INSTALLATION AND ASSEMBLY GUIDE 2020
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OPERATING CONDITIONS

- AIRnet pipes and fittings are designed to convey compressed air and vacuum. The system can also be used for nitrogen, helium, argon, neon, xenon and krypton.

- AIRnet system can only be used to convey compressed air, vacuum & inert gases and the allowed medium can be in direct contact with the final product or process. However, AIRnet system cannot be used for conveying the finished products, for example, chemicals, food products, cement etc.

- AIRnet pipes and fittings must only be used within the pressure and temperature specifications referred to in the AIRnet Component List.

- AIRnet fittings are sensitive to direct UV radiation. In case of direct exposure, shield the fittings. (AIRnet pipes offer excellent resistance to UV radiation.)

- AIRnet pipes and fittings should be protected against rain, snow, and guano.

- AIRnet pipes and fittings must be appropriately protected against violent impacts.

- AIRnet pipes and fittings are not suitable for direct contact with soil.

- AIRnet pipes and fittings should not be used as support for electrical equipment or earth conductors.

- AIRnet pipes should never be connected directly to a source of vibrations (use hoses instead).

- Ensure accessibility of the AIRnet system for possible future expansion or maintenance.

- Pressure relief valves must be installed where needed to ensure that the system working pressure cannot exceed the maximum working pressure of the AIRnet system.

AIRNET INSTALLATIONS IN EXPLOSIVE ENVIRONMENTS

- AIRnet fittings are non-conductive and must be bonded with conductivity strips and conductivity straps (except the D158 / 6” equal socket and the new D100 / 4” equal socket).

- AIRnet installations in explosive environments must always be earthed.

- AIRnet bonding and the earthing must be checked at frequent intervals to secure that the system cannot be electrically charged.

- Cutting, deburring and assembly of AIRnet pipes may create sparks. Necessary precautions in explosive atmospheres must be taken.

SAFETY INSTRUCTIONS

- Installation, adjustments and repair work of an AIRnet system must be performed by authorized trained personnel.

- Installers must use the necessary protection means (PPMs). When working at heights, use a harness for personal protection, and ensure that tools are securely fastened to prevent them from falling.

- Installers must comply to all local safety requirements related to the application(s) in scope. Special care must always be taken to prevent suffocation risks when working with other gases than air.

- Before any installation, adjustment, repair work or other non-routine checks, relieve the AIRnet system of pressure and effectively isolate the system from all sources of pressure.

- Only genuine AIRnet parts should be used when installing, adjusting or repairing an AIRnet system.

- All plugs and caps must be removed before installing the AIRnet pipes.

- Check the surface of the AIRnet pipes before installing. There should be no relevant scratches, abrasions, dents etc.

- Use only solvents or chemicals which do not damage the materials of AIRnet.

- Before using the AIRnet system, installers must ensure that all necessary test controls and applicable rules for the specific installation are complied with.

- At initial start up of the AIRnet system, apply a test pressure of 1.5 bar to identify leakage or imperfect joints. After performing an inspection, increase the pressure gradually and constantly (max. 1 bar every 5 minutes) and perform a second inspection for leakages or imperfect joints at the final pressure.
Long straight pipes will expand or contract due to temperature variations. To compensate for this effect, expansion loops are required. The number of expansion loops depends on the total length of the straight line and the maximum temperature variation. An expansion loop is a U-shaped construction that compensates the variation in length.

The below table clarifies the maximum possible straight distance vs. the temperature variation. When the length of the straight line exceeds the maximum, expansion loops are required to compensate for the variation in length.

<table>
<thead>
<tr>
<th>ΔT</th>
<th>Ø20 mm / ¾&quot;</th>
<th>Ø25 mm / 1&quot;</th>
<th>Ø30 mm / 1½&quot;</th>
<th>Ø40 mm / 2&quot;</th>
<th>Ø63 mm / 2½&quot;</th>
<th>Ø80 mm / 3&quot;</th>
<th>Ø100 mm / 4&quot;</th>
<th>Ø158 mm / 6&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>5°C / 9°F</td>
<td>1.5 m / 4.9 ft</td>
<td>1.5 m / 4.9 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
</tr>
<tr>
<td>10°C / 18°F</td>
<td>1.5 m / 4.9 ft</td>
<td>1.5 m / 4.9 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
</tr>
<tr>
<td>20°C / 36°F</td>
<td>1.5 m / 4.9 ft</td>
<td>1.5 m / 4.9 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
</tr>
<tr>
<td>30°C / 54°F</td>
<td>1.5 m / 4.9 ft</td>
<td>1.5 m / 4.9 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
</tr>
<tr>
<td>40°C / 72°F</td>
<td>1.5 m / 4.9 ft</td>
<td>1.5 m / 4.9 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
<td>2.0 m / 6.6 ft</td>
</tr>
</tbody>
</table>

