Technical features

Medium:
Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids

Operation:
3/2 Direct solenoid operated poppet valves

Bypass:
5/2 Manual operated spool valve (lockable)

Mounting position:
Valves vertical only

Operating pressure:
1 ... 10 bar (14 ... 145 psi)

Flow:
Standard valves 320 ... 490 l/min
High flow valves 720 ... 810 l/min
details see page 2

Port size:
G 1/4, 1/4 NPT, G 1/2, 1/2 NPT

Additional filter:
Installation of an in-line filter is recommended (in the direction of flow from the actuator to the RVM).

Temperature range:
Up to -40 ... +80°C (-40 ... +176°F), see option selector page 2
Air supply must be dry enough to avoid ice formation at temperatures below 2°C (+35°F)

Temperature solenoid: See option selector and corresponding valve data sheets

Materials:
Manifold and valve: stainless steel 1.4401 (316 L)
Seals: NBR
Internal parts: stainless steel 1.4401 (316 L)

1oo2 with bypass valve exhaust guards and indicators

2oo2 with bypass valve exhaust guards and indicators

2oo3 with bypass valve *1) exhaust guards and indicators

B Bypass valve
I Indicators
V Solenoid actuated valves
W Shuttle valves (*OR* function)

*1) for 2oo3
V1 & V4 = channel 1
V2 = channel 2
V3 = channel 3
V4 = channel 4

*1) for 3oo4
V1 = channel 1
V2 = channel 2
V3 = channel 3
V4 = channel 4

Please have a look to instructions
Option selector

<table>
<thead>
<tr>
<th>Valve function</th>
<th>Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 out of 2 normally closed</td>
<td>1</td>
</tr>
<tr>
<td>2 out of 2 normally closed</td>
<td>3</td>
</tr>
<tr>
<td>2 out of 3 normally closed</td>
<td>5</td>
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</table>

Flow

<table>
<thead>
<tr>
<th>Flow</th>
<th>Substitute</th>
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<tbody>
<tr>
<td>Standard</td>
<td>1</td>
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<tr>
<td>High</td>
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</table>

Port sizes

<table>
<thead>
<tr>
<th>Size</th>
<th>Substitute</th>
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<tbody>
<tr>
<td>G 1/4 (standard flow system)</td>
<td>1</td>
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<tr>
<td>1/4 NPT (standard flow system)</td>
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<tr>
<td>G 1/2 (high flow system)</td>
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<tr>
<td>1/2 NPT (high flow system)</td>
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Valve type

<table>
<thead>
<tr>
<th>Valve type</th>
<th>Solenoid Protection</th>
<th>Voltage</th>
<th>Cable Entry</th>
<th>Substitute</th>
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<tbody>
<tr>
<td>Standard flow</td>
<td>YX13APh1BS Exia</td>
<td>24 V d.c.</td>
<td>M 20 x 1,5</td>
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<tr>
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</tr>
</tbody>
</table>

Note: Please advise when ordering if CSA certification is required.

Flow rates and valve combinations

Flow direction (port to port) | Standard flow systems | High flow systems
---|---|---
| Operation mode | Bypass mode | Operation mode | Bypass mode |
| 1oo2 | 97109 | 740 |
| | 2 x Y13AMMhBS | 2 x Y13AMMhBS |
| 1 + 2 *1) [l/min] | 950 | 1450 |
| 2 + 3 *2) [l/min] | 1740 | 3200 |
| 2oo2 | 97109 | 810 |
| | 2 x Y13AMMhBS | 2 x Y13AMMhBS |
| 1 + 2 *1) [l/min] | 950 | 1450 |
| 2 + 3 *2) [l/min] | 1640 | 2500 |
| 2oo3 | 97109 | 720 |
| | 4 x Y13AMMhBS | 4 x Y13AMMhBS |
| 1 + 2 *1) [l/min] | 950 | 1450 |
| 2 + 3 *2) [l/min] | 1640 | 2500 |

