12
2021

# Stainless Steel

Installation and Assembly Guide

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# Operating Conditions

## Operating Conditions

AIRnet stainless steel pipes and fittings are designed to convey compressed air and vacuum. The system can also be used for nitrogen, helium, argon, neon, xenonand 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 stainless steel pipes and fittings must only be used within the pressure and temperature specifications referred to in the AIRnet Stainless Product Information Sheet.

AIRnet stainless steel pipes and fittings must be appropriately protected against violent impacts and wind gusts.

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

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

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

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

AIRnet pipes and fittings are not suitable for direct contact with soil. A watertight PVC pipe suited for underground or outside installations can be used to install around the AIRnet pipe.

## AIRnet installations in explosive environments

Cutting, deburring and assembly of AIRnet stainless steel pipes can create sparks. Necessary precautions in explosive atmospheres must be taken.

AIRnet stainless steel installations in explosive environments must always be earthed. Bonding and earthing must be checked at frequent intervals to secure that the system cannot be electrically charged.

## Purity Remarks

To guarantee the purity of the compressed air at the point of use:

- a system purge of at least 24h is highly recommended.
- a properly sized certified point-of-use filter is advised, depending on the application requirements.

AIRnet stainless steel cannot be allowed to convey any end products (food, beverage, pharmaceuticals, etc.)

# Safety Instructions

## Safety Instructions

AIRnet is not meant to bear weight beside its own weight. Heavier accessories incorporated into the AIRnet system (like filters or valves) need proper supporting.

Do not use any other brand fittings or pipes in combination with AIRnet aluminum products.

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 gases other than air.

Please consider the potential galvanic corrosion when combining parts with different material.

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 stainless steel 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.

Please conduct an LMRA (last minute risk assessment) before commencing an AIRnet installation.

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

At initial startup 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.

Never use damaged AIRnet fittings or tools.

AIRnet
stainless steel

# Product Information

AIRnet stainless steel is a piping system designed to deliver a fast, easy, reliable and clean distribution network for compressed air, nitrogen, vacuum specifically for industries that demand the highest quality of air.

| | | |
|---|---|---|
| **Product Range** | Pipes SS304L: D15 (½"), D28 (1"), D35 (1 ¼"), D42 (1 ½"), D54 (2"), D76 (2 ¾"), D89 (3 ½"), D108 (4")<br>Pipes SS316L: D15 (½"), D28 (1"), D42 (1 ½") | |
| **Applications** | Compressed Air, Nitrogen, Vacuum... | |
| **Material** | Stainless Steel AISI 316L 1.4404<br>Stainless Steel AISI 304L 1.4301 | EN10088<br>ASTM A666 |
| **Safety factor** | 4, Burst pressure > 64 Bar (> 928 PSI) | |
| **Working pressure** | 16 Bar (232 PSI) | |
| **Working temperature** | -20°C to 120°C (- 4°F to 248° F) | |
| **Vacuum level** | 20 mbar (0.29 PSI) abs | |
| **Dewpoint** | Lowest allowable pressure dewpoint is -70°C (-94°F) | |
| **Treatment** | Annealing | |

| | | |
|---|---|---|
| **Fittings** | D15 (½"), D28 (1"), D35 (1 ¼"), D42 (1 ½"), D54 (2"), D76 (2 ¾"), D89 (3 ½"), D108 (4") | |
| **Connection** | Press fit system | |
| **Materials** | Stainless steel AISI 316L 1.4404 | EN10088<br>ASTM A666 |
| **Seal fittings** | FKM (fluoroelastomer) | |

# LMRA (Last Minute Risk Assessment)

This checklist is a risk assessment to be performed on-site at the customer and must be preceded by a detailed risk assessment.

## General

### STEP 1: EVALUATION BEFORE THE START OF WORK

| | YES | NO | N/A |
|---|---|---|---|
| Do I know what to do and how? | | | |
| Am I trained to do this kind of work? | | | |
| Is my work equipment suitable and in good condition / inspected? | | | |
| Do I have the necessary PPE, and do they offer appropriate protection? | | | |
| Do I have a work permit that allows me to start? | | | |
| Is my working environment free of slipping, tripping and/or falling hazards? | | | |
| Is my work environment sufficiently enlightened? | | | |
| Have I identified all energy sources and followed the Lock Out – Tag Out procedure? | | | |
| Do I know the VGM regulations of dangerous products that I am going to use? | | | |
| Is the atmosphere in and around my work environment safe? (confined space, explosion) | | | |
| Is the danger of falling objects excluded? | | | |
| Am I sufficiently protected against falls from height? | | | |
| Are the weather conditions good? | | | |
| Can I lift loads manually in an ergonomic way? | | | |
| Is my work environment defined? | | | |
| Is there regular supervision when I work in isolation? | | | |
| Am I aware of the risks of other activities in my work environment? | | | |
| Do I know the locations of first aid equipment (e.g. emergency shower, eyewash bottle) | | | |
| Do I know the locations of firefighting equipment (e.g.; extinguisher, reel) | | | |
| Do I know the alarm procedure and numbers in the event of a fire or accident? | | | |
| Do I know my escape route and evacuation site? | | | |
| Have I taken all measures to prevent environmental pollution? | | | |

# LMRA (Last Minute Risk Assessment)

**AIRnet specific**

| | YES | NO | N/A |
|---|---|---|---|
| Did I read and understand the installation manual for AIRnet - www.airnet-system.com | | | |
| Is scaffolding and/or lifting equipment inspected and in good condition? | | | |
| Will the AIRnet system be installed within the limits of the product in terms of environment, pressure and temperature? | | | |
| Will the AIRnet system be used for the gasses mentioned in the technical datasheet OR has a written confirmation from the manufacturer been obtained that claims AIRnet can be used for this type of gas? | | | |
| Will the AIRnet system be properly earthed (electrically?) | | | |
| Did I check for any damage to the AIRnet material due to transport? | | | |

## STEP 2: MEASURES TO ELIMINATE OR REDUCE EXISTING RISKS TO AN ACCEPTABLE LEVEL

| |
|---|
| |
| |
| |
| |

## STEP 3: PRESENT WHEN FORMATTING THIS LMRA

| Name | Date | Signature |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

# Commissioning report

| | |
|---|---|
| Certified installer: | Responsible AIRnet champion: |
| Customer: | Commissioning date (dd/mm/yyyy): |
| Customer address: | |
| ☐ Expansion of existing installation | ☐ New installation |

## Before installation

### SAFETY

☐ All safety instructions at customer site have been acknowledged and applied.

