry markets for oil and gas industries.

Applications:
• Refining & Processing
• Liquid Storage
• Oil Sands

TECHNOLOGY:
Backed by over 50 years of operating experience, Plenty brand mixers, with their technically advanced designs are highly efficient and incorporate a true helical pitch one piece ‘cast’ impeller incorporating high blade area and forward rake, having supplied literally thousands of units worldwide to numerous major oil companies in various countries around the globe.

Fixed Angle Heavy-Duty Belt Driven Mixer
The mixer is driven by a horizontal foot mounted motor which is fitted above the main mixer frame on a steel mounting plate with hinged adjustment for correct belt tensioning. Hinge pins and adjusting screws are protected against atmospheric corrosion.
• Permits bearings and mechanical seal to be changed under full tank conditions
• Rugged, heavy-duty design for extended service life

Swivel Angle Heavy-Duty Belt Driven Mixer
Swivel angle mixers incorporate a feature which allows the mixer angle of entry to be varied through 30° either side of the tank center-line in 10° increments and enables the entire tank floor to be directly scoured by the impeller flow stream.
• The motor and mixer shafts are connected by a Fire Resistant Anti Static (FRAS) High Torque Drive (HTD)
• Identical rugged, heavy duty design as for fixed angle mixers to extend service life

Unique Side Entry Mixer Tank Shut Off Device
The tank shut-off mechanism incorporates tapered metal to metal faces, positively clamped by a bolted flange which both seals products in the tank and securely supports the shaft during bearing and/or shaft seal changes.
• Incorporates tapered metal to metal seal faces. All tapered faces are wear and corrosion resistant
• Faces are positively clamped by a bolted flange which securely locks and supports the shaft during changes
• Tapered faces are wear and corrosion resistant
• Most importantly the unit incorporates a check valve for ensuring that shut off is 100% effective prior to dismantling
KNOWLEDGE
With over 85 years of experience, SPX’s Lightnin brand is recognized for developing many mixing techniques. Oil and gas installations around the world benefit from our sizing expertise. The right degree of fluid motion and shear stress is critical.

Applications:
- Drilling and Exploring
- Refining and Processing
- LNG/Gas Processing
- Liquid Storage
- Liquid Transport

TECHNOLOGY:
For years we have been helping customers put together mixing operations that work for their needs. Everyday we discover new opportunities to improve the service life of SPX products. Innovative research and product testing under various mixing applications continues to maximize process efficiency. We have a fully integrated laser lab that simultaneously measures flow, power, and mechanical loads.

SERVICE:
Oil and gas plants operate efficiently for years as a result of SPX workmanship, durability, and long-term service support.

Expertise: Experienced technicians are the backbone of our dedicated service organization. They're uniquely qualified to keep your Lightnin mixers running efficiently.

Certified Technicians: Aftermarket technicians are certified to ensure that the work they do meets the highest standards for consistency and reliability.

Genuine Parts: All repairs follow original design specs and use only factory-authorized replacement parts.

Full Factory Warranty: We’re so confident we’ll do the job right that all authorized repair and service work is covered by a full factory warranty.

- Factory Service Program
- Exchange Program = Minimal Downtime
- Quick Turnaround
Series 70/80 Mixers
These mixers are ideal for a wide range of oil and gas applications.

- Bearings are sized far beyond AGMA requirements for minimum maintenance and long service life
- Available in 1 to 200 hp with speeds from 11 to 280 rpm
- Helical change gears are easy to replace to meet new or changing processing requirements

Series 10 Mixers
Delivers a superior combination of value and performance.

- High durability - long gear and bearing life
- Fewer moving parts simplifies maintenance
- Unique output shaft connection
- Ideally suited for anoxic and flocculation applications
- Available in 1 to 30 hp with speeds from 11 to 125 rpm

Series 45 Mixers
Series 45 mixers cost-effectively increase mixing efficiency and maintain mixing uniformity during product transfer.

- Available from 20 to 150 HP with AGMA speeds from 20 to 100 rpm
- Compact drive design requires significantly less oil for lubrication - eliminates need for large oil sump
- Parallel shaft, double-reduction design provides maximum installation flexibility

Enhanced Classic Line (ECL)
The Enhanced Classic Line (ECL) portable mixer provides a stronger and more flexible product for improved mixer performance and enhanced process results.

