Products Serving the Water & Wastewater Treatment Industries
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These are some of the key issues influencing the water and wastewater industry today.

Private organizations and municipalities are under increasing pressure to safeguard water quality. They are expected to take steps to ensure that our planet has an ample water supply for the future. At the same time, consolidation and privatization are changing the way water treatment is managed.

Whether you're looking to upgrade an existing operation or specifying equipment for a new treatment facility - look to SPX for the right process solution that is best suited for your specific application.

SPX manufactures equipment for water and wastewater applications including chemical makeup and storage, flocculation, reservoir supply, drinking water, desalination, cooling water, irrigation, metal processing and many more. When you specify your equipment, you get more than a product – you get a partner. Our dedicated team of experienced engineers utilize their process and mechanical design skills to provide quality solutions to meet your specific requirements.

We listen to your goals and design the best solution based on our decades of experience in the Water & Wastewater industry to help you achieve them.

Your partnership with us doesn't end at the sale. 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.

Explore the endless solutions that SPX has to offer. You're sure to find answers that will reduce costs and improve plant performance.

SPX Brands Serving the Water & Wastewater Industry:

- Airpel Series
- APV
- Bran+Luebbe
- ClydeUnion Pumps
- Hankison
- Johnson Pump
- Lightnin
- Plenty

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Water Plant Process Flow Example

* Pneumatic instrumentation and processes require clean, dry compressed air.
  - Compressed air is used to aerate the wastewater and supply the processing bacteria with oxygen support.
  - Agitation keeps the solids in suspension. Agitation of the wastewater in the presence of air tends to collect or flocculate lighter suspended solids into heavier masses which settle more readily in the sedimentation tanks.
  - A continuous duty, air driven double diaphragm or slurry pump, combined with a processing fluid, moves the material.
Wastewater Plant Process Flow Example

MIXERS & AGITATORS
- Lightnin
  - Mixers
  - Agitators

STRAINERS & FILTERS
- Plenty Filters
  - Basket Strainers
  - Backflushing Strainers
  - Self-Cleaning Filters

FILTERS
- Airpel
  - Single Filters
  - Dual Filters
  - Self-Cleaning Filters

PROCESS FILTRATION
- Plenty Process Filtration
  - Liquid Filters
  - Carbon Bed Filters
  - Cartridge Filters
  - Skid-Mounted Packages
KNOWLEDGE
Efficient filtration in water and wastewater treatment involves both particle destabilization and particle transport. Filters from SPX brand Airpel Filtration ensure that this step in your treatment process is not only efficient, but thorough. Our equipment designs are based on decades of experience and continuous innovation.

Applications:
- Recycling water filtration
- River and sea water filtration
- Pipeline (nozzle, pump, analyzer, flow meter protection)
- Irrigation

TECHNOLOGY
We are committed to providing you with the most cost-effective filtration solution best suited for your application. We stay on top of the evolving needs of the utilities industries and the engineering processes that support them. Our dedicated technical sales team along with our network of representatives and distributors are available to support your operation on an ongoing basis.

SERVICE
You can count on the support of your Airpel Filters long after the sale with our extensive aftermarket services. We supply a full range of high quality spare parts designed specifically for our filters. Our experienced engineers are available to replace the part to ensure your process continues to run smoothly and continuously. And you can reduce capital costs with our complete refurbishment service which restores your existing filters to their original condition.
**OV Single Filters**

Single filters cost-effectively protect pipeline equipment, cleaning liquids or salvage valuable solids.

- Compact design to save valuable floor space
- Large filtration areas provide low pressure drops
- Multi-basket combinations available for high flow
- Pressures from 13.8 bar to 50 bar with temperatures suitable up to 260° C
- Sizes available: 20mm (3/4") to 250mm (10"), flanged and screwed connections
- Materials available: cast iron, gunmetal, stainless steel and cast steel

**OW Dual Filters**

The dual filter provides design quality and performance for applications that require continuous flow with minimum pressure loss.

- Sizes available: 20mm (3/4") to 200mm (8"), flanged and screwed connections
- Multiple basket combinations
- Large filtration areas provide low pressure drops
- Simple change over operation requires infrequent maintenance
- Pressures from 17 bar to 50 bar with temperatures suitable up to 260° C
- Materials available: cast iron, gunmetal, stainless steel and cast steel

**Self-Cleaning Filters**

Self-cleaning filters provide highly cost-effective solutions to difficult liquid filtration problems of all viscosities.

