

# AIRNET



## *Installation and Assembly Guide*

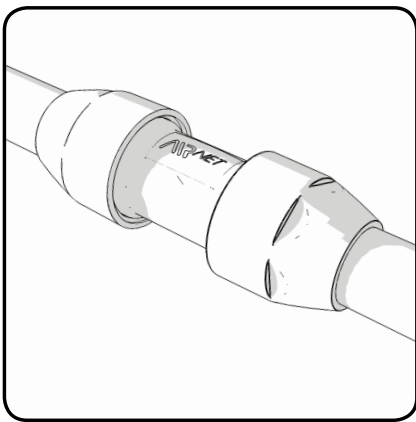
[www.airnet-system.com](http://www.airnet-system.com)

**fast** : **easy** : **reliable**

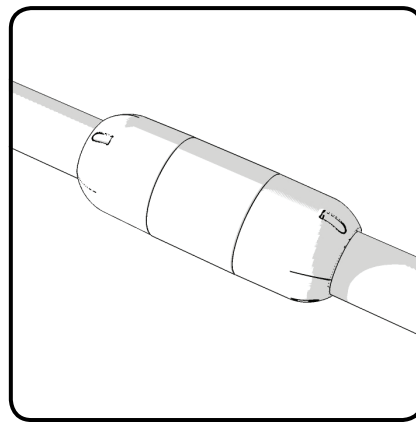
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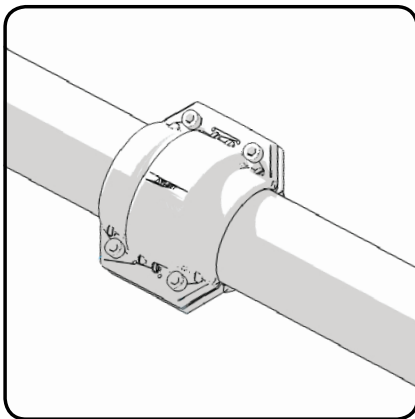
# NEED TO KNOW



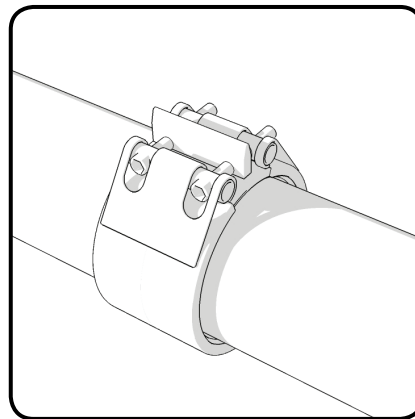
**Diameters**  
**20-50mm** 3/4" - 2" (PF Series)



**Diameters**  
**63 - 80mm** 2 1/2" - 3" (Classic)



**Diameter 100mm** 4"



**Diameter 158mm** 6"

## *What is the furthest point pressure drop?*

The furthest point **pressure drop** is the difference in pressure between the point of generation and the furthest point in your installation.

A high **pressure drop** means the regulating pressure on the compressor needs to be set higher to compensate for the **pressure drop**.

As a 1 bar (15 psi) additional operating pressure results in about 7% higher energy consumption, **pressure drops** drastically increase the electrical bill.

The **pressure drop** is influenced by various factors which we can classify from highest to lowest impact:

### ***The pipes' inner diameter***

Increasing the pipes' inner diameter reduces the **pressure drop** but increases the investment.

### ***Free air delivery***

The air demand of all downstream equipment connected to the portion of network.

### ***The friction factor***

Related to the pipe's material. Aluminium has a very low friction factor as opposed to galvanized pipes.

### ***The structure***

It is recommended to build a ring in order to reduce your **pressure drop**.

### ***The length of the network***

The longer the network, the higher the **pressure drop**.

### ***Working pressure***

When the working pressure is lower, the **pressure drop** increases.

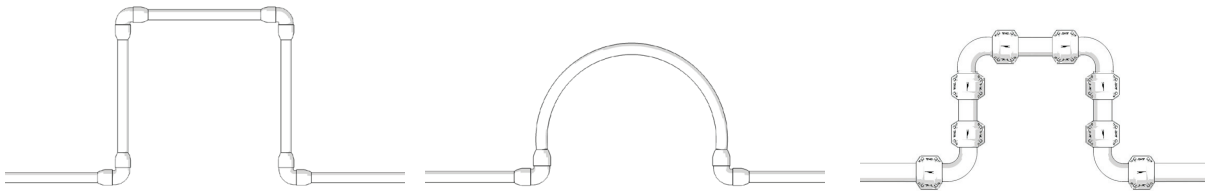
### ***Equivalent length of fitting***

Every fitting can be represented by an equivalent length of pipe that would cause the **pressure drop**.

## PRE- INSTALLATION

### *Dilatation and Expansion loops*

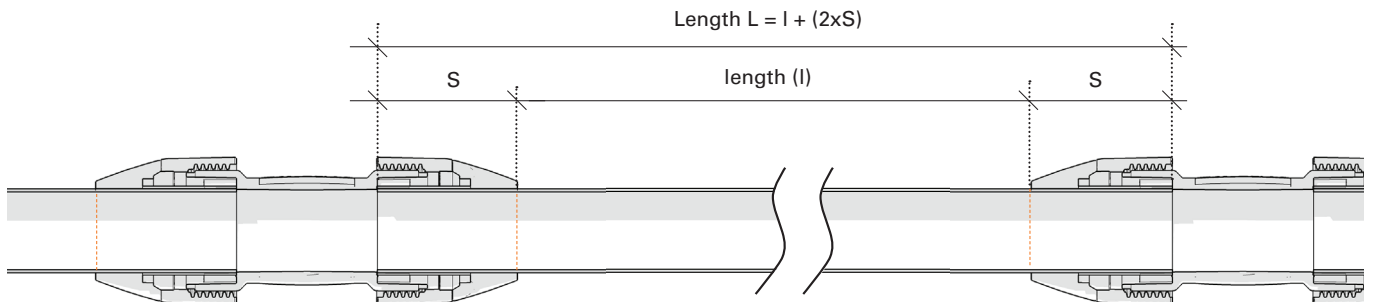
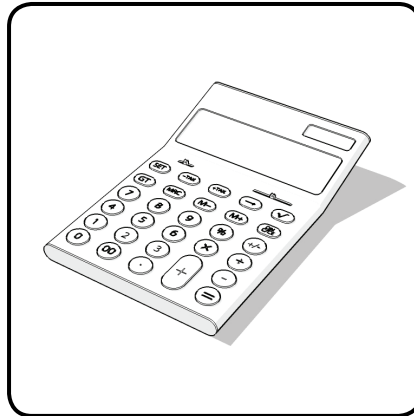
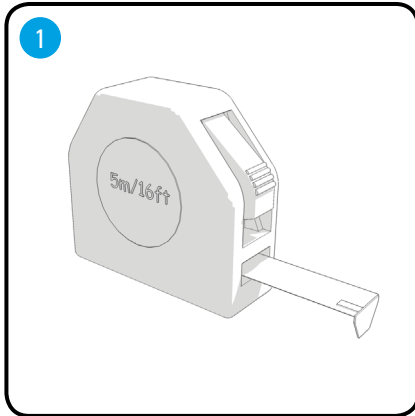
Long straight pipes can expand or contract due to temperature variations. To compensate for this effect, expansion loops are required. The number of expansion loops depends on the total length of the straight line and the maximum temperature variation. An expansion loop is a U-shaped construction that compensates the variation in length. They look like this:



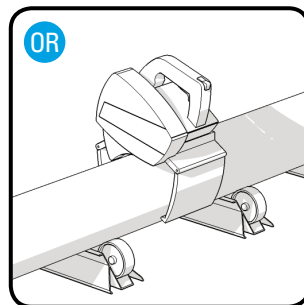
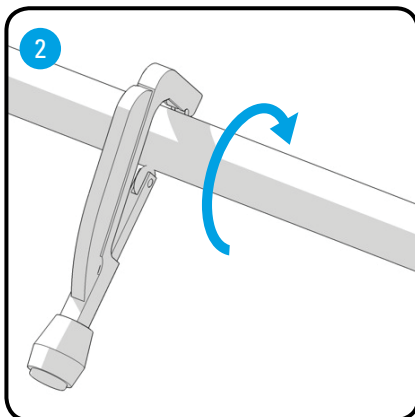
The below table clarifies the maximum possible straight distance vs. the temperature variation. When the length of the straight line exceeds the maximum, expansion loops are required to compensate for the variation in length.

$\Delta T$	$\varnothing 20 \text{ mm} / 3/4''$	$\varnothing 25 \text{ mm} / 1''$	$\varnothing 40 \text{ mm} / 1\frac{1}{2}''$	$\varnothing 50 \text{ mm} / 2''$	$\varnothing 63 \text{ mm} / 2\frac{1}{2}''$	$\varnothing 80 \text{ mm} / 3''$	$\varnothing 100 \text{ mm} / 4''$
<b>5°C / 9°F</b>	211 m / 692 ft	168 m / 551 ft	187 m / 614 ft	150 m / 492 ft	119 m / 390 ft	94 m / 308 ft	75 m / 247 ft
<b>10°C / 18°F</b>	159 m / 522 ft	127 m / 417 ft	141 m / 463 ft	113 m / 371 ft	90 m / 295 ft	71 m / 233 ft	57 m / 186 ft
<b>20°C / 36°F</b>	107 m / 351 ft	85 m / 279 ft	95 m / 312 ft	76 m / 249 ft	60 m / 197 ft	47 m / 154 ft	38 m / 123 ft
<b>30°C / 54°F</b>	80 m / 262 ft	64 m / 210 ft	71 m / 233 ft	57 m / 187 ft	45 m / 148 ft	36 m / 118 ft	29 m / 94 ft
<b>40°C / 72°F</b>	64 m / 210 ft	52 m / 171 ft	57 m / 187 ft	45 m / 148 ft	36 m / 118 ft	29 m / 95 ft	23 m / 76 ft