*1) Flow characteristics conforms to ISO6358 from port 1 (bypass valve) to port 2 (sub-base) [6 x 5 bar], see page 1
*2) Flow characteristics conforms to ISO6358 from port 2 (sub-base) to port 3 (sub-base or bypass valve) [10 x 0 bar], see page 1

Country of manufacture

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Temperature/Pressure range</th>
<th>Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual valve status indicators in stainless steel - standard option; to be included in the scope of supply</td>
<td>-40°C ... +80°C/2,5 ... 10 bar</td>
<td>0</td>
</tr>
<tr>
<td>Visual valve status indicators in plastic - optional; to be included in the scope of supply</td>
<td>+2°C ... +66°C/1 ... 10 bar (14 ... 145 psi)</td>
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<tr>
<td>No valve status indicator optional; replaced with plugs (stainless steel)</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Flow rates and valve combinations

<table>
<thead>
<tr>
<th>Flow direction (port to port)</th>
<th>Standard flow systems</th>
<th>High flow systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation mode</td>
<td>Bypass mode</td>
<td>Operation mode</td>
</tr>
<tr>
<td>1oo2</td>
<td>97109</td>
<td>2 x Y13AMMhBS</td>
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<tr>
<td></td>
<td>740</td>
<td>2 x Y13AMMhBS</td>
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<tr>
<td>1 + 2 *1) [l/min]</td>
<td>950</td>
<td>1450</td>
</tr>
<tr>
<td>2 + 3 *2) [l/min]</td>
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<td>3200</td>
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<tr>
<td>2oo2</td>
<td>97109</td>
<td>810</td>
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<td></td>
<td>2 x Y13AMMhBS</td>
<td>2 x Y13AMMhBS</td>
</tr>
<tr>
<td>1 + 2 *1) [l/min]</td>
<td>950</td>
<td>1450</td>
</tr>
<tr>
<td>2 + 3 *2) [l/min]</td>
<td>1640</td>
<td>2500</td>
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<tr>
<td>2oo3</td>
<td>97109</td>
<td>720</td>
</tr>
<tr>
<td></td>
<td>4 x Y13AMMhBS</td>
<td>4 x Y13AMMhBS</td>
</tr>
<tr>
<td>1 + 2 *1) [l/min]</td>
<td>950</td>
<td>1450</td>
</tr>
<tr>
<td>2 + 3 *2) [l/min]</td>
<td>1640</td>
<td>2500</td>
</tr>
</tbody>
</table>

*1) Flow characteristics conforms to ISO6358 from port 1 (bypass valve) to port 2 (sub-base) [6 x 5 bar], see page 1
*2) Flow characteristics conforms to ISO6358 from port 2 (sub-base) to port 3 (sub-base or bypass valve) [10 x 0 bar], see page 1
Standard and optional accessories

Accessories - Standard
(Included in the scope of supply)

**Exhaust guard** *2)  
**Visual indicators (stainless steel)**

<table>
<thead>
<tr>
<th>Page 14</th>
<th>Page 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>0613422 (G 1/4, 1/4 NPT)</td>
<td>74749-61 (G 1/4)</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>0613423 (G 1/2, 1/2 NPT)</td>
<td>—</td>
</tr>
</tbody>
</table>

*1) For indoors use  
*2) For outdoors use

Accessories - Optional
Other silencers, plastic indicator and plugs

**Silencer (stainless steel)** *1)  
**Silencer (plastic)** *1)  
**Visual indicators (plastic)**  
**Adaptor**  
**Plug plus Sealing washer**

<table>
<thead>
<tr>
<th>Page 14</th>
<th>Page 14</th>
<th>Page 14</th>
<th>Page 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>0014613 (G 1/4)</td>
<td>M/S2 (G 1/4)</td>
<td>5VS-212-000 (1/8 NPT)</td>
<td>0663843 (G 1/4, stainless steel)</td>
</tr>
<tr>
<td>0613678 (1/4 NPT)</td>
<td>C/S2 (1/4 NPT)</td>
<td>Adapter (1/8 NPT to 1/4 NPT) *3)</td>
<td>0682082 (1/4 NPT, stainless steel)</td>
</tr>
<tr>
<td>0014813 (G 1/2)</td>
<td>M/S4 (G 1/2)</td>
<td>0613659 (stainless steel)</td>
<td>Sealing washer *4)</td>
</tr>
<tr>
<td>0613679 (1/2 NPT)</td>
<td>C/S4 (1/2 NPT)</td>
<td>0660835 (plastic)</td>
<td></td>
</tr>
</tbody>
</table>