- Continuous filtration - no interruption to flow during cleaning process
- Horizontal and vertical exit orientation
- Simple maintenance
- Minimal product loss during cleaning process
- Sizes available: 20mm (3/4") to 300mm (12"), with filtration down to 25 microns
- Manual, motorized and fully automated designs available
- Minimal pressure losses from system, maximum pressure of 13.8 bar with temperatures up to 260° C
- Screw down cleaning action driving debris towards the sump of the filter
- Rotor blade design excellent for high viscosity applications
- No operator contact with liquid during cleaning operation
- Environment-friendly, closed design with minimal flushing losses
With references worldwide, the SPX dedicated team of experienced engineers utilize their process and mechanical skills to custom design and build specialist filtration equipment to meet client specific application requirements.

**KNOWLEDGE**

Through its Plenty brand, SPX supplies a wide range of filtration solutions, including standard cast filters, liquid & gas filters, strainers, fully automatic backflush filters, filter separators, coalescers, cyclones, carbon bed filters & cartridge filters to numerous industries worldwide. With the emphasis on product quality, customer service, on time delivery and cost performance, Plenty has built a reputation on extensive knowledge and resources in fluid handling equipment production and has reference lists for many WWT projects worldwide.

**Applications:**

- Main seawater intakes
- Plate heat exchanger protection
- Cartridge filters to remove solids from water
- Activated Carbon filters for water treatment
- Wash water systems
- Bore hole water
- Reservoir supply
- Desalination plant intakes
- Heating & cooling system
- Supply water
- Pump protection
- Spray nozzle protection
- General filtration for drinking water

Email: plentyfilters@spx.com  
www.spxplenty.com
TECHNOLOGY

SPX is able to work with you to custom design equipment to meet your liquid & gas filtration requirements. Process filtration equipment is designed from first principles enabling us to fully meet with your requirements in terms of pressure loss, change-out periods & material suitability. Plenty brand filters are used extensively in piping systems which carry liquids, protecting the piping infrastructure from harmful foreign particles and extending the efficient operating life of valuable process equipment.

In addition to the standard cast range, special cast products and fabricated filters also are available. Key features include quick release covers and 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 process. Strainer baskets are made of perforated sheet metal with a wide range of opening sizes available. The size of the basket perforation should be slightly smaller than the minimum particle size to be removed.

SERVICE

Our filters are supported by extensive aftermarket services. We supply a full range of high quality spare parts designed specifically for our filters. Our fully qualified and highly experienced engineers are available to fit your parts to ensure your process will continue to run smoothly.
Simplex Single Basket Strainers

Simplex single basket filters are of simple and robust cast construction with inline 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 maintenance tools
- 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 CSA ratio of over 10:1
- With coarse perforated baskets (2mm as standard) or fine stainless steel mesh inserts to give particle removal down to 50 microns
- Disposable depth type cartridges are available for filtration to 5-10 microns

Duplex Dual Basket Strainers

Duplex strainers are used for pipelines operating continuously by incorporating twin chambers, each rated for 100% capacity. An integral flow changeover valve permits basket removal and cleaning without interrupting flow. They are designed to complement the Simplex filters but allow the basket to be cleaned and replaced without any interruption to the flow through the filter.

- Single lever action on changeover valve eliminates possibility of hydraulic lock and accidental interruption of the flow
- Designed with pressure ratings up to ASME class 300 (51 BARG)
- Flow is from inside the basket area to pipeline CSA ratio of over 12:1
- Supplied with course perforated baskets (2mm as standard) or fine ss inserts to give particle retention down to 45 microns

Backflushing Strainers - Compact Type

Our compact-type backflush strainer has been specially designed for use with an automatic cleaning strainer and ensures process continuity without manual labor. A proven cleaning mechanism provides a high level of efficiency with very low product loss.

- Designed specifically for applications on water systems, can be installed in process plants to make use of river, canal, well and seawater for nozzle protection, cooling, quenching and various other requirements
- Supplied to automatically clean when pressure drop rises to 5PSIG (0.35 BARG)
- Standard designs are manufactured with cast iron or stainless steel

Self-Cleaning Filters - Manual and Automatic

For liquid duties requiring continuous filtration without interrupting flow during the cleaning process. In operation the liquid enters the body and flows through the element from outside to inside. Debris is collected on the outside of the wedge wire element, which is cleaned without flow interruption by rotating the cylindrical element against twin scraper blades. The debris accumulated during element rotation is deposited into the bottom of the filter body and periodically discharged, manually or automatically.