☐ The AIRnet installation manual (latest version is available on the website: https://www.airnet-system.com/en) has been read and understood. The installation is carried out in accordance with the instructions in this manual.

### MEDIUM

☐ Compressed air
☐ Vacuum
☐ Nitrogen
☐ Other: _____

| | |
|---|---|
|  | $T_{MAX}$ _____ °C / °F<br>$T_{AVG}$ _____ °C / °F<br>$T_{MIN}$ _____ °C / °F |
|  | Working pressure<br>_____ bar(g) / psi |

### AMBIENT CONDITIONS

The installation is installed:

☐ Indoor
☐ Outdoor
☐ The piping is protected against violent impacts and wind gusts

### NETWORK LAYOUT

☐ To ensure proper draining of condensate, pipes should be sloped at 1-2% and a drain point should be foreseen at every lowest point of the line.

☐ Ensure that pressure vessels are bolted to the floor, and that vibrations may not be transmitted to the AIRnet piping.

☐ Expansion loops
Number of expansion loops or compensators:

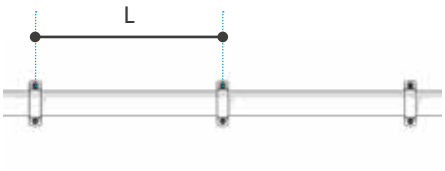
_____

Longest straight line: _____ m/ft

## Installation

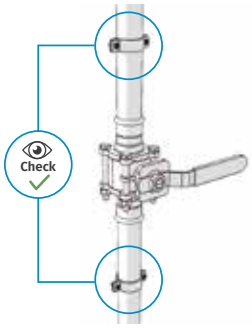
☐ Check if enough supporting is used based on the table on the right. The table shows the maximum allowed distance L between two pipe clips.

| External pipe diameter (mm / inch) | Maximum distance (m / ft) |
|---|---|
| 15 / ½" | 1,5 / 5 |
| 28 / 1" | 2,5 / 8 |
| 35 / 1 ¼" | 2,5 / 8 |
| 42 / 1 ½" | 3 / 10 |
| 54 / 2" | 3,5 / 11,5 |
| 76 / 2 ¾" | 4 / 13 |
| 89 / 3 ½" | 4,5 / 14,5 |
| 108 / 4" | 5 / 16 |

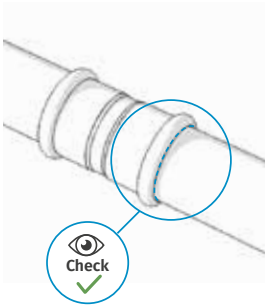


# Commissioning report

☐ All valves and flanges are supported by a pipe clip on both sides




☐ Insertion depth markers have been checked on at least 10% of fittings




## Commissioning

☐ The installation has been tested according to the procedure below

1. Apply pressure of 1,5 bar / 22 psi to the system.
2. Check if the pressure is dropping between the end of the line and the vessel. If pressure remains stable, go to point 4.
3. Use leak finder spray or an ultrasonic leak detector to find the leak. Depressurize the system, rectify the leak and go back to step 1.
4. Increase pressure gradually (max 1 bar / 14 psi every 5 minutes)
5. Close the main valve and monitor the pressure at the end of the line for 30 minutes. If the pressure is dropping, go to point 3.
6. To be checked: 24h before handover

Leaks / disconnections detected during first pressurization at 1,5 bar / 22 psi

☐ No
☐ Yes, _____ leaks found
☐ Yes, _____ disconnections

Leaks / disconnections detected during final pressurization at working pressure

☐ No
☐ Yes, _____ leaks found
☐ Yes, _____ disconnections

What is the pressure difference between the compressor room and final point of use? _____ bar(g)

## Signatures

| AIRnet installer | AIRnet champion | Customer representative |
|---|---|---|
| | | |

