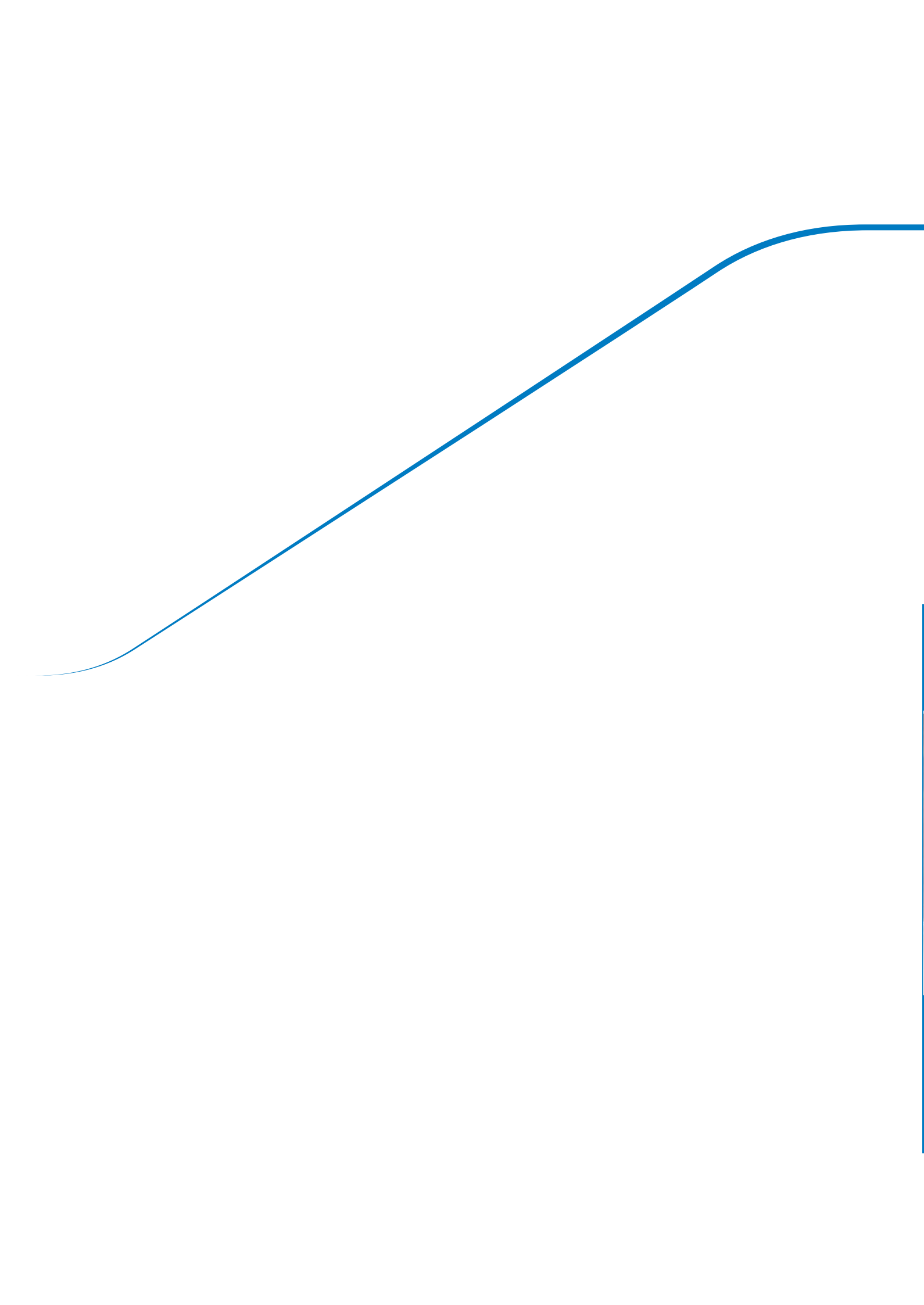




Expertise – Passion – Automation



**Water treatment**



## Water treatment



With increased population, expanding manufacturing and growing regulatory requirements the demand for industrial wastewater treatment services is projected to grow by around 5.3% a year for the next five years.