When using flexibles instead of fixed pipes as expansion loops, any length of flexible can be used.
INSTALLATION
Diameters 20 - 50 mm / ¾” - 2” (PF Series)

1. MEASURE
   Length $L = l + (2 \times S)$

<table>
<thead>
<tr>
<th>Ø</th>
<th>$S$</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mm / 3/4”</td>
<td>39 mm / 11/2”</td>
</tr>
<tr>
<td>25 mm / 1”</td>
<td>44 mm / 13/4”</td>
</tr>
<tr>
<td>40 mm / 11/2”</td>
<td>63 mm / 21/2”</td>
</tr>
<tr>
<td>50 mm / 2”</td>
<td>78 mm / 31/2”</td>
</tr>
</tbody>
</table>

2. CUT

3. CHECK
   $\leq 10^\circ$

4. DEBURR

5. MARK

www.airnet-system.com
INSTALLATION
Diameters 20 - 50 mm / ¾” - 2” (PF Series)

1. **OPTIONAL: LOosen**

2. **OPTIONAL: TIGHTEN**

3. **CHECK MARKERS**

4. **CHECK**

5. **LUBRiCATe**

6. **INsERT**

7. **2810 0148 00**

8. **2811 1028 00**

9. **2811 2028 00**

10. **2811 4028 00**

11. **2811 5028 00**

12. **www.airnet-system.com**
INSTALLATION
Diameters 63 - 80 mm / 2 ½" - 3" (Black Series)

1. MEASURE

Length L = l + (2xS)

<table>
<thead>
<tr>
<th>Ø</th>
<th>S</th>
<th>Ø</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>63 mm / 2 ½&quot;</td>
<td>79 mm / 3.11&quot;</td>
<td>80 mm / 3&quot;</td>
<td>97 mm / 3.82&quot;</td>
</tr>
</tbody>
</table>

2. CUT

3. CHECK

≤10°

4. DEBURR

5. MARK

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INSTALLATION
Diameters 63 - 80 mm / 2 ½” - 3” (Black Series)

6. LOOSEN

7. LUBRICATE

8. INSERT

9. CHECK

10. TIGHTEN

11. TIGHTEN

Torque wrench 2811 0028 80
63mm torque head 2811 6128 80
80mm torque head 2811 7128 80

CHECK

50 Nm 37 ft/lb
INSTALLATION

Diameters 63 - 80 mm / 2 ½” - 3” (PM Series)

DIFFERENCE BETWEEN BLACK SERIES AND PM SERIES

<table>
<thead>
<tr>
<th>Black Series</th>
<th>Pre-Marked (PM) Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque at 50 Nm</td>
<td>Torque till marking</td>
</tr>
<tr>
<td>Insertion depth Ø 63 / 2 ½”: 78 mm</td>
<td>Insertion depth Ø 63 / 2 ½”: 73 mm (Δ 5 mm)</td>
</tr>
<tr>
<td>Insertion depth Ø 80 / 3”: 97 mm</td>
<td>Insertion depth Ø 80 / 3”: 95 mm (Δ 2 mm)</td>
</tr>
</tbody>
</table>

Better quality and reliability
Safety screw on the nut
Light weight
Easy to assemble (pre-marked)

1. MEASURE
   \[ \text{Length } L = l + (2 \times S) \]

- Ø 63 mm / 2 ½”: 73 mm
- Ø 80 mm / 3”: 95 mm

2. CUT

3. CHECK
   \[ \leq 10^\circ \]
INSTALLATION
Diameters 63 - 80 mm / 2 ½” - 3” (PM Series)

4 DEBurr

5 MARK

ALL 2810 0641 00

ALL 2811 0229 90

6 LUBRICATE

7 CHECK: NUT AND SAFETY SCREW LOOSENED

ALL 2810 0148 00

THE NUTS ARE UNIQUE TO THE SIDE OF THE FITTING, MARKED WITH A NUMBER

8 THE NUTS ARE UNIQUE TO THE SIDE OF THE FITTING, MARKED WITH A NUMBER

9 INSERT

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INSTALLATION
Diameters 63 - 80 mm / 2 ½” - 3” (PM Series)

10 CHECK

11 FITTING SHOULD BE PLACED WITH MARKINGS VISIBLE FROM THE GROUND

12 TORQUE FITTING UNTIL MARKING

13 USE L KEY 3MM TO LOCK THE SCREW ON THE NUT. (NEW FEATURE FOR ADDITIONAL SAFETY)

New torque wrenches / spanners:

- 63 mm spanner: 2811 6028 90
- 80 mm spanner: 2811 7028 90
- 63 mm body wrench: 2811 6628 90
- 80 mm body wrench / 63 mm adapter union nut wrench: 2811 7728 90
- 80 mm adapter union nut wrench: 2811 7728 91

14 CHECK MARKERS 100%

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INSTALLATION
Diameter 100 - 158 mm / 4" - 6"

1. MEASURE

Length \( L = l + (2 \times S) \)

<table>
<thead>
<tr>
<th>Ø</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 mm / 4&quot;</td>
<td>47 mm / 1 1/8&quot;</td>
</tr>
<tr>
<td>158 mm / 6&quot;</td>
<td>55 mm / 2 1/8&quot;</td>
</tr>
</tbody>
</table>

2. CUT

OR

3. CHECK

4. DEBURR

OR

5. MARK

ALL

110/120V 2810 0640 80
220/230V 2810 0540 80
Ø 100-158 mm 2810 0240 00
ALL 2810 0641 00

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INSTALLATION
Diameter 100 - 158 mm / 4" - 6"

6. LUBRICATE

7. INSERT

8. CHECK

9. TIGHTEN

10. CHECK

Hexagon Socket - D100 4027 1323 08
Hexagon Socket - D158 0462 3601 23
INSTALLATION
Quickdrop Assembly

1. MOUNT

2. MARK

3. TURN

4. DRILL

5. DEBURR

6. TIGHTEN

7. INSERT

8. CHECK

Ø 25 mm drill bit 2810 0143 00
 Ø 40-80 mm drill bit 2810 0243 00

Heavy Duty 2810 0641 00
Light Duty 2810 0042 00

ALL 2811 0149 00

180°

4 Nm

www.airnet-system.com
INSTALLATION

Replace Classic Series with new PF Series
Diameters 20 - 50 mm / ¾” – 2”

<table>
<thead>
<tr>
<th>Δ</th>
<th>Ø 20 mm</th>
<th>Ø 25 mm</th>
<th>Ø 40 mm</th>
<th>Ø 50 mm</th>
<th>Ø 3/4”</th>
<th>Ø 1”</th>
<th>Ø 1½”</th>
<th>Ø 2”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21.5 mm</td>
<td>19 mm</td>
<td>38 mm</td>
<td>37.5 mm</td>
<td>7/8”</td>
<td>⅜”</td>
<td>1⅜”</td>
<td>1⅜”</td>
</tr>
<tr>
<td>Δ</td>
<td>9 mm</td>
<td>14.5 mm</td>
<td>23 mm</td>
<td>32 mm</td>
<td>⅜”</td>
<td>⅛”</td>
<td>⅜”</td>
<td>⅛”</td>
</tr>
<tr>
<td></td>
<td>9 mm</td>
<td>13 mm</td>
<td>28 mm</td>
<td>35 mm</td>
<td>⅛”</td>
<td>⅛”</td>
<td>⅛”</td>
<td>⅛”</td>
</tr>
<tr>
<td>Δ</td>
<td>8 mm</td>
<td>6 mm</td>
<td>23 mm</td>
<td>32 mm</td>
<td>⅛”</td>
<td>⅛”</td>
<td>⅛”</td>
<td>0”</td>
</tr>
<tr>
<td></td>
<td>8 mm</td>
<td>8 mm</td>
<td>9 mm</td>
<td>0 mm</td>
<td>⅛”</td>
<td>⅛”</td>
<td>⅛”</td>
<td>0”</td>
</tr>
<tr>
<td>Δ</td>
<td>13 mm</td>
<td>20 mm</td>
<td>35 mm</td>
<td>34 mm</td>
<td>⅛”</td>
<td>⅛”</td>
<td>⅛”</td>
<td>0”</td>
</tr>
</tbody>
</table>

Δ = Length to be cut off before replacement
### INSTALLATION

Replace Black Series with new PM Series

Diameters 63 – 80 m / 2 ½” – 3”