# Cleaning products

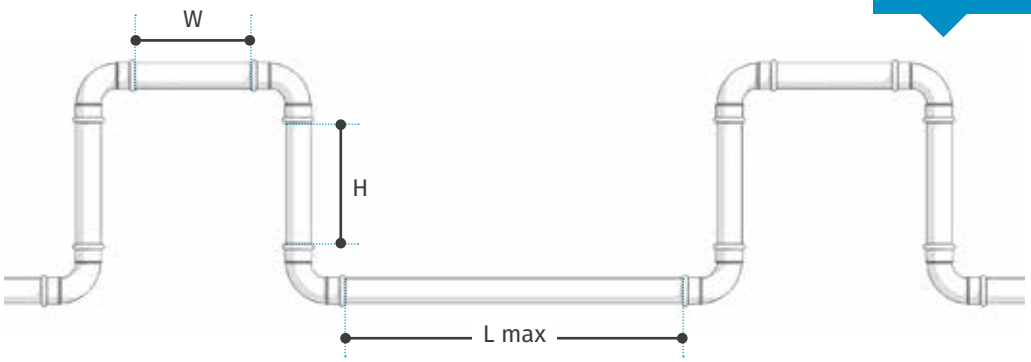


| Product | Usage in the field | Aluminum of pipes | Blue coating on alu pipes | PF series fittings | Brass couplings | NRB rubber seals of butterfly valves | Black coating on PM series | Stainless steel 304L | Stainless steel 316L | O-rings in SS fittings |
|---|---|---|---|---|---|---|---|---|---|---|
| **Disinfection/ sterilization** | | | | | | | | | | |
| Ethyl Alcohol (ethanol) (60-90%) | Seldom, used on small external surfaces | Good | Good | Good | Good | Good | Resistant | Good | Good | Good |
| Isopropyl alcohol (isopropanol) | Seldom, used on small external surfaces | Good | Good | Good | Good | Good | Resistant | Good | Good | Good |
| Amphoterics | | Good | Unknown | Unknown | Unknown | Unknown | Unknown | Good | Good | Unknown |
| Quaternary ammonium compounds (QAC) | environmental sanitation of noncritical surfaces | Good | Unknown | Unknown | Good | Unknown | Unknown | Good | Good | Unknown |
| Gluteraldehyde | high-level disinfectant for medical equipment, not for non-critical surfaces | Good | Unknown | Good (Butanal: partially resistant) | Good | Good | Unknown | Good | Good | Unknown |
| Formaldehyde | Seldom, produces carcinogenic fumes | Good | Unknown | Good (at concentration of 40% or less) | Good (at concentration of 40% or less) | Good (at concentration of 40% or less) | Good | Good | Good | Good (at concentration of 40% or less) |
| **Whole Room disinfection/ sterilization** | | | | | | | | | | |
| QAC fogging | | Unknown | Unknown | Unknown | Unknown | Unknown | Good | Unknown | Unknown | Unknown |
| **Cleaning (components)** | | | | | | | | | | |
| surfactants (detergents in general) | | Good | Unknown | Good | Good | Good | Good | Good | Good | Good |
| Ethylene diamine tetracetic acid (EDTA) | | Unknown | Unknown | Good | Not resistant | Good | Unknown | Good | Good | Not resistant |

# Expansion loops and compensators

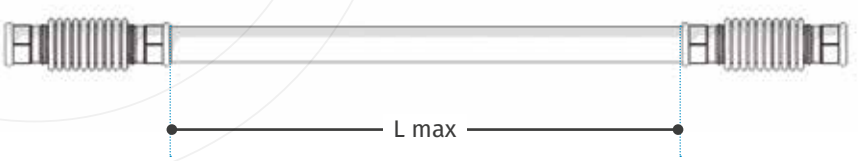
Long straight pipes will expand or contract due to temperature variations. To compensate for this effect, expansion loops or compensators are required. An expansion loop is a U-shaped construction that compensates the variation in length. Compensators are straight fittings specifically designed to allow axial movement. The number of expansion loops / compensators depends on the total length of the straight line and the maximum temperature variation.

The below table gives the maximum possible straight distance between two expansion loops with fixed piping vs. the temperature variation:




| | Ø15 mm / 1/2" | Ø28 mm / 1" | Ø35 mm / 1 1/4" | Ø42 mm / 1 1/2" | Ø54 mm / 2" | Ø76 mm / 2 3/4" | Ø89 mm / 3 1/2" | Ø108 mm / 4" |
|---|---|---|---|---|---|---|---|---|
| **H** | 0,75 m / 2,5 ft | 1 m / 3,3 ft | | 1,25m / 4,1 ft | | 1,5 m / 5 ft | | 1,75 m / 5,75 ft |
| **W** | 0,375 m / 1,25 ft | 0,5 m / 1,6 ft | | 0,625m / 2 ft | | 0,75 m / 2,5 ft | | 0,875 m / 2,9 ft |
| Δt | Maximum distance between two expansion joints | | | | | | | |
| 5°C / 9°F | 726 m / 2383 ft | 691 m / 2269 ft | 553 m / 1815 ft | 720 m / 2364 ft | 560 m / 1838 ft | 573 m / 1881 ft | 489 m / 1606 ft | 549 m / 1802 ft |
| 10°C / 18°F | 363 m / 1191 ft | 345 m / 1134 ft | 276 m / 907 ft | 360 m / 1182 ft | 280 m / 919 wft | 286 m / 940 ft | 244 m / 803 ft | 274 m / 901 ft |
| 20°C / 36°F | 181 m / 595 ft | 172 m / 567 ft | 138 m / 453 ft | 180 m / 591 ft | 140 m / 459 ft | 143 m / 470 ft | 122 m / 401 ft | 137 m / 450 ft |
| 30°C / 54°F | 121 m / 397 ft | 115 m / 378 ft | 92 m / 302 ft | 120 m / 394 ft | 93 m / 306 ft | 95 m / 313 ft | 81 m / 267 ft | 91 m / 300 ft |
| 40°C / 72°F | 90 m / 297 ft | 86 m / 283 ft | 69 m / 226 ft | 90 m / 295 ft | 70 m / 229 ft | 71 m / 235 ft | 61 m / 200 ft | 68 m / 225 ft |
| 50°C / 90°F | 72 m / 238 ft | 69 m / 226 ft | 55 m / 181 ft | 72 m / 236 ft | 56 m / 183 ft | 57 m / 188 ft | 48 m / 160 ft | 54 m / 180 ft |
| 60°C / 108°F | 60 m / 198 ft | 57 m / 189 ft | 46 m / 151 ft | 60 m / 197 ft | 46 m / 153 ft | 47 m / 156 ft | 40 m / 133 ft | 45 m / 150 ft |
| 70°C / 126°F | 51 m / 170 ft | 49 m / 162 ft | 39 m / 129 ft | 51 m / 168 ft | 40 m / 131 ft | 40 m / 134 ft | 34 m / 114 ft | 39 m / 128 ft |
| 80°C / 144°F | 45 m / 148 ft | 43 m / 141 ft | 34 m / 113 ft | 45 m / 147 ft | 35 m / 114 ft | 35 m / 117 ft | 30 m / 100 ft | 34 m / 112 ft |
| 90°C / 162°F | 40 m / 132 ft | 38 m / 126 ft | 30 m / 100 ft | 40 m / 131 ft | 31 m / 102 ft | 31 m / 104 ft | 27 m / 89 ft | 30 m / 100 ft |
| 100°C / 180°F | 36 m / 119 ft | 34 m / 113 ft | 27 m / 90 ft | 36 m / 118 ft | 28 m / 91 ft | 28 m / 94 ft | 24 m / 80 ft | 27 m / 90 ft |

