Valve Control Products
Overview

Worldwide Manufacturing Facilities
International Service and Support
Innovative Design and Technology
Industry Leading Reliability

Distributed by NORMAN EQUIPMENT COMPANY  800-323-2710

Keeping the World Flowing
Rotork is the global market leader in valve automation and flow control. Our products and services are helping organisations around the world to improve efficiency, assure safety and protect the environment.

We strive always for technical excellence, innovation and the highest quality standards in everything we do. As a result, our people and products remain at the forefront of flow control technology.

Uncompromising reliability is a feature of our entire product range, from our flagship electric actuator range through to our pneumatic, hydraulic and electro-hydraulic actuators, as well as instruments, gearboxes and valve accessories.

Rotork is committed to providing first class support to each client throughout the whole life of their plant, from initial site surveys to installation, maintenance, audits and repair. From our network of national and international offices, our engineers work around the clock to maintain our position of trust.

Rotork. Keeping the world flowing.
Company Introduction

Rotork Instruments are specialist manufacturers of products for flow control, pressure control, flow measurement and pressure measurement. Our solutions are trusted wherever there is a need for high precision and reliability, including pharmaceutical, biomedical, oil & gas and manufacturing industries.

We have production facilities throughout the world, complemented by a large network of distribution and support centres.

A full listing of our worldwide sales and service network is available on our website at www.rotork.com

Rotork Instruments:

USA
tel  +1 (336) 659 3400
call  US-WS-Sales@rotork.com

England
tel  +44 (0)1902 305 678
call  sales.midland@rotork.com

Italy
tel  +39 030 999 1309
call  sales@soldo.net

Korea
tel  +82 31 986 8545
call  ytc@ytc.co.kr

Worldwide Industry and Application Experience

With more than 50 years of extensive knowledge and experience, Rotork has provided products and services worldwide for virtually every industrial actuator application.

Rotork Instruments offers a range of valve accessory products from the Rotork Fairchild, Soldo®, Rotork Midland and Young Tech companies:

Rotork Fairchild
- Pneumatic pressure regulators
- Electro-pneumatic transducers
- Pneumatic volume boosters
- Pneumatic relays

Soldo
- General purpose limit switch boxes
  (polymer, aluminium or stainless steel)
- Explosionproof limit switch boxes
  (aluminium or stainless steel)
- Integrated solenoid/limit switch box units
- Bolt proximity switches
- NAMUR pneumatic components

Rotork Midland
- Air preparation components and assemblies
- Pneumatic solenoid, poppet and spool valves
- Hydraulic control assemblies
- Ancillary products

Young Tech Co Ltd.
- Smart positioners for linear and rotary applications
- Aluminium and stainless steel products
- Standard and explosionproof components and systems
- Basic pneumatic and electro-pneumatic positioners
- Pneumatic valve control accessories

Rotork Instruments is proud to offer a diverse range of products which serve many different duties in a wide variety of applications. We also offer a factory customisation service, to create one-off units to meet specific needs.
Product Range Introduction

Rotork Instruments provides innovative and comprehensive solutions for pneumatic and hydraulic valve actuation. Rotork’s solutions are quick and easy to specify and order. Designed to reduce customers’ engineering specification work, these packages also simplify and reduce assembly and commissioning time.

Bringing together a broad portfolio of actuation products manufactured by industry leading brands with longstanding reputations for superior quality, Rotork’s global service and support network offers complete and customized control packages or if you prefer, a full range of valve actuation items and accessories to assemble your own package. Air preparation sets; poppet, spool and solenoid valve products; valve positioners; and performance enhancing boosters and relays, are just a few of the pieces in the Instruments’ product portfolio.

From simple all pneumatic systems through advanced technology electro-pneumatic or smart positioner operated packages, we serve the market from the most basic valve system to the most complex arrangements. Everything we provide is built to last from the highest quality materials for rugged reliable service.

Basic electro-pneumatic actuated valve system

In a basic electro-pneumatic system, Rotork Instruments provides the supply regulator, E/P positioner, high flow boosters for double-acting actuator and the lock up relays for failsafe operation.

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Filter Regulator</td>
<td>6</td>
</tr>
<tr>
<td>B</td>
<td>Volume Booster</td>
<td>8</td>
</tr>
<tr>
<td>C</td>
<td>Lock Up Relay</td>
<td>9</td>
</tr>
<tr>
<td>D</td>
<td>E/P Positioner</td>
<td>7</td>
</tr>
</tbody>
</table>
On/Off valve system

On/Off valve system uses simple pneumatic supply regulator, solenoid and switch box indication. This instrumentation control package is supplied by Rotork Instruments.

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Switch Box</td>
<td>7</td>
</tr>
<tr>
<td>B</td>
<td>Filter Regulator</td>
<td>6</td>
</tr>
<tr>
<td>C</td>
<td>3/2 Solenoid Valve</td>
<td>6</td>
</tr>
<tr>
<td>D</td>
<td>Quick Exhaust</td>
<td>9</td>
</tr>
</tbody>
</table>

Full control valve system

This fully actuated control system uses a Rotork Instruments package with filter regulator supplying the smart positioner and a booster provide fast response. Additionally, the second circuit facilitates emergency shutdown capability.

