V84 series Redundant valve manifold systems - Compact
1oo2 “Safety”, 2oo2 “Availability” and 2oo3 “Safety and Availability”

> Compact design - Maxseal valves
> SIL certified components and system
> Exhaust guards as standard
> Cable terminations inside coil housing

> SIL certified components and system
> International approvals
> Stainless steel construction
> Utilizing industry proven technology

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

Mounting position:
Valves vertical only

Operating pressure:
12 bar (174 psi) (10 bar (145 psi) with CSA approval)

Flow:
Standard valves 300 ... 470 l/min
High flow valves 860 ... 1250 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 RVM).

Temperature range:
Up to -55 to +80°C (-67 ... +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 range of solenoid valve:
See option selector and corresponding valve data on pages 10 & 12

Materials:
Block: stainless steel 1.4401 (316 L)
Seals: NBR
Internal parts: stainless steel 1.4401 (316 L)

1oo2 with exhaust guards

2oo2 with exhaust guards

2oo3 with exhaust guards *1)

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

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

Please have a look to instructions
V84 series Redundant valve manifold systems - Compact
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. (2013 - 5178c) © 2014 Norgren GmbH

Flow rates and valve combinations

<table>
<thead>
<tr>
<th>Flow direction (port to port)</th>
<th>Standard flow systems</th>
<th>High flow system</th>
</tr>
</thead>
<tbody>
<tr>
<td>1002</td>
<td>2 x Y13ANPH1BS</td>
<td>2 x Y13AMMH1BS</td>
</tr>
<tr>
<td></td>
<td>2 x Y13AMMH2BS</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>2 x Y013ANPH1BS</td>
<td>2 x Y013AMMH1BS</td>
</tr>
<tr>
<td>2003</td>
<td>2 x Y013AMMH1BS</td>
<td>2 x Y013AMMH2BS</td>
</tr>
</tbody>
</table>

*1) Flow characteristics conforms to ISO6358 from port 1 to port 2 [5 - 5 bar], see page 1

*2) Flow characteristics conforms to ISO6358 from port 2 to port 3 [10 - 0 bar], see page 1

Valve type 

<table>
<thead>
<tr>
<th>Solenoid Protection</th>
<th>Voltage</th>
<th>Cable Entry</th>
<th>Substitute</th>
</tr>
</thead>
</table>

- **Standard flow**
  - YX13ANPH1BS Exia 24 V d.c. M x 20 x 1,5
  - Y013ANPH1BS Exd 24 V d.c. M x 20 x 1,5
  - YZ13ANPH1BS Exmbe 24 V d.c. M x 20 x 1,5
  - Y013ANPH1MS Exd 230 V a.c. M x 20 x 1,5
  - YZ13ANPH1MS Exmbe 230 V a.c. M x 20 x 1,5

- **High flow**
  - Y013AMMH1BS Exd 24 V d.c. M x 20 x 1,5
  - YZ13AMMH1BS Exmbe 24 V d.c. M x 20 x 1,5
  - Y013AMMH1MS Exd 230 V a.c. M x 20 x 1,5
  - YZ13AMMH1MS Exmbe 230 V a.c. M x 20 x 1,5

Note: Please advise when ordering if CSA certification is required

Country of manufacture

<table>
<thead>
<tr>
<th>Silencers</th>
<th>Temperature</th>
<th>Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust guard (standard)</td>
<td>-55°C ... +80°C</td>
<td>0</td>
</tr>
<tr>
<td>Plastic silencers to replace exhaust guards</td>
<td>-20°C ... +80°C</td>
<td>1</td>
</tr>
<tr>
<td>Stainless steel silencers to replace exhaust guards</td>
<td>-40°C ... +60°C</td>
<td>3</td>
</tr>
</tbody>
</table>

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>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flow</th>
<th>Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>1</td>
</tr>
<tr>
<td>High</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Port sizes</th>
<th>Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>G 1/4 (standard flow system)</td>
<td>1</td>
</tr>
<tr>
<td>G 1/2 (high flow system)</td>
<td>3</td>
</tr>
<tr>
<td>G 1/2 (high flow system)</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Please advise when ordering if CSA certification is required
Standard and optional accessories

**Accessories - Standard**
(Included in the scope of supply)

- **Exhaust guard** *2)

![Exhaust guard](image)

- [0613422 (G 1/4, 1/4 NPT)]
- [0613423 (G 1/2, 1/2 NPT)]

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

**Accessories - Optional**

**Other silencers, plastic indicator and plugs**

- **Silencer (stainless steel) ** *1)

![Silencer (stainless steel)](image)

- [0014613 (G 1/4)]
- [0613678 (1/4 NPT)]
- [0014813 (G 1/2)]
- [0613679 (1/2 NPT)]

- **Silencer (plastic) ** *1)

![Silencer (plastic)](image)