### Diameters 20-50mm / 3/4" - 2" (PF Series)

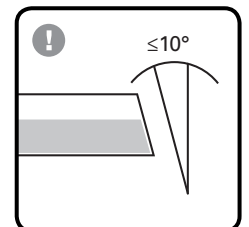


$\varnothing$	S
40mm / 1 1/2"	63mm / 2 1/2"
50mm / 2"	78mm / 2 5/8"



110V 2810 0640 80

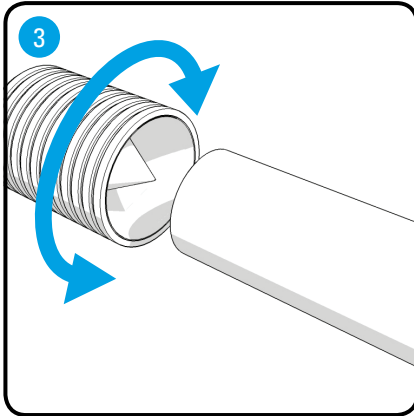
230V 2810 0540 80



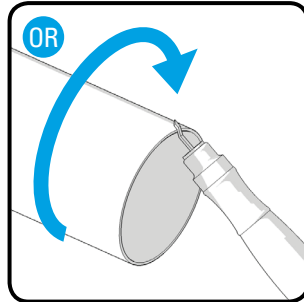
$\varnothing$  20-50 mm 2810 0040 00

# INSTALLATION

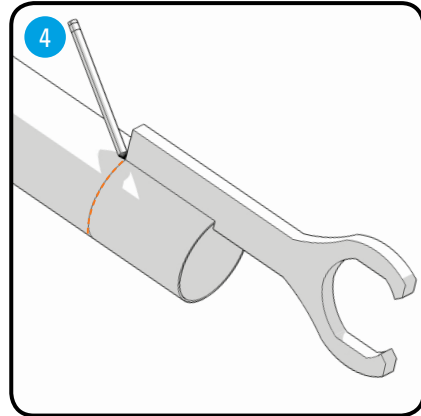
**Diameters 20-50mm / 3/4" - 2"**  
*(PF Series)*



Ø 20-50 mm    2810 0141 00

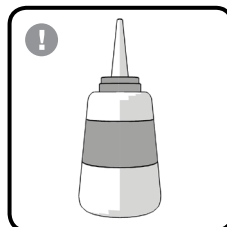
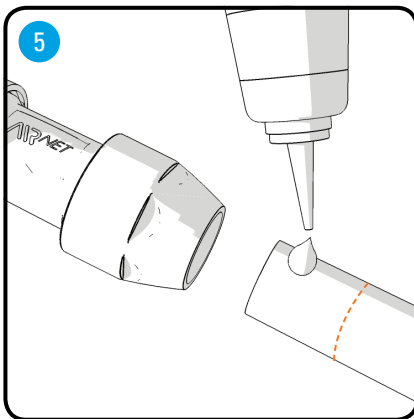


2810 0641 00

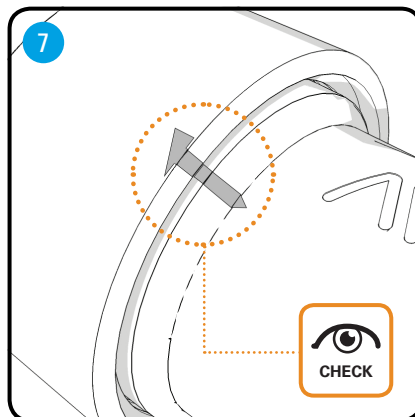
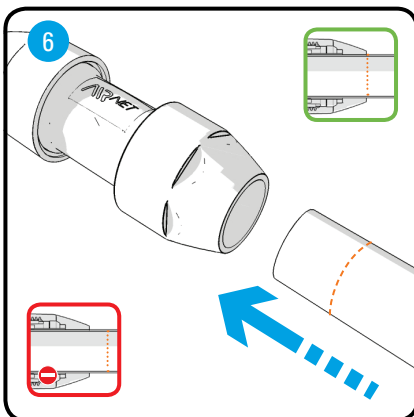


Ø 40 mm    2811 4028 00

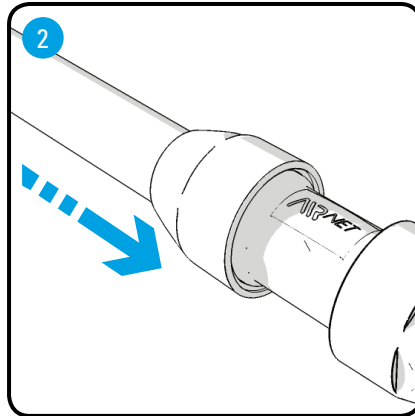
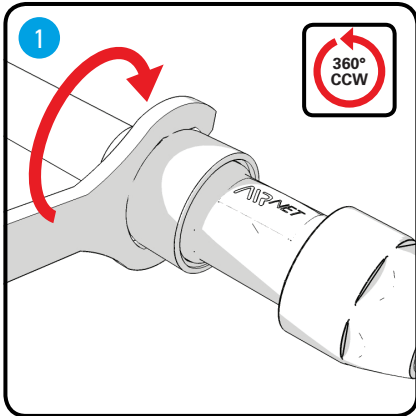
Ø 50 mm    2811 5028 00



2810 0148 00

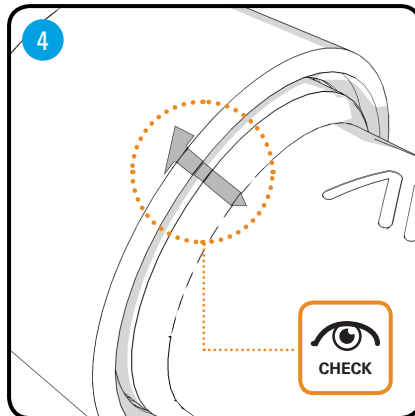
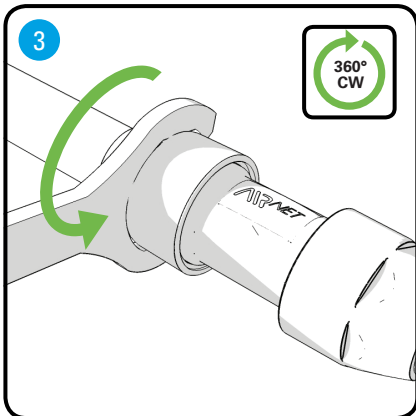


### **Diameters 20-50mm / 3/4" - 2"** **(PF Series) - Installing with limited force available**



Ø 40 mm 2811 4028 00

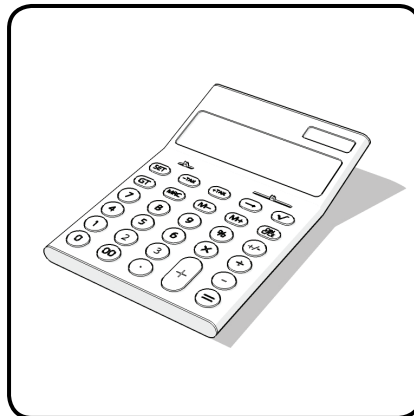
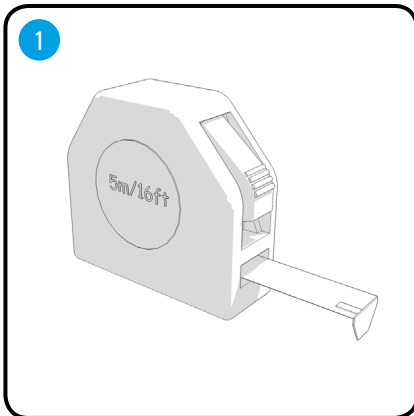
Ø 50 mm 2811 5028 00



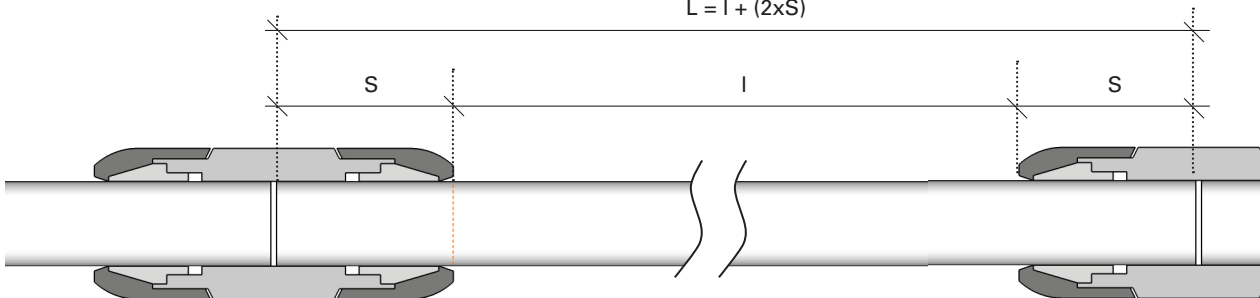


# INSTALLATION

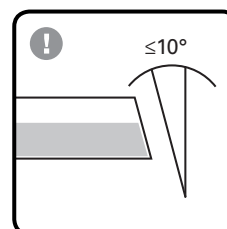
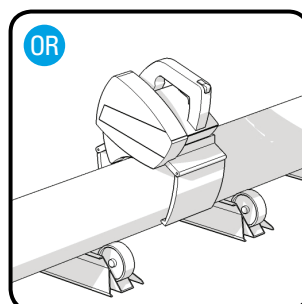
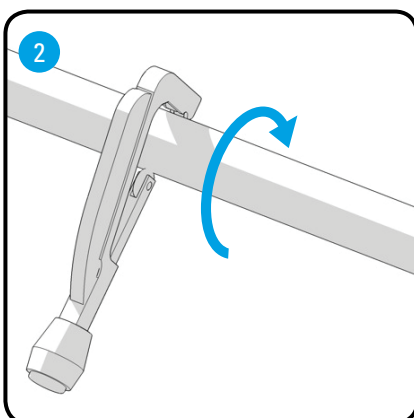
**Diameters 63 - 80mm**  
**2 1/2" - 3" (Classic)**