# Expansion loops and compensators




The table below gives the maximum possible straight distance between two compensators vs. the temperature variation:

| | Ø15 mm / 1/2" | Ø28 mm / 1" | Ø35 mm / 1 1/4" | Ø42 mm / 1 1/2" | Ø54 mm / 2" |
|---|---|---|---|---|---|
| Δt | Maximim distance between two compensators (1000 cycles max.) | | | | |
| 5°C / 9°F | 193 m / 636 ft | 266 m / 874 ft | 315 m / 1033 ft | 387 m / 1272 ft | 436 m / 1431 ft |
| 10°C / 18°F | 96 m / 318 ft | 133 m / 437 ft | 157 m / 516 ft | 193 m / 636 ft | 218 m / 715 ft |
| 20°C / 36°F | 48 m / 159 ft | 66 m / 218 ft | 78 m / 258 ft | 96 m / 318 ft | 109 m / 357 ft |
| 30°C / 54°F | 32 m / 106 ft | 44 m / 145 ft | 52 m / 172 ft | 64 m / 212 ft | 72 m / 238 ft |
| 40°C / 72°F | 24 m / 79 ft | 33 m / 109 ft | 39 m / 129 ft | 48 m / 159 ft | 54 m / 178 ft |
| 50°C / 90°F | 19 m / 63 ft | 26 m / 87 ft | 31 m / 103 ft | 38 m / 127 ft | 43 m / 143 ft |
| 60°C / 108°F | 16 m / 53 ft | 22 m / 72 ft | 26 m / 86 ft | 32 m / 106 ft | 36 m / 119 ft |
| 70°C / 126°F | 13 m / 45 ft | 19 m / 62 ft | 22 m / 73 ft | 27 m / 90 ft | 31 m / 102 ft |
| 80°C / 144°F | 12 m / 39 ft | 16 m / 54 ft | 19 m / 64 ft | 24 m / 79 ft | 27 m / 89 ft |
| 90°C / 162°F | 10 m / 35 ft | 14 m / 48 ft | 17 m / 57 ft | 21 m / 70 ft | 24 m / 79 ft |
| 100°C / 180°F | 9 m / 31 ft | 13 m / 43 ft | 15 m / 51 ft | 19 m / 63 ft | 21 m / 71 ft |

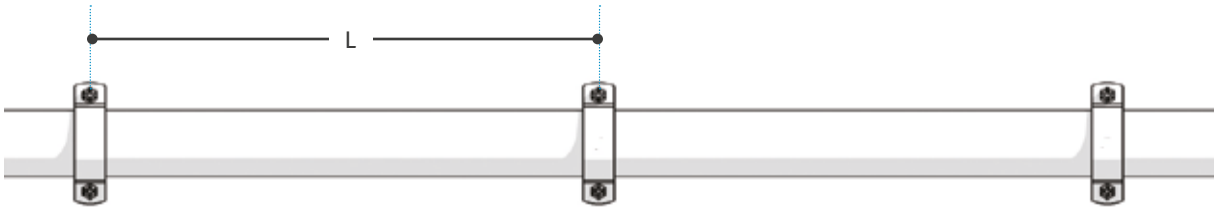
**Example:**
Consider an installation with a 100m / 328 ft straight line in 15mm / ½" pipe. The minimum temperature of the system is -20°C / -4°F in the winter, and the maximum temperature is 50°C / 122°F due to hot compressed air when the system is in use. The Δt is then 70°C / 126°F.

For this 100m / 328 ft straight line, this means that 1 expansion loop is required. This means that for this straight line, 7 compensators are required.

# Pipe support

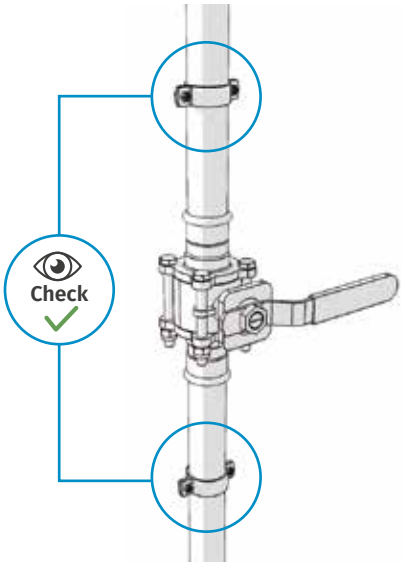
The maximum distance L between two pipe clips is given by the table below:

Make sure the piping system is rigidly supported to the structure of the building so that movement due to external forces (e.g. wind) of the piping is prevented.



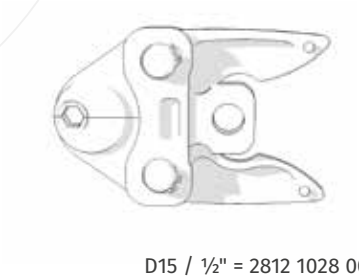

| External Pipe Diameter (mm / inch) | Maximum distance (m / ft) |
|---|---|
| 15 / ½" | 1,5 / 5 |
| 28 / 1" | 2,5 / 8 |
| 35 / 1 ¼" | 2,5 / 8 |
| 42 / 1 ½" | 3 / 10 |
| 54 / 2" | 3,5 / 11,5 |
| 76 / 2 ¾" | 4 / 13 |
| 89 / 3 ½" | 4,5 / 14,5 |
| 108 / 4" | 5 / 16 |

Valves must be supported by a pipe clip on both sides, with a maximum distance of 0.5m (20") between the valve and the pipe clips.



