Products for Natural Resource Industries

Simplifying Solutions for Water Treatment
SMC provides a broad array of products capable of meeting diverse water treatment requirements such as:

- Continuous 24/7 operation
- Stringent industry regulations
- Constant exposure to moisture

SMC’s pneumatic products are specifically designed for harsh environments like those in the Water and Wastewater Industries. Moisture and foreign matter can be very harmful to pneumatic systems. SMC has products and options created specifically for these environments. Our long lasting products will minimize downtime therefore maximizing your bottom line.

These featured products are useful in water treatment applications for Municipal Drinking Water, Refineries, Petro-Chemical, Mining, Power Generation, and Wastewater Treatment.
Why SMC?

SMC is recognized as the world leader in the design and manufacture of pneumatic components, and is continually developing new products to satisfy the growing demands for pneumatic and control technology.

The SMC product range now covers more than 700,000 components, specializing in Control Panels & Systems, Flow Control Equipment, Air Dryers & Filters, Fittings & Tubing, Instrumentation, Automation, Actuators, Vacuum and Valves for industries that include Water Treatment, Processing, Con-Ag, Lumber, Power Generation, Food & Beverage, Automotive, Transport, Chemical, Electronics, Mining, Machine Building, Packaging and Medical.

Through our worldwide network of operations, SMC offers individuals and organizations access to a vast and unique body of engineering expertise. With branches throughout North America, SMC has become renowned for its product range, on-time delivery and competitive cost structure. SMC can provide the technical knowledge and solutions necessary to address any manufacturing problems on a local/worldwide basis.

Being the largest manufacturer of pneumatic control equipment in the world, SMC offers you confidence in knowing your requirements and needs will be met - on time, every time.

SMC’s commitment to automation offers:

- Product range covering a wide variety of applications with 12,000 products and 700,000 variations
- Local technical expertise with extensive industry knowledge and a variety of skill sets
- Local and global support
- Comprehensive distribution network
- Largest world market share
- A commitment to R & D
- Engineering to customer requirements
- Superior manufacturing facilities
SMC Carries a wide selection of equipment for use in all production processes including film, plastic, rubber, cosmetics, surfactants, fertilizer, paints and chemical fibers. Here you will find various types of devices suited to fluid applications for compressed air, city/industrial water, solvents, inert gases and prepared liquids.
SMC fittings and tubing are a critical part of a pneumatic system.

**KQ2 Series** One-Touch Fittings

**VQC Series** 5 Port Solenoid Valves

**EX600** Serial Transmission

**AC Series** Air Preparation Equipment

**PF3W** Digital Flow Switch for Water

**ISE/ZSE Series** Digital Pressure Switch

**Typical electro-pneumatic control system**

as fitted to a diaphragm valve using SMC Pneumatic Products.
## Process - Lineup of Water/Wastewater Equipment

### Main Line Filter **AFF**

Series AFF is mounted to main piping to remove impurities like oil, water, and particles in compressed air.

<table>
<thead>
<tr>
<th>Series</th>
<th>Filtration (µm)</th>
<th>Rated flow 6/min (ANR)</th>
<th>Port Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFF</td>
<td>(Filtration Efficiency 99%) Water droplet removal</td>
<td>300 to 45000</td>
<td>1/8 to 4&quot; flange</td>
</tr>
</tbody>
</table>

### Mist Separator **AM**

Separates out oil mist, removing rust, carbon etc in the form of fine particles of 0.3 µm or larger.

<table>
<thead>
<tr>
<th>Series</th>
<th>Filtration (µm)</th>
<th>Rated flow 6/min (ANR)</th>
<th>Port Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>0.3 (Filtration Efficiency 99%)</td>
<td>300 to 12000</td>
<td>1/8 to 2</td>
</tr>
</tbody>
</table>

### Pilot Operated 2 Port Solenoid Valve **VXD**

For air, water and oil.

<table>
<thead>
<tr>
<th>Series</th>
<th>Valve type</th>
<th>Port Size</th>
<th>Orifice diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VXD</td>
<td>N.C./N.O.</td>
<td>1/4 to 1</td>
<td>10 to 50</td>
</tr>
</tbody>
</table>

### 2 Port Solenoid Valve with Built-in Y-strainer **VXK**

- For air, water, oil and steam
- Space-saving, reduces labor for piping
- Built-in strainer

<table>
<thead>
<tr>
<th>Series</th>
<th>Valve type</th>
<th>Port Size</th>
<th>Orifice diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VXK21/22/23</td>
<td>N.C./N.O.</td>
<td>1/8 to 3/8</td>
<td>2 to 8</td>
</tr>
</tbody>
</table>
### Process - Lineup of Water/Wastewater Equipment

#### Zero Differential Pressure Type/Pilot Operated 2 Port Solenoid Valve
**VXZ**
- **Category**: For air, water, steam and heated water
- **Series**: VXZ22/23
  - **Valve type**: N.C./N.O.
  - **Port Size**: 1/4 to 1
  - **Orifice diameter (mm)**: 10 to 25