- Totally enclosed design - prevents liquid contamination and increases operator safety
- No interruption to flow during element cleaning
- Filtration down to 25 microns
- Low liquid loss during periodic emptying of accumulated debris - suitable for filtration of high value fluids and reduces waste disposal concerns

Email: plentyfilters@spx.com
www.spxplenty.com
Liquid Filters
SPX has designed 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

Skid Mounted Packages
- Custom designed to application requirements
- Skid mounted packages
- Modular
- Can include mechanical, electrical, instrumentation, ladders, and platforms to be compatible with site requirements

Carbon Bed Filters
- Custom design filters to meet specific application requirements
- Designed and manufactured in accordance with international pressure vessel code
- Range of materials of construction to meet specific customer operating parameters
- Carbon Bed Filters are of vertical fabricated construction generally mounted on skids
- Carbon Bed Filters work by the process of ‘absorption’ where one material adheres to another by means of physical or chemical attraction. The carbon media is extremely porous with a big internal surface area
- The carbon bed removes mainly organic compounds

Cartridge Filters
- Custom design filters to meet specific application requirements
- Designed and manufactured in accordance with international pressure vessel code
- Range of materials of construction to meet specific customer operating parameters, available in many levels of filtration, pressure classes and materials.
- Cartridge filters are used for removing fine contaminant from liquid flows
- Flow from outside-to-in with contaminant trapped on the outside surface of the cartridges
- Cartridges are ‘pleated’ to give high filtration or wound for high temperature or chemical compatibility
KNOWLEDGE
In wastewater treatment, an air dryer is often required to remove moisture and dry the air for services such as pneumatic instrumental controls. Compressor systems in wastewater treatment plants are critical to furnish instrument air supplies, air jets for cleaning equipment, purge air for wastewater ejectors, as well as pressurizing gases for transport and distribution. Wastewater treatment operations have relied on Hankison, an SPX brand, to provide compressed air treatment solutions for critical applications for decades. With our long-standing reputation for manufacturing products that deliver excellent performance, time proven reliability and optimal energy savings, we know we have a solution for you.

Applications:
• Purge air
• Moisture adsorption
• Air contaminant removal
• Cooling and drying of air
• Pre-filtration of oil and water mist
• Dry air after-filtration

TECHNOLOGY
Hankison is the choice for providing clean, dry, compressed air solutions and energy savings. You’ll find innovative technology for wastewater treatment in our three product lines:
• Refrigerated compressed air dryers
• Heated and heatless desiccant dryers
• Compressed air filtration

SERVICE
Hankison is dedicated to the development of products that meet customer performance, quality and energy savings requirements. We excel by providing premium service, responsive sales support, and innovative products.
HPR Series Refrigerated Compressed Air Dryers

Hankison’s HPR Series refrigerated compressed air dryers improve productivity through maximum moisture removal. They offer the right combination of simplicity and technology to keep the air system clean and dry. The HPR Series cools the compressed air condensing water vapor and effectively removes moisture through a liquid separator.

- Flow rates from 5 to 500 scfm (8.5 to 850 nm³/h)
- Space saving design
- Consistent dew points maintained at +3°C (38°F)

DHW Series Heatless Desiccant Air Dryers

Hankison’s DHW Series protects air systems exposed to temperatures below freezing. The dryer removes moisture from the air and then undergoes a regeneration cycle to remove the moisture from the adsorptive media. Wall mount desiccant dryers are enclosed in epoxy coated cabinets and deliver stable dew points of ISO 8573.1 Class 1 (-73°C, -100°F) and Class 2 (-40°C, -40°F) for flow rates from 7 to 50 scfm (12 to 85 nm³/h). The DHW Series is fully automatic and maintains adsorptive energy resulting in longer desiccant life. The dryer removes moisture from the air and then undergoes a regeneration cycle to remove the moisture from the adsorptive media.

HHS, HHL and HHE Series Heatless Desiccant Air Dryers

Wastewater treatment plants require contaminant free compressed air to maintain optimal performance. Hankison’s Heatless Desiccant Air Dryers offer a full package to ensure clean, dry air is delivered. Three application-specific control systems -- that utilize twin towers filled with premium grade activated alumina -- are available to meet your needs with economy and performance.