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Volume Booster</td>
<td>8</td>
</tr>
<tr>
<td>B</td>
<td>Complete Pneumatic Manifold</td>
<td>6</td>
</tr>
<tr>
<td>C</td>
<td>Smart Valve Positioner</td>
<td>7</td>
</tr>
<tr>
<td>D</td>
<td>Quick Exhaust</td>
<td>9</td>
</tr>
</tbody>
</table>
### Pressure Regulators

<table>
<thead>
<tr>
<th>Product Series</th>
<th>M10</th>
<th>M63/YT220</th>
<th>3500/3550</th>
<th>3575</th>
<th>M100</th>
<th>Model 70</th>
<th>1900s</th>
<th>1500/1600</th>
<th>1750</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Function</strong></td>
<td>Precision Regulator</td>
<td>Filter Regulator</td>
<td>Filter Regulator</td>
<td>Filter Regulator</td>
<td>High Flow Regulator</td>
<td>Direct Acting Solenoid</td>
<td>Direct Acting</td>
<td>Spool Valve</td>
<td>Poppet Valve</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>Aluminium</td>
<td>Aluminium</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
<td>Aluminium</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td><strong>Max Supply Pressure psi (bar)</strong></td>
<td>500 (35)</td>
<td>300 (20)</td>
<td>290 (20)</td>
<td>290 (20)</td>
<td>500 (35)</td>
<td>290 (20)</td>
<td>290 (20)</td>
<td>290 (20)</td>
<td>290 (20)</td>
</tr>
<tr>
<td><strong>Valve type</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Direct Acting</td>
<td>Direct Acting</td>
<td>Spool Valve</td>
<td>Poppet Valve</td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>3/2 - NO, NC or Univ</td>
<td>3/2 NO, NC or Divert</td>
<td>3/2 or 5/2</td>
<td>3/2-NC, NO, Div, Changeover</td>
</tr>
<tr>
<td><strong>Flow Capacity (Cv)</strong></td>
<td>1</td>
<td>0.5</td>
<td>2.4 up to 8</td>
<td>Up to 45</td>
<td>18</td>
<td>up to 2.2</td>
<td>0.86</td>
<td>up to 1.2</td>
<td>1.2 (1/4&quot;) up to 110 (3&quot;)</td>
</tr>
<tr>
<td><strong>Exhaust Capacity (Cv)</strong></td>
<td>0.1</td>
<td>0.02</td>
<td>0.07</td>
<td>0.07</td>
<td>1</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Maximum Output Pressure psi (bar)</strong></td>
<td>400 (28)</td>
<td>120 (8)</td>
<td>180 (12)</td>
<td>180 (12)</td>
<td>150 (10)</td>
<td>180 (12)</td>
<td>180 (12)</td>
<td>180 (12)</td>
<td>180 (12)</td>
</tr>
<tr>
<td><strong>Temperature Range</strong></td>
<td>-40 to 93 °C (-40 to 200 ºF)</td>
<td>-51 to 82 °C (-60 to 180 ºF)</td>
<td>-20 to 80 °C (-4 to 176 ºF)</td>
<td>-20 to 80 °C (-4 to 176 ºF)</td>
<td>-40 to 93 °C (-40 to 200 ºF)</td>
<td>-20 to 60 °C (-4 to 140 ºF)</td>
<td>-50 to 40 °C (-58 to 104 ºF)</td>
<td>-20 to 180 °C (-4 to 356 ºF)</td>
<td>-20 to 180 °C (-4 to 356 ºF)</td>
</tr>
<tr>
<td><strong>Output Pressure Var for change in supply pressure</strong></td>
<td>0.10%</td>
<td>1.25%</td>
<td>N/A</td>
<td>N/A</td>
<td>0.10%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Pipe Size NPT</strong></td>
<td>1/4, 1/4, 1/2</td>
<td>1/4</td>
<td>1/4, 1/4, 1/2, 1</td>
<td>1 1/2, 2</td>
<td>1, 1 1/2</td>
<td>7/8</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
</tr>
</tbody>
</table>

### Solenoid Valves

<table>
<thead>
<tr>
<th>Product Series</th>
<th>Model 70</th>
<th>1900s</th>
<th>1500/1600</th>
<th>1750</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Function</strong></td>
<td>Direct Acting</td>
<td>Direct Acting</td>
<td>Spool Valve</td>
<td>Poppet Valve</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td><strong>Max Supply Pressure psi (bar)</strong></td>
<td>290 (20)</td>
<td>290 (20)</td>
<td>290 (20)</td>
<td>290 (20)</td>
</tr>
<tr>
<td><strong>Valve type</strong></td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
<td>Special</td>
<td>Special</td>
<td>Special</td>
<td>Special</td>
</tr>
</tbody>
</table>

