

PREVOST **P**IPING **S**YSTEM *compressed air network*

100% ALUMINIUM

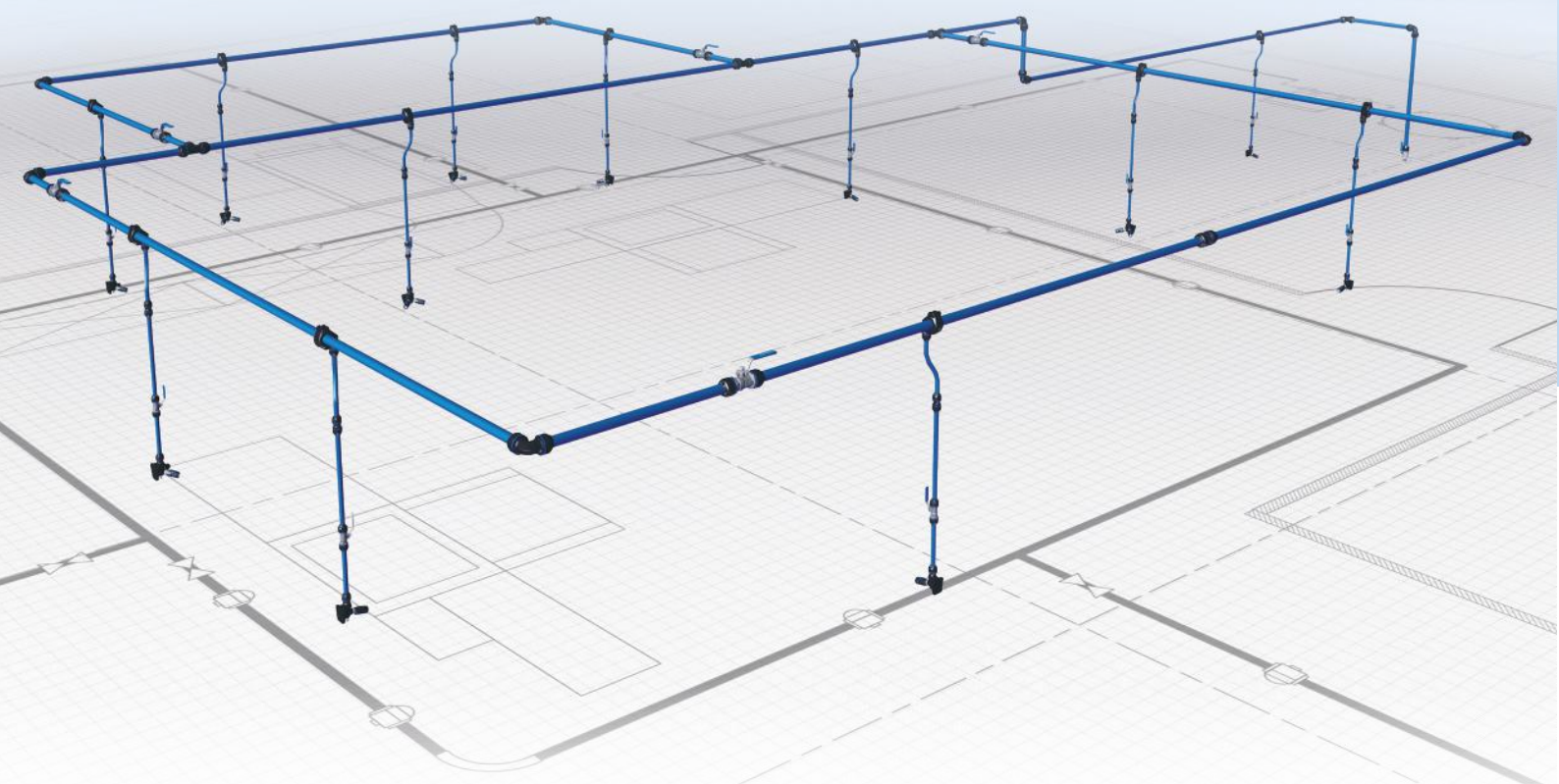
The new **P**REVOST **P**IPING **S**YSTEM compressed air network range comprises **compact, lightweight and resistant pipes and couplings made from aluminium.**

They are **quick and easy to install** and can be pressurised immediately.