# Tools - Overview

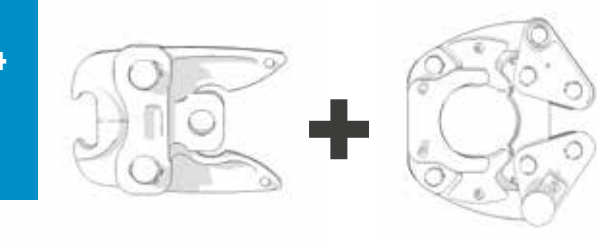
## D15 - D35
½" - 1 ¼"



D15 / ½" = 2812 1028 00
D28 / 1" = 2812 2028 00
D35 / 1 ¼" = 2812 3028 00

220-230V: 2812 0028 00
110V: 2812 0028 01
Including protective case, battery charger, charger cable

## D42 - D54
1 ½" - 2"



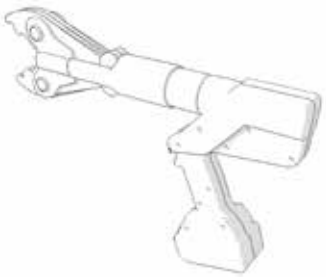
2812 4528 00

D42 / 1 ½" = 2812 4028 00
D54 / 2" = 2812 5028 00

**Spare parts:**
Charger: 2812 0328 01 (110V)
2812 0328 00 (220V)
Battery: 2812 0228 00

Cable to work on grid power:
2812 0428 01 (110V)
2812 0428 00 (220V)

## D76 - D108
2 ¾" - 4"



D76 / 2 ¾" = 2812 6028 00
D89 / 3 ½"= 2812 7028 00
D108 / 4" = 2812 8028 00

220-230V: 2812 0128 00
110V: 2812 0128 01
Including protective case, battery charger, charger cable, cable to work on power grid

**Spare parts:**
Charger: 2812 0328 01 (110V)
2812 0328 00 (220V)
Battery: 2812 0228 00

Cable to work on grid power:
2812 0428 01 (110V)
2812 0428 00 (220V)

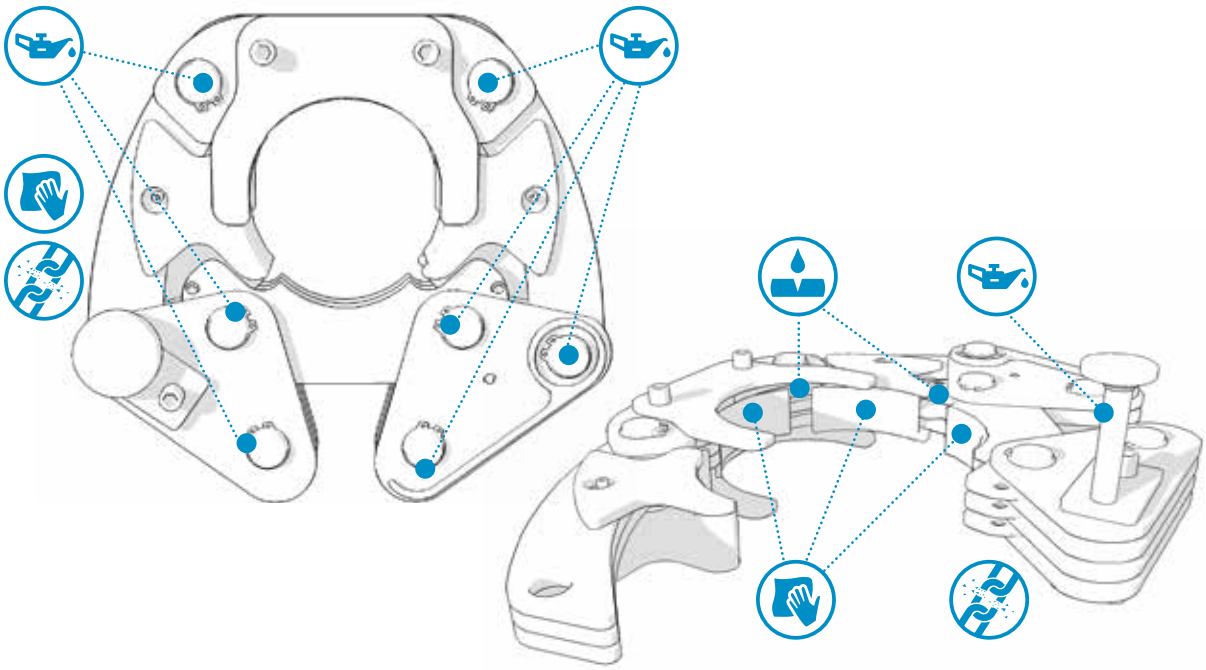
Note: the AIRnet Stainless Steel System will only attain the designed pressure when installed using the tools in the table above. Using other tools is not recommend, as this may lower the pressure rating.

# Tools - Inspection and maintenance

To guarantee correct installation, the pressing tools must be checked regularly by an official authorized repairer according to the manufacturer specifications.

All moving parts and pressing surfaces must be cleaned and lubricated daily.

Before starting installation, make sure to inspect the tools thoroughly. Any possible oxidation, paint or dirt will affect the reliability, possibly resulting in sliding issues on the fittngs during pressing.



Keep the chain clean

Keep the pins lubricated with oil

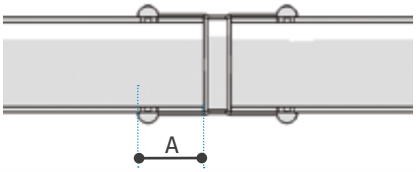
Keep the pins lubricated with grease

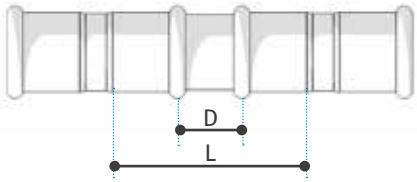
Attention it can break

# Installation - Pipe preparation

## 1 Measure

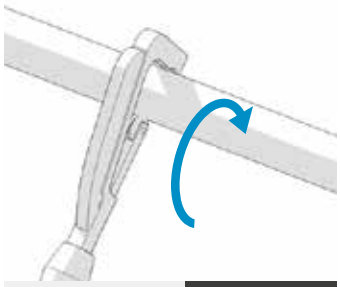
| Pipe Outside Diameter (mm/inch) | A mm/ inch | D (mm/inch) | L (mm / inch) |
|---|---|---|---|
| 15 / ½" | 20 / 13⁄16" | 20 / 13⁄16" | 60 / 2 3⁄8" |
| 28 / 1" | 23 / 15⁄16" | 20 / 13⁄16" | 66 / 2 5⁄8" |
| 35 / 1 ¼" | 26 / 1" | 20 / 13⁄16" | 72 / 2 13⁄16" |
| 42 / 1 ½" | 30 / 1 3⁄16" | 40 / 1 9⁄16" | 100 / 5 ½" |
| 54 / 2" | 35 / 1 3⁄8" | 40 / 1 9⁄16" | 110 / 4 5⁄16" |
| 76 / 2 ¾" | 55 / 2 3⁄16" | 60 / 2 3⁄8" | 170 / 6 11⁄16" |
| 89 / 3 ½" | 60 / 2 3⁄8" | 60 / 2 3⁄8" | 180 / 7 1⁄16" |
| 108 / 4" | 75 / 2 15⁄16" | 60 / 2 3⁄8" | 210 / 8 ¼" |