### Valve Control Manifolds

<table>
<thead>
<tr>
<th>Product Series</th>
<th>Pneumatic</th>
<th>IMPACT Manifold</th>
<th>SMART-LOC® Manifold</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Function</strong></td>
<td>Manifold</td>
<td>Manifold</td>
<td>Manifold</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>316 Stainless Steel</td>
<td>316 Stainless Steel</td>
<td>316 Stainless Steel</td>
</tr>
<tr>
<td><strong>Max Supply Pressure psi (bar)</strong></td>
<td>290 (20)</td>
<td>290 (20)</td>
<td>290 (20)</td>
</tr>
<tr>
<td><strong>Valve type</strong></td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
<td>Special</td>
<td>Special</td>
<td>Special</td>
</tr>
</tbody>
</table>
# Performance Data – Valve Position and Indication Products

## Valve Positioners

<table>
<thead>
<tr>
<th>Product Series</th>
<th>1200</th>
<th>1000/1050</th>
<th>2500</th>
<th>3300</th>
<th>3301</th>
<th>3350</th>
<th>3400</th>
<th>3450</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Function</strong></td>
<td>All Pneumatic</td>
<td>Electro Pneumatic</td>
<td>Smart Positioner</td>
<td>Smart Positioner</td>
<td>Smart Remote Mount Positioner</td>
<td>Smart Positioner</td>
<td>Smart Positioner</td>
<td>Smart Positioner</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>Aluminium</td>
<td>Aluminium or Stainless Steel</td>
<td>Aluminium</td>
<td>Aluminium</td>
<td>Aluminium</td>
<td>Stainless Steel</td>
<td>Aluminium</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td><strong>Input Signal</strong></td>
<td>4-20 mA DC</td>
<td>4-20 mA DC</td>
<td>4-20 mA DC</td>
<td>4-20 mA DC</td>
<td>4-20 mA DC</td>
<td>4-20 mA DC</td>
<td>4-20 mA DC</td>
<td>4-20 mA DC</td>
</tr>
<tr>
<td><strong>Linearity</strong></td>
<td>+/- 1% FS</td>
<td>+/- 1% FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
</tr>
<tr>
<td><strong>Hysteresis</strong></td>
<td>+/- 1% FS</td>
<td>+/- 1% FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
</tr>
<tr>
<td><strong>Sensitivity</strong></td>
<td>+/- 0.2 % FS</td>
<td>+/- 0.2 % FS</td>
<td>+/- 0.2 % FS</td>
<td>+/- 0.2 % FS</td>
<td>+/- 0.2 % FS</td>
<td>+/- 0.2 % FS</td>
<td>+/- 0.2 % FS</td>
<td>+/- 0.2 % FS</td>
</tr>
<tr>
<td><strong>Repeatability</strong></td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.5 % FS</td>
<td>+/- 0.3% FS</td>
<td>+/- 0.3% FS</td>
<td>+/- 0.3% FS</td>
<td>+/- 0.3% FS</td>
<td>+/- 0.3% FS</td>
<td>+/- 0.3% FS</td>
</tr>
<tr>
<td><strong>Actuation</strong></td>
<td>Pneumatic</td>
<td>Electro-Pneumatic</td>
<td>Smart</td>
<td>Smart</td>
<td>Smart</td>
<td>Smart</td>
<td>Smart</td>
<td>Smart</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>HART®, Fieldbus®</td>
<td>HART®</td>
<td>HART®</td>
<td>HART®</td>
<td>HART®</td>
<td>HART®</td>
</tr>
<tr>
<td><strong>Autocalibration</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Enclosure rating</strong></td>
<td>CE</td>
<td>ATEX, FM, CSA, KCS, Nepsi</td>
<td>CE, ATEX, IECEx, IEC, KCS</td>
<td>CE, ATEX, IECEx, IEC, KCS</td>
<td>ATEX, IECEx, IEC, KCS, Nepsi</td>
<td>ATEX, IECEx, IEC, KCS</td>
<td>ATEX, IECEx, IEC, CSA, KCS</td>
<td>CE, ATEX, IECEx, IEC, CSA, KCS</td>
</tr>
</tbody>
</table>

## Position Indication

<table>
<thead>
<tr>
<th>Product Series</th>
<th>ES</th>
<th>SM</th>
<th>SF/SS</th>
<th>HW</th>
<th>SX</th>
<th>SK/SQ</th>
<th>SY/SW</th>
<th>Bolt Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UL Hazardous Location</strong></td>
<td>PENDING</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td><strong>ATEX/IECEx</strong></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>AL/SS</td>
<td>Nickel Plated AL</td>
<td>AL/SS</td>
<td>AL</td>
<td>AL</td>
<td>AL/SS</td>
<td>AL/SS</td>
<td>SS</td>
</tr>
</tbody>
</table>

### Available Switch Options

- Magnetic Proximity SPDT or DPDT
- Solid State Inductive Proximity
- AS-i interface with Proximity Switches
- DeviceNet
- 4-20 mA Transmitter
- Integrated Solenoid Valve