Wastewater is commonly used by many industry sectors including chemical, pharmaceutical, oil and gas, food, pulp and paper, metal, mining and power generation. And with each industry using different processes, the technologies used for treating wastewater are numerous.

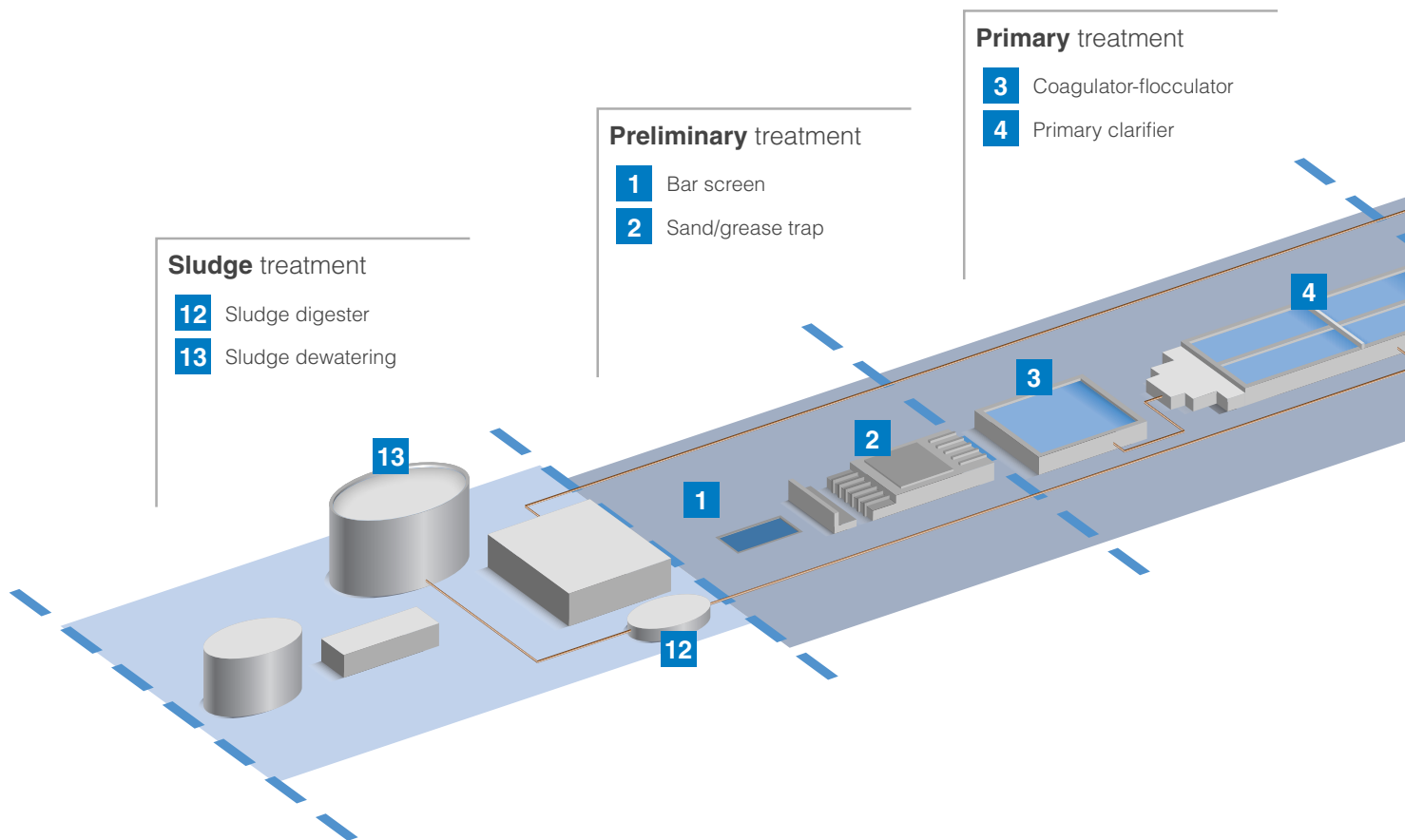
However, the operation and control part of the process is generally considered to be the main focus

as it includes operations such as separation, floatation, settling, filtration, neutralisation, absorption, ion exchange and chlorination.