*1) For indoors use; *2) For outdoors use; *3) Must be ordered separately;  
*4) Must be ordered separately for G thread only

---

Our policy is one of continued research and development. We therefore reserve the right to amend, without notice, the specifications given in this document. (2012 - 5177c) © 2014 Norgren GmbH
1002 and 2002 with bypass (standard flow)

Weight: 19 kg aluminium sub-base only, valves and accessories see refer page

- Valve Y13ANPH1BS and Y13ANPH2BS series
- Outlet port G 1/4 or 1/4 NPT
- Exhaust guard (sub-base), ports G 1/2 or 1/2 NPT
- Bypass valve 97109 series
- Exhaust guard (bypass valve), ports G 1/4 or 1/4 NPT
- Inlet port G 1/4 or 1/4 NPT
- Visual indicator, stainless steel as standard
- Mounting holes
- Mounting threads
2oo3 with bypass (standard flow)
Weight: 28.7 kg sub-base only, valves and accessories see refer page

1. Valve Y*13ANPH1BS and Y*13ANPH2BS series
2. Outlet port G 1/4 or 1/4 NPT
3. Exhaust guard (sub-base), ports G 1/2 or 1/2 NPT
4. Bypass valve 97109 series
5. Exhaust guard (bypass valve), ports G 1/4 or 1/4 NPT
6. Inlet port G 1/4 or 1/4 NPT
7. Visual indicator, stainless steel as standard
8. Mounting holes
9. Mounting threads

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en 5.4.930.05
1002 and 2002 with bypass (high flow)
Weight: 19 kg sub-base only, valves and accessories see refer page

Valve Y*13AMMH1BS and Y*13AMMH2BS series
Outlet port G 1/2 or 1/2 NPT
Exhaust guard (sub-base), ports G 1/2 or 1/2 NPT
Bypass valve 97109 series
Exhaust guard (bypass valve), ports G 1/2 or 1/2 NPT
Inlet port G 1/2 or 1/2 NPT
Visual indicator, stainless steel as standard
Mounting holes
Additional mounting threads
2003 with bypass (high flow)
Weight: 27.9 kg sub-base only, valves and accessories see refer page
Y*13ANPH*BS standard flow valve

- **Standard flow range**
  (600 l/min)

- **Direct acting**
  3/2 spring return to safe condition

- **Suited for outdoor use under critical environment conditions**
  (see solenoid list)

### Technical features

**Medium:**
Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids

**Operation:**
3/2 Direct solenoid operated poppet valves

### Technical data

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Power consumption 24 V d.c. (W)</th>
<th>230 V a.c. (VA)</th>
<th>Rated current 24 V d.c. (mA)</th>
<th>230 V a.c. (mA)</th>
<th>Certifications</th>
<th>Temperature range Media (°C)</th>
<th>Temperature range Ambient (°C)</th>
<th>Electrical connection (conduit)</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.43</td>
<td>—</td>
<td>35</td>
<td>—</td>
<td>—</td>
<td>Ex II 1 GD, Ex ia IIC</td>
<td>-55 … +60°C T6</td>
<td>-55 … +50°C T4</td>
<td>-55 … +60°C T6</td>
<td>M 20</td>
</tr>
<tr>
<td>3</td>
<td>—</td>
<td>125</td>
<td>—</td>
<td>—</td>
<td>Class 1, Div. 1, Groups B, C and D</td>
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<td>-55 … +50°C T4</td>
<td>-55 … +90°C T6</td>
<td>M 20</td>
</tr>
<tr>
<td>3</td>
<td>125</td>
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<td>20</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
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<td>-55 … +90°C T4</td>
<td>M 20</td>
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<td>-55 … +50°C T4</td>
<td>-55 … +90°C T6</td>
<td>M 20</td>
</tr>
</tbody>
</table>

- **Fluid/Ambient Temperature:**
  See table below
  Air supply must be dry enough to avoid ice formation at temperatures below 2°C (+35°F)
  For outdoor installation please protect all connections against moisture ingress!