- Maintenance free operation. All shaft bearings are sealed for life.
- A mixer duty motor with standard mounting allows for many speed and enclosure variations
- Aluminum housing designed for high strength and low weight using finite element analysis
- Two interchangeable planetary gear ratios provide more output speeds and increased process flexibility
- Multiple bearing seals prevent leakage of lubricant

Flow Impellers
Advancements in mixing technology provide our customers with new solutions. Innovative impeller designs help optimize process results.

(A310/A510) (Composite Material): Low blade solidity hydrofoil, recommended for low viscosity blending and solid suspension applications.

(A6000) (Composite Material): Recommended for low viscosity blending/solid suspension applications in hostile environments.

(A320) (Core Impeller Technology): High solidity hydrofoil design recommended for high viscosity blending applications.

(A312 Side Entry) Hydrofoil design of choice for side entering mixer applications.
Control Valves and Trims

KNOWLEDGE
SPX through its Copes-Vulcan brand has been providing valves to the oil and gas industries since 1903. Copes-Vulcan is recognized as a prominent worldwide supplier of valves for severe and critical service applications. The Copes-Vulcan brand is known for its ability to provide innovative valve solutions for its customers’ tough application needs.

Applications:
- Production
- Refining & Processing
- Gas Storage
- Gas Transport
- Liquid Transport

TECHNOLOGY:
The SD-Severe Duty valve is a premium severe duty and critical service control valve design. It is the next generation of improved control valves designed specifically for severe duty applications.

The most important sub-assembly of a control valve is the trim. It must control the fluid process, often under extremely high pressure drop conditions, without undue damage due to flashing, cavitation, wire drawing, noise vibration or instability. SPX offers a wide variety of general service and severe duty trim designs for the industry.

The wide variety of trim configurations allows SPX to customize valve designs to meet customers’ requirements and conditions, while optimizing performance. Copes-Vulcan control valves can be fitted with an extensive array of standard and high performance trims to meet most severe duty/critical service requirements. Copes-Vulcan trims feature a quick-change design to reduce downtime for inspection, maintenance or change out, and most are cage guided, further ensuring smooth, accurate operation. Most are fully interchangeable between like sizes to ensure maximum flexibility and reduced inventory requirements.

A complete range of extremely rugged pneumatic diaphragm actuators will meet practically any severe duty service. Our actuators can be used in an array of applications where shock and/or vibration may be encountered. Our actuators have undergone extensive testing and analysis for seismic and environmental considerations and are suitable for nuclear applications. In addition to the actuators manufactured by SPX Copes-Vulcan, we can provide electric and hydraulic actuation that will meet the needs of each application.

SERVICE:
SPX is dedicated to the development of innovative products that meet customer’s performance, quality and energy savings.

SPX customer assistance is available on a 24-hour basis with field service dispatched from our principal manufacturing centers in Houston, Texas; McKean, Pennsylvania; Winsford, England; and Shanghai, China.

Services provided include:
- Startup and commissioning consultation
- Pre outage inspection
- Maintenance and repair training/education programs
- Outage support - supervision, labor
General Service Control Valves
Suitable for controlling water, steam, gas and most other fluids, general service valves deliver a new standard of versatility, rugged dependability and cost effectiveness. General service valves are ideally suited for non-severe flow control of most liquids, steam and gases. They provide reliable, economical performance in heater drains, gas and fuel oil control, feedwater control, steam/gas pressure reduction and many other process flow control operations.

Available in 0.75–8” (20–200mm) sizes as standard, ANSI pressure classes of 150–600, and most standard castable material choices, with either flanged, welded or threaded end connections.

Severe Duty Control Valves
The SD-Severe Duty line is the next generation of control valves designed specifically for severe duty applications. It is the preferred style of valve for applications such as pump recirculation, feedwater control and feedwater start-up, flashing or cavitating service, critical pressure drop gas and steam service, and any potentially noisy or vibration-prone service.

The valve is available in sizes .75–20” (20–500mm) and ASME pressure classes 150 through 4500 standard. Larger sizes are available as required. Depending upon size and pressure class, ends are available as threaded, flanged or welded.

Raven™ Trim
The Raven™ trim incorporates a unique advanced design that limits flowing velocities to low levels resulting in valves providing service that is quiet, non-cavitating and non-erosive. Raven’s low velocities are achieved through the use of a trim cage made by bonding together a series of individual discs. Each disc has a pattern of carefully controlled orifices and channels with a multitude of sharp turns etched into its surface. As the trim’s plug travels within the cage the fluid is throttled and forced to travel an extremely torturous path which effects a stage of pressure drop.