- HHS Series: SensaTherm® EnergySavings automatically matches process air use to the system’s demand.
- HHL Series: offers selectable energy savings and four pressure dew point settings to choose from.
- HHE Series: designed for -40°F (-40°F) dew point performance to deliver maximum value to applications that operate at near or full capacity.

NGF Series Compressed Air Filters

The Next Generation of Compressed Air Filtration covers flow ranges from 20 to 1500 scfm (35 to 2549 nm³/h). Each of the thirteen flow models are designed to achieve internationally recognized ISO 8753.1:2009 air quality standards.

- Grade SF - Bulk Liquid Separator/Filter
- Grade PF - General Purpose Filter
- Grade HF - High Efficiency Oil Removal Filter
- Grade UF - Ultra High Efficiency Oil Removal Filter
- Grade CF - Oil Vapor Removal Filter
METERING KNOWLEDGE
Bran+Luebbe brand metering pumps and turn-key process systems from SPX are used in various industries, including water and wastewater treatment. Every time a liquid has to be pumped as well as measured, our metering pumps and systems are the ideal solution. You can count on them in various process steps to produce consistent quality with high reliability.

Applications:
- Water
  - Municipal wastewater treatment
  - Plant effluents
  - Drinking water
  - Surface water / River monitoring
- Chemical injection industry
- Power Plants
  - Boiler feed water
  - Cooling water
- Emissions of waste gas in power plants
- Waste incinerating plants

METERING TECHNOLOGY
ProCam pumps provide end-users with all the proven benefits of Bran+Luebbe metering and dosing technology but with the added benefit of a low initial investment. Available in five models and two materials - offering flow rates ranging from 5 l/h to 500 l/h (1.58 to 158 gph) and suitable for pressures up to 20 bar (300 psig) — the pumps are ideal for a wide range of metering duties including pH control, flocculation and fluoridation. Because the ProCam uses standard components throughout, operations with multiple pumps in use may see additional cost savings from reduced inventory and maintenance. The ProCam is a hermetically sealed pump containing a mechanically operated PTFE double diaphragm design which can be constantly monitored. For applications that require zero leakage due to health and safety reasons, or minimal product loss to optimize material usage, ProCam is the right choice.

SERVICE
Downtime costs money - that’s why we strive to keep yours to a minimum. In addition to our local stock in North America, our central warehouse in Europe has more than 40,000 parts in stock 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, wait time for spare parts is less than 24 hours.

ANALYZING KNOWLEDGE
Some of the first chemical on-line, water analyzers were manufactured by Bran+Luebbe. Since then, applications for water preparation, wastewater treatment, boiler feed water and ultra-pure water have been continuously improved and the field of analysis has extended into chemical processes. SPX designs and manufactures high performance instruments which are used for on-line analysis in nearly every country around the world. We provide some of the most reliable and accurate measurement available for a range of different parameters and sample types. Our monitors have earned a reputation for long life, high precision and easy operation and are built for continuous use in an industrial environment.
environment. Our 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 worldwide 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. The PowerMon has extra capabilities which greatly improve the scope and convenience of the analysis and reduce the running cost. 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

- Operating Pressure/Flow Rate:
  - Flow rate: up to 3000 l/h (950 gph) per head
  - Pressure: up to 160 bar (2,320 psig)
- Diaphragm pumpheads with hydraulically actuated double diaphragm and patented diaphragm position control system (PDPC)
- NOVADOS Metering Pumps of various sizes can be combined with just one motor. Vertical and Horizontal ranges available

PowerMon S Analyzer

The PowerMon S Analyzer is a compact, closed, multi-component measuring system. It’s based on the spectroscopy measuring principle of between 210 and 750 nm. The PowerMon S can measure up to 5 different parameters simultaneously, which makes this analyzer more efficient and cost-effective than purchasing 5 different systems.

- Multi-parameter online analyzer
- Measurement of Total N and Total P
- Measurement of COD
- Measurement of NH₄-N NO₃-N / PO₄-P

PowerMon Analyzer

The PowerMon Kolorimeter is a versatile applicable online measuring instrument. It enables plants to achieve a permanent optimal water quality by the continuous supervision of the legally prescribed limit value for total phosphate and ortho-phosphate in the outlet of municipal and industrial purification plants.

- Measuring Methods: Cyclic, Colorimetric
- Measuring Range:
  - PO₄³⁻ 0-0,5/6 mg/l
  - Cl₂ 0-0,2/3,0 mg/l
  - Fe 0-0,2/3,0 mg/l
  - Al 0-0,1/1,0 mg/l
  - Mn 0-0,1/2,0 mg/l
  - Ca 0-0,03/1,0 mg/l
KNOWLEDGE
The two main companies that formed 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 had been producing advanced pumps since its inception in 1885 in Michigan, USA. In 2012, ClydeUnion Pumps was acquired by SPX.