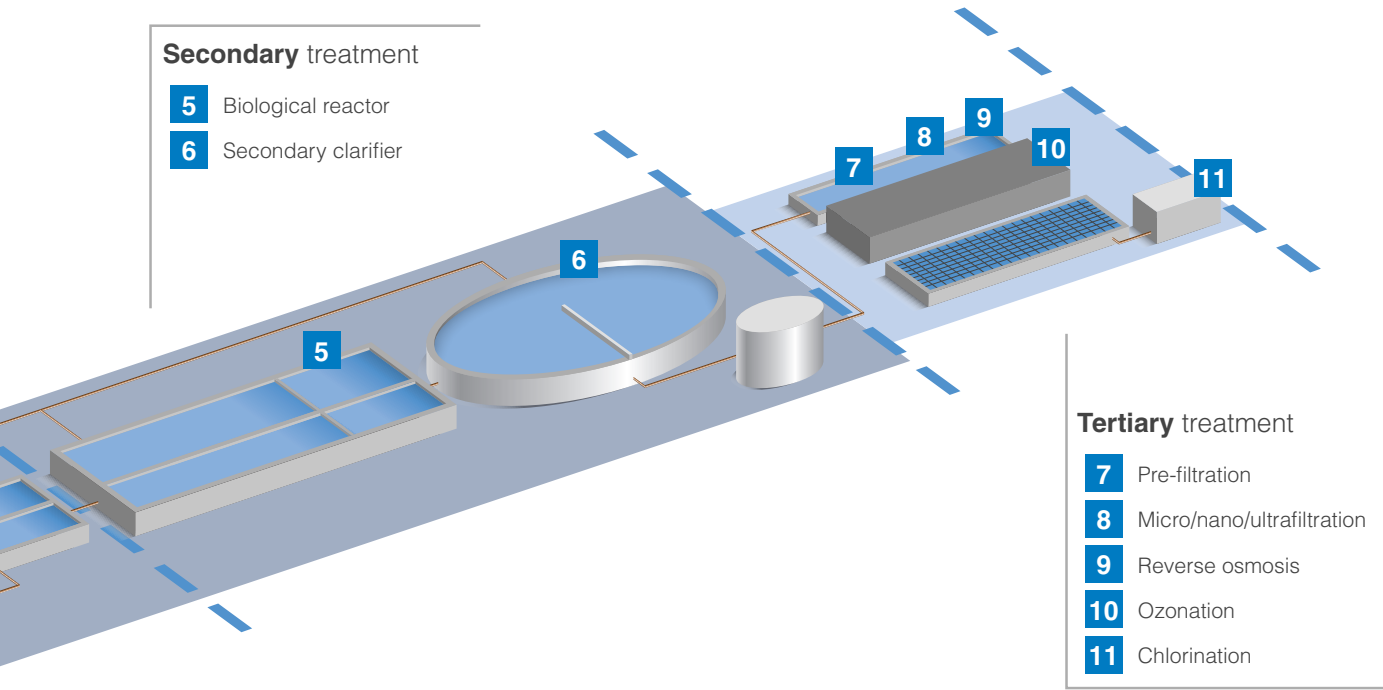
At SMC we have local teams of specialists who understand these needs and can help you find the right solutions.

If you're using reverse osmosis devices or have micro/ultra/nano filtration applications or ozone systems check out some of our latest cutting edge products that have been designed and developed to help you.

# Water treatment process



Preliminary treatment	1	Bar screen
	2	Sand/grease trap
Primary treatment	3	Coagulator-flocculator
	4	Primary clarifier
Secondary treatment	5	Biological reactor
	6	Secondary clarifier
Tertiary treatment	7	Pre-filtration
	8	Micro/nano/ultrafiltration
	9	Reverse osmosis
	10	Ozonation
	11	Chlorination
Sludge treatment	12	Sludge digester
	13	Sludge dewatering

[illegible]



## Industrial filters

### Applications

- Pre-filtration
- Reverse osmosis device
- Highly purified water systems



### Low maintenance filter FN1/FN4 Series

- Nominal filtration rating: 5, 20 µm
- Flow rate: FN1: 40 and 80 l/min; FN4: 250 l/min.