**Materials:**
- **Body:** stainless steel 1.4404 (316 L)
- **Coil housing:** stainless steel 1.4404 (316 L)
- **Seals:** NBR
- **Internal parts:** stainless steel 1.4404 (316 L)

- **Medium:**
  Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids

- **Port size:**
  Flanged

- **Orifice:**
  5 mm

- **Operating pressure:**
  0 … 12 bar (0 … 174 psi)
  (0 … 10 bar (0 … 145 psi) with CSA certification)

- **Temperature range:**
  Fluid/Ambient
  See table below

- **Fluid supply:**
  Must be dry enough to avoid ice formation at temperatures below 2°C (+35°F)

- **For outdoor installation:**
  Protect all connections against moisture ingress!
Circuit diagrams

1. Electrical connection M20 x 1.5 or 1/2 NPT
2. Ports plugged
   - G 1/4: Hexagon head plug
   - 1/4 NPT: Hexagon socket set plug
Y*13AMMH*BS high flow valves

> High flow range (1500 l/min)
> Direct acting 3/2 spring return to safe condition
> Suited for outdoor use under critical environment conditions (see solenoid list)

Technical features
- **Medium:** Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids
- **Operation:** 3/2 Direct solenoid operated poppet valves
- **Port size:** Flanged
- **Orifice:** 8 mm
- **Operating pressure:** 0 ... 12 bar (0 ... 174 psi) (0 ... 10 bar (0 ... 145 psi) CSA)
- **Fluid/Ambient temperature:** See table below
- **Materials:**
  - Body: stainless steel 1.4404 (316 L)
  - Coil housing: stainless steel 1.4404 (316 L)
  - Seals: NBR
  - Internal parts: stainless steel 1.4404 (316 L)

Technical data

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Power consumption 24 V d.c. 230 V a.c.</th>
<th>Rated current 24 V d.c. 230 V a.c.</th>
<th>Certifications</th>
<th>Temperature range Media (°C)</th>
<th>Temperature range Ambient (°C)</th>
<th>Electrical connection (conduit)</th>
<th>Model</th>
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<tbody>
<tr>
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<td>325</td>
<td>325</td>
<td>Ex e II 2 GD, Ex d IC</td>
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<td>-55 … +90°C T4</td>
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<td>7,8</td>
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<td>-55 … +90°C T6</td>
<td>-55 … +90°C T4</td>
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<td>79</td>
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<td>-55 … +90°C T4</td>
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<td>7,8</td>
<td>8,5</td>
<td>79</td>
<td>Ex e IIE 2 GD, Ex e IC</td>
<td>-55 … +90°C T6</td>
<td>-55 … +90°C T4</td>
<td>Y013AMMH2MS</td>
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</tr>
</tbody>
</table>

**Certifications:**
- IECEx, ATEX, FM, CSA, GOST-R, GOST-K, CCOE, IN-METRO, KOSHA

**Electrical connection (conduit):**
- 1/2 NPT

**Materials:**
- Body: stainless steel 1.4404 (316 L)
- Coil housing: stainless steel 1.4404 (316 L)
- Seals: NBR
- Internal parts: stainless steel 1.4404 (316 L)

**Fluid/Ambient temperature:**
- Depending on solenoid system
- Air supply must be dry enough to avoid ice formation at temperatures below 2°C (+35°F)
- For outdoor installation please protect all connections against moisture ingress!
Circuit diagrams

Electrical connection M20 x 1.5 or 1/2 NPT
97109 bypass valve for standard and high flow systems

- No open port cross over position during lever movement
- Reliable operation even with minimal air flow
- Lockable manual operator with detent as standard
- Simple design of soft seal spool system
- Padlock with two keys

Technical features

Medium:
Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids

Operation:
Manual actuated spool valves

Port size:
see below, according to select system (standard flow or high flow)

Flow Material
housing seals

Weight (kg)

Dimension No.