- [0014613 (G 1/4)]
- [0613678 (1/4 NPT)]
- [0014813 (G 1/2)]
- [0613679 (1/2 NPT)]
1oo2 (standard flow)
Weight: 2.8 kg sub-base only, valves and accessories see refer page
2002 (standard flow)
Weight: 2.8 kg 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
- Inlet port G 1/4 or 1/4 NPT
- Mounting holes
- Mounting threads as standard or alternative to fix the bracket
2003 (standard flow)
Weight: 8,0 kg sub-base only, valves and accessories see refer page

- Valve Y’13ANPH1BS and Y’13ANPH2BS series
- Outlet port G 1/4 or 1/4 NPT
- Exhaust guard (sub-base), ports G 1/2 or 1/2 NPT
- Inlet port G 1/4 or 1/4 NPT
- Mounting holes
- Mounting threads as standard or alternative to fix the bracket
1oo2 (high flow)
Weight: 4,0 kg sub-base only, valves and accessories see refer page
**2oo2 (high flow)**

Weight: 4,0 kg sub-base only, valves and accessories see refer page

---

1. Valve Y'13AMMH1BS and Y'13AMMH2BS series
2. Outlet port G 1/2 or 1/2 NPT
3. Exhaust guard (sub-base), ports G 1/2 or 1/2 NPT
4. Inlet port G 1/2 or 1/2 NPT
5. Mounting holes
6. Mounting threads as standard or alternative to fix the bracket
2003 (high flow)
Weight: 9.3 kg sub-base only, valves and accessories see refer page

Diagram with labels:
- Valve Y'13AMM/H1BS and Y'13AMM/H2BS series
- Outlet port G 1/2 or 1/2 NPT
- Exhaust guard (sub-base), ports G 1/2 or 1/2 NPT
- Inlet port G 1/2 or 1/2 NPT
- Mounting holes
- Mounting threads as standard or alternative to fix the bracket
**Technical data**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Power consumption 24 V d.c. (W)</th>
<th>Rated current 24 V d.c. (mA</th>
<th>230 V a.c. (mA)</th>
<th>Certifications</th>
<th>ATEX</th>
<th>Temperature range Media (°C)</th>
<th>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>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3</td>
<td>—</td>
<td>125</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td>3,5</td>
<td>125</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>0,43</td>
<td>—</td>
<td>35</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3</td>
<td>—</td>
<td>125</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td>3,5</td>
<td>125</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**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:** 5 mm
- **Operating pressure:** 0 ... 12 bar (0 ... 174 psi)
  (0 ... 10 bar (0 ... 145 psi) with CSA certification)
- **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)
Circuit diagrams

Electrical connection M20 x 1.5 or 1/2 NPT
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
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!

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)

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

Technical data

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Power consumption</th>
<th>Rated current</th>
<th>Certifications</th>
<th>Temperature range</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24 V d.c. (W)</td>
<td>230 V d.c. (VA)</td>
<td>230 V a.c. (mA)</td>
<td>FM</td>
<td>ATEX</td>
</tr>
<tr>
<td>7,8 —</td>
<td>325 —</td>
<td>—</td>
<td>Class 1, Division 1, Group B, C and D</td>
<td>Ex II 2 GD, Ex d IIC</td>
<td>-55 ... +90°C</td>
</tr>
<tr>
<td>7,8 —</td>
<td>325 —</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
<td>-55 ... +90°C</td>
<td>T6 (-55 ... +50°C), T4 (-55 ... +90°C)</td>
</tr>
<tr>
<td>— 8,5 —</td>
<td>79 —</td>
<td>—</td>
<td>Class 1, Division 1, Group B, C and D</td>
<td>Ex II 2 GD, Ex d IIC</td>
<td>-55 ... +90°C</td>
</tr>
<tr>
<td>— 8,5 —</td>
<td>79 —</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
<td>-55 ... +90°C</td>
<td>T6 (-55 ... +50°C), T4 (-55 ... +90°C)</td>
</tr>
<tr>
<td>7,8 —</td>
<td>325 —</td>
<td>—</td>
<td>Class 1, Division 1, Group B, C and D</td>
<td>Ex II 2 GD, Ex d IIC</td>
<td>-55 ... +90°C</td>
</tr>
<tr>
<td>— 8,5 —</td>
<td>79 —</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
<td>-55 ... +90°C</td>
<td>T4 (-55 ... +80°C)</td>
</tr>
<tr>
<td>— 8,5 —</td>
<td>79 —</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
<td>-55 ... +90°C</td>
<td>T6 (-55 ... +50°C), T4 (-55 ... +90°C)</td>
</tr>
<tr>
<td>— 8,5 —</td>
<td>79 —</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
<td>-55 ... +90°C</td>
<td>T4 (-55 ... +80°C)</td>
</tr>
</tbody>
</table>

Electrical connection:
- Flanged conduit
- Orifice:
- 8 mm

Operating pressure:
- 0 ... 12 bar (0 ... 174 psi)
- (0 ... 10 bar (0 ... 145 psi) CSA)

Fluid/Ambient temperature:
See table below
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!

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 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
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!