### Quick change filter for cleaning solvent FQ1 Series

- Nominal filtration rating: 0.2 to 105 µm
- Flow rate: 5 to 30 l/min.



### High precision filter FGH Series

- Nominal filtration rating: 0.2 to 13 µm
- Flow rate: 5 to 70 l/min.



### Bag filter FGF Series

- Nominal filtration rating: 5 to 100 µm
- Flow rate: 400 to 2000 l/min.



### High flow filter FGG Series

- Nominal filtration rating: 0.5 to 120 µm
- Flow rate: 160 to 370 l/min.



### Medium flow filter FGE Series

- Nominal filtration rating: 0.5 to 120 µm
- Flow rate: 45 to 230 l/min.



### Low flow filter FGD Series

- Nominal filtration rating: 0.5 to 120 µm
- Flow rate: 11 to 63 l/min.

Our FN4 series combines an eco-friendly reusable stainless steel filtration element with a back-flush capability, which means that both filtering and back-flushing can be performed in parallel.





Our customers are particularly satisfied with our latest pressure switches; with their design functionality and ease of use. The information accuracy and its rapid availability assist them in their daily decision making. Furthermore, customers find the energy efficiency and cost effectiveness features advantageous.

## Pressure switches, sensors & monitors

### Applications

- Reverse osmosis device
- Ozone systems
- Chlorine dioxide device
- Micro/ultra/nano filtration
- Vacuum distillation
- Highly purified water systems
- Bernoulli filter
- Bilge water
- Electrodeionisation



### 2-colour display digital pressure switch ZSE20C/ISE20C Series

- Pressure range: vacuum: [-0.1, 0] MPa; compound: [-0.1, +0.1] MPa; positive: [-0.1, 1] and [-0.1, 2] MPa
- Stainless steel construction.



### High-precision digital pressure switch with IO-Link ISE7□/7□G Series

- Rated pressure: 1 MPa (ISE70) and 1.6 MPa (ISE71) for air; 1 MPa (ISE70G), 2 MPa (ISE75G), 5 MPa (ISE76G) and 10 MPa (ISE77G) for general fluids
- Output: IO-Link and NPN/ PNP.



### General purpose pressure switch ISG Series

- Pressure range: positive [0.02, 0.3] MPa, [0.05, 0.7] MPa, [0.1, 1] MPa; vacuum [-10, -100] kPa
- Wetted material: stainless steel 316, brass/phosphor bronze.



### Pressure sensor PSE560 Series

- Pressure range: positive pressure [0, 500] kPa and [0, 1] MPa, vacuum [0, -101] kPa, compound pressure [-100, 100] kPa
- Wetted material: SUS316L.



### Pressure sensor PSE570 Series

- Pressure range: vacuum [-0.1, 0 MPa]; compound [-0.1, +0.1 MPa]; positive [-0.1, 1 MPa] and [-0.1, 2 MPa]
- Stainless steel construction.



### Multi-channel digital pressure sensor monitor PSE200 Series

- Controller for 4 sensor inputs
- Automatic sensor recognition.



### 2-colour display digital pressure sensor monitor PSE300 Series

- 2 colour display determined by switching status
- 2 switch outputs and analogue output.



### 3-screen display sensor monitor PSE300AC Series

- Visualisation of settings
- Easy screen switching.

## Flow switches & monitors

### Applications

- Ozone systems
- Chlorine dioxide device
- Micro/ultra/nano filtration
- Vacuum distillation
- Highly purified water systems
- Sand filtration



### 3-Colour Display Digital Flow Switch

PF3W Series

- Flow range: Up to 250 l/min
- Applicable fluids: water, deionized water, chemical, etc.



### 3-Colour Display Electromagnetic Type Digital Flow Switch

LFE Series

- Flow range: 0.5 to 20 l/min, 2.5 to 100 l/min, 5 to 200 l/min
- Applicable fluids: water, water-soluble coolant.



### Diaphragm Style Flow Switch

IFW5 Series

- Flow range: 1 to 10 l/min, 10 to 20 l/min, 20 to 50 l/min
- Applicable fluids: water, non-corrosive liquid.