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



Ø	S
20mm / 3/4"	49mm / 2"
25mm / 1"	62mm / 2 1/2"
63mm / 2 1/2"	90mm / 3 1/2"
80mm / 3"	115mm / 4 1/2"



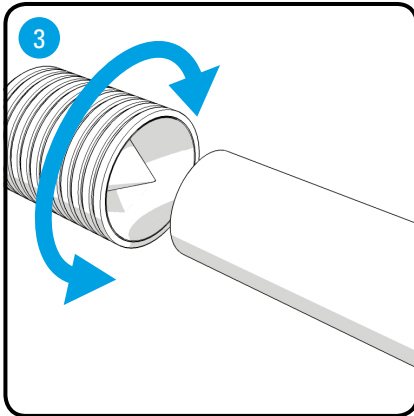
110V 2810 0640 80

230V 2810 0540 80

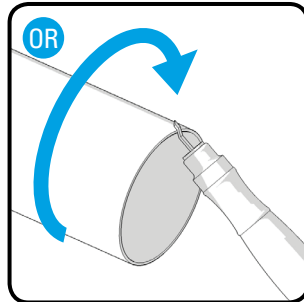
Ø 20-50 mm 2810 0040 00

Ø 63-100 mm 2810 0140 00

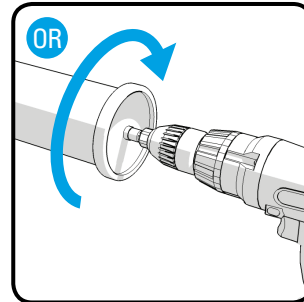
### Diameters 63 - 80mm 2 1/2" - 3" (Classic)



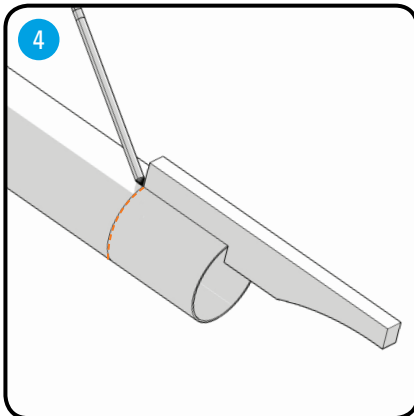
Ø 20-50 mm 2810 0141 00



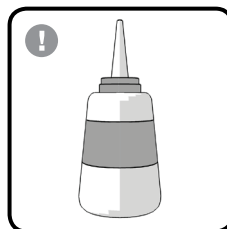
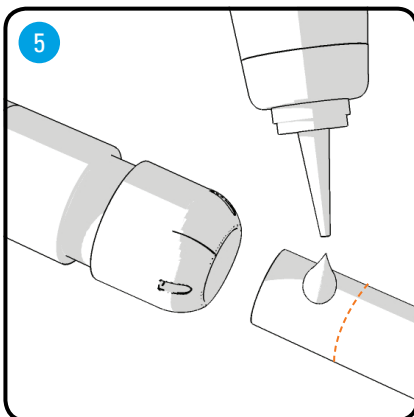
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2810 0741 00



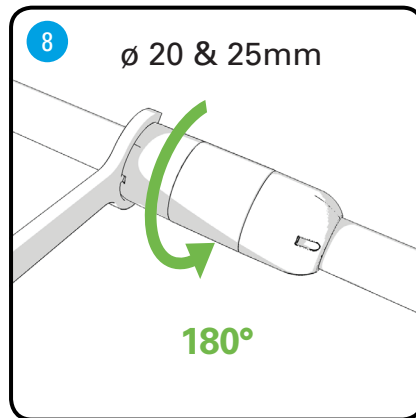
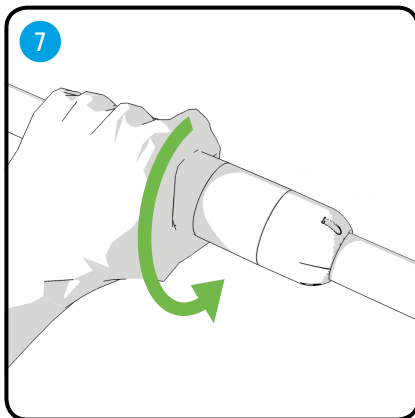
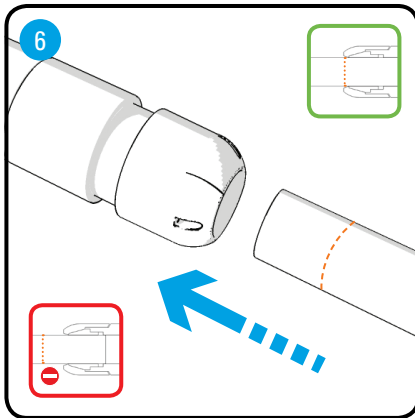
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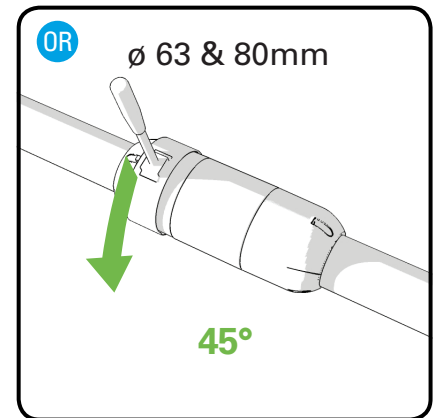
2810 0148 00

# INSTALLATION

**Diameters 63 - 80mm**  
**2 1/2" - 3" (Classic)**



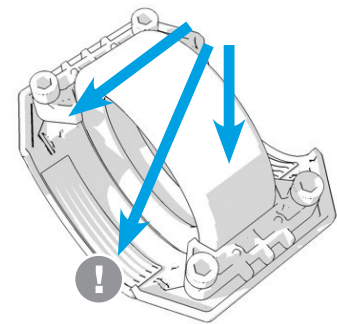
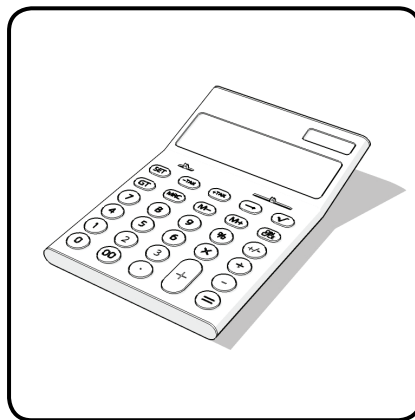
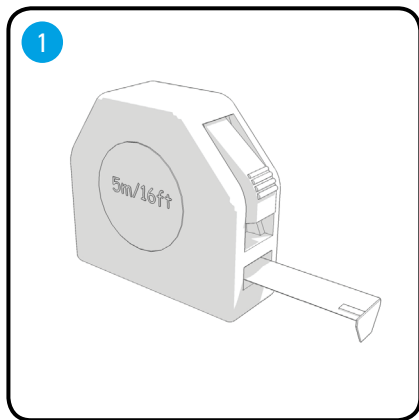
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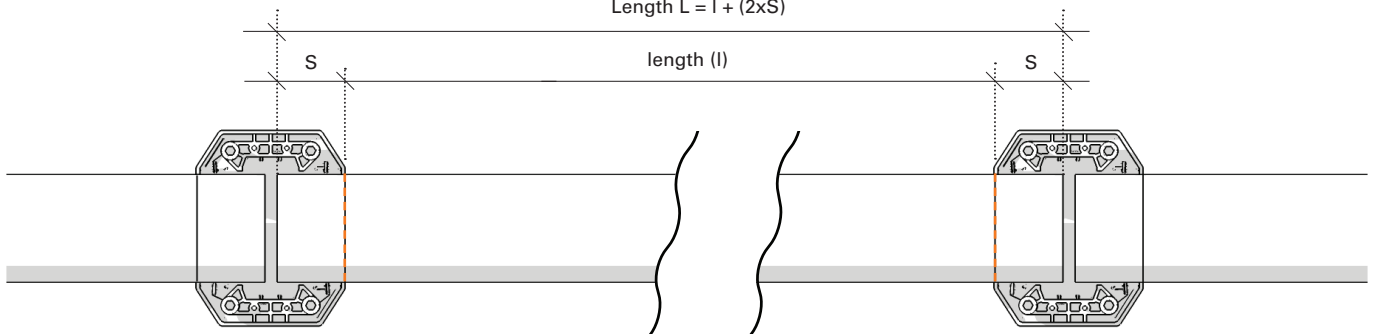
Ø 63 mm 2810 6028 00

Ø 80 mm 2810 7028 00

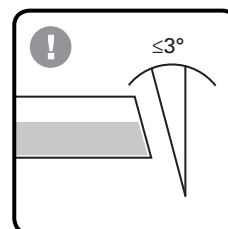
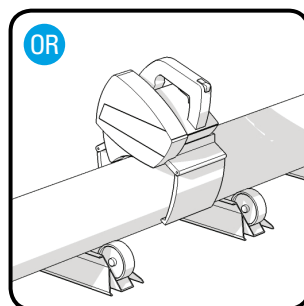
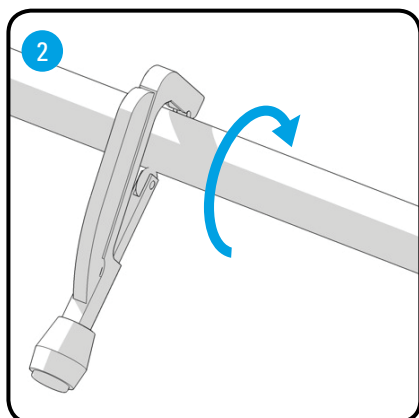
## Diameter 100mm / 4"



$$\text{Length } L = l + (2 \times S)$$



$\varnothing$	S
100mm / 4"	65,5mm / 2 1/2"