<table>
<thead>
<tr>
<th>Δ</th>
<th>Ø 63 mm</th>
<th>0 mm</th>
<th>0 mm</th>
<th>4 mm</th>
<th>0 mm</th>
<th>Change pipe D50</th>
<th>5 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ</td>
<td>Ø 2 ½”</td>
<td>0”</td>
<td>0”</td>
<td>5/32”</td>
<td>0”</td>
<td>Change pipe D50</td>
<td>3/16”</td>
</tr>
<tr>
<td>Δ</td>
<td>Ø 80 mm</td>
<td>0 mm</td>
<td>0 mm</td>
<td>6 mm</td>
<td>7 mm</td>
<td>7 mm</td>
<td>0 mm</td>
</tr>
<tr>
<td>Δ</td>
<td>Ø 3”</td>
<td>0”</td>
<td>0”</td>
<td>¼”</td>
<td>¼”</td>
<td>¼”</td>
<td>0”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Δ</th>
<th>2”</th>
<th>2 ½” and 3”</th>
<th>ISO</th>
<th>NPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ</td>
<td>Ø 63 mm</td>
<td>4 mm</td>
<td>16 mm</td>
<td>0 mm</td>
</tr>
<tr>
<td>Δ</td>
<td>Ø 2 ½”</td>
<td>5/32”</td>
<td>5/8”</td>
<td>0”</td>
</tr>
<tr>
<td>Δ</td>
<td>Ø 80 mm</td>
<td>/</td>
<td>12 mm</td>
<td>6 mm</td>
</tr>
<tr>
<td>Δ</td>
<td>Ø 3”</td>
<td>/</td>
<td>½”</td>
<td>¼”</td>
</tr>
</tbody>
</table>

Δ = Length to be cut off before replacement

---

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INSTALLATION

Replace old D100 fittings with new D100 fittings
Diameter 100 mm / 4"

Note: When replacing the old D100 fitting with the new D100 fitting, only a new marking is needed, no cutting of pipes.
INSTALLATION
Pipe Clips Installation
Diameters 20 - 158 mm / ¾” – 6”

**Rule #1:** Every side of a fitting should have minimum 1 pipe clip within a distance of max 0.5 m / 20”

**Rule #2:** Maximum 2.5 m / 8 ft between 2 pipe clips
INSTALLATION
Butterfly Valve Installation
Diameters 100 – 158 mm / 4” – 6”

1. PLACE
2. TURN 90°
3. PLACE BOLTS AND NUTS
4. TIGHTEN BOLTS CROSSWISE
   - D100: 16 Nm, 12 lbs/ft
   - D158: 38 Nm, 28 lbs/ft
5. TURN 90°
INSTALLATION

Valve Support
Diameters 20 – 50 mm / ¾” – 2”

Diameters 63 – 80 mm / 2½” – 3”

Diameter 100 – 158 mm / 4” – 6”

Note: The butterfly valves for 63 mm and 80 mm are delivered pre-assembled with the flanges.
INSTALLATION
Mounting Conductivity Strap

1. PLACE CLAMP
2. CLEAN SPOT TO BARE ALUMINIUM
3. PLACE CLAMP
4. PLACE STRAP
5. TIGHTEN
6. PLACE COPPER WIRE
7. TIGHTEN
INSTALLATION
Mounting Conductivity Strip (PF Series only)

1. MARK L
2. UNTIGHTEN
3. INSERT
4. ASSEMBLE
5. TIGHTEN
6. CHECK

number of strips
INSTALLATION
Adapter Union
PF series  Diameters 20 – 50 mm / ¾" - 2"

1. UNSCREW
2. REMOVE
3. O-RING ASSEMBLY
4. BODY ASSEMBLY
5. ADAPTER ASSEMBLY
6. SCREW ON
7. TIGHTEN
8. CHECK

45°
INSTALLATION
Adapter Union
Black Series   Diameters 63 – 80 mm / 2½” – 3”

1. UNSCREW
2. REMOVE
3. LUBRICATE O-RING
4. BODY ASSEMBLY
5. ADAPTER ASSEMBLY
6. SCREW ON
7. TIGHTEN

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INSTALLATION
Adapter Union
PM Series  Diameters 63 – 80 mm / 2 ½” – 3”

1. UNSCREW
2. REMOVE
3. O-RING ASSEMBLY
4. BODY ASSEMBLY
5. ADAPTER ASSEMBLY
6. SCREW ON
7. TIGHTEN 45 Nm
8. CHECK
AIRnet installation Instructions

Appendix A: ISO 8573-1:2010

AIRnet fulfills the requirements of ISO 8573-1:2010 (1:2:0) provided that:

- A system purge is executed with compressed air after the installation, for at least 24 hours
- A properly sized certified point of use particle filter is used
- Only NSF approved lubricant 2810 0248 00 is used
- The intake air of the compressed air system fulfills the requirements of ISO 8573-1:2010 (1:2:0)

Without a point of use filter installed, AIRnet fulfills ISO 8573-1:2010 (2.2.0).
AIRnet ball valves and butterfly valves are excluded from the certificate.
When applicable, always check the compatibility of AIRnet components with the applied cleaning processes.