The combined effect of numerous narrow flow channels, each with many sharp turns and a continually expanding flow path, removes kinetic energy from the fluid while gradually lowering its pressure. In doing so, abrupt velocity increases that are the source of noise are avoided. The additional benefit for liquid flow is the elimination of cavitation and the damage it can do to a valve, its trim and the downstream piping.

Multiple Trim Types
SPX offers a wide variety of general service and severe duty trim designs allowing us to customize our valve designs to meet our customers’ requirements and conditions, while optimizing performance.

- 13 Types
- Noise Control, Cavitation Elimination, Velocity & Erosion Control

Steam Conditioning Equipment (Desuperheaters)
Desuperheaters can easily meet the most demanding needs in both power and process industries. They offer extremely fine control and exceptional turndown that is limited only by the rangeability of the coolant control valve. They are adaptable where custom fitting to new or existing piping is a problem. Provides alternatives where limited space or changes in header diameter are factors.

- 7 Styles
- 150-2500 ANSI Ratings
Gate and Control Valves

**KNOWLEDGE**

SPX, through its M&J Valve brand has been providing valve products to the hydrocarbon pipeline, storage and distribution markets since 1962. With a product offering of slab and expanding through-conduit gate valves, axial and rotary control valves, piston, and swing valves, SPX can provide a wide variety of flow control solutions for liquid and gas markets.

**Applications:**
- Production
- Refining & Processing
- Gas Storage
- Gas Transport
- Liquid Storage
- Liquid Transport
- Oil Sands

**TECHNOLOGY:**

SPX products can provide a wide variety of solutions for liquid, and gas, applications. A full-scale flow loop allows SPX to test under actual operating conditions—including surge demonstrations for surge-relief systems. A line valve is closed within one second to generate transient pressure surges over 1100psi which is reduced to actual flowing line conditions. Attention to customer needs, varied product offerings, technical know how, and field experience has provided a history of product innovation that has positioned SPX as a leader in the industry.

**BALL VALVE:**

The M&J ball valve provides an attractive solution for positive shut off requirements in oil & gas pipelines. The M&J ball valve incorporates a version of the patented “EN” style seat seal currently used in the M-303 gate valve. A combination nylon and elastomer seal in the same face groove acts as the primary seal in both high and low pressure differential conditions. Seat rings are spring loaded for low pressure sealing. The valve is offered in 6” - 42” sizes, 150-1500 ANSI Pressure classes, and has a standard operating temperature range of -20°F to 250°F (-29° to 121° C).

The valve’s innovative design includes internal trunnion blocks which eliminate the need for the lower ball trunnion to penetrate the body cavity, preventing a possible leak path. The trunnions are integral with the ball and are precisely fitted into TFE lined bearing blocks supported within the body. The bearings absorb the side load generated by pressure acting on the ball. This design feature provides consistent torque and the exact location and support of the ball.
**M303 Slab Gate Valves**

The M&J M-303 valve is an advanced fabricated body design slab gate valve manufactured and tested to API-6D. The fabricated body allows for a wide selection of material choices. The floating slab gate uses the natural force of line pressure to obtain a dynamically tight downstream seal in high-pressure differential applications. Low-pressure sealing is accomplished with coil springs that energize the seat pushing it against the gate.

**Features:**
- Seat faces are outside the flow stream in the fully open or closed position, extending seal life
- Full thru-conduit port for passage of pigs, wipers, and scrapers
- Internal pressure relief to upstream side
- Secondary stem seal/packing injector
- Top entry for in line maintenance
- Double block and bleed
- Available in line sizes 2”-84” ANSI 150-2500.

**Expanding Gate Valves**

The model EG valve provides a tight bi-directional mechanical seal because the two-piece gate assembly expands against the seating areas in the open or closed position. The greater the torque, the tighter the seal. The end result is an extremely resistant seal that is unaffected by line pressure or vibration.

**Features:**
- Easy to maintain; stem packing does not require lubrication; can be overhauled in-line; top entry access to all internals
- Emergency sealant fitting
- Pressure relief provisions
- Double block and bleed
- Sizes: 2”-30”, ANSI 150-1500
- Temperature range: -50°F to +1000°F (-45°C to +537°C)

**Ball-Trol™ Rotary Control Valve**

This valve offers high Cv levels in the full open position, yet gives modulating control over the complete range of travel. This bi-directional valve is ideal for controlling varying flow rates of gas, and liquids.

**Features:**
- Rangeability of 350:1 turn down ratio
- Full port in open position
- Bi-directional flow capacity
- Noise abatement and cavitation trim available
- High Cv characteristics allows reduced valve size
- Available in line sizes 2” - 30”, ANSI 150-2500

**Surge Relief Valves**

Surge relief valves are engineered to track unabated surge-wave pressure transients-open quickly, and then closes without slamming shut.