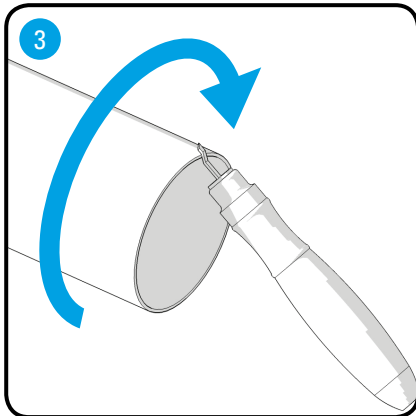


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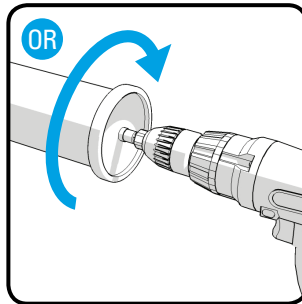
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Ø 60-100 mm 2810 0140 00

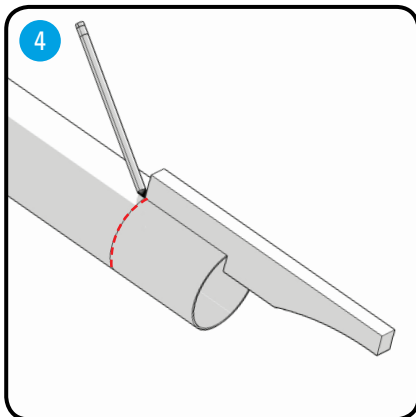
## Diameter 100mm / 4"



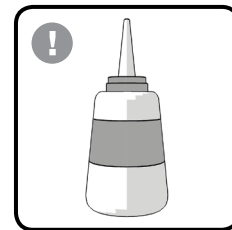
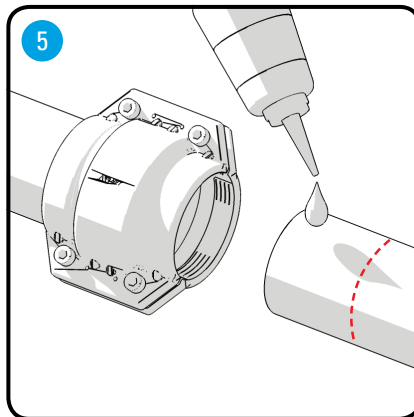
ALL 2810 0641 00



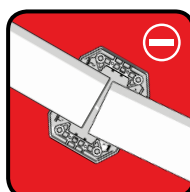
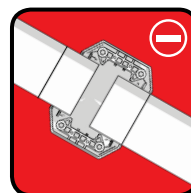
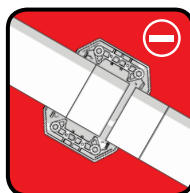
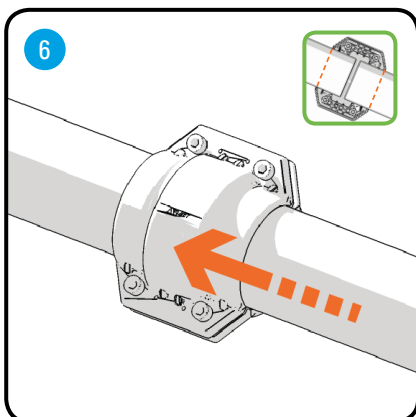
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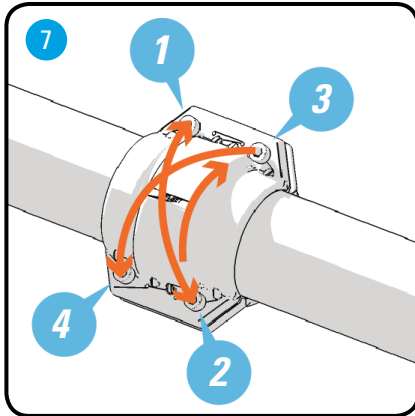
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2810 0148 00



### Diameter 100mm / 4"

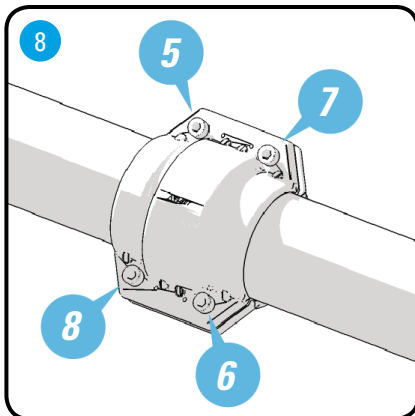


**0-5 Nm**  
**0-3.7 lbs/ft**



wrench 0462 7094 21

head 0462 1011 05

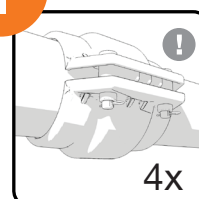
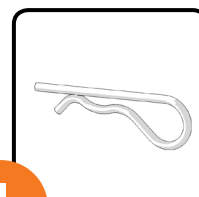
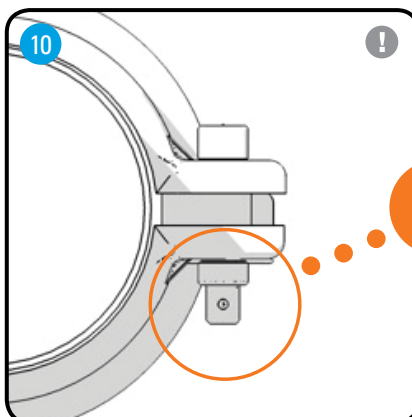
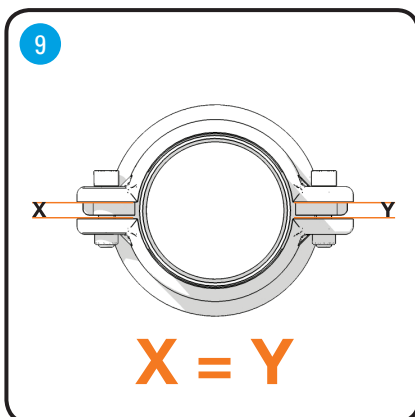


**40Nm**  
**29,5 lbs/ft**



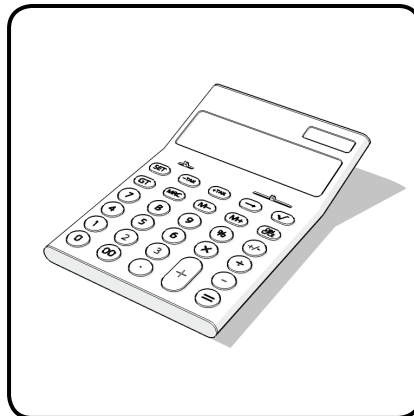
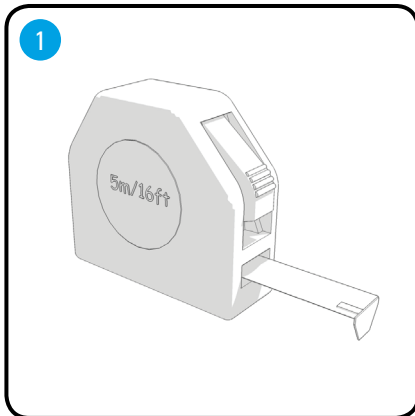
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head 0462 1011 05

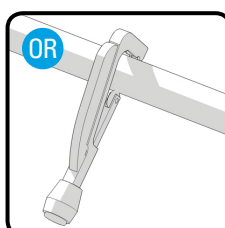
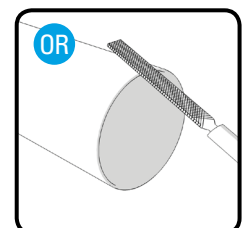
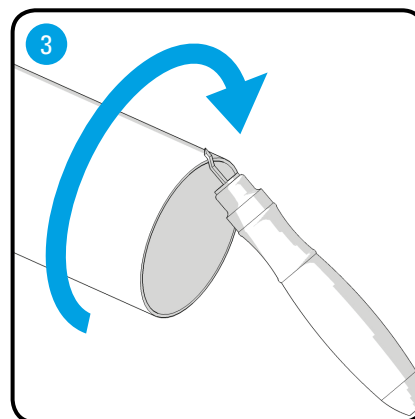
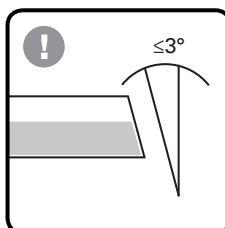
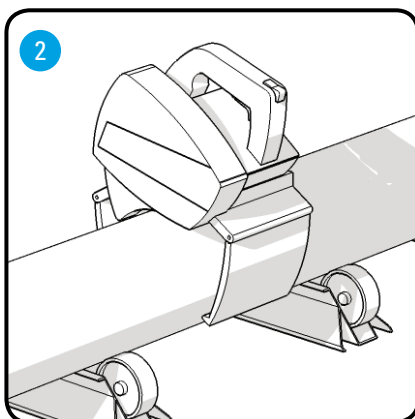
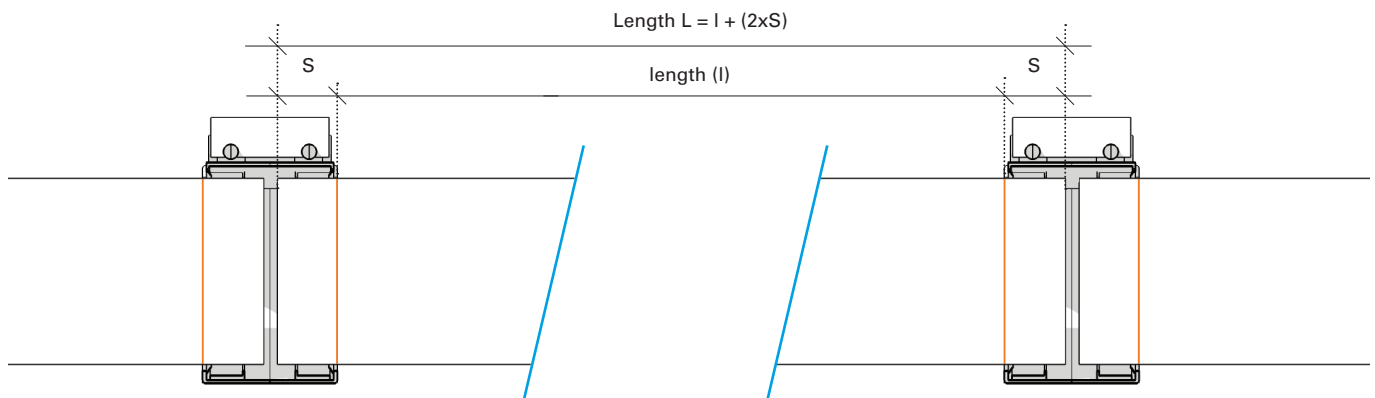