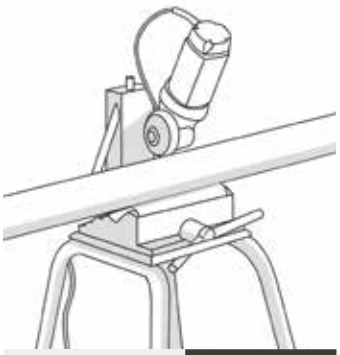

A = Insertion Depth
D = Minimum Distance
L = Minimum Pipe Length Tube

## 2 Cut



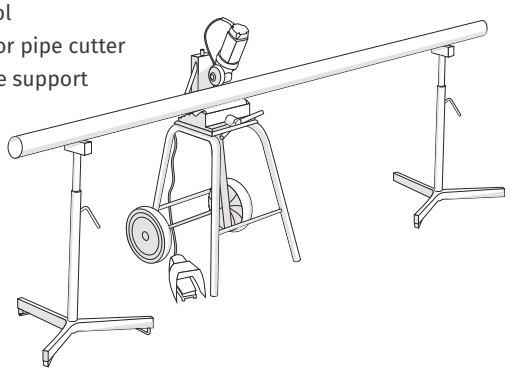
| | |
|---|---|
| Ø 15-54 mm | 2810 0040 00 |

OR



| | |
|---|---|
| 110V (complete kit) | 2812 0340 80 |
| 220V (complete kit) | 2812 0240 80 |

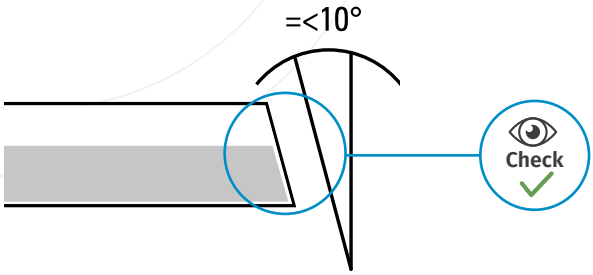
**The 'complete kit' contains:**
1 x Pipe cutter tool
1 x Wheel stand for pipe cutter
2 x Tripod for pipe support
1 x Cutting wheel



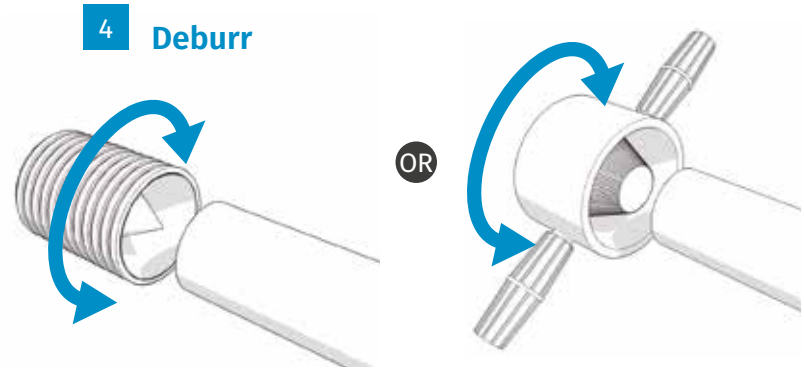
| | |
|---|---|
| Pipe cutter tool – 110V (1 pc) | 2812 0340 81 |
| Pipe cutter tool – 220V (1 pc) | 2812 0240 81 |
| Wheel stand (1 pc) | 2812 0740 00 |
| Tripod (1 pc) | 2812 0840 00 |
| Spare cutting wheel for pipe cutter (1 pc) | 2812 0640 00 |
| Spare pipe rollers for pipe cutter (set of 4pcs) | 2812 0940 00 |