**Features:**
- Axial 'straight path' smooth flow pattern for high flow capacities Cv
- Fast response-rapid open/close, seals tight without slamming shut
- Low-noise and cavitation trim available
- Sizes: 2” and 24” ANSI 150-900
GD Engineering, an SPX brand, is a market leader in the design and manufacture of pipeline pigging solutions to the oil, gas and process industries worldwide. SPX manufactures a range of innovative and proven products including the Bandlock™ 2 pipeline closure, Hi-T Pigalert™ scraper passage indicator and associated equipment.

We draw on our experience to provide our customers with a solution to their pipeline pigging problems.

**Applications:**
- Production
- Gas Storage
- Gas Transport
- Liquid Storage
- Liquid Transport

**TECHNOLOGY:**
SPX has a highly professional and dynamic team with extensive experience in the oil and gas industry. SPX provides advanced solutions where design innovation, performance and reliability need to go hand in hand in the most cost-effective way.

**SERVICE:**
SPX supports its existing range of GD Engineering products with a fully committed after-sales support facility, offering a comprehensive onshore/offshore inspection and service program, specifically designed to suit client requirements.

All GD Engineering products are designed and manufactured to recognized industry specifications, having been assessed and approved by Lloyd's Register Quality Assurance ISO 9001-Certificate No LRQ 0840076, we can further demonstrate our commitment to provide clients with quality product combined with a comprehensive document action support program.

**SPECIAL CLOSURE APPLICATIONS:**
SPX can provide closure solutions for a range of industrial and environmental applications where rapid, safe access is required to a pressurized vessel.

Using our sophisticated in-house technical engineering facilities, incorporating 3D solid modelling and ANSYS FEA software, combined with a team of highly qualified and experienced engineers, we are able to provide comprehensive engineering solutions to meet our client's applications.
Bandlock™ 2 High Pressure Quick-Opening Closure

The GD Bandlock™ 2 is the original and benchmark design for global high pressure applications with over 25,000 units in operation worldwide.

GD Bandlock™ 2 Closures provide horizontal or vertical access to any pressure vessel in seconds. Compared with other quick-opening closures they can be operated safely at remarkable speed - any size of unit can be opened or closed in less than a minute, with no special tools required.

Computer-aided technology has played a large part in the design of the Bandlock™ 2. The main pressure loaded sections have been designed to save weight by employing finite element analytical techniques and proof testing by strain gauges, while still adhering to primary pressure vessel code requirements.

The tried and tested locking band mechanism which gives the range its name is a duplex stainless steel conical thrust ring fitted between the door and hub, transmitting the pressure load uniformly around the full 360° circumference of the hub.

Rotalock Quick Opening Closure

GD Rotalock™ has been developed to provide an inherently safe, low cost solution for small diameter, low pressure applications. Designed and priced to offer a superior alternative to screwed closures and blind flanges, Rotalock™ handles lower pressures to ANSI 300 and diameters from 4" to 14" (100mm to 355mm).

Hi-T Pigalert™

Simple to install and operate, the Hi-T Pigalert™ is an economically priced unit providing adjustable on site penetration and giving the operator simple visual indication with a single action reset.

The proven pivotless tumbler mechanism and laminated trigger blade provide the necessary depth of penetration into the pipeline to give a reliable and visible signal with negligible effect on the flow.

All models are bi-directional and available with either mechanically operated signal flags, electrical auto resetting switches or mechanical and electrical signals in combination.

Hi-T MAGAlert Non-intrusive Pig Signaller

The Hi-T MAGAlert is a robust non-intrusive magnetic pig signaller used to detect, signal and log the passage of magnetic pigs at critical points along a pipeline. The Hi-T MAGAlert can be used for both offshore and onshore installations. The Hi-T MAGAlert can log up to 100 events with time and date. Logged events can be viewed on a 2.7" (70mm) high visibility display incorporated into the unit. The Hi-T MAGAlert is ATEX compliant and housed within a fully certified aluminum or 316 stainless steel explosion proof housing suitable for use in Zone 1, Zone 2 group IIA, IIB and H2 areas.

Multiple Pig Launching (MPL) Systems

SPX has developed a range of multiple pig launching solutions for both Topside and Subsea applications to enable sequential pig launching operations to be performed remotely, without the need to depressurize the launcher.
Filtration and Separation Technology

**KNOWLEDGE**

Oil and gas producers use filtration technology to increase production for mass distribution around the world. Regardless of industry specialization, upstream production or oil services, SPX has the solutions to meet your production and processing needs.