# INSTALLATION

**Diameter 158mm / 6"**



Ø	S
158mm / 6"	55mm / 2 1/8"



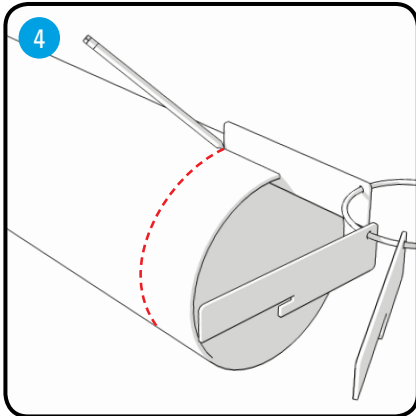
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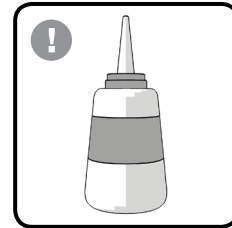
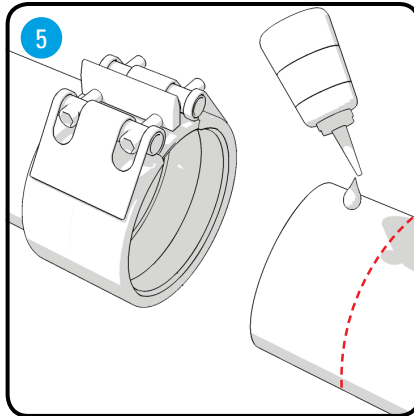
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ALL 2810 0641 00

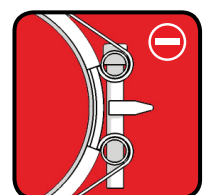
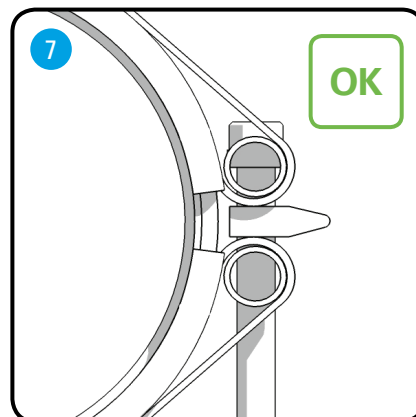
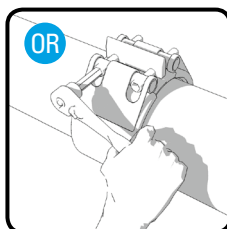
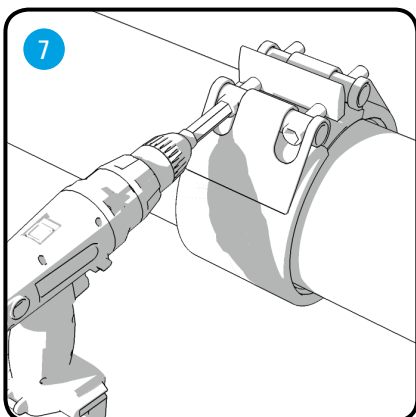
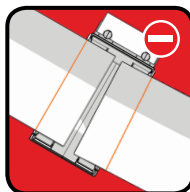
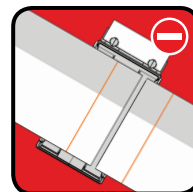
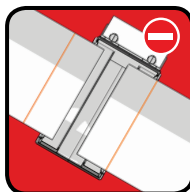
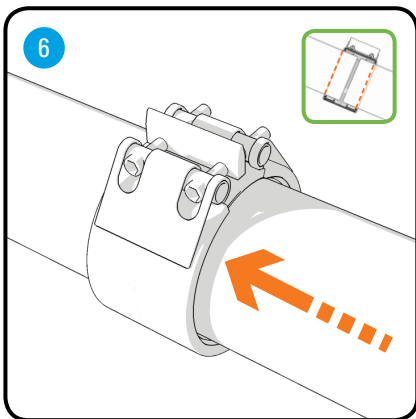
**Diameter 158mm / 6"**



2810 0129 00



2810 0148 00

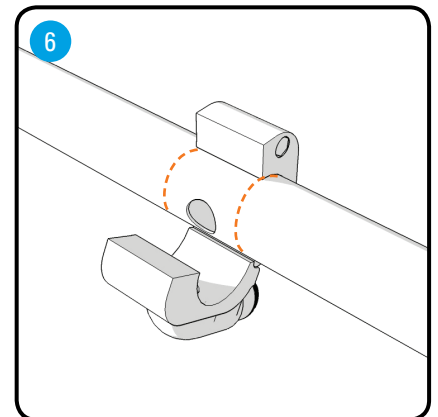
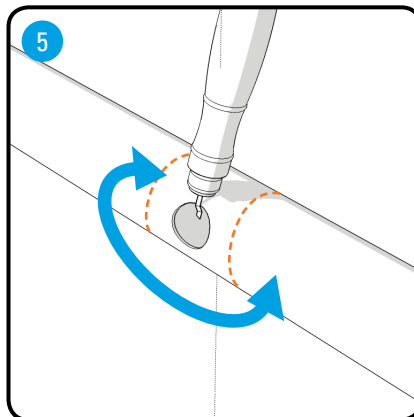
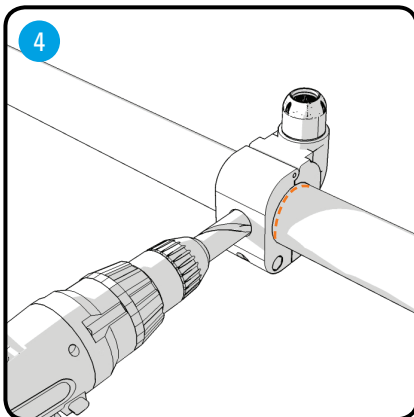
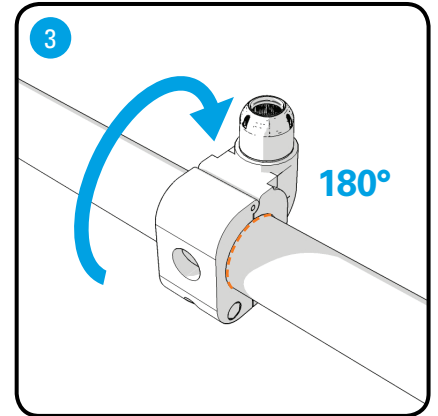
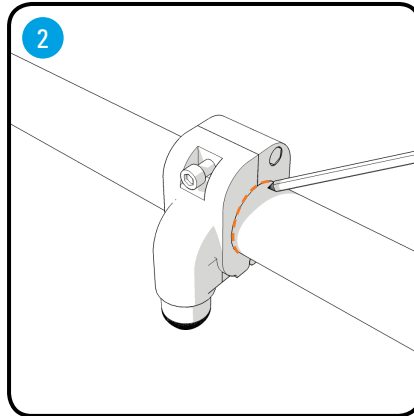
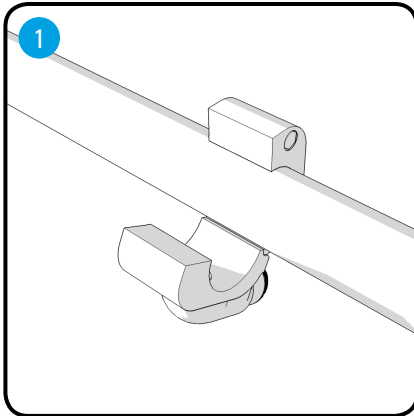




# INSTALLATION

## Quick Drop Assembly

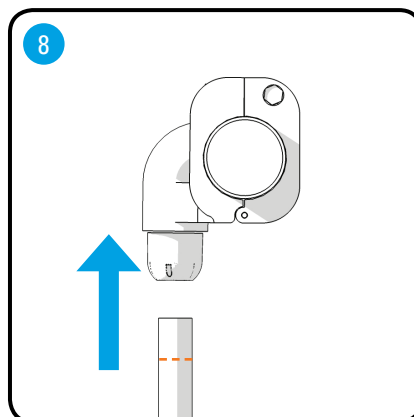
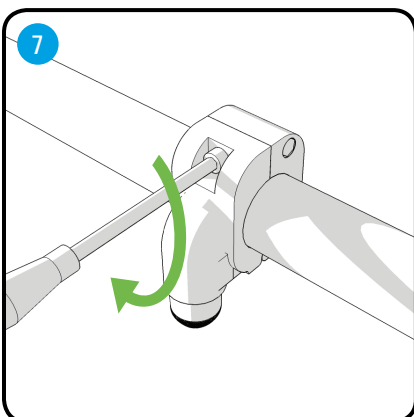
Diameters 20 - 80mm / 3/4" - 3"