---

**Keeping the World Flowing**
### Performance Data – Volume Boosters/Hydraulic Solenoid Valves

#### Volume Boosters

<table>
<thead>
<tr>
<th>Product Series</th>
<th>M20</th>
<th>M305</th>
<th>M4500</th>
<th>M325</th>
<th>M310</th>
<th>M315</th>
<th>M4800</th>
<th>200XLR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Aluminium</td>
<td>Stainless Steel</td>
<td>Aluminium</td>
<td>Stainless Steel</td>
<td>Aluminium</td>
<td>Stainless Steel</td>
<td>Aluminium</td>
<td>Aluminium</td>
</tr>
<tr>
<td>Maximum Supply Pressure psi (bar)</td>
<td>250 (17)</td>
<td>150 (10)</td>
<td>250 (17)</td>
<td>150 (10)</td>
<td>150 (10)</td>
<td>150 (10)</td>
<td>250 (17)</td>
<td>250 (17)</td>
</tr>
<tr>
<td>Maximum Outlet Pressure psi (bar)</td>
<td>150 (10)</td>
<td>100 (7)</td>
<td>150 (10)</td>
<td>100 (7)</td>
<td>100 (7)</td>
<td>100 (7)</td>
<td>150 (10)</td>
<td>150 (10)</td>
</tr>
<tr>
<td>Forward Flow Capacity (Cv)</td>
<td>1.0</td>
<td>1.2</td>
<td>3.0</td>
<td>2.7</td>
<td>4.9</td>
<td>4.9</td>
<td>9.0</td>
<td>18.0</td>
</tr>
<tr>
<td>Exhaust Capacity (cv)</td>
<td>1.0</td>
<td>1.3</td>
<td>3.0</td>
<td>2.1</td>
<td>5.2</td>
<td>5.2</td>
<td>9.0</td>
<td>18.0</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-40 to 93 °C (-40 to 200 ºF)</td>
<td>-40 to 93 °C (-40 to 200 ºF)</td>
<td>-20 to 70 °C (-4 to 158 ºF)</td>
<td>-4 to 158 ºF</td>
<td>-40 to 93 °C (-40 to 200 ºF)</td>
<td>-40 to 93 °C (-40 to 200 ºF)</td>
<td>-20 to 70 °C (-4 to 158 ºF)</td>
<td>-4 to 158 ºF</td>
</tr>
<tr>
<td>Output pressure accuracy</td>
<td>+/- 1.0 % FS</td>
<td>+/- 3.0 % FS</td>
<td>+/- 1.0 % FS</td>
<td>+/- 1.0 % FS</td>
<td>+/- 1.0 % FS</td>
<td>+/- 1.0 % FS</td>
<td>+/- 1.0 % FS</td>
<td>+/- 1.0 % FS</td>
</tr>
<tr>
<td>Pipe Size NPT</td>
<td>1/4”; 1/8”; 3/8”</td>
<td>1/8”; 1/4”; 3/8”</td>
<td>1/8”; 1/4”; 3/8”</td>
<td>1/8”; 1/4”; 3/8”</td>
<td>1/8”; 1/4”; 3/8”</td>
<td>1/8”; 1/4”; 3/8”</td>
<td>1/8”; 1/4”; 3/8”</td>
<td>1/8”; 1/4”; 3/8”</td>
</tr>
</tbody>
</table>

#### Hydraulic Solenoid Valves

<table>
<thead>
<tr>
<th>Product Series</th>
<th>DN2 (Ball Seated)</th>
<th>DN2 (Cartridge)</th>
<th>DN3</th>
<th>DN5</th>
<th>DN6/DN40</th>
<th>DN10</th>
<th>DN15</th>
<th>DN25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Rate</td>
<td>1 l/min</td>
<td>1 l/min</td>
<td>5 l/min</td>
<td>20 l/min</td>
<td>15-700 l/min</td>
<td>50 l/min</td>
<td>100 l/min</td>
<td>200 l/min</td>
</tr>
<tr>
<td>Available Approvals</td>
<td>ATEX Zone 1, Zone 0 Intrinsically Safe</td>
<td>ATEX, UL, CSA, IECEx, GOST (R), Inmetro</td>
<td>ATEX, UL, CSA, IECEx, GOST (R), Inmetro</td>
<td>ATEX, UL, CSA, IECEx, GOST (R), Inmetro</td>
<td>ATEX, UL, CSA, IECEx, GOST (R), Inmetro</td>
<td>ATEX, UL, CSA, IECEx, GOST (R), Inmetro</td>
<td>ATEX, UL, CSA, IECEx, GOST (R), Inmetro</td>
<td></td>
</tr>
<tr>
<td>SIL Capability</td>
<td>2</td>
<td>3</td>
<td>2 and 3</td>
<td>2</td>
<td>N/A</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Pressure Range (bar)</td>
<td>0 - 690</td>
<td>0 - 690</td>
<td>0 - 1140</td>
<td>0 - 690</td>
<td>0 - 320</td>
<td>0 - 690</td>
<td>0 - 400</td>
<td>0 - 517</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>&lt;1 Watt</td>
<td>3.5 Watts</td>
<td>8 Watts</td>
<td>3.5 Watts</td>
<td>8 Watts</td>
<td>3.5 Watts</td>
<td>8 Watts</td>
<td>3.5 Watts</td>
</tr>
<tr>
<td>Product Series</td>
<td>M3550 (filter)</td>
<td>T6100/TX7850</td>
<td>YT4005/YT405</td>
<td>YTS205/YTS255</td>
<td>4500 Valve Series</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------</td>
<td>--------------</td>
<td>--------------</td>
<td>---------------</td>
<td>-----------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td>Filtration</td>
<td>Proportional</td>
<td>Position Lock</td>
<td>Pressure Snap</td>
<td>Quick Exhaust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>Stainless steel</td>
<td>Aluminium</td>
<td>Aluminium or Stainless steel</td>
<td>Aluminium or Stainless steel</td>
<td>Stainless steel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature Range</strong></td>
<td>-20 to 80 °C</td>
<td>-40 to 72 °C</td>
<td>-20 to 70 °C</td>
<td>-20 to 70 °C</td>
<td>-20 to 70 °C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-4 to 176 °F)</td>
<td>(-40 to 162 °F)</td>
<td>(-4 to 158 °F)</td>
<td>(-4 to 158 °F)</td>
<td>(-4 to 158 °F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Signal Pressure</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>20 to 105 psi</td>
<td>20 to 105 psi</td>
<td>180 (12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1.4 to 7 bar)</td>
<td>(1.4 to 7 bar)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max Supply Pressure</strong></td>
<td>290 (20)</td>
<td>120 (8)</td>
<td>150 (10)</td>
<td>150 (10)</td>
<td>180 (12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Output pressure</strong></td>
<td>290 (20)</td>
<td>120 (8)</td>
<td>150 (10)</td>
<td>150 (10)</td>
<td>180 (12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Differential Pressure</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>&lt; 1.5 psi (0.1 bar)</td>
<td>N/A</td>
<td>15 psi (1 bar)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flow Capacity</strong></td>
<td>Up to 45</td>
<td>Up to 1.8</td>
<td>Up to 1.8</td>
<td>Up to 388 SCFM</td>
<td>Up to 1.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(9 SCFM (254 l/m)</td>
<td></td>
<td>(11,000 l/m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pipe size NPT</strong></td>
<td>1/8&quot; up to 2&quot;</td>
<td>1/8&quot;</td>
<td>1/8&quot;, 1/4&quot;</td>
<td>1/8&quot;, 1/4&quot;</td>
<td>1/8&quot; up to 1&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Valve Control Pneumatic Products