The **P**REVOST **P**IPING **S**YSTEM range guarantees:

- A **clean** and **high-quality air supply**
- A **leaktight** network and **optimised flow rate**
- An operating pressure of 16 bar.

Workstations are well supplied, accessible and ergonomic. The system is long-lasting and can easily be adapted.



Advantages of the new **P**REVOST **P**IPING **S**YSTEM range

➔ COMPACT AND LIGHTWEIGHT

The upgraded design of the new **PPS1** aluminium fitting is more **compact, lighter and more resistant**.

➔ IMPACT STRENGTH

Aluminium offers excellent mechanical **resistance to pressure and to impacts**.

➔ COMPATIBILITY WITH COMPRESSOR LUBRICANTS

Aluminium is compatible with compressor lubricants.

➔ QUICK AND EASY TO ASSEMBLE

Simply insert the pipe into the fitting, **and then tighten the PPS1 fitting**.

➔ LEAKTIGHT WITH VERY LOW PRESSURE LOSS

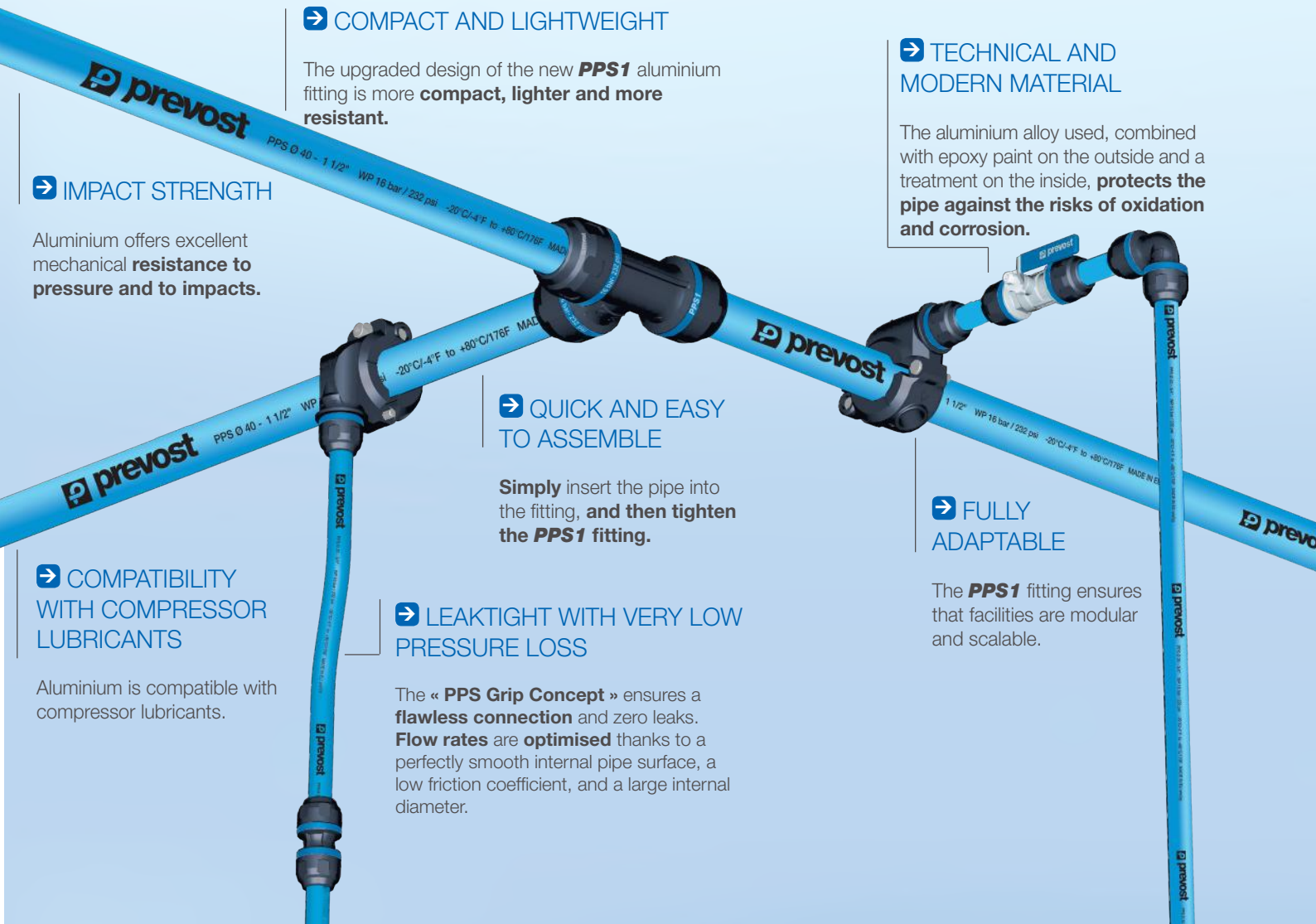
The « **PPS Grip Concept** » ensures a **flawless connection** and zero leaks. **Flow rates** are **optimised** thanks to a perfectly smooth internal pipe surface, a low friction coefficient, and a large internal diameter.