Filtration plays an important role to maximize output and expand facilities in order to meet increasing consumer demand. Through the strategic placement of filtration products, oil and gas producers can optimize their yields.

SPX’s knowledge in filtration and purification equipment combined with our worldwide experience on both onshore and offshore contracts enables us to offer the complete filtration package for oil and gas treatment systems. Typical gas cleaning processes will also have a requirement for the removal of solid contaminants from the closed system. If left untreated, the contaminant would reduce the efficiency and operational life of the carbon filter and consequently lead to a decrease in purity and dehydration efficiency process.

Our range of filters is ideal for oil and gas treatment applications. A vast selection from over 200 different types of media ensures compatibility with the fluids being filtered, the contaminants being removed and the process operating conditions.

**Applications:**
- Drilling & Exploring
- Production
- Refining & Processing
- Gas Storage
- Gas Transport
- Liquid Storage
- Liquid Transport
- Oil Sands/Shale Gas
- LNG/Gas Processing

**TECHNOLOGY:**

Dollinger maintains mission-critical operations all around the world with innovative technology engineered to handle the most aggressive contaminants. Dollinger will work with you to find the right solutions for the challenges presented by your application.

- Gas Coalescers
- Liquid/Liquid Coalescers
- Gas Particulate Filters
- Liquid Particulate Filters
- Activated Carbon Filters
- Fabricated Strainers
- Air Intake Filter Systems
- Oil Mist Eliminators
- Filter Separators

**SERVICE**

Downtimes cost money. That’s why we strive to keep downtime to a minimum for our customers. In addition to our local stock, our central warehouse in Europe has more than 40,000 parts in stock for you from a wide range of product lines. Direct service teams and sophisticated logistics ensure the parts are delivered and installed as quickly as possible. In many cases, waiting time for spare parts is less than 24 hours.
**Gas Coalescers**
Dollinger's gas coalescers prevent entrained liquids, amine, hydrocarbon, and particulates from contaminating the amine and glycol systems. The reliability of the system compressor is improved while the system components are protected from fouling.

Each system has been designed to use a single-stage coalescing process. The unique fiber based media that contains increasing pore sizes separate difficult liquid aerosols from the natural gas. The fluoropolymer coating improves the drainage of liquids through the coalescer enabling increased cycle time while operating at a lower liquid saturation pressure drop.

**Liquid/Liquid Coalescers**
Dollinger brand liquid/liquid coalescers improve the reliability of the amine regenerator by removing foulants and provide condensate water free of hydrocarbons for your application.

The liquid/liquid systems are engineered to efficiently separate liquid/liquid emulsions. Constructed using a variety of polymers and fluoropolymers ensure a wide range of compatibility across multiple applications. The vertical stack design is used with a coalescer/separator configuration to allow for even flow distribution, promoting a higher flow rate in a smaller assembly.

*A horizontal design is available for use in oil from amine separations and for very low emulsions.

**Gas Particulate Filters**
Small, solid particulates from gas streams, including desiccant fines, iron oxides and sulphides can foul critical processes as well as system components such as valves, heat exchangers and instrumentation.

Dollinger's gas particulate filters protect the processing systems from fouling and eliminate the primary source of contamination that causes costly system failures.

Custom designs can be incorporated and there are options available to package filter vessels onto a skid arrangement with any required instrumentation and control equipment.

**Liquid Particulate Filters**
Liquid particulate filters are used to remove solid contaminants from a liquid stream. The presence of this type of particulate in a system can lead to excessive pump wear, heat exchanger fouling, contactor foaming, regenerator fouling and shorter carbon bed life. Therefore, the removal of solid particulates is essential to maintain optimal operating conditions of your critical components.

**Activated Carbon Filters**
The SPX range of process filters includes the “LLAC Activated Carbon Filter”, this is primarily used in the dehydration/regeneration of gas treatment systems.

Whether amine or glycol (MEG, TEG or DEG) is the selected contacting medium for the gas cleaning process there is a requirement for the removal of hydrocarbon impurities from the absorption system. Activated carbon is very efficient in removing these contaminants.

For either full flow or slipstream treatment of the adsorption system SPX is able to offer a specifically designed unit meeting all process requirements with respect to contact time and medium velocity.
Filters

**KNOWLEDGE**

SPX supplies a wide range of standard cast filters to numerous industries worldwide. With the emphasis on product quality, customer service, on time delivery and cost performance, SPX has achieved a reputation built on years of experience by utilizing our extensive knowledge and resources in the production of fluid handling equipment.