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)

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

Technical data

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Power consumption</th>
<th>Rated current</th>
<th>Certifications</th>
<th>Temperature range</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24 V d.c. (W)</td>
<td>230 V a.c. (VA)</td>
<td>230 V a.c. (mA)</td>
<td>FM</td>
<td>ATEX</td>
</tr>
<tr>
<td>7,8 —</td>
<td>325 —</td>
<td>—</td>
<td>Class 1, Division 1, Group B, C and D</td>
<td>Ex II 2 GD, Ex d IIC</td>
<td>-55 ... +90°C</td>
</tr>
<tr>
<td>7,8 —</td>
<td>325 —</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
<td>-55 ... +90°C</td>
<td>T6 (-55 ... +50°C), T4 (-55 ... +90°C)</td>
</tr>
<tr>
<td>— 8,5 —</td>
<td>79 —</td>
<td>—</td>
<td>Class 1, Division 1, Group B, C and D</td>
<td>Ex II 2 GD, Ex d IIC</td>
<td>-55 ... +90°C</td>
</tr>
<tr>
<td>— 8,5 —</td>
<td>79 —</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
<td>-55 ... +90°C</td>
<td>T6 (-55 ... +50°C), T4 (-55 ... +90°C)</td>
</tr>
<tr>
<td>7,8 —</td>
<td>325 —</td>
<td>—</td>
<td>Class 1, Division 1, Group B, C and D</td>
<td>Ex II 2 GD, Ex d IIC</td>
<td>-55 ... +90°C</td>
</tr>
<tr>
<td>— 8,5 —</td>
<td>79 —</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
<td>-55 ... +90°C</td>
<td>T4 (-55 ... +80°C)</td>
</tr>
<tr>
<td>— 8,5 —</td>
<td>79 —</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
<td>-55 ... +90°C</td>
<td>T6 (-55 ... +50°C), T4 (-55 ... +90°C)</td>
</tr>
<tr>
<td>— 8,5 —</td>
<td>79 —</td>
<td>—</td>
<td>Ex mbe II 2 GD, Ex mbe IIC</td>
<td>-55 ... +90°C</td>
<td>T4 (-55 ... +80°C)</td>
</tr>
</tbody>
</table>

Electrical connection:
- Flanged conduit
- Orifice:
- 8 mm

Operating pressure:
- 0 ... 12 bar (0 ... 174 psi)
- (0 ... 10 bar (0 ... 145 psi) CSA)

Fluid/Ambient temperature:
See table below
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!

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)

Certifications:
- IECEx, ATEX, FM, CSA, GOST-R, GOST-K, CCSE, IN-METRO, KOSHA
Our policy is one of continued research and development. We therefore reserve the right to amend, without notice, the specifications given in this document. (2013 - 5178c) © 2014 Norgren GmbH

Circuit diagrams
Exhaust guard (plastic) - standard option

![Exhaust guard (plastic) diagram]

<table>
<thead>
<tr>
<th>B</th>
<th>Suitable for</th>
<th>G</th>
<th>C</th>
<th>Ø D</th>
<th>Weight (g)</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4”</td>
<td>G 1/4, 1/4 NPT</td>
<td>10</td>
<td>26,5</td>
<td>21</td>
<td>5</td>
<td>0613422</td>
</tr>
<tr>
<td>1/2”</td>
<td>G 1/2, 1/2 NPT</td>
<td>12</td>
<td>33,5</td>
<td>29</td>
<td>11</td>
<td>0613423</td>
</tr>
</tbody>
</table>

Silencer (plastic)

![Silencer (plastic) diagram]

<table>
<thead>
<tr>
<th>B</th>
<th>G</th>
<th>C</th>
<th>Ø D</th>
<th>Weight (g)</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>G 1/4</td>
<td>7</td>
<td>35,5</td>
<td>15,5</td>
<td>2,9</td>
<td>M/S2</td>
</tr>
<tr>
<td>1/4 NPT</td>
<td>7</td>
<td>35,5</td>
<td>15,5</td>
<td>2,9</td>
<td>M/S2</td>
</tr>
<tr>
<td>G 1/2</td>
<td>12</td>
<td>67</td>
<td>23</td>
<td>11,5</td>
<td>M/S4</td>
</tr>
<tr>
<td>1/2 NPT</td>
<td>12</td>
<td>67</td>
<td>23</td>
<td>11,5</td>
<td>M/S4</td>
</tr>
</tbody>
</table>

Silencer (stainless steel)

![Silencer (stainless steel) diagram]

<table>
<thead>
<tr>
<th>B</th>
<th>C</th>
<th>G</th>
<th>Ø D</th>
<th>Weight (g)</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>G 1/4</td>
<td>36</td>
<td>8</td>
<td>16</td>
<td>23</td>
<td>0014613</td>
</tr>
<tr>
<td>1/4 NPT</td>
<td>36</td>
<td>8</td>
<td>16</td>
<td>67</td>
<td>0613678</td>
</tr>
<tr>
<td>G 1/2</td>
<td>49</td>
<td>12</td>
<td>24</td>
<td>81</td>
<td>0014813</td>
</tr>
<tr>
<td>1/2 NPT</td>
<td>49</td>
<td>12</td>
<td>24</td>
<td>235</td>
<td>0613679</td>
</tr>
</tbody>
</table>

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.