➔ TECHNICAL AND MODERN MATERIAL

The aluminium alloy used, combined with epoxy paint on the outside and a treatment on the inside, **protects the pipe against the risks of oxidation and corrosion**.

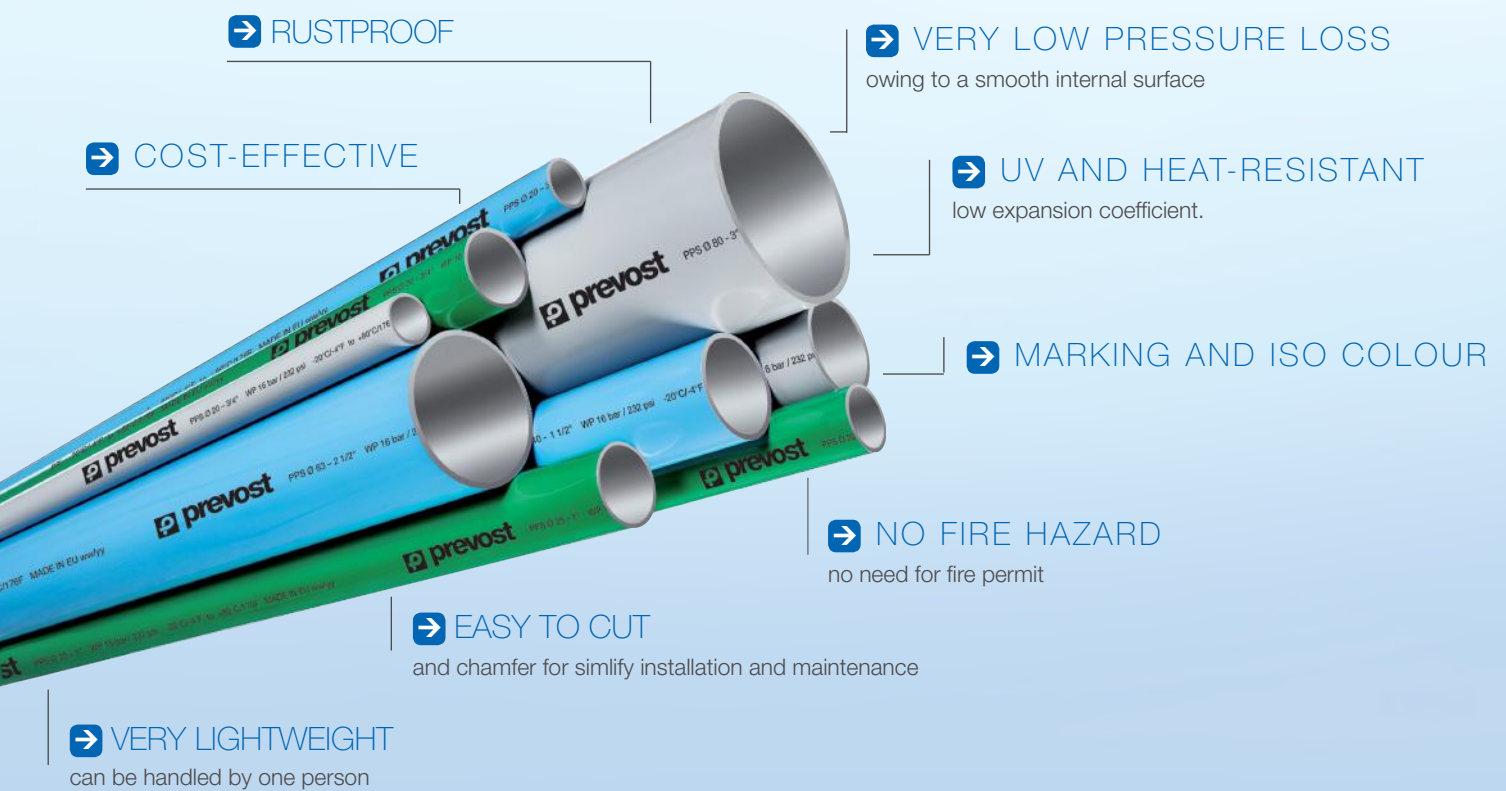
➔ FULLY ADAPTABLE

The **PPS1** fitting ensures that facilities are modular and scalable.



100% ALUMINIUM TUBING

Prevost offers a wide range of 100% aluminium pipes for compressed air, vacuum and nitrogen systems.



➔ RUSTPROOF

➔ VERY LOW PRESSURE LOSS

owing to a smooth internal surface

➔ COST-EFFECTIVE

➔ UV AND HEAT-RESISTANT

low expansion coefficient.

➔ MARKING AND ISO COLOUR

➔ NO FIRE HAZARD

no need for fire permit

➔ EASY TO CUT

and chamfer for simplify installation and maintenance

➔ VERY LIGHTWEIGHT

can be handled by one person

PIPE PROPERTIES

- **Material:** Extruded aluminium.
EN AW 6060 T6 UNI-EN 573-3 alloy
- **Treatment:** Interior and exterior (compliant with RoHS standard)
- **Coating:** Electrostatic paint
- **Extrusion quality:** Calibrated, seamless
- **Compatible fluids:** Compressed air, vacuum, neutral gases