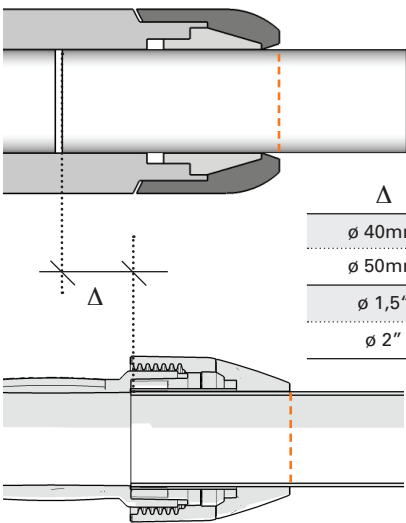
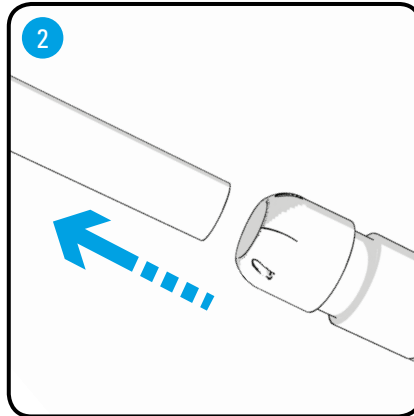
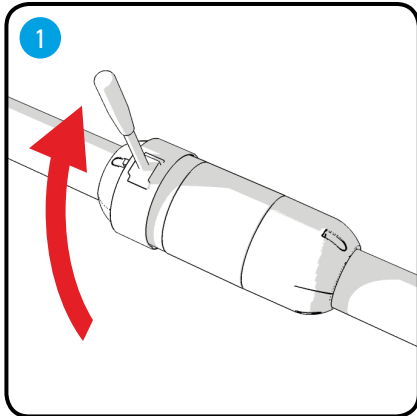
Ø 20 mm drill bit 2810 0143 00







2810 0641 00

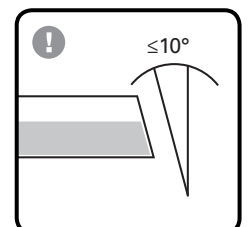
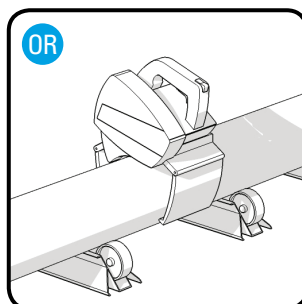
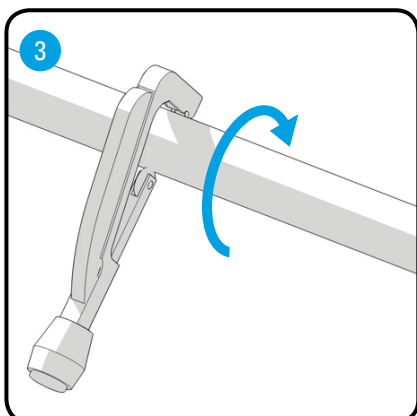
Ø 25 mm drill bit 2810 0043 00



### Replace Classic Series with new PF-Series



Δ						
ø 40mm	38mm	23mm	28mm	23mm	9mm	35mm
ø 50mm	37,5mm	32mm	35mm	32mm	0mm	34mm
ø 1,5"	1,5"	0,875"	1,125"	0,875"	0,375"	1,375"
ø 2"	1,5"	1,25"	1,375"	1,25"	0"	1,375"



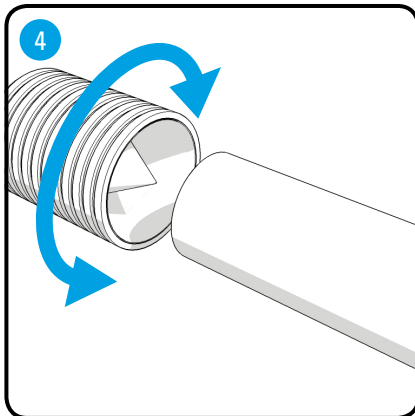
110V 2810 0640 80

230V 2810 0540 80

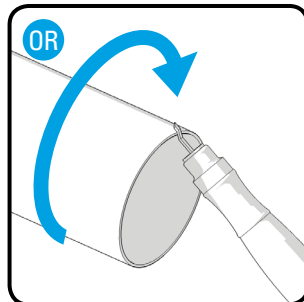
Ø 20-50 mm 2810 0040 00

# INSTALLATION

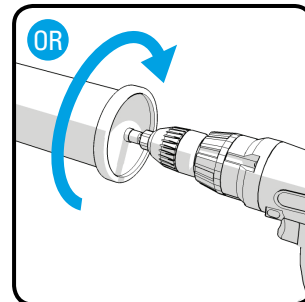
## Replace Classic Series with new PF-Series



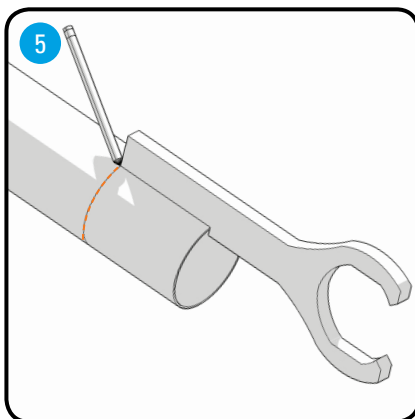
Ø 20-50 mm    2810 0141 00



2810 0641 00

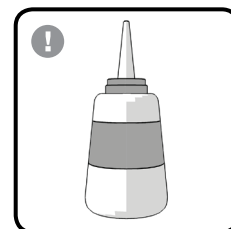
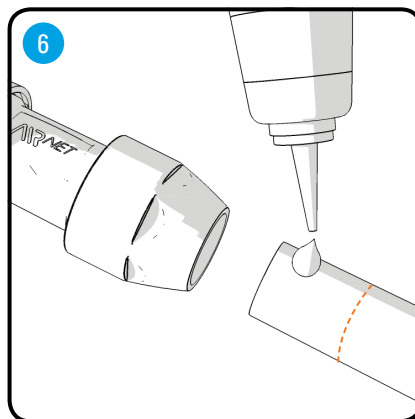


2810 0741 00

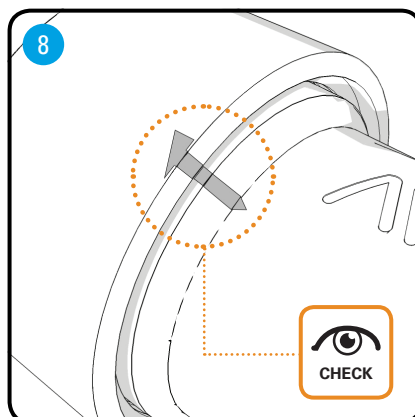
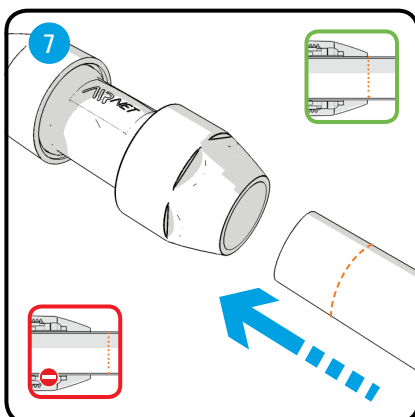