**Pneumatic valves**

Rotork volume boosters meet all the requirements of a precision device including accuracy, sensitivity, fast response, stability, drift-free settings, low output droop, Supply pressure effect immunity, high forward & exhaust Flow capacity.

- Max supply pressure: 1,700 kPa (250 psi)
- Max output pressure: 1,050 kPa (150 psi)
- Flow capacity: 77 to 2,550 m³/hr (45 to 1,500 SCFM)
- Exhaust capacity: 12.8 to 552.5 m³/hr (7.5 to 325 SCFM)
- Cv flow coefficients of 1 to 18 in both forward and exhaust
- Sensitivity: As low as 0.64 cmWC (0.25 inWC)
- Pipe sizes NPT: ¼” to ½”

See PUB103-003 for further details.

**Modular pneumatic controls**

IMPACT (International Modular Pneumatic Actuator Control Technology) is a high integrity, modular pneumatic actuator control assembly in 316L stainless steel used for the control and sequencing of process valve actuators on oil and gas facilities and pipelines.

- Range of circuits available designed to request
- Units will interface with all global pneumatic actuators
- Simplifies valve automation reducing potential failure
- Ideal for both hazardous area and industrial use
- Lighter, stronger & eliminates joining pipework and fittings
- Reduction in CAPEX & OPEX over panel mounted assemblies
- IP66/67 ingress protection

For further details see www.rotork.com/midland

**Pressure regulators, spool and poppet valves**

- Manual or auto drain
- 40, 25 or 5 (option) micron filters
- High flow capacities
- Many ranges available from 2 to 12 bar
- NACE compliant units available
- 3/2 and 5/2 function spool valves (poppet 3/2 only)
- Air pilot or solenoid pilot
- Direct solenoid operated
- Low temperature units available

For further details see www.rotork.com/midland

**Pneumatic relays**

Rotork pneumatic relays meet all the requirements of a precision device including accuracy, sensitivity and fast response.

- Max signal pressure: 1,050 kPa (150 psi)
- Max supply pressure: 1,700 kPa (250 psi)
- Max output pressure: 1,050 kPa (150 psi)
- Flow capacity: 24 to 255 m³/hr (14 to 150 SCFM)
- Sensitivity: As low as 0.32 cmWC (0.13 inWC)
- Pipe sizes NPT: ¼” to ½”

See PUB103-004 for further details.
Valve Positioners

Smart positioners for valve automation

YT-3000 series

YT-3000 series for linear and quarter-turn actuators have flexible stroke range and rotational capability, automated set-up and calibration, and HART protocol operation. Suitable for all applications in hostile environments.

- Aluminium or stainless steel enclosures for standard or Ex IIC T5-T6 explosionproof applications
- Auto calibration and 4 button local control
- LCD display
- HART communication and feedback signal
- Limit switches and feedback signal
- 0.5% linearity

For further details see www.ytc.co.kr

Electro-pneumatic (E/P) valve positioners

YT-1000 series

YT-1000 series for pneumatic valve actuators. The E/P positioners easily adjust zero and span points and are available with a variety of feedback and limit switch indication options in standard or explosionproof versions.