- **Pipe lengths:** 4 or 6 metres
- **Density:** 2.7 kg/dm³
- **Pipe external diameter:**
16, 20, 25, 32, 40, 50, 63, 80 mm

100% ALUMINIUM COUPLINGS

→ New concept

Pipes are held in the coupling using a new system known as **PPS Grip Concept**.

PPS Grip Concept is based on a **stainless steel ring** with **teeth** that penetrate the aluminium.

Leaktightness is achieved via a **new contoured and lubricated seal, with optimised design and specifications**.

The seal remains perfectly leaktight even under the harshest conditions.

→ IDENTIFICATION

The Prevost logo is engraved on each coupling.



→ DIAMETER

Pipe external diameter in mm and inches



→ PRESSURE

Maximum service pressure (bar/psi)



→ MARKER

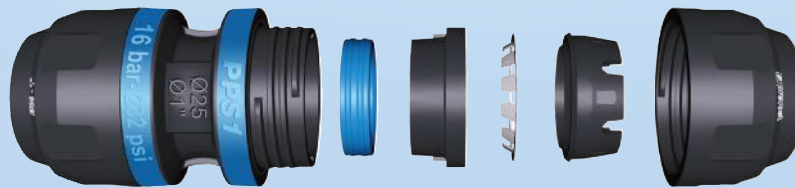
To indicate that the pipe is correctly positioned in the coupling

→ TRACEABILITY



→ LEAKTIGHTNESS

The gasket is specifically designed for this application. It comprises two Teflon-coated lobes to optimise leaktightness.



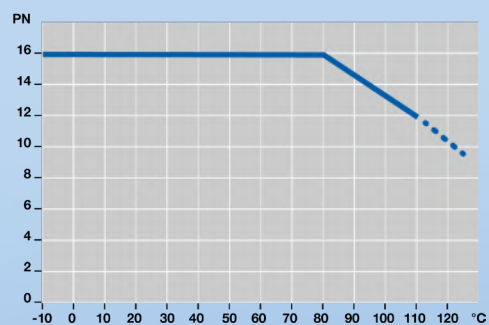
→ INTERNAL PARTS

Internal parts cannot be detached from the body after assembly.