#### Water Hammer Relief/Pilot Operated 2 Port Solenoid Valve
**VXR**
- **Category**: For water and oil
- **Series**: VXR21/22/23
  - **Valve type**: N.C./N.O.
  - **Port Size**: 1/8 to 1/2
  - **Orifice diameter (mm)**: 3 to 10

#### Category 3 & 4 Safety Shut-off and Exhaust Valve
**VG342**
- **Category**: Long Life
  - **Features**:
    - 3/4 NPT or metric ports
    - 24VDC
    - Operating pressure: 6 to 101 psi
    - External pilot for low operating pressures
    - M12 connector for signal feedback
    - Monitoring through certified safety switch
    - Lifetime: 900,000 cycles
    - EN ISO 13849-1
  - **Smaller Series VP version now available.**

#### Electro-Pneumatic Positioner/Smart Positioner
**IP8□□00/IP8□□01**
- **Features**:
  - Enclosure: JIS F8007 IP 65 (IEC 60529)
  - Monitoring function
  - Explosion-proof structure
  - Electro-Pneumatic Positioner:
    - T13 withstand pressure explosion-proof structure (Ex d IIBT4)
    - I.ATEX intrinsically safe explosion-proof structure (II 1G Ex ia II CT4-T6)
  - Smart Positioner
    - ATEX intrinsically safe explosion-proof structure (II 1G Ex ia II CT4-T6)
  - Hart Communication function (Smart Positioner)
- **Series**:
  - IP8000 (Lever type)
  - IP8100 (Rotary type)
  - IP8001 (Lever type)
  - IP8101 (Rotary type)
- **Port Size**: 1/4
- **Supply air pressure (MPa)**: 0.14 to 0.7
- **Input current**: 4 to 20mA

#### Cylinder Positioner **IP200**
- **Features**:
  - Cylinder position control also a precise, stable process control
  - Used for cylinder position control in servo mechanisms and general industrial machinery
- **Series**:
  - IP200
- **Port size**: Rc1/4
- **Supply air pressure (MPa)**: 0.3 to 0.7
- **Input pressure (MPa)**: 0.02 to 0.1

#### Lock-up Valve **IL**
- **Features**:
  - When an abnormality occurs in supply such as trouble with air supply or in supply air piping in a pneumatics process control system, the lock-up valve reacts by maintaining the operating part in position as it is until the air supply returns to a normal state.
- **Series**:
  - IL201/211
  - **Port size**: Rc1/4
  - **Set pressure (MPa)**: 0.14 to 0.7
  - **Shut-off air circuit pressure**: MAX. 0.7MPa

#### Booster Relay **IL**
- **Features**:
  - Used when piping distance from instrumentation to operating part is extremely long or when operating part has large capacity, works to substantially accelerate drive speed to operating part.
- **Series**:
  - IL100
  - **Port size**: Rc1/4, 3/8
  - **Input/Output**: 1:1
  - **Input/Output pressure**: MAX. 0.7MPa
Process - Lineup of Water/Wastewater Equipment

Contactless Position Cylinder

Remote Type

Fixed Type

Paddle Style Flow Switch **IF3**

- Used with general water stoppage or water reduction relay for cooling system etc.
- Port size 3/4, 1
- IP42, IP44 equivalent

<table>
<thead>
<tr>
<th>Series</th>
<th>Set flow range (l/min)</th>
<th>Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>IF3</td>
<td>14 to 60</td>
<td>Micro switch 1ab</td>
</tr>
<tr>
<td></td>
<td>20 to 1500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>36 to 2600</td>
<td></td>
</tr>
</tbody>
</table>

Refrigerated Air Dryer **IDFB**

- Environmentally friendly R134a/R407C refrigerant
- Simple control system, incorporating easy to read evaporator gauge
- Stainless steel heat exchangers providing long life and low pressure drop
- Compact design with staggered inlet/outlet ports for ease of installation
- 3/8" push-in condensate drain port

<table>
<thead>
<tr>
<th>Model</th>
<th>Flow scfm at Pressure Dew Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>37°F</td>
</tr>
<tr>
<td>IDFB3E-11N</td>
<td>10</td>
</tr>
<tr>
<td>IDFB4E-11N</td>
<td>15</td>
</tr>
<tr>
<td>IDFB6E-11N</td>
<td>25</td>
</tr>
<tr>
<td>IDFB8E-11N</td>
<td>41</td>
</tr>
<tr>
<td>IDFB11E-11N</td>
<td>59</td>
</tr>
<tr>
<td>IDFB15E-11N</td>
<td>71</td>
</tr>
<tr>
<td>IDFB22E-11N</td>
<td>107</td>
</tr>
<tr>
<td>IDFB22E-23N</td>
<td></td>
</tr>
<tr>
<td>IDFB37E-23N</td>
<td>161</td>
</tr>
<tr>
<td>IDFB55E-30N-X224</td>
<td>226</td>
</tr>
<tr>
<td>IDFB55E-46N</td>
<td></td>
</tr>
<tr>
<td>IDFB75E-30N-X224</td>
<td>300</td>
</tr>
<tr>
<td>IDFB75E-46N</td>
<td></td>
</tr>
</tbody>
</table>
Stainless Steel Filter Regulator *AW30-X2622*