Applications:
- Water treatment & transfer
- Wastewater
- Solids handling
- Desalination
- Irrigation

TECHNOLOGY
SPX is a leading manufacturer of centrifugal and reciprocating power pumps for water and wastewater applications. Our pumps are designed to leading industrial standards and are utilized in water supply, treatment and transfer applications and desalination processes around the world. Pump packages are commonly supplied as complete engineered solutions inclusive of advanced seals and seal systems, lubrication systems, instrumentation and various drive train options. A wide choice of materials is available for all product lines.

SERVICE
ClydeUnion Pumps provides world class aftermarket support for all types of pump brands via our worldwide network of manufacturing facilities, service centers and approved service providers. Our experienced aftermarket personnel provide round the clock support to all industry sectors and focus on ensuring availability and life extension of pumping technologies.
Pumps for Water Treatment Applications

ClydeUnion Pumps, has been supplying pumps to the water industry for over seven decades and we fully understand the needs and demands of this global marketplace. Our robust product range, which includes well known heritage brand names such as Weir, Harland, Mather & Platt and Allen Gwynnes, are extensive and designs have been honed and developed over many years, resulting in today’s highly efficient and reliable equipment.

Products include vertical turbine, end suction and multi-stage pump frames but in particular the Uniglide and Uniglide-e axially split casing ranges. These extensive ranges, allow us to optimize on efficiency for virtually every pump selection from 50 mm to 1800 mm branch sizes. We understand the principal of life cycle cost and the importance pump efficiency and minimizing spare parts play in this particular role. As a consequence, our products are purposely designed with these features very much to the forefront. We are also familiar with the role that variable speed applications can play in pumping and our engineers are highly experienced in selecting pump, motor and drive equipment for these applications.

Key Water Applications:
- Borehole extraction
- Filter washing
- Fresh water supply
- High lift pumping
- Lift station
- Water transfer
- Pressure boosting
- Primary treatment
- Raw water
- Water treatment

Split Casing Pumps

The Uniglide and Duoglide brand names have been used extensively for split casing pump applications throughout the world and are well known for their reliability and excellent efficiency. These types of pumps are available in horizontal and vertical arrangements with capacities up to 18,000 m³/hr and delivery heads up to 300 m.

Focus on the Uniglide-e and Duoglide-e Pumps

The Uniglide-e and Duoglide-e ranges are the latest generation of axially split double entry pumps. They have been developed by ClydeUnion Pumps following an extensive consultation of major users.

Uniglide-e Technical Data:
- Capacity: up to 4,000 m³/hr / 17,600 USgpm
- Delivery head: up to 200 m / 670 feet
- Temperature: up to 80 °C / 180 °F
- Speeds: up to 1,800 rpm
- Flange drilling: ANSI or BS
Pumps for Wastewater Applications

At ClydeUnion Pumps we have products with market leading levels of reliability and robustness installed in wastewater plants throughout the world. These proven designs, supported by our state of the art hydraulic and mechanical design capabilities, enable us to provide “engineered to order” solutions for major large capacity installations. This allows us to offer customized solutions offering optimized levels of hydraulic performance coupled with robust mechanical integrity and operational reliability in these arduous pumping environments.

Key Wastewater Applications:
- Screened sewage
- Sewage sludge
- Storm water
- Industrial effluents
- Raw water
- Dirty water
- Sludges up to 5% solid content

Focus on the Swallowglide Pump

The Swallowglide is a solids handling end suction pump, specifically designed for sewage, effluent and screened sewage. Robust design and key features developed over years of running experience make the ClydeUnion Pumps Swallowglide a highly reliable pump with hundreds of installations globally.

Our standard solids handling Swallowglide product lines, both vertical and horizontal configurations, are available in a range of materials from cast iron through to Super Duplex to suit demanding environmental situations throughout the world.

Swallowglide Technical Data:
- Capacity: up to 30,000 m³/hr / 130,000 US gpm
- Delivery head: up to 130 m / 430 feet
- Temperature: up to 80 °C / 180 °F
- Speeds: up to 1,500 rpm
- Flange drilling: ANSI or BS
Pumps for Desalination Applications

SPX understands the paramount importance of efficiency and reliability for desalination applications: the only path to robust, continuous long-term performance is engineering of the highest standard. Our experienced engineers support the needs of the industry, and our products are quality assured by our comprehensive quality system and pump test facilities.