### Digital Flow Switch for De-ionised Water and Chemicals

PF2D Series

- Flow range: 0.4 to 4 l/min, 1.8 to 20 l/min, 4 to 40 l/min
- Applicable fluids: de-ionised water and chemicals.



### Paddle Style Flow Switch

IF3 Series

- Flow range: 14 to 60 l/min, 20 to 1500 l/min, 36 to 2600 l/min
- Applicable fluids: water, non corrosive liquid.



### Digital Flow Monitor for Water

PF3W3 Series

- The settings of the master sensor can be copied to the slave sensors
- Applicable to e-con.



### 4-channel Flow Monitor

PF2D200 Series

- Multiple sensors (max. 4 pcs.) can be managed collectively
- Applicable to e-con.



### 3-colour Display Digital Flow Monitor

LFE0 Series

- Top screen displays instantaneous flow rate
- Lower screen can be set to display: set value, flow direction, accumulated value, line name, peak/bottom value.

Our LFE series can manage conductive fluids, such as water and water-soluble coolant, or fluids that have at least 5uS/cm conductivity. This is because the LFE is an electromagnetic sensor designed to allow full bore flow for reduced pressure loss”





## Process valves

### Applications

- Reverse osmosis device
- Ozone systems
- Chlorine dioxide device
- Micro/ultra/nano filtration
- Vacuum distillation
- Highly purified water systems
- Bilge water
- Sludge treatment
- Sand filtration
- Bernoulli filter
- Pre-filtration
- Electrodeionisation
- Flocculation

## Air operated



### Angle seat valve VXB Series

- Port size: 3/8" to 3/4"; orifice size: 11 to 18 mm
- Body materials: stainless steel and bronze.



### 2-port valve for steam VND Series

- Port size: 1/8" to 2"; orifice size: 7 to 50 mm
- Body materials: stainless steel (316L) and bronze.



### Direct air operated 2-port valve VXA Series

- Port size: 1/8" to 1/2"; orifice size: 3 to 10 mm
- Body materials: brass and stainless steel.



### 2-port valve for flow control VNB Series

- Port size: 1/8" to 2"; orifice size: 7 to 50 mm
- Body materials: bronze, stainless steel and aluminium.



### High purity chemical liquid valve LVA/LVC/LVH Series

- Port size: 1/8" to 1"; orifice size: 2 to 22 mm
- Body material: new PFA, stainless steel and PPS.

## Direct operated



### 2-port solenoid valve VX2 Series

- Port size: port size: 1/8" to 1/2"; one-touch fitting: 6 to 12 mm; orifice diameter: 2 to 10 mm
- Body materials: aluminium, resin, brass and stainless steel.



### Compact 2-port solenoid valve VDW Series

- Body materials: aluminium, resin, brass and stainless steel
- Port size: M5 to 1/8"; one-touch fitting: 3.2 to 6 mm; orifice diameter: 1 to 3.2 mm.



### Compact/lightweight 2-port solenoid valve VDW30/40-XF Series

- One-touch fitting: Ø 4 to Ø 10; quick fastener: P7 to P10; orifice size: 1 to 6 mm
- Body materials: PPS.



### 2/3 port media separated valve LVMK Series

- Body material: PPS
- Orifice diameter: 2 mm.



### Energy saving type 2-port solenoid valve VXE Series

- Port size: 1/8" to 1"; orifice diameter: 2 to 25 mm
- Body materials: brass and stainless steel.



### 2-Port Solenoid Valve with built-in Y-strainer VXX Series

- Port size: 1/8" to 3/8"; Orifice diameter: 2 to 8 mm
- Body materials: brass.



### 3-port solenoid valve VX3 Series

- Port size: 1/8" to 3/8"; orifice diameter: 1.5 to 4 mm
- Body materials: brass and stainless steel.



### 2/3 port solenoid valve for chemicals LVM Series

- Port size: M5, M6 and 1/4-28 UNF; orifice diameter: 1, 1 to 2 mm
- Body materials: PFA and PEEK.