↓ TECHNICAL SPECIFICATIONS

- **Service pressure range:** from 0.98 bar to 16 bar
- **Temperature range:** from -20°C to 80°C
- **Body and nut:** 100% aluminium, EN AB 46100
- **PPS Grip Concept:** fastening system using teeth
- Tapping port flange to manage condensates and have a clean compressed air into the drop

Service pressure graph as a function of temperature



100% ALUMINIUM COUPLINGS

➔ Tapping port flange

The body and nut are made **entirely of aluminium**. The tapping flange is extremely compact, and is fitted **with an anti-rotation** system and removable half-shell. It can be drilled without disassembly.

The tapping flange enable **dry air supply** to the workstations by drawing air via the wall of the pipe.

The water remaining in the lower section of the main pipe will be drained to a low point via an automatic drain trap.



➔ Valves

Various versions exist:



tube / tube



threaded male / tube



threaded female / tube

➔ Tightening

The nut and body can be tightened using standard tools or special Prevost wrenches.

Torque can be checked using a torque wrench.



NETWORK DESIGN

A compressed air network entails **linking a source of compressed air, i.e. one or more compressors, to the power distribution point or points.**

The structure of PREVOST networks is made of aluminium tubes.

These are fixed at a **minimum height of 2.5 m above floor level** and form the primary loop of the network.

From this loop, pipes with a smaller diameter, known as **downpipes**, feed off. Their ends are around **1.2 m above floor level**. These constitute **compressed air distribution points**, to which various items of equipment (such as couplings, filters, flexible hoses) are attached.



➔ NETWORK DESIGN CALCULATIONS

To design a network, the **tube diameter must be determined**, taking into account the **desired flow rate** and the **length of the main pipe**. The data below is calculated for a service pressure of 8 bar with 5% pressure loss.

| COMPRESSOR* | | | | | LENGTH OF MAIN PIPE | | | | | | | | |
|-------------|-----|--------------------|--------|------|---------------------|--------|--------|--------|---------|---------|---------|---------|---------|
| POWER | | FLOW RATE | | | 50 m | 100 m | 150 m | 300 m | 500 m | 750 m | 1000 m | 1300 m | 1600 m |
| kW | hp | Nm ³ /h | NI/min | Scfm | 164 ft | 328 ft | 492 ft | 984 ft | 1640 ft | 2460 ft | 3280 ft | 4265 ft | 5249 ft |
| 2.2 | 3 | 22 | 367 | 13 | 16 | 16 | 20 | 20 | 25 | 25 | 25 | 25 | 32 |
| 3 | 4 | 30 | 500 | 18 | 16 | 20 | 20 | 25 | 25 | 25 | 32 | 32 | 32 |
| 4 | 5 | 40 | 668 | 24 | 20 | 20 | 20 | 25 | 25 | 32 | 32 | 32 | 32 |
| 5.5 | 7.5 | 50 | 833 | 29 | 20 | 20 | 25 | 25 | 32 | 32 | 32 | 32 | 40 |
| 7.5 | 10 | 70 | 1167 | 41 | 20 | 25 | 25 | 32 | 32 | 32 | 40 | 40 | 40 |
| 11 | 15 | 100 | 1667 | 59 | 25 | 25 | 32 | 32 | 40 | 40 | 40 | 50 | 50 |
| 15 | 20 | 150 | 2500 | 88 | 25 | 32 | 32 | 40 | 40 | 50 | 50 | 50 | 50 |
| 18 | 25 | 180 | 3000 | 106 | 32 | 32 | 40 | 40 | 50 | 50 | 50 | 63 | 63 |
| 22 | 30 | 220 | 3674 | 130 | 32 | 40 | 40 | 50 | 50 | 50 | 63 | 63 | 63 |
| 26 | 35 | 260 | 4167 | 147 | 32 | 40 | 40 | 50 | 50 | 63 | 63 | 63 | 63 |
| 30 | 40 | 350 | 5833 | 206 | 40 | 40 | 50 | 50 | 63 | 63 | 63 | 63 | 80 |
| 37 | 50 | 370 | 6179 | 218 | 40 | 40 | 50 | 50 | 63 | 63 | 63 | 80 | 80 |
| 45 | 60 | 500 | 8350 | 294 | 50 | 50 | 50 | 63 | 63 | 80 | 80 | 80 | 80 |
| 55 | 75 | 550 | 9185 | 324 | 50 | 50 | 50 | 63 | 63 | 80 | 80 | 80 | 80 |
| 75 | 100 | 750 | 12500 | 441 | 63 | 63 | 63 | 63 | 80 | 80 | 80 | | |
| 90 | 125 | 1000 | 16667 | 589 | 63 | 63 | 63 | 80 | 80 | | | | |
| 110 | 150 | 1100 | 18370 | 649 | 63 | 63 | 63 | 80 | 80 | | | | |
| 132 | 175 | 1500 | 25000 | 883 | 63 | 80 | 80 | 80 | | | | | |
| 160 | 215 | 1750 | 29167 | 1030 | 63 | 80 | 80 | | | | | | |
| 200 | 270 | 2000 | 33333 | 1177 | 80 | 80 | 80 | | | | | | |