- Aluminium or stainless enclosures – designed for durability and high performance in high vibration environments
- Proven testing of over 1 million cycles
- 4-20 mA input signal provides quarter-turn or up to 150 mm linear stroke
- 1% linearity with 0.5% repeatability
- Fast internal response for efficient valve packages and low air consumption for economical use
- Simple 1/2 split range adjustment

For further details see www.ytc.co.kr

Pneumatic to pneumatic (P/P) valve positioners

YT-1200 series

YT-1200 series positioners for pneumatic valve actuators. Available with a variety of limit switch and PTM options, the positioner handles basic pneumatic valve actuation with ease.

- 2% linearity with 0.5% repeatability
- Designed for high vibration environments and extreme temperature of -40 to 120 °C (-40 to 248 °F)
- Tested for over 2 million cycles operation
- No resonance from 5 to 200 Hz
- Simple zero / span, direct / reverse & split range selections
- Auto and manual switch operation
- Economical operation due to less air consumption

For further details see www.ytc.co.kr

Valve positioner accessories

Rotork also provides a variety of pneumatic accessories to complete the valve actuation package including volume boosters, lock up valves and snap acting relays.

- Available in aluminium or stainless steel bodies
- Cv rates as high as 5.24
- Single and double-acting configurations
- ¼” up to ¾” ports available
- Fixed deadband and by-pass control boosters for stability
- Compact size products

For further details see www.ytc.co.kr

Keeping the World Flowing
Valve Position Indication

General purpose & intrinsically safe limit switchboxes

- SS
- SP
- SB
- SF

This is a small selection of general purpose switchboxes

Limit switchboxes with local & remote position indication can be fitted with mechanical switches or proximity sensors.

- Polymer, aluminium or stainless steel enclosures
- Corrosion resistant enclosures NEMA 4/4X (IP65)
- Intrinsically Safe (IS) certification option; SIL 3 rated models available; Certification options: UL, CE
- AS-i interface capable
- Split shaft design available on most models
- Tool free adjustable 3 degree cams
- SPDT or DPDT mechanical, proximity, or NOVA switch options
- 4-20 mA analogue transmitter available on most models
- Integral mounting brackets available on most models

For further details see www.soldo.net

Explosionproof limit switchboxes

- SY
- SX
- SQ
- SW

This is a small selection of explosionproof switchboxes

Hazardous location aluminium or stainless steel limit switchboxes suitable for use in a wide range of industrial environments including indoor and outdoor applications.

- Aluminium or stainless steel enclosures
- Explosionproof certification; Certification options: UL, ATEX, INMETRO, CCIOE, GOST, IECex, SIL
- AS-i interface or DeviceNet capable
- Split shaft design
- Tool free adjustable 3 degree cams
- SPDT or DPDT mechanical, proximity, or NOVA switch options
- 3 position and dribble control options
- 4-20 mA analogue transmitter available on most models
- Integral mounting brackets available on most models

For further details see www.soldo.net

Integral solenoid valve limit switchboxes

- HW

HW compact limit switch control unit with visual and remote electrical indication; internal solenoid valve(s) for valve control; integral NAMUR mounting kit.

- Aluminium enclosure – designed to meet NEMA 4/4X (IP65)
- AS-i interface or DeviceNet capable
- Split shaft design
- Tool free adjustable 3 degree cams
- SPDT or DPDT mechanical, proximity, or NOVA switch options
- 4-20 mA analogue transmitter available on most models
- 3 position and dribble control options
- Integral mounting brackets

For further details see www.soldo.net

Bolt proximity sensors

- BOLT Switches

The BOLT switch is a threaded body proximity switch for remote electrical indication of linear and rotary valve / actuator position. The NOVA BOLT has a patented sensing system able to sense any ferromagnetic material in any size.

- Aluminium or stainless steel enclosures
- Certification: UL Class I, Div 1, Groups A-D; Class II Div 2, Groups E-F, Class III, Div 1; NEMA 4, 4X, 7 & 9; Explosionproof Ex II 2 GD EEx d IIC T6; Waterproof IP68
- NOVA BOLT - snap acting proximity sensor
- Subsea bolt switch up to 300 barg
- SPST or SPDT inert gas hermetically sealed contacts
- 1/2” NPT cable entry or M20x1.5. No lead seals required

For further details see www.soldo.net
Pneumatic and Hydraulic Valve Control

**Precision pressure regulators**

Rotork manufactures a complete line of precision pneumatic regulators including pressure reducing, back pressure and vacuum models.

- Max supply pressure: 41,368 kPa (6,000 psi)
- Max output pressure: 20,684 kPa (3,000 psi)
- Flow capacity: 4 to 2,550 m³/hr (2.5 to 1,500 SCFM)
- Sensitivity: As low as 0.127 cmWC (0.05 inWC)
- Supply pressure effect: As low as 0.05% of change in supply pressure
- Pipe sizes (NPT): \( \frac{1}{16}'' \) to 1½”

See PUB103-001 for further details.

**Electro-pneumatic transducers**

Rotork manufactures piezo-electric and feed-and-bleed versions that are extremely resistant to shock, vibration, and changes in positional orientation.