## Process valves

### Applications

- Reverse osmosis device
- Ozone systems
- Chlorine dioxide device
- Micro/ultra/nano filtration
- Vacuum distillation
- Highly purified water systems
- Bilge water
- Sludge treatment
- Sand filtration
- Bernoulli filter
- Pre-filtration
- Electrodeionisation
- Flocculation

## Pilot operated



### 2-port solenoid valve VXD Series

- Port size: 1/4" to 1"; one -touch fitting: 10 to 12 mm; orifice diameter: 10 to 50 mm
- Body materials: aluminium, resin, brass and stainless steel.



### Zero differential pressure type 2-port solenoid valve VXZ Series

- Port size: 1/4" to 1"; one -touch fitting: 10 to 12 mm; Orifice diameter: 10 to 25 mm
- Body materials: aluminium, resin, brass and stainless steel.



### Energy saving type 2-port solenoid valve VXE Series

- Port size: 1/8" to 1"; orifice diameter: 2 to 50 mm
- Body materials: brass and stainless steel



### Diaphragm type 2-port solenoid valve VXH Series

- Port size: 1/4" to 1/2"; orifice diameter: 10 mm
- Body materials: brass.



### 5-port solenoid valve SY Series

- Operating pressure range: -100 kPa to 0.7 MPa
- Flow-rate: Up to 1593 l/min.



### 5-port solenoid valve VQC Series

- Operating pressure range: 0.10 MPa to 1 MPa
- Flow-rate: Up to 4350 l/min.



### 5-port solenoid valve S0700 Series

- Operating pressure range: 0.2 MPa to 0.7 MPa
- Flow-rate: Up to 178 l/min.



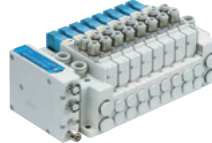
### 3/5 port solenoid valve VFN Series

- Operating pressure range: 0.15 MPa to 0.9 MPa
- Flow-rate: Up to 1384 l/min.



### Fieldbus system EX600 Series

- Applicable protocol: DeviceNet™, PROFIBUS DP, CC-Link, EtherNet/IP™, EtherCAT®, PROFINET
- Applicable valve series: SY, VQC, S0700, SV.



### Fieldbus system EX260 Series

- Applicable protocol: DeviceNet™, PROFIBUS DP, CC-Link, EtherNet/IP™, EtherCAT®, PROFINET
- Applicable valve series: SY, VQC, S0700, SV.



### Fieldbus system EX500 Series

- Applicable protocol: DeviceNet™, PROFIBUS DP, EtherNet/IP™
- Applicable valve series: SY, VQC, S0700, SV.



### Fieldbus system EX250 Series

- Applicable protocol: DeviceNet™, PROFIBUS DP, CC-Link, EtherNet/IP™, CANopen, AS-Interface
- Applicable valve series: SY, VQC, S0700, SV.

## Directional control valves & fieldbus system

### Applications

- Reverse osmosis device
- Ozone systems
- Micro/ultra/nano filtration
- Vacuum distillation
- Highly purified water systems
- Sludge treatment
- Sand filtration
- Electrodeionisation
- Piloting of pneumatic process valves

## Cylinders

### Applications

- Sludge treatment
- Sand filtration
- Bernoulli filter



### ISO 15552 cylinder

C96 Series

- Bore sizes up to 125 mm
- Standard stroke up to 2000 mm.



### ISO 15552 cylinder

CP96 Series

- Bore sizes up to 125 mm
- Standard stroke up to 2000 mm.



### ISO/VDMA cylinder

C95 Series

- Bore sizes up to 250 mm
- Standard stroke up to 2400 mm.



### Stainless steel cylinder

CG5-S Series

- Bore sizes up to 100 mm
- Standard stroke up to 200 mm.



### Air cylinder

CS1 Series

- Bore sizes up to 300 mm
- Standard stroke up to 2400 mm.

## Positioners

### Applications

- Control valves



### Electro-pneumatic positioner

IP8000/8100 Series

- Electropneumatic positioner lever type (IP8000) and rotary type (IP8100)
- ATEX compliant.



### Smart positioner

IP8001/8101 Series

- Smart positioner lever type (IP8001) and rotary type (IP8101)
- ATEX compliant.