Through a culture of engineering excellence and a customer-centered approach, we have positioned ourselves at the leading edge of pump design, by constantly investing in Research & Development and using modern design techniques. This is clearly demonstrated by our industry specific ‘sole purposely designed’ and innovative High Pressure Reverse Osmosis pump: the HPRO pump.

Within the desalination market we offer a comprehensive range of products to cover all applications from intake pumps through to product distribution and pipeline pumps.

Key Desalination Applications:

- Intake Pump
- Booster Pump
- HP Pump
- HP Booster, Energy Recovery Device (ERD)
- Interstage Pressure Boost Pump
- 2nd Pass Pump
- Brine Pump
- Produced Water Pump cleaning & flushing

Focus on the HPRO Pump

The High Pressure Reverse Osmosis (HPRO) pump is a radially split diffuser multi-stage pump designed specifically for the requirements of desalination plants. It features high efficiencies and lower capital costs than equivalent pumps, as well as numerous design features that ensure maximum through life costs and reliability in service.

HPRO Technical Data:

- Capacity: up to 3,000 m³/hr / 13,212 US gpm
- Delivery head: up to 800 m / 2,660 feet
- Temperature: up to 180 °C / 350 °F
- Speeds: up to 3,600 rpm
- Flange drilling: ANSI or BS
KNOWLEDGE

Whether water is a vital component or a waste product of your industrial process, SPX's Johnson Pump brand has a full range of centrifugal and positive displacement pumps to suit your needs. Our pumps are found in hospitals, industrial and high rise buildings to ocean-going ships, swimming pools and zoos. For waterborne heating and cooling applications, you'll find Johnson Pump products efficiently performing their duties in factories, homes and offices, boats, busses and greenhouses.

Applications:
- Agriculture - irrigation and spray irrigation, drainage, HVAC
- Industry - service water, condensate, cooling water, brine, chemicals, metal processing, effluent cleaning
- Municipal - drinking water, pressure systems, hot water supply, swimming pools, HVAC
- Shipbuilding - saltwater, freshwater, ballast, wastewater, firefighting
- Wastewater - water treatment systems, chemical transfer

TECHNOLOGY

Our centrifugal pumps are designed modularly to ensure that our customers install 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. For example, this teamwork has resulted in development of pumps used in an innovative project involving the purification of wastewater to be injected into mature oil fields.

SERVICE

Our key focus is on manufacturing high quality products with low life-cycle costs. Our pumps are serviceable without removing them from the pipework. Our authorized service partners use genuine parts to keep your equipment running at optimal performance levels.

CombiBloc - Closed Coupled Centrifugal Pump

Max. Flow: 850 m³/h (4,490 gpm)
Max. Head: 105 m (345 ft)
Materials: cast iron, ss, bronze
Max. Sys. Pressure: 10 bar (145 psig)
Max. Temp.: 120° C (250° F)
- Compact, economical, space saving construction
- Back pull out system
- Internal flush
- Closed impeller with back vanes for hydraulic balancing and for keeping seal area clear
- ATEX certification
**Combi Norm - Long Coupled Centrifugal Pump to EN 733**

Max. Flow: 1500 m³/h (6,600 gpm)
Max. Head: 100 m (328 ft)
Materials: cast iron, nodular cast iron, bronze
Max. Sys. Pressure: 10 bar (145 psig)
Max. Temp.: 200° C (390° F)
- Back pull out system
- Internal flush
- Closed impeller with back vanes for hydraulic balancing and for keeping seal area clear
- ATEX certification

**CombiChem - Long Coupled Centrifugal Pump to ISO 5199 and ISO 2858**

Max. Flow: 800 m³/h (3,500 gpm)
Max. Head: 160 m (525 ft)
Materials: cast iron, nodular cast iron, ss
Max. Pressure: 16 bar (230 psig)
Max. Temp.: 200° C (390° F)
- Back pull out system
- Various seal options
- Closed impeller with back vanes for hydraulic balancing and for keeping seal area clear
- Half open impeller with wear plate and external adjustment
- ATEX certification