Ø 40 mm    2811 4028 00

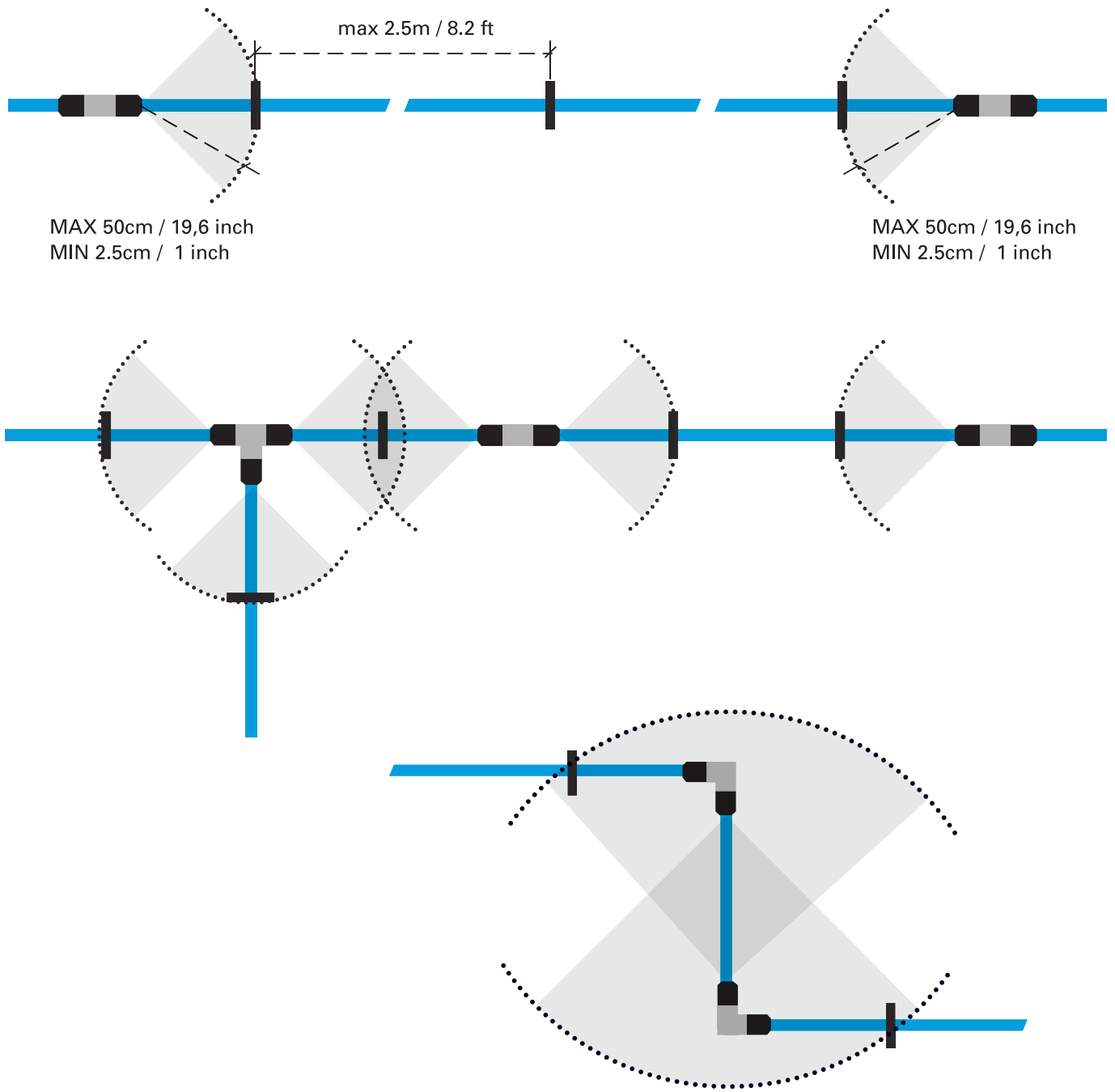
Ø 50 mm    2811 5028 00



2810 0148 00

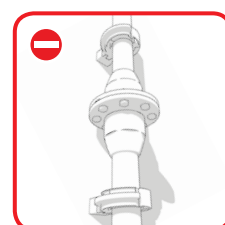
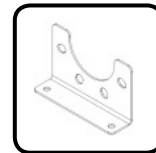
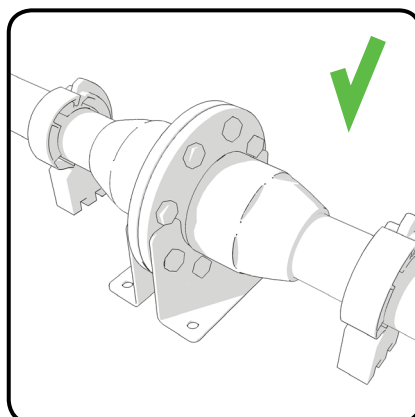
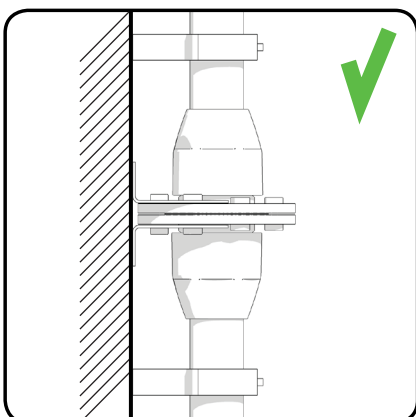
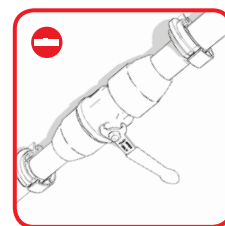
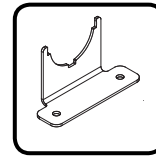
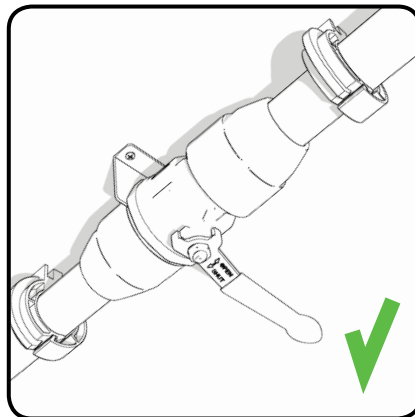
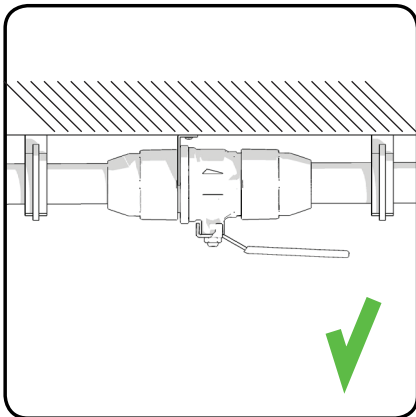
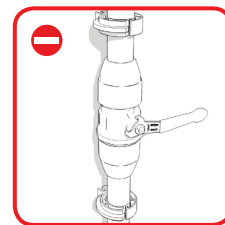
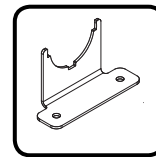
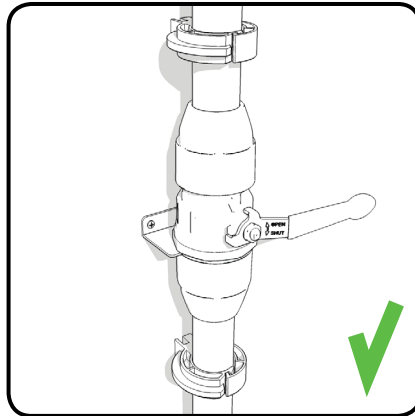
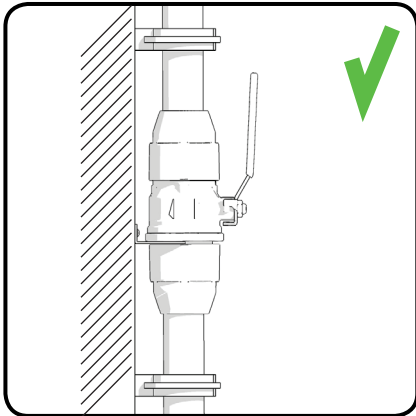


**Pipe Clips Installation (Ø20 - Ø100)**

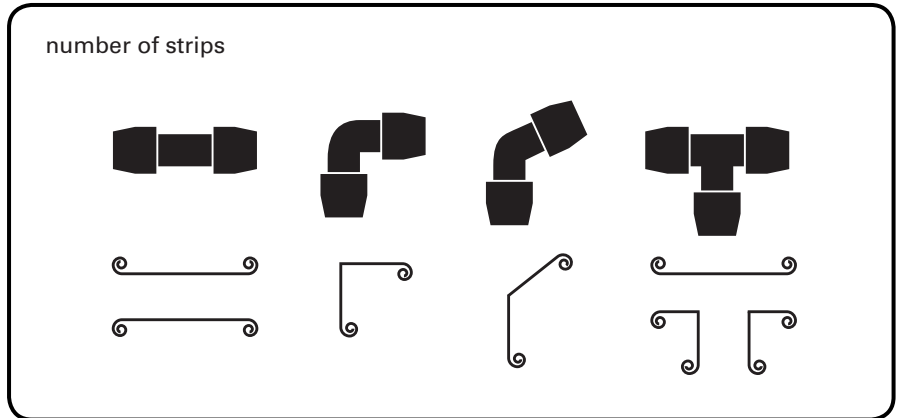
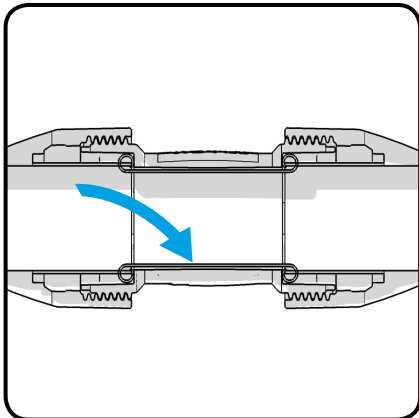


# INSTALLATION

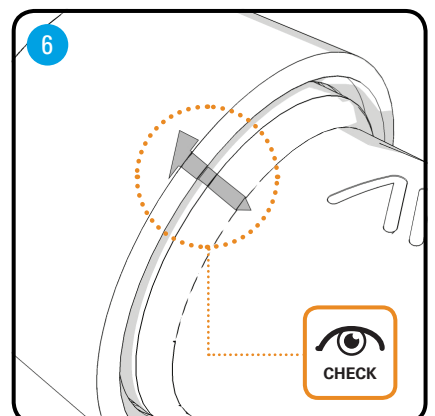
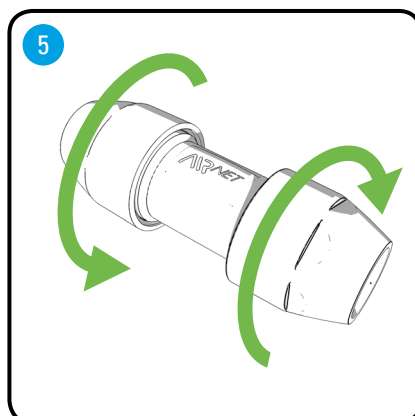
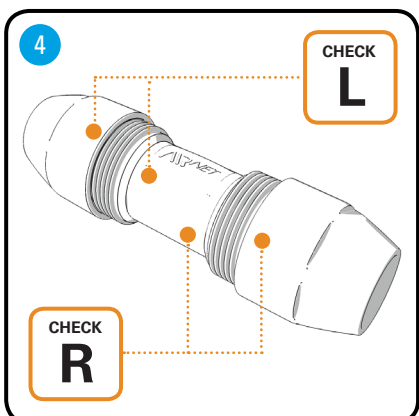
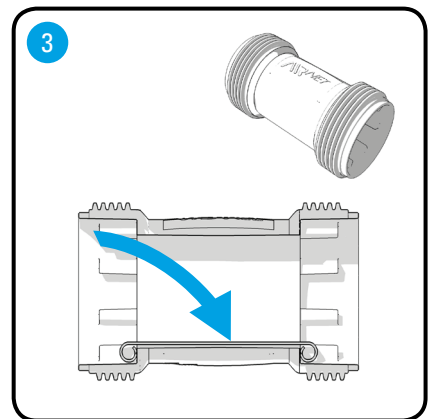
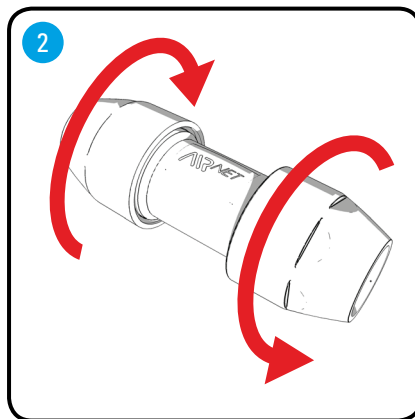
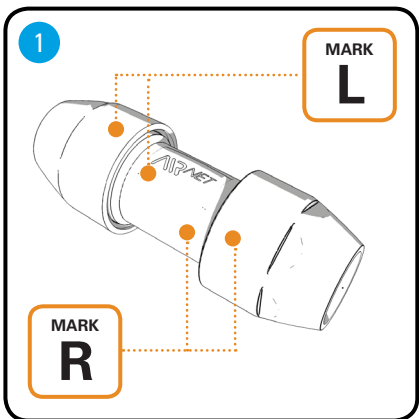
## Valve Support