Committed to providing filtration solutions, the company maintains close contact with the evolving needs of engineering processes and utilities industries. With a dedicated technical sales team and an established network of representatives and distributors, our key focus is on providing the most cost-effective solution for each application.

**Applications:**
- Production
- Refining & Processing
- Gas Storage
- Gas Transport
- Liquid Storage
- Liquid Transport

**TECHNOLOGY:**

SPX can offer a comprehensive range of proven dry and wet gas filtration solutions specifically designed for gas applications. Products from SPX can be used in most piping systems which carry liquids. They protect the piping infrastructure from harmful foreign particles and extend the efficient operating life of valuable process equipment.

In addition to the standard cast range, special cast products and fabricated filters are also available. Features include quick release covers and unique basket construction. As the filter collects debris in the basket, it is necessary to empty it on a regular basis. The quick release cover opens in seconds without the use of tools, simplifying the basket emptying step. Basket filter construction causes head loss on the product flow. When the basket is clean, head loss is recommended to be no more than 0.1 barg. If the fluid is highly viscous, the filter size will increase, reducing head loss. The basket is the heart of the strainer since it traps unwanted material. Strainer baskets are made of perforated sheet metal and a wide range of opening sizes are available.

The size of the basket perforation should be slightly smaller than the minimum particle size to be removed. Using a smaller perforation opening than necessary will cause the basket to fill and clog more quickly, requiring frequent cleaning. The SPX gas filtration range from Plenty is based on proven element designs developed and tested specifically for the gas industry, including “Pafic” resin bonded glass fibre and “Adept” woven polypropylene fiber cartridges that give a high dirt loading capacity.

**SERVICE:**

All our filters are supported by extensive aftermarket services. We supply a full range of high quality spare parts designed specifically for our filters which can be fitted by our experienced engineers to ensure your process will continue running smoothly.
Simplex Single Basket Strainer

Simplex basket type filters are of simple and robust cast construction with in line connections, designed for general applications where the process flow is intermittent and can be stopped for element cleaning.

- Quick release covers eliminate the need for tools for maintenance
- Designed for pressure ratings up to ASME class 300 (51 barg)
- Flow is from inside to outside the basket to trap and retain debris
- High basket area to pipeline C.S.A. ratio of over 10:1
- With coarse perforated baskets (2mm as standard) or fine SS mesh inserts to give particle removal down to 50 microns
- Disposable depth type cartridges are available for filtration to 5-10 microns

OV Single Filter

- Single filter OV provides a cost-effective method of protecting pipeline equipment, cleaning liquids or salvaging valuable solids
- Sizes available: 20mm (3/4") to 250mm (10"), flanged and screwed connections
- Compact design for space saving
- Large filtration areas giving low pressure drops
- Multi-basket combinations available for high flow
- Pressures from 13.8 bar to 50 bar (200 to 725 PSI with temperatures suitable up to 260°C (500° F))

Simplex High Pressure J-Type Gas Filters

The Simplex Type J is a cast steel vertical filter which has been developed and designed for high pressure applications

- Designed for pressure ratings up to 102 barg (1480 psig)
- Safe removal of filter basket
- Quick basket clean and return to service
- Quick release covers include safety interlocks designed for high pressure applications

Simplex T-Type Single Basket Strainer

The Simplex T-Type extends the range of S-Type filters to higher pressures. It is a cast steel vertical filter, suitable for both liquid and gas applications and available with bolted or quick release type covers.

- Quick release covers eliminate the need for maintenance tools
- Designed for pressure ratings up to 149 barg (2160 psig)
- Flow is from inside to outside the basket to trap and retain debris
- High basket area to pipeline C.S.A. ratio of over 10:1
- With coarse perforated baskets (2mm as standard) or fine SS mesh inserts to give particle removal down to 50 microns
- Disposable depth type cartridges are available for filtration to 5-10 microns for liquid and 1–2 micron on gases

High Pressure H-Type Gas Filters

The H-Type is a fabricated horizontal filter designed for larger capacities and pipe connection sizes that may be custom designed to suit site connections. It is also available in standard configurations.