* These values may differ slightly from the data provided by compressor manufacturers.

➔ EXPANSION OF MATERIALS

Aluminium is subject to **expansion and contraction** phenomena in the event of temperature variations. To compensate for this, it is advisable to fit **devices capable of absorbing this variation**.

Hoses serve this purpose. They also make it possible to **change direction** (corners) and **circumvent any obstacles** (pillars, beams, etc.) in the workshop.

Expansion coefficient: 0.024 mm per metre and per degree Celsius.

Expansion is calculated as follows:

C = Expansion coefficient

L = Length of the straight stretch (between two fixed points)

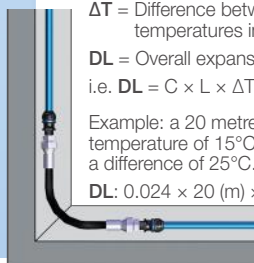
ΔT = Difference between the maximum and minimum ambient temperatures in °C.

DL = Overall expansion

i.e. **DL = C × L × ΔT**

Example: a 20 metre line using 40 mm tubing, at an ambient temperature of 15°C with a maximum temperature of 40°C, i.e. a difference of 25°C.

DL: 0.024 × 20 (m) × 25°C (40°C – 15°C) = 12 mm



GROUND RULES FOR NETWORK INSTALLATION

The **compressor room** should ideally be **spacious, well ventilated, well insulated and separated from the rest of the workshops.**

Machines must be **connected** to the **PPS** network via **hoses** in order to eliminate risks related to vibrations and to enable easier maintenance (product codes LEF and LEM). It is important to **install bypasses between each machine**, the tank(s) and the various filters.

The main **network** should form a **loop**. For safety reasons, it is advisable to install the main compressed air pipes at a minimum height of **2.50 m** above floor level.

The pipe must be fastened using a **sufficient number of sliding clamps** to ensure that it is held in place, while allowing for the expansion and contraction of the pipe (product code PPS C1).

The **residual condensates** must be **drained** from the main line via **direct downpipes** installed lower than the bottom generating line of the pipe and **fitted** with an automatic drain trap system.

➔ Network mounting

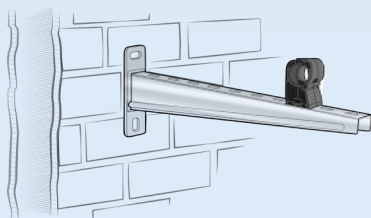
The methods used to anchor the network (to the wall or ceiling) must be selected according to the configuration of the workshop.

The various pipes comprising the installation must be mounted in such a way as to obtain a **perfect alignment that is both solid and cleanly finished.**

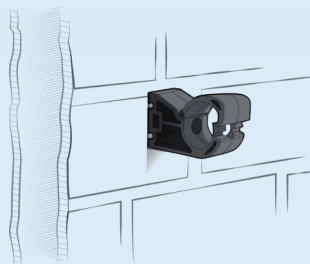
It is therefore important to comply with the **distances between each mounting point.**

For correct assembly, a distance of 3 metres should be left between two clamps.