- Stainless steel body
- Ambient and fluid temperature -40 to 80°C
- Maximum Operating pressure = 2.0 MPa
- 5 micron filtration rating

**Electromagnetic Flow Switch for Water** *LFE*

- Reserve flow can be detected
- Repeatability ±1.5% full scale

<table>
<thead>
<tr>
<th>Series</th>
<th>Rated flow gal/min (Lpm)</th>
<th>Piping</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFE</td>
<td>0.1 to 5.3 (0.5 to 20)</td>
<td>3/8 to 1</td>
</tr>
<tr>
<td></td>
<td>0.66 to 26.4 (2.5 to 100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.3 to 52.8 (5 to 200)</td>
<td></td>
</tr>
</tbody>
</table>

**Digital Flow Switch for Water** *PF3W*

- Flow sensor, flow control valve and temperature sensor integrated into one device
- Display rotates for flexible installation
- 3 color / 2 screen display

<table>
<thead>
<tr>
<th>Series</th>
<th>Fluid temperature range</th>
<th>Rated flow range (Lpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF3W</td>
<td>0 to 90°C</td>
<td>0.5 to 4, 2 to 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 to 40</td>
</tr>
</tbody>
</table>

**Digital Pressure Switch** *ISE/ZSE80*

- Use for general fluids
- 2 color digital display
- Quick 3-step setup process
- Stainless steel (metal parts)
- IP65 protected

<table>
<thead>
<tr>
<th>Series</th>
<th>Rated pressure range</th>
<th>Port size</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISE/ZSE80</td>
<td>-14.5 to 290 MPa</td>
<td>1/8, 1/4</td>
</tr>
</tbody>
</table>

**Polyurethane Tubing** *TU/TIUB*

- Made from polyether resin for better immunity to hydrolysis
- 5 standard stocked lengths
- Excellent flexibility
- High resistance to fungus and micro-organism attacks

<table>
<thead>
<tr>
<th>Series</th>
<th>Metric size</th>
<th>Inch size</th>
<th>Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU/TIUB</td>
<td>ø4, ø6, ø8, ø10, ø12, ø16</td>
<td>ø1/8, ø5/32, ø3/16, ø1/4, ø3/8, ø1/2</td>
<td>29 color variations</td>
</tr>
</tbody>
</table>

**Nylon Tubing** *T/TIA*

- Excellent low moisture absorption and dimensional stability characteristics
- Broad chemical resistance

<table>
<thead>
<tr>
<th>Series</th>
<th>Metric size</th>
<th>Inch size</th>
<th>Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>T/TIA</td>
<td>ø4, ø6, ø8, ø10, ø12, ø16</td>
<td>ø1/8, ø3/16, ø1/4, ø3/8, ø1/2</td>
<td>6 color variations</td>
</tr>
</tbody>
</table>
SMC Engineers will design a system to meet your requirements

- Stainless Steel
- Free Standing
- Powder Coated
- Mounted
- Polycarbonate
- Documentation
- Custom Panel Sized

Control Cabinets

With an ongoing commitment to help our customers by providing them with total engineering solutions, we can also offer our customers a complete design and build service for all their electro/pneumatic control panel needs.

From a small simple assembly to a complex control system, our specialist teams of highly trained engineers have extensive experience building electro/pneumatic control cabinets for many industrial applications.

Having worked extensively for many years in the electronics, food processing and manufacturing, automotive, life science and mining industry sectors, we are particularly knowledgeable in these industries and their specific, individual requirements.

Whether it is making your control cabinet design a reality, or if you would like us to design something especially for you, our experts are on-hand to provide you with all the answers.

From a single, one-off special, or a multiple cabinet order, we have the resources and expertise to build high quality, fully tested control cabinets that will deliver outstanding performance and give you complete peace of mind.

For more information on our control panel design and build service, please contact your nearest SMC sales office.

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SMC Corporation of America, a subsidiary of the global SMC corporation based in Japan, is recognized as the world leader in the design and manufacture of pneumatic components.

Through our worldwide network of operations, SMC offers individuals and organizations access to a vast and unique body of engineering expertise.

SMC Corporation has 63 subsidiary or affiliated companies across 50 nations, with bases of operations in all major markets: Japan, North America, South America, Europe and Oceania.

This coverage allows for the manufacture of products that best suit local requirements enabling flexibility in component design, delivery and after sales service.

Although focused on local markets, SMC Corporation of America is networked with all of the Corporation’s subsidiaries so that components procured locally will be supported world wide. In a globalized market it is important that you can also depend on product availability and technical support no matter where your overseas operations are situated or the countries to which you export.

Components can be sourced from SMC subsidiary companies worldwide, with expert support and after sales service provided through a network of local branches.