Model

Temperature range: -40 ... +60°C

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Port size 1, 3 and 5</th>
<th>Flow</th>
<th>Material housing</th>
<th>seals</th>
<th>Weight (kg)</th>
<th>Dimension No.</th>
<th>Model</th>
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<tr>
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<td></td>
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<tr>
<td>G1/4</td>
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<td>stainless steel</td>
<td>NBR</td>
<td>1,40</td>
<td>1</td>
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<tr>
<td>1/4 NPT</td>
<td>flange standard</td>
<td>stainless steel</td>
<td>NBR</td>
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<td>flange high</td>
<td>stainless steel</td>
<td>NBR</td>
<td>3,20</td>
<td>2</td>
<td>9710914</td>
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Temperature range: -25 ... +80°C

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Port size 1, 3 and 5</th>
<th>Flow</th>
<th>Material housing</th>
<th>seals</th>
<th>Weight (kg)</th>
<th>Dimension No.</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2 and 4</td>
<td></td>
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<td>G1/4</td>
<td>flange standard</td>
<td>stainless steel</td>
<td>HNBR</td>
<td>1,40</td>
<td>1</td>
<td>9710916</td>
<td></td>
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<tr>
<td>1/4 NPT</td>
<td>flange standard</td>
<td>stainless steel</td>
<td>HNBR</td>
<td>1,40</td>
<td>1</td>
<td>9710920</td>
<td></td>
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<tr>
<td>G1/2</td>
<td>flange high</td>
<td>stainless steel</td>
<td>HNBR</td>
<td>3,20</td>
<td>2</td>
<td>9710918</td>
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<tr>
<td>1/2 NPT</td>
<td>flange high</td>
<td>stainless steel</td>
<td>HNBR</td>
<td>3,20</td>
<td>2</td>
<td>9710922</td>
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</table>

Technical data

Medium:
Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids

Operation:
Manual actuated spool valves

Port size:
see below, according to select system (standard flow or high flow)

Flow Material
housing seals

Weight (kg)

Dimension No.

Model

Temperature range: -40 ... +80°C

Air supply must be dry enough to avoid ice formation at temperatures below 2°C (+35°F)

For outdoor installation please protect all connections against moisture ingress!

Materials:
Housing: hard anodized aluminium 3.0615 or stainless stainless steel 1.4404 (316 L)
Seals: NBR (special perbunan) or HNBR

> No open port cross over position during lever movement
> Reliable operation even with minimal air flow
> Lockable manual operator with detent as standard
> Simple design of soft seal spool system
> Padlock with two keys

Technical features

Medium:
Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids

Operation:
Manual actuated spool valves

Port size:
see below, according to select system (standard flow or high flow)

Flow Material
housing seals

Weight (kg)

Dimension No.

Model

Temperature range: -40 ... +80°C

Air supply must be dry enough to avoid ice formation at temperatures below 2°C (+35°F)

For outdoor installation please protect all connections against moisture ingress!

Materials:
Housing: hard anodized aluminium 3.0615 or stainless stainless steel 1.4404 (316 L)
Seals: NBR (special perbunan) or HNBR
Standard flow valves

High flow valves

Inlet and exhaust ports G 1/4 or 1/4 NPT
Namur flange plate
Inlet and exhaust ports G 1/2 or 1/2 NPT
V83 series Redundant valve manifold systems - Modular with bypass
1002 “Safety”, 2002 “Availability” and 2003 “Safety and Availability”

Our policy is one of continued research and development. We therefore reserve the right to amend, without notice, the specifications given in this document. (2012 - 5177c) © 2014 Norgren GmbH

Exhaust guard (plastic) - standard option

Visual indicator (stainless steel) - standard option

Silencer (plastic)

Silencer (stainless steel)

Plug (stainless steel)

Visual indicator (plastic)

Sealing washer (plastic)

Adapter (stainless steel)
Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under «Technical features/data».

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems or other applications not within published specifications, consult IMI NORGREN.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.