### Pneumatic positioner

IP5000/5100 Series

- Pneumatic positioner – lever type (IP5000) and rotary type (IP5100)
- ATEX compliant.



### Cylinder positioner

IP200 Series

- Servo-mechanism allows precise and stable position control of cylinders.
- Applicable stroke up to 300 mm.

## Pumps

### Applications

- Chlorine dioxide device
- Micro/ultra/nano filtration
- Highly purified water systems
- Flocculation



### Process pump

PA3000/5000 Series

- Double acting pump, automatically operated type/air operated type
- Automatically operated (discharge flow rate: max. 45 l/min)/Air operated (discharge flow rate: max. 34 l/min).



### Process pump

PAX1000 Series

- Double acting process pump with built-in pulsation attenuator
- Discharge flow rate: max. 10 l/min.



### Process pump

PAF3000/5000 Series

- Automatically operated (discharge flow rate max. 45 l/min)/air operated (discharge)
- Flow rate max. 38 l/min).



### Process pump

PB1000A Series

- Single acting pump; built-in solenoid valve/air operated type
- Discharge flow rate: max. 2 l/min.

## Fittings

### Applications

- Reverse osmosis device
- Ozone systems
- Micro/ultra/nano filtration
- Vacuum distillation
- High purified water
- Bilge water
- Sludge treatment
- Sand filtration
- Bernoulli filter
- Pre-filtration
- Electrodeionisation
- Flocculation



### One-touch fittings, stainless steel 316 KQG2 Series

- Port size: M5 to 1/2"
- Applicable tubing O.D.: Ø 3.2 mm to Ø 16 mm.

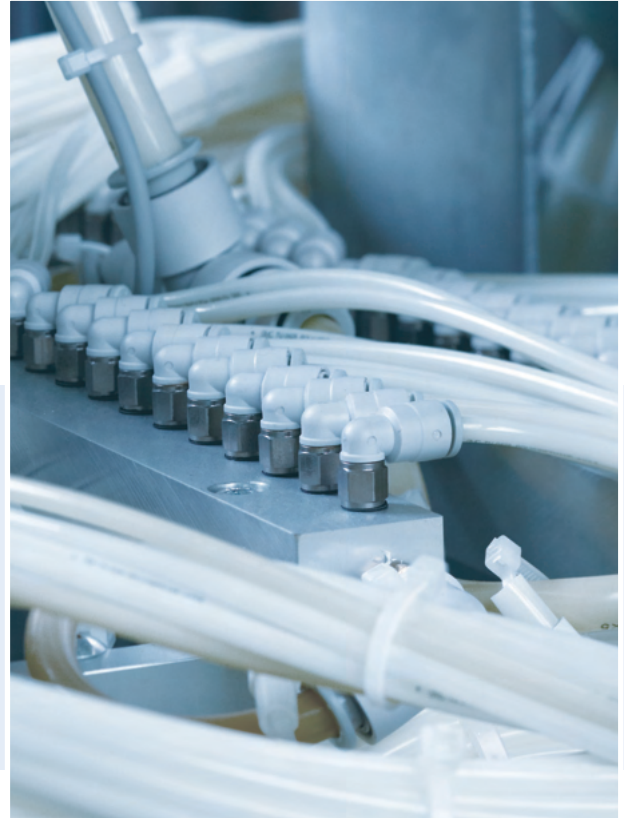


### Insert fittings, stainless steel 316 KFG2 Series

- Port size: 1/8" to 1/2"
- Applicable tubing O.D.: Ø 3.2 mm to Ø 16 mm.

Our extensive range of fittings and tubing provide customers with a complete solution for their piping equipment needs. For example, KFG2 fittings can operate with ambient operating fluid temperatures of -65 to 260 °C.

Thanks to their stainless steel 316 construction and a unique non-rubber seal insert connection, this range of grease-free fittings offers very high levels of corrosion resistance.



## Tubing

### Applications

- Reverse osmosis device
- Ozone systems
- Micro/ultra/nano filtration
- Vacuum distillation
- Highly purified water systems
- Sludge treatment
- Sand filtration
- Bernoulli filter
- Pre-filtration
- Electrodeionisation
- Flocculation



### Polyurethane flat tubing TU Series

- Tubing O.D. [mm]: 2 to 16
- Tubing I.D. [mm]: 1.2 to 10.