# Installation - Pipe preparation

## 3 Check



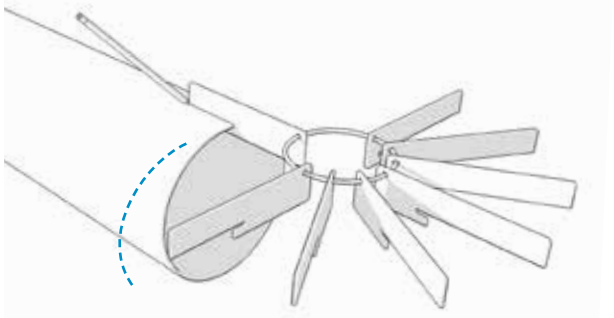

## 4 Deburr




| | |
|---|---|
| Ø 15-54 mm | 2810 0141 00 |

| | |
|---|---|
| Ø 76 - 108 mm | 2810 0641 00 |

## 5 Mark

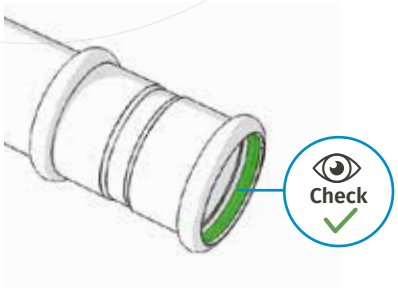


| | |
|---|---|
| Pipe Marker | 2812 0029 80 |

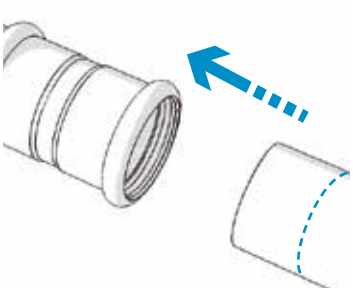
# Installation - Press fitting

## Diameters 15 - 35 mm / 1/2"- 1 ¼"

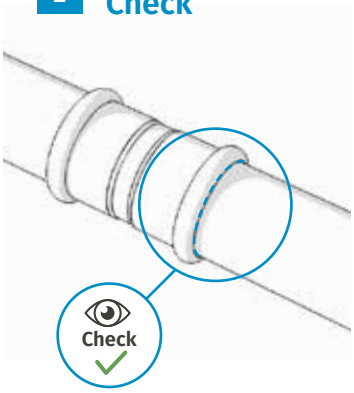
### 0 Check O-ring for damage



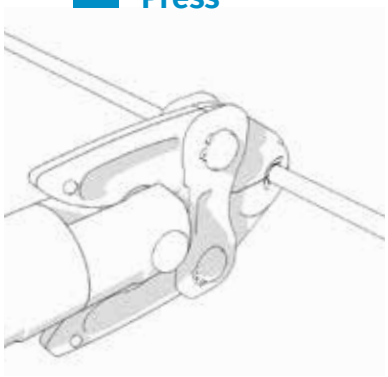

### 1 Insert



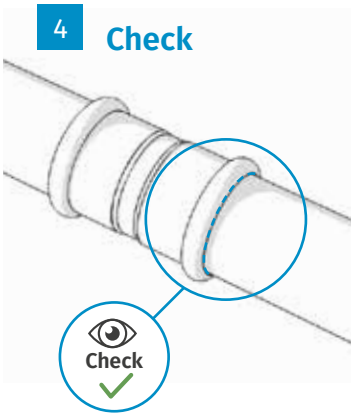
### 2 Check




### 3 Press



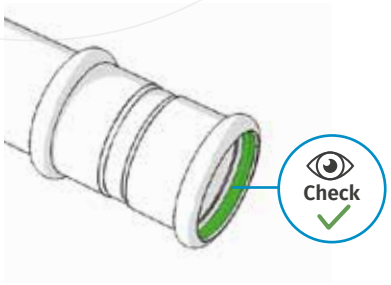
### 4 Check



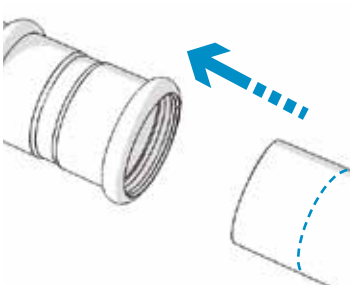
# Installation - Press fitting

## Diameters 42 - 54 mm / 1 ½ " - 2"

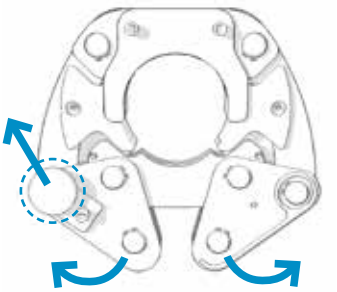
### 0 Check O-ring for damage



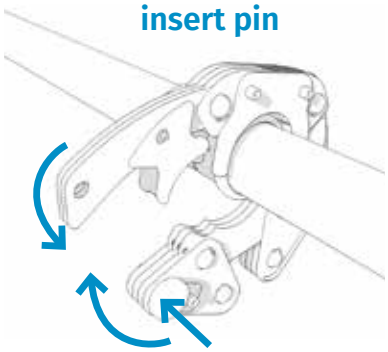

### 1 Insert



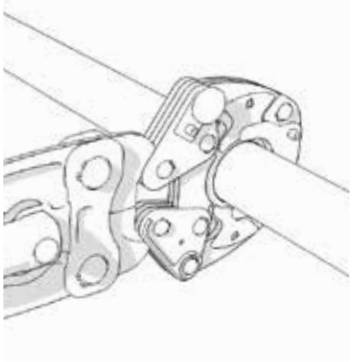
### 2 Retract pin and open chain



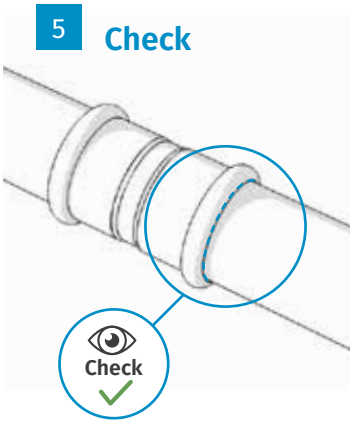
### 3 Close chain and insert pin



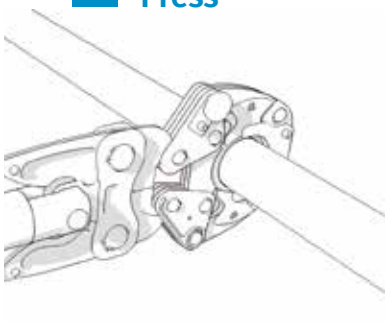
### 4 Mount adapter



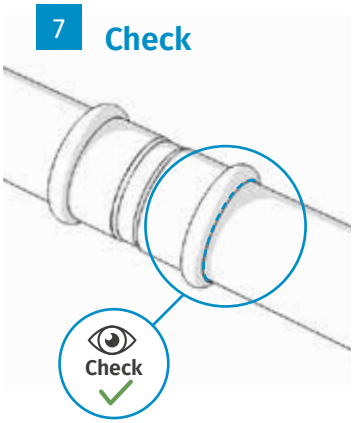
### 5 Check




### 6 Press



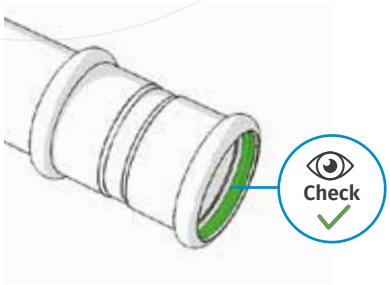
### 7 Check



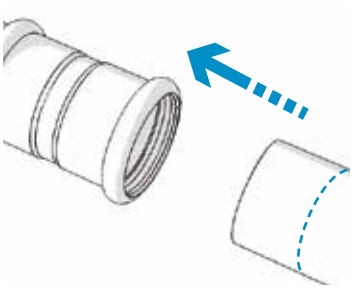
# Installation - Press fitting

## Diameters 76 - 108 mm / 2 ¾" - 4"

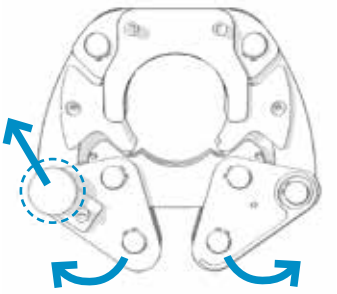
### 0 Check O-ring for damage



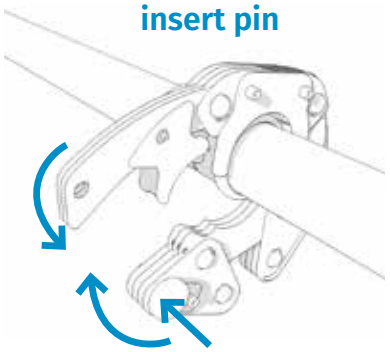

### 1 Insert



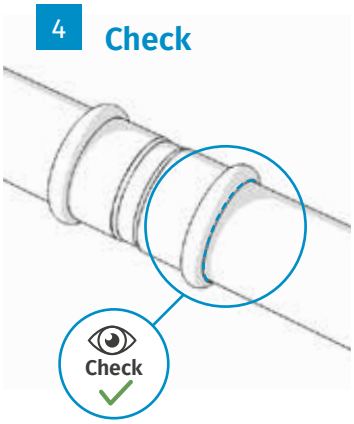