- Quick release covers eliminate the need for maintenance tools
- Designed for pressure ratings up to 100 barg (1440 psig)
- Supplied with two or three triple length elements for minimum service time
- Welded construction enables radially positioned inlet and outlet connections to suit site requirements
Process Filtration

**KNOWLEDGE**

Plenty Process Filtration specializes in bespoke capital equipment, designed & built specifically to meet client application requirements. Plenty have been present in the liquid & gas filtration market since the 1950’s. Plenty process filters can be designed in accordance with the majority of international pressure vessel code requirements & may be manufactured in a variety of metals including Carbon Steel, Low Alloy Steel, Stainless Steel, Duplex Ni Alloys and Clad & Weld Overlay. We can also supply certain products in GRP (Fiberglass).

**Applications:**
Throughout the oil, gas & petrochemical industries both onshore & offshore including:

- Production
- Refining & Processing
- Gas Storage
- Gas Transport
- Liquid Storage
- Liquid Transport

**TECHNOLOGY:**

SPX offer a comprehensive range of liquid & gas filters, strainers, fully automatic backflush filters, filter separators, coalescers, cyclones, carbon bed, dual media & cartridge filters. Filters can be supplied either as standalone units or more complex skid mounted and multiple filter packages. With such a wide range of filtration products available, complete filtration solutions can be offered for major projects to meet a variety of applications, from small fabricated filters to more complex skid mounted and multiple filter packages so the complete filtration requirement can be sourced from a single supplier. The benefits of this include reduced resources required to manage the supply chain as well as ensuring a consistent approach to the project.

**SERVICE:**

SPX offers a one stop solution for your liquid & gas filtration/separation requirements. Our complete service includes process design, procurement and management of manufacture and materials in accordance with customer specifications and international standards, fabrication, project management, inspection, expediting, delivery within agreed time scales and transportation to the final destination.
**Liquid Filters**
SPX designs a range of filters in a variety of materials in accordance with international pressure vessel codes.

- Single basket and dual basket (Duplex) filters
- Fully automatic backflush filters
- Hi-Flow filters
- Designed to incorporate either quick release or bolted closures
- Elements are either cleanable or disposable

**Cartridge Filters**
- Custom designed filters to meet specific applications
- Designed and manufactured in accordance with international pressure vessel code
- Range of materials of construction to meet customers specific operating parameters

**Backflush Filters – Metal & GRP**
- Custom designed range available
- Stand alone or skid mounted
- Internals available in a range of materials to meet specific applications
- Line sizes 6" - 90"
- GRP version developed primarily for sea water with high corrosion where metal bodies are unsuitable

**Dry Gas Filters**
- Designed to remove solids from gas streams
- Available in both horizontal or vertical units, in a variety of materials to meet international codes
- Quick opening or bolted cover
- Elements include cleanable stainless steel or disposable fiberglass or polypropylene
- Designed to meet customer operating conditions

**Filter Separators**
- Designed to remove both solids and liquids from gas streams
- Constructed using Plenty coalescing cartridges, vane units and/or cyclones to achieve required solid and liquid removal efficiency
- Unit available from pipe sizes 2" and above to suit any pressure class
- Available in a range of materials suitable for all operating conditions

**Coalescers**
- Designed to coalesce fine liquid mist in gas streams into droplets considerably larger than their original size, such that they can be drained by gravity from the vessel
- Units available in both horizontal and vertical orientation with single or two stage construction

**Carbon Bed Filters**
- Custom design filters to meet specific application details
- Designed and manufactured in accordance with international pressure vessel code
- Range of materials of construction to meet customers specific operating parameters
Compressed Air &
Gas Dehydration & Purification

**KNOWLEDGE**

Global leaders of industry require durable components that deliver unquestionable reliability. Our precision engineered components and designs, deliver outstanding service life and operational longevity. Invest in our experience and gain annuities that will grow for years.

SPX provides compressed-air dryers and filters that remove water, oil, dirt, rust and pipe scale. Contaminants found in compressed air can adversely affect all components of an air-distribution system, and can cause a malfunction of pneumatic control in the instrument air system. Properly treated compressed air can improve work efficiency and reduce maintenance.

SPX desiccant dryers incorporate these quality features:

- Superior quality desiccants are selected for their spherical uniformity, abrasion resistance and superior crush strength to deliver stable dew point performance and low dust creation
- Precision timing circuits control process valve sequencing protocols to deliver optimum dew point stability and energy efficiency
- Calculated desiccant bed construction ensures ideal tower velocities to absorb moisture, stabilize dew points and prevent bed movement
- Spare mufflers included on all models and sizes

**Applications:**

- Drilling & Exploring
- Production
- Refining & Processing
- Gas Storage
- Gas Transport
- Liquid Storage
- Liquid Transport
- Oil Sands
- LNG/Gas Processing

**TECHNOLOGY:**

SPX maintains mission-critical operations all around the world with innovative technology engineered to handle the most aggressive contaminants. We will work with you to find the right solutions for the challenges that your marine system presents.