### Nylon tubing T Series

- Tubing O.D. [mm]: 4 to 16
- Tubing I.D. [mm]: 2.5 to 13.



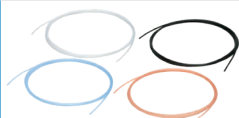
### Polyolefin tubing TPH/TPS Series

- Tubing O.D. [mm]: 4 to 12
- Tubing I.D. [mm]: 2.5 to 9.



### High purity fluoropolymer tubing TL Series

- Tubing O.D.: 4 to 19 mm
- Tubing I.D.: 3 to 16 mm.



### Fluoropolymer tubing TLM Series

- Tubing O.D. [mm]: 2 to 25
- Tubing I.D. [mm]: 1 to 22.



### FEP tubing TH Series

- Tubing O.D. [mm]: 4 to 12
- Tubing I.D. [mm]: 2 to 10.



### Soft fluoropolymer tubing TD Series

- Tubing O.D. [mm]: 4 to 12
- Tubing I.D. [mm]: 2.5 to 9.



### 2-layer soft fluoropolymer tubing TQ Series

- Tubing O.D. [mm]: 4 to 12
- Tubing I.D. [mm]: 2.5 to 9.



## Circulating fluid temperature controller

### Applications

- Ozone systems
- Highly purified water systems



### Thermo-chiller HRSE Series

- Cooling capacity: 1 to 1.9 kW
- Temperature stability:  $\pm 2.0^{\circ}\text{C}$



### Thermo-chiller HRS Series

- Cooling capacity: 1.1 to 4.9 kW
- Temperature stability:  $\pm 0.1^{\circ}\text{C}$



### Thermo-chiller HRSH Series

- Cooling capacity: 9.5 to 28 kW
- Temperature stability:  $\pm 0.1^{\circ}\text{C}$

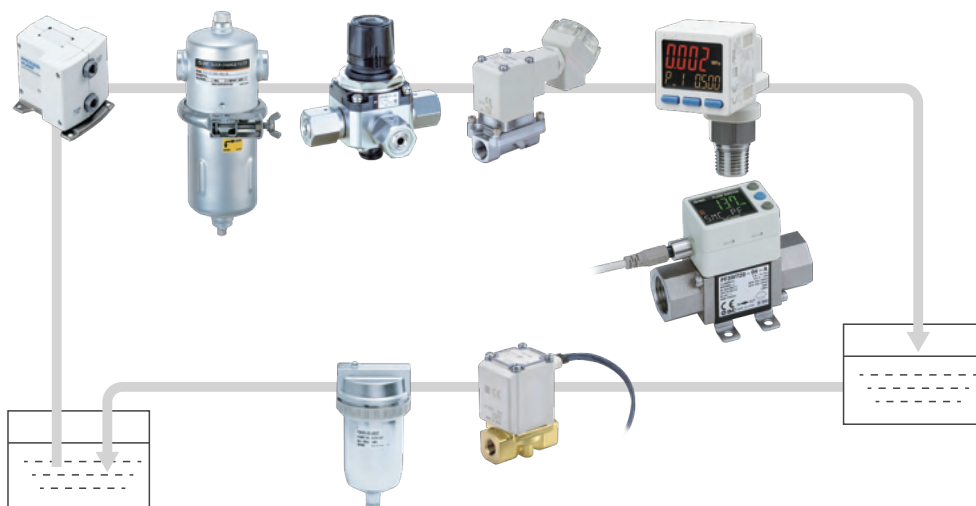


### Thermo-con/Rack mount type HECD Series

- Cooling capacity: 0.2 to 1.2 kW
- Temperature stability:  $\pm 0.01$  to  $0.03^{\circ}\text{C}$

## Fluid control line

SMC's impressive product range can offer nearly any product for controlling various fluids in lines up to 2" like the following:



[illegible]





Expertise – Passion – Automation

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or [zasales@smcza.co.za](mailto:zasales@smcza.co.za)**

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