### Conductivity Strip (PF Series only)

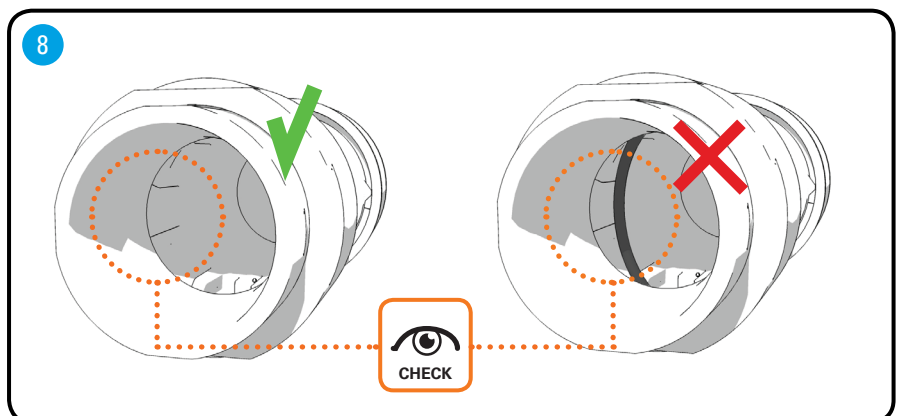
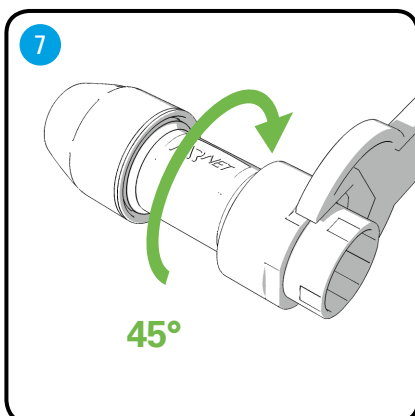
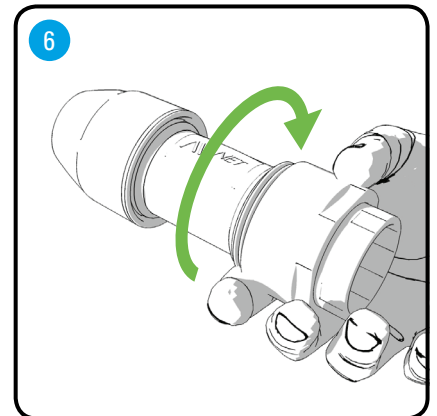
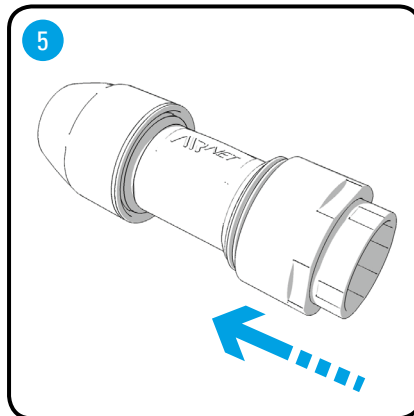
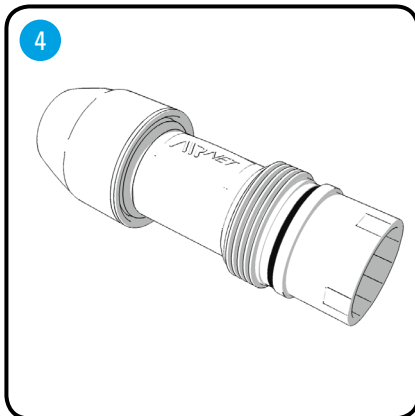
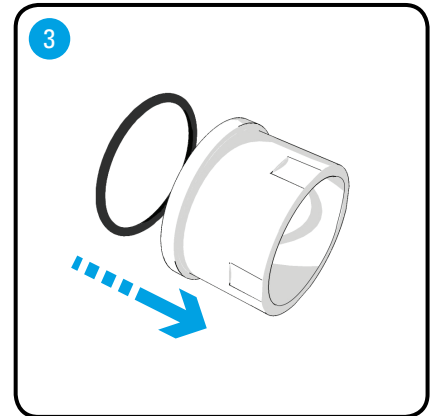
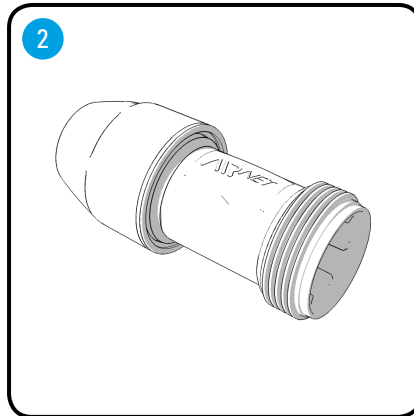
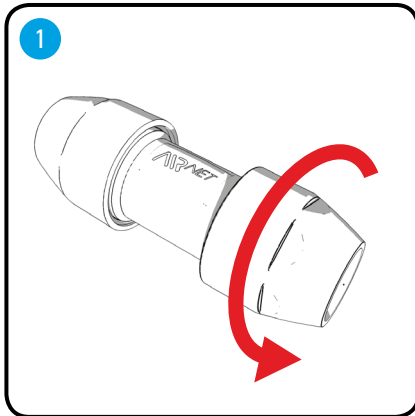


### Conductivity Strip (Optional - in case of small diameters)



# INSTALLATION

## Adapter Union



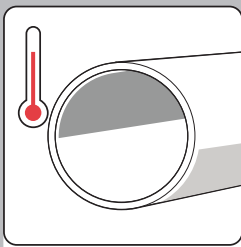
## Operating Conditions & Safety Instructions

- AIRnet has been designed to convey compressed air, inert gasses and vacuum.
- The installer must employ safe working practices and observe all related local work safety requirements and regulations.
- Installation, operation, maintenance and repair work must be performed by authorised, trained, specialised personnel.
- Before any installation, maintenance, repair work, adjustment or any other non-routine checks, relieve the system of pressure and effectively isolate the system from all sources of pressure.
- Never use the components below or in excess of its limit ratings.
- 13bar(g) safety valve should be present in installations for applications >13bar (g).
- AIRnet pipes and fittings are not suitable for embedded or buried installations.
- Do not use the AIRnet system as support for electrical equipment or earth conductor
- Use the correct tools
- Use only genuine parts
- The fittings are sensitive to direct UV radiation, in case of direct exposure, shield the fittings. The AIRnet pipes offer excellent resistance to UV radiation.
- AIRnet piping must be appropriately protected against violent impacts.
- Any plugs or caps must be removed before installing the pipes.
- Never use solvents or chemicals which can damage materials of the AIRnet.
- Check the surface of the AIRnet pipe (no relevant scratches, abrasions, dents, ...) before installing
- Never connect AIRnet pipes directly to a source of vibrations, use hoses instead.
- Before using a system, an installer must ensure that all necessary test controls and applicable rules for compressed air installations are complied.
- At initial start up, apply a test pressure of 1.5 bar to the system to identify leakage or imperfect joints. After performing the inspection, increase the pressure gradually and constantly (max. 1 bar every 30 seconds).
- AIRnet is suitable for use with compressed air (lubricated, oil free, dry and wet), vacuum (20-80mm and 158mm, 0.13bar) and nitrogen gas.\*

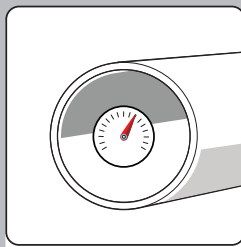
\*Always consult local regulations for above use



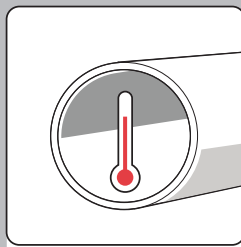
# SAFETY & SECURITY



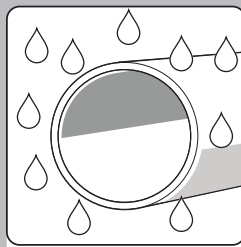
-20°C ↔ +50°C  
-4°F ↔ +122°F



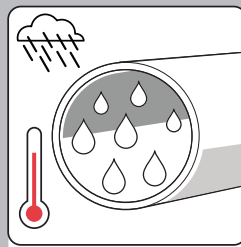
4 bar ↔ 13 bar  
60psi ↔ 188 psi



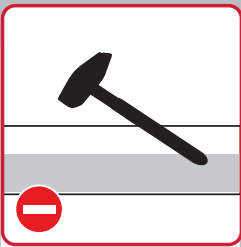
-20°C ↔ +70°C  
-4°F ↔ +158°F



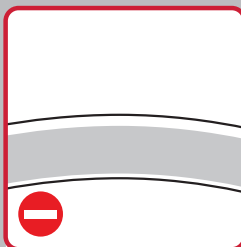
Rh 100%



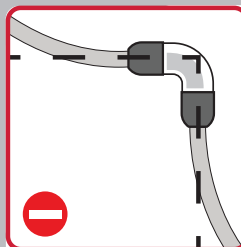
-70°C  
-94°F



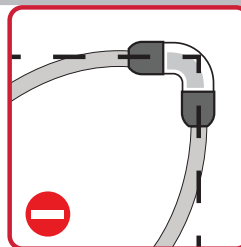
DO NOT STRIKE



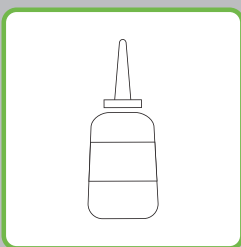
DO NOT BEND



RESPECT GEOMETRY OF FITTINGS



COMPATIBLE WITH  
LUBRICANTS



REUSEABLE

## *fast*

Thanks to a smart design and low weight materials, AIRnet can be installed 70% faster than conventional systems.

## *easy*

AIRnet pipes and fittings are assembled in just a few steps by a single installer, without the need for heavy machinery.

## *reliable*

The durable, corrosion-free AIRnet pipes and fittings come with a 10-year warranty. Low friction and seamless connections minimize pressure drop.



97/23/EC  
ASME B31.1  
EN755  
Qualicoat  
Test in accordance with EN 10204  
TUV Certification DR97/23/EG art. 3.3

### *Your Dealer*