**FILTRATION PRODUCTS:**

Contaminant removal products are critical to the effective design and performance of a compressed air or gas system. When properly applied and installed, they can be the difference that makes or breaks the quality of the compressed air or gas at point of use.
Heated Desiccant Air Dryers
Heat reactivated desiccant dryers use an internal or external heat source to regenerate the off-line desiccant tower. Heat reactivation allows SPX to increase the volume of usable compressed air and reduce the energy consumption of the overall package. Pressure dew points from -4°F to -100°F are available.
- Low purge energy savings
- No process gas lost to purge
- All weather dew point control
- Compressor outlet heat regeneration

Heat-Les™ Desiccant Air Dryers
Heat-Les™ desiccant dryers are the most common design in use today to deliver stable pressure dew points to -100°F. Desiccant bed regeneration is accomplished using a side-stream percentage of clean, dry, internally supplied compressed air. This allows them to excel in areas where the ambient air may be compromised.
- Consistent outlet dew points
- Critical applications and hostile environments
- Durable economic industrial applications
- Corrosive, toxic or explosive environments

High-Volume Refrigerated Compressed Air Dryers
Pneumatic Products open-frame style refrigerated dryers by SPX are engineered to provide the most cost effective method of dew point control for dehydrating large compressed air systems. Designed for applications above the freezing point of water these dryers offer a unique blend of application engineered energy savings and contaminant removal to best meet your unique compressed air treatment needs.
- PNC Series non-cycling constant dew point
- ESR Series cycling variable demand
- Controls provide energy efficiency
- Fully automatic

Specialty Dehydration Technologies
SPX specialty dehydration technologies leverage key purpose-built components to provide the quality and service demanded by the most critical of applications. As global leaders in specialty gas dehydration and breathing air purification systems, we provide titans of industry with service excellence through unquestionable reliability. Our precision engineered components and designs, deliver outstanding service life and operational longevity.
- Prevents compressed air respiratory hazards
- Removes water vapor in small-medium flows
- Specifically engineered for large flows

Poppet Valves
Standard off-the-shelf valves were not good enough for critical applications so we engineered our own. Tested under adverse conditions without failure in excess of 500,000 cycles, our proprietary, full port, air-operated poppet valves feature stainless steel internals. Protected against wear, a friction-free PTFE coating is applied to all wear surfaces. Corrosion resistant and non-lubricated, these valves were engineered to withstand elevated temperatures and resist clogging and erosion from abrasive desiccant dust.
International Customer-Focused Service Platform

**AFTER-SALES, SERVICE AND PARTS SOLUTIONS FROM SPX**

SPX offers a full range of after-sales products to ensure that the original equipment continues to operate at its maximum performance.

- Repair and exchange services
- Equipment upgrade services
- Installation and start-up support
- Predictive and preventive maintenance
- Remote diagnostics
- Process and mechanical consulting
- Asset management
- On-site field support
- Training

SPX provides innovative ways to improve your productivity and profitability. We’ll help you minimize your asset investments. While ensuring that you continue to meet your production requirements. Multiple service facilities are strategically located throughout the world, providing a wide range of support 24 hours a day.

Service locations are the hub for our parts distribution. We can analyze your spare parts inventory to identify critical, damaged and obsolete spare parts, and help you create an inventory reduction program.

- High quality OEM spare parts and consumables
- Quick-ship delivery services available

SPX provides a full range of valve and wellhead service, repair, remanufacturing and inventory management of customer assets for the pipeline, petrochemical, hydrocarbon storage well and geothermal industries. SPX specializes in reconditioning of valves from all manufacturers, and turnkey valve field services. SPX continues to manufacture the complete underground storage wellhead hook-up in accordance to our API 6A and 6D license.
SPX DELIVERS PROMPT CUSTOMER SUPPORT. DOT QQ QUALIFIED AND EXPERIENCED TECHNICIANS ARE AVAILABLE 24 HOURS A DAY. FOR SPECIAL PROJECTS, SPX OFFERS SPECIAL PROVISIONS AND EQUIPMENT.
Global locations

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Based in Charlotte, North Carolina, SPX Corporation (NYSE: SPW) is a global Fortune 500 multi-industry manufacturing leader. For more information, please visit www.spx.com

SPX reserves the right to incorporate our latest design and material changes without notice or obligation.

Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing. Please contact your local sales representative for product availability in your region. For more information visit www.spx.com.

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