- Accuracy: As low as + 0.15% full scale
- Repeatability: As low as + 0.1% full scale
- Max supply pressure: 1,380 kPa (200 psi)
- Max output pressure: 1,050 kPa (150 psi)
- Flow capacity: 15.3 to 1,189 m³/hr (9 to 700 SCFM)
- Pipe sizes NPT: \( \frac{1}{4}'' \) to 1”

See PUB103-002 for further details.

**Hydraulic valves & manifolds**

Custom engineered solutions: direct solenoid operated, low pressure air / hydraulic logic control of wellhead controls, BOP skids, chemical injection valves and partial stroking circuitry.

**DN series of hydraulic valves**

Designed for severe offshore environments and certified for Zone 0, 1 and Class 1 Division1 hazardous areas. These low power consumption units are constructed from 316L stainless steel. NACE compliance available. Low temp. -50 °C (-58 °F)

**Multi-station manifold systems**

Compact, space saving systems minimise pipework, reduce system costs and are tailored to client specifications. 316L stainless steel with flow rates up to 200 l/min (45 g/min).

For further details see www.rotork.com/midland

**Valve control ancillary products**

In addition to pneumatic and hydraulic system controlling valves, Rotork Midland offers a host of ancillary valves for directional flow control, quick exhaust, switch valves, and assorted other functional valve components for the control panel.

- Working pressures up to 12 bar
- -20 to +70°C (-4 to +158 °F) standard ranges
- 3/2 (1.0 Cv) and 5/2 (1.2 Cv) switches
- Uni and bi-directional flow regulators
- Needle and quick exhaust valves up to 11 Cv
- Thermal fuses and visual indicators
- Breathers and silencers

For further details see www.rotork.com/midland
Rotork Instruments maintains manufacturing and dedicated facilities in USA, England, Italy, Brazil, India, China, Singapore and Korea.

The Rotork global sales and service network supports all Rotork Instruments products. This network is the biggest global actuation support organisation in the world with direct sales offices and agents in all industrialized countries.

Customer service and field support provides quick and effective response to customer requirements.

The Rotork Site Services network is represented throughout the world and provides valuable service and assistance to all industries. For more information see page 18.
Precision Control and Indication

Rotork Fairchild

The Rotork Fairchild range of industrial control products offers one of the largest varieties of precision pneumatic and electro-pneumatic control devices available for process, machine tool, robotic and OEM applications. Rotork Fairchild products are valued by customers for their advanced capabilities including:

Precise and accurate
From miniature regulators, embedded within medical equipment, to transducers in industrial robots and pipelines, our products provide the degree of control that each different application demands.

High flow, high pressure
Rotork has always been at the forefront with products that handle the most demanding duties. Our ranges include models which are designed to handle exceptionally high pressure and deliver the greatest flow rates.

Safe and non-reactive
From explosionproof units which carry volatile gases, through to specialised polymer-based components which are optimised for medical applications, we offer a wide range of products to meet the most exacting requirements.

Rotork Midland

Rotork Midland is internationally known as a manufacturer of 316 stainless steel control equipment with a reputation for high quality, reliability and innovation. Rotork Midland offers comprehensive solutions for filtration and regulation of compressed air and gases for the valve actuation industries:

Highest Quality
Using the finest quality stainless steels globally available, Rotork Midland oversees every detail and utilises state of the art quality systems. Our products are renowned for their superior leak proof design and high functionality, achieved through every employee’s attention to detail throughout the process.

Reliability
Whether the application calls for high accuracy or simply rugged duty in extreme conditions, Rotork Midland has a proven track record for reliable field operation.

Innovation
As a worldwide market leader, Rotork Midland strives to provide innovative solutions to simplify the task of valve control packaging.

Soldo

The Soldo® range of limit switchboxes, proximity sensors, and accessories offers a variety of options. Soldo specialises in the design and manufacture of control accessories for valve automation, providing high quality products and services that guarantee a link between the control room and automated process valves. Product development programmes ensure Soldo is always ready for new markets and applications and able to meet or exceed customer requirements. Soldo products are valued by customers for their advanced design and capabilities including:

Versatile
From cost effective, when price is a concern, to corrosion resistant and explosion-proof, when harsh environments are encountered, Soldo products provide the protection and automation that each application demands.

Unique design features
Soldo units are a step above the competition with unique split shaft designs. This allows installation where space is a factor and where a low profile limit switchbox is not preferred. Soldo limit switches also have easy-set 3 degree cams for independent tool free adjustment.

Hassle free installation
Pre-wired PCB switch modules ensure installation is worry free and allows easy installation and wiring directly into terminal strips. The pre-wired boards are conformal coated for environmental protection. Soldo also offers a full line of mounting brackets for all models that do not come with an integral mounting kit.

YTC

The YTC product line includes positioners from the base level pneumatic units all the way to top level performance smart positioners. Available in both linear and rotary configurations, these positioner are highly engineered and quality built to provide dependable high performance.

Rugged and reliable
YTC designs utilise rugged torque motor style operation to provide reliability in harsh temperatures and environments. In addition, the heavy aluminium or stainless steel castings are designed for long-term use.