**Combi-Dirt - Surface Mounted Vortex Pump**

Max. Flow: 420 m³/h (1,850 gpm)
Max. Head: 40 m (130 ft)
Materials: cast iron, nodular, stainless steel and super duplex
Max. Sys. Pressure: 10 bar (145 psig)
Max. Temp.: 80° C (175° F)
Max. solids passable: 75 mm (3")
- Can be mounted either horizontally or vertically, top or back pull out system
- Vortex principle
- Can be run dry
- Capable of handling solids, abrasive fluids and gaseous content
- ATEX certification

**FreFlow - Self Priming Centrifugal Pump**

Max. Flow: 350 m³/h (1,540 gpm)
Max. Head: 80 m (260 ft)
Materials: cast iron, ss, bronze
Max. Pressure: 9 bar (130 psig)
Max. Temp.: 95° C (200° F)
Max. solids free passage: 33 mm (1.3")
- Excellent self-priming properties
- Lubricated mechanical seal
- Capable of handling solids, abrasive fluids and gaseous content
- ATEX certification

Vertical Option Available: CombiFlex - Space Saving Vertical Centrifugal Pump
Plate Heat Exchangers

**KNOWLEDGE**

Plate heat exchangers play an important role in helping water and wastewater operations meet stringent water environmental and energy conservation requirements. APV brand plate heat exchangers from SPX have been used in this industry for decades, operating with water grades ranging from process wastewater to sewer water to pharmaceutical water for injection to ultra-pure water for fine electronics. Whether you are recovering waste heat or isolating the cooling system from the cooling source, the SPX range of APV heat exchangers offers you efficient and reliable heat transfer solutions.

**Applications:**

APV heat exchangers are used in a variety of applications including water for injection for the pharmaceutical industry, ultrapure water for manufacture of fine electronics, pasteurization of water for beverages, mineral water and water for food processing; heating and cooling of water treatment plants for water quality improvement, heat recovery or cooling of process wastewater, including corrosive, with residues, particles or fibers; heat recovery of sewer water treatment plants, heating and cooling water for reverse osmosis plants, process water recovery plants, and water desalination.

**TECHNOLOGY**

APV heat transfer solutions are based on a complete range of plate-type heat exchanger technologies including gasketed, semi-welded and welded plate heat exchangers as well as water desalination units. These range from high-capacity, heavy duty units to small, compact designs, and are available either as standard solutions or as customized units. APV plate heat exchangers can be constructed of a wide variety of standard and special materials that can endure most media – including acids.

Choose APV brand plate heat exchangers for:

- High heat recovery rates
- Reliable and secure operations
- Good corrosion resistance
- Simplified maintenance to save time and money
- Compact designs for space savings

**SERVICE**

SPX has a global network of service technicians that can be reached 24/7. Our organization has a full scale of services, from cleaning and refurbishment to trouble shooting and maintenance contracts. For more information about service and worldwide locations and representations please visit www.apv.com.
ParaFlow Gasketed Plate Heat Exchangers

A wide range of gasketed plate heat exchangers for heating, cooling, condensing and evaporation. The optimized plate design maximizes operating efficiency and cost effectiveness, thanks to a high heat recovery effect.

The advantages of APV gasketed plate heat exchangers include:
- Optimized plate designs for high thermal efficiency
- Easy operation and maintenance – easy gasket mounting and plate alignment systems reduce service downtime

Mechanical data:
- Design pressure: 0-25 bar gauge (0 - 363 psig)
- Operating temperature: -35°C to 200°C (-13°F to 392°F)
- Heat transfer area: Up to 3,800 m² (40,903 sq. ft.)
- 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 including elevated temperatures and pressures. 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.

APV Hybrid advantages include:
- Flexible and compact design, small footprint
- Openable design for easy inspection and cleaning (tube-side)
- 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

Mechanical data:
- Design pressure: Full vacuum up to 40 bar gauge (580 psi)
- Operating temperature: -200°C to 400°C (-328°F to 752°F)
- Large heat transfer area, up to 1,800 m² per unit (19,375 sq.ft.)

ParaTube Tubular Heat Exchangers

For wastewater with particles or fibres that can block the channels of a normal plate heat exchanger offers a series of tubular heat exchangers with corrugated or smooth tubes in double-, triple-, quadruple- or multi-tube designs. Especially used for heat recovery of water from laundries and textile industries.

Mechanical data:
- Pressure: 0 up to 30 bar gauge (435 psi)
- Operating temperature: Up to 170°C (338°F)
- Transmission area: Up to 2 m² (22 sq.ft) per tubular module

APV Water Desalination Unit (WDU unit)

A fresh water generator for desalination of seawater for production of potable and fresh utility water. The APV WDU unit is designed as a single stage plate type based evaporator and condenser, separated by a stainless steel demister. Specially designed titanium plates provide effective steam passage and high efficiency.