### 2 Retract pin and open chain



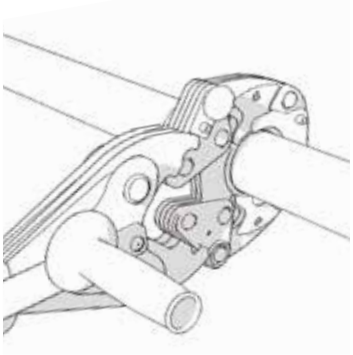
### 3 Close chain and insert pin



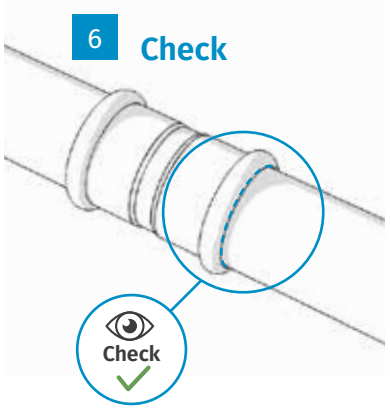
### 4 Check




### 5 Press



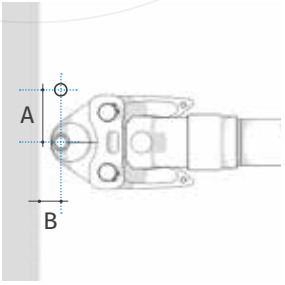
### 6 Check

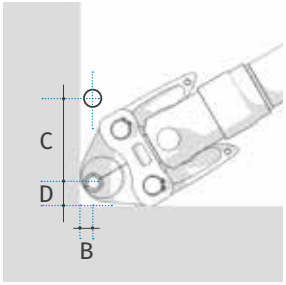


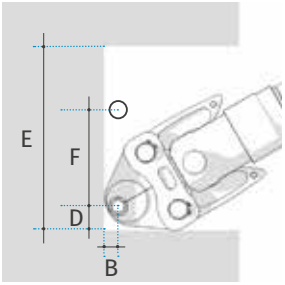
# Installation - Press fitting

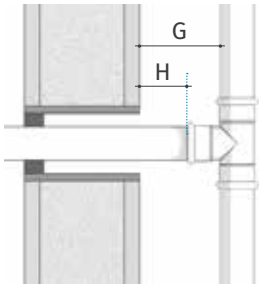
To carry out pressing correctly, there must be a minimum distance between the pipe and the building, and from pipe to pipe as shown in the tables below.

## Minimum distances and space requirements D15 - D35 / ½" - 1 ¼"



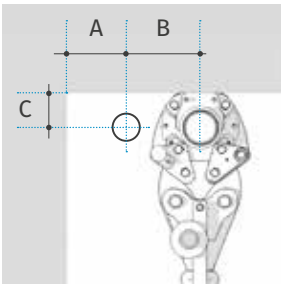




| Diameter | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| D15 - ½" | 56 mm 2 ¼" | 30 mm 1 ¹/₈" | 75 mm 3 " | 35 mm 1 ³/₈" | 155 mm 6 ¹/₈" | 95 mm 3 ¾" | 60 mm 2 ³/₈" | 40 mm 1 ⁵/₈" |
| D28 - 1" | 82 mm 3 ¼" | 40 mm 1 ⁵/₈" | 90 mm 3 ½" | 45 mm 1 ¾" | 180 mm 7 ¹/₈" | 90 mm 3 ½" | 63 mm 2 ½" | 40 mm 1 ⁵/₈" |
| D35 - 1 ¼" | 85 mm 3 ³/₈" | 40 mm 1 ⁵/₈" | 90 mm 3 ½" | 45 mm 1 ¾" | 180 mm 7 ¹/₈" | 90 mm 3 ½" | 66 mm 2 ⁵/₈" | 40 mm 1 ⁵/₈" |

## Minimum distances and space requirements D42 - D108 / 1 ½" - 4"




| Diameter | A | B | C |
|---|---|---|---|
| D42 - 1 ½" | 150 mm 5 7/8" | 150 mm 5 7/8" | 110 mm 4 3/8" |
| D54 - 2" | 150 mm 5 7/8" | 150 mm 5 7/8" | 110 mm 4 3/8" |
| D76 - 2 ¾" | 170 mm 6 ¾" | 210 mm 8 ¼" | 170 mm 6 ¾" |
| D89 - 3 ½" | 190 mm 7 ½" | 260 mm 10 ¼" | 190 mm 7 ½" |
| D108 - 4" | 200 mm 7 7/8" | 320 mm 12 5/8" | 280 mm 11" |

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