Versatile configurations
Whether the application calls for high accuracy automation or simply rugged duty in extreme conditions, YTC has numerous positioner alternatives and covers remote mount, super compact, and even angle seat valve stroke control. Valve monitoring is easy with the internal or external options available with any of the positioner units. YTC also provides a host of accessory products to allow complete pneumatic valve system specification.

Global acceptability
As a worldwide supplier, YTC has the track record, expertise and requisite pedigree to meet the needs of global engineering teams. Our R&D team designs for performance, quality and compactness, with an eye toward cost effective features.
Engineering Capabilities

From the moment you first contact Rotork Instruments you benefit from industry leading expertise gained over several decades working at the forefront of pneumatic and limit switch technology. Our world class engineering team is committed to bringing the latest innovative technology and leading edge design methods to market while maintaining the Rotork name for reliability.

Specialized Product Design:

- In-house prototyping for quick creation of concept designs provides immediate understanding of how a unit will function under given conditions for a customer’s unique application
- 3D CAD modelling means our designs can be accurately manufactured, allowing for more complex forms to further optimise part geometry
- FMEA (Failure Modes and Effects Analysis) allow the design to be robust whilst maximizing the mapping of consumer requirements to the product

Test Facilities – Quality & Safety

Rotork Instruments have extensive test facilities at global locations. We have a comprehensive set of test stands for testing pneumatic regulators, transducers, volume booster, relays, and limit switches. We carry out life cycle testing, pressure testing and environmental testing including climate chamber and salt-spray testing in-house.

For tests beyond our in-house capabilities, such as extremely high temperature testing, we can call on the resources of the wider Rotork Group. We also use third party facilities for procedures including nuclear, deep-sea hyperbaric and seismic/vibration testing.
Quality Assurance

Rotork products are designed and manufactured to the highest possible level of engineering – a principle which drives all areas of our business. To facilitate this objective a documented quality management system is established in accordance with ISO9001:2008. This quality management system embraces every aspect of the company’s business and involves all personnel. All Rotork Instruments manufacturing plants are ISO certified.

Rotork Instruments is committed to:

- Effectively communicating the importance of meeting customer needs throughout our organization
- Establishing appropriate levels of competency for all personnel
- Providing products that comply with all statutory and regulatory requirements
- Actively promoting our quality policy and helping personnel understand and implement the relevant aspects of the policy in their day-to-day responsibilities

We are also committed to quality objectives with measurable outputs that are established for relevant functions within the Rotork Instruments division. These are reviewed and monitored for effectiveness at management review meetings and form the basis for implementing improvement measures. Our quality policy, quality manual and procedural documents are periodically reviewed for adequacy and effectiveness.

Every finished product goes through rigorous testing.

Optical measurement software.

Rotork Instruments works with all major certification bodies.

Automated quality control on the Soldo production line.

Sterile environments for sensitive electronics assembly.

Keeping the World Flowing
Projects, Services and Retrofit

rotork® Site Services

In each of our divisions, site services staff are dedicated to providing customer service and support, carrying out new installations and delivering retrofit projects. These teams are based out of service centres around the world and are complemented by factory-trained agents.

Our expert technicians support Rotork customers, allowing us to deliver on our promise of global solutions backed by local service.

Visit www.rotork.com to identify your nearest Rotork Site Services centre.

Emergency and planned service

We provide a full range of actuator services, covering any type of actuator system or package in any location, including hazardous environments. Our services include installation, commissioning and upgrading as well as connection and installation of bus communication systems. We are also skilled at troubleshooting and repairing damaged or deteriorating assets. Depending on your requirements, we can offer guaranteed emergency response times or planned response.

Health checks

To help customers understand the state of their plant and assets, to better inform maintenance and replacement decisions, we offer full inspection and reporting. In addition to a detailed and intrusive inspection of the actuators, we offer extra insights from our original factory build data.

Preventative maintenance

To maximise plant up-time and minimise operating costs we offer clients a range of preventative maintenance programmes. We tailor the service in every case to reflect the type of actuators in service, the availability of asset information and the criticality of the plant.

Retrofitting actuator systems to existing valves

We have extensive experience to assemble complete packages by fitting instruments and actuators to valves, penstocks and dampers that are already installed as part of existing plant. Whether customers are replacing obsolete actuators, changing power sources or motorising manual valves, we offer a tailor made solution to meet customers’ specific requirements.
Projects, Services and Retrofit

Shutdown outages
For those customers who run tightly-scheduled shutdowns, we engage closely in the project to help meet demanding deadlines. A typical example might involve our staff removing large numbers of actuator packages, overhauling them in our workshops and re-commissioning them as part of the maintenance of a larger unit.

Factory fitting of instrumentation and actuators to new valves
The careful assembly of valve, actuator, and instrumentation is critical to ensure that an automated valve performs correctly and reliably. Whilst this service is often carried out by valve manufacturers, where there is a need we can provide this service.

Extended scope projects with instrumentation
This is a growing requirement and some of our service teams have the wide range of skills necessary to offer a “one-stop-shop” to automate part or all of a customer’s process. Our capabilities cover all of the installation phases (scoping, design, procurement, manufacturing, installation, commissioning) on the broad scopes that typically surround actuation projects.