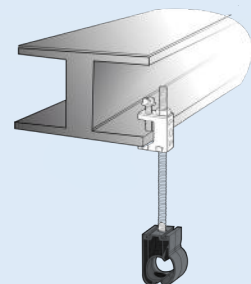
Tubing at a distance from the wall



Tubing parallel to the wall

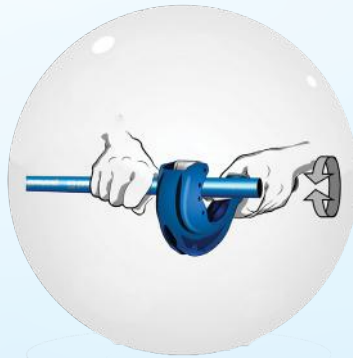


Suspended tubing



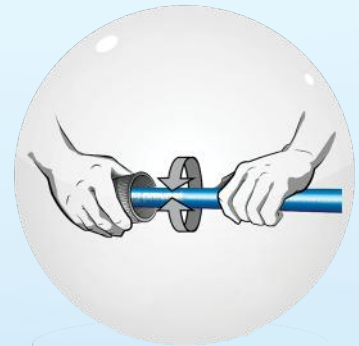
ASSEMBLY PRINCIPLE

CUTTING



The pipe must be cut perpendicular to its length (ref. PPS CTU).

CHAMFERING



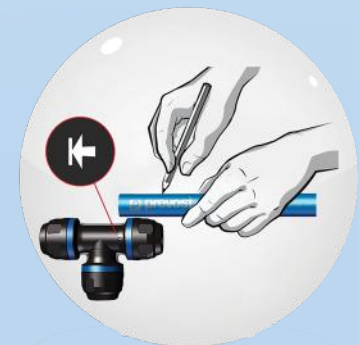
Chamfer the external edge of the pipe to make it easier to fit into the fitting and to avoid damage to the seal. Chamfer the inner edge eliminate any cutting residues.

TIGHTENING



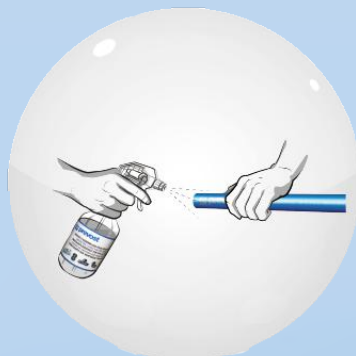
Re-screw the nut by hand, and then tighten according to recommendations.

MARKING

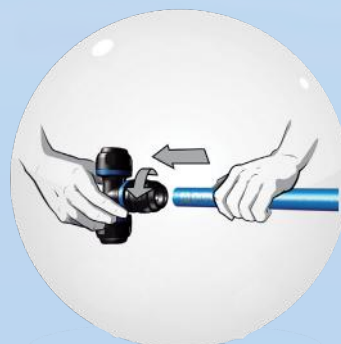


Mark the tube to indicate the insertion depth in the fitting (use the reference marks on the fittings or on the wrench).

LUBRICANT



ASSEMBLY



Unscrew the nut by several turns, and then insert the pipe while rotating it slightly until the recommended length is reached.

NB: an assembly fluid (ref. PPS AL) is recommended to facilitate the assembly.

PPS - Aluminium blue pipe for compressed air



Technical characteristics

Technology: PPS Grip Concept

Operating pressure: 0 to 16 bar

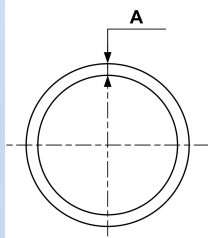
Vacuum capability: -0.98 bar
(vacuum 98%)

Temperature: -20°C to +80°C

Construction: Pipe and fittings: alu.

Highlight: Scalable system

Meets standards: PED REACH

| | A (mm) | Pipe OD (mm) | Length (m) | Parts Numbers |
|--|-----------|-----------------|---------------|--------------------|
|  | 1,5 | 32 | 5.5 | PPS BTU3255 |