Mechanical data:
- Capacity freshwater: Up to 35 m³/24h (1236 ft³/24h)
- Seawater temperature: 0°C - 32°C (32°F - 90°F)
- 2 ppm fresh water output
**KNOWLEDGE**

Just about every step in a water and wastewater treatment process depends on suspending solids, or having a flow stream mix uniformly with a liquid or gas. The right degree of fluid motion and shear stress is critical during each stage. Lightnin brand mixers from SPX are recognized for developing many of the mixing techniques considered standard in the water and wastewater industry today. Our mixing techniques may be applied to all phases of the water and wastewater treatment process. Installations around the world have benefitted from our sizing expertise.

**Applications:**
- Flash mixing
- Anoxic mixing
- Flocculation
- Equalization Tank
- Chemical makeup and storage
- Aeration
- Lime slurry
- Polymer mixing
- Neutralization
- Sludge mixing
- Activated carbon slurry mixing

**TECHNOLOGY**

We’ll help you put together a mixing operation that works for your needs. We continue to discover new opportunities to improve the service life of Lightnin brand products. Innovative research and product testing under various mixing applications helps us maximize process efficiency. Our fully-integrated laser lab simultaneously measures flow, power, and mechanical loads.

**SERVICE**

Water and wastewater treatment operation plants operate efficiently for years as a result of Lightnin 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 right.

**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

Your water and wastewater operation will benefit from the new solutions our advancements in mixing technology provide and innovative impeller designs that optimize process results including:
Series 45 Inline Mixers
Inliners are near plug flow devices, and can provide significant advantages in many continuous mixing applications.
- An inliner in turbulent flow ensures a rapid blend time, and removes the risk of stratification that can occur if mixing is left to natural turbulence alone
- Ideal choice for continuous blending, dosing sampling systems, difficult mixing duties and many other applications

ECL Mixers
ECL Mixers provide high performance and enhanced process results.
- A mixer duty motor with standard mounting allows for many speed and enclosure variations
- Large output shaft bearings for longer allowable shaft lengths and long life
- Ideal for flash mixing
- Available in 0.25 kW - 4 kW (25 - 5 hp) with speeds up to 1800 rpm

Side-Entry Mixers
Side-Entry Mixers are designed for easy installation and high-efficiency operation.
- Bearings greatly exceed AGMA requirements for durability and long service life
- Shaft bearings are located outside the tank to prevent corrosion and contamination
- Available in 0.75 kW - 55 kW (1 - 75 hp) with speeds of 190 to 420 rpm for 60 Hz and 230 - 350 rpm for 50 Hz

Series 10 Mixers
The Series 10 delivers a combination of high value and excellent performance.
- Durable - long gear and bearing life
- Fewer moving parts simplifies maintenance
- Easily accessible output shaft connection
- Ideally suited for mixing and flocculation applications
- Available in 0.75 kW – 22 kW (1 – 30 hp) with speeds from 9 rpm – 125 rpm

Series 70/80 Mixers
A widely specified and proven mechanical design technology, makes these mixers ideal for a wide range of applications.
- Bearings are sized far beyond AGMA requirements for minimum maintenance and long service life
- Helical change gears are easy to replace to meet new or changing processing requirements
- Available in 0.75 kW - 110 kW (1 - 150 hp) with speeds from 11 to 280 rpm

Series 700/800 Mixers
The largest and heaviest standard duty drives made specifically for mixing.
- Built to withstand severe bending and high torque loads
- Independent bearing support for the Series 800 was originally developed by Lightnin and isolates the gear box from the mixer blending loads
- Ideally suited for aeration and sludge mixing applications
- Available from 15 kW - 450 kW (20 - 600 hp) with speeds from 12 to 200 rpm
AFTER-SALES, SERVICE AND PARTS SOLUTIONS
FROM SPX
SPX brands offer 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

NEW SERVICE OFFERING

New SPX Gappscan Leak Detection Technology

SPX Gappscan technology offers a unique method of accomplishing extremely precise leakage detection without the need for dismantling the heat exchanger. Significantly more sensitive than other technologies, SPX Gappscan has a sensitivity below 5 microns, and the pass/fail threshold is equivalent of a single 20 micron hole in the apparatus.
Global locations

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