

alr range

AIR SUPPLY NETWORKS

ALUMINIUM CONCEPT FOR COMPRESSED AIR NETWORKS GUARANTEES:

- ▶ Leak-free networks
- ▶ Optimum flow rate
- ▶ Suitable pressure
- ▶ Lasting installations
- ▶ Air supply to accessible and ergonomic work stations
- ▶ High quality air
- ▶ Tools spared from corrosion and contaminants offer better performance
- ▶ Quick and easy maintenance
- ▶ Networks extendable as needed



The **ALR** system meets the compressed air needs of **all sectors of activity**.

ADVANTAGES OF ALR NETWORKS



QUICK AND EASY FITTING

Insert the tube in the coupling then tighten the nut.

VERY LOW PRESSURE DROPS

The flow rates of the ALR system are optimised by a perfectly smooth internal surface of the pipes, a low friction coefficient and a maximum clearance diameter.

UNALTERABLE MATERIAL

The aluminium alloy used, associated with an exterior epoxy paint coating and an interior treatment, safeguards the pipe against oxidation.

COMPATIBLE WITH COMPRESSOR OILS

Aluminium and the technopolymers comprising the ALR system are totally compatible with compressor lubricating oils.

IMPACT RESISTANCE

The materials forming the system guarantee excellent mechanical resistance, withstanding internal pressure and external impacts.

LEAKTIGHT

A nitrile gasket between the pipe and coupling, and a system for guiding the tube smoothly in the coupling, ensure that the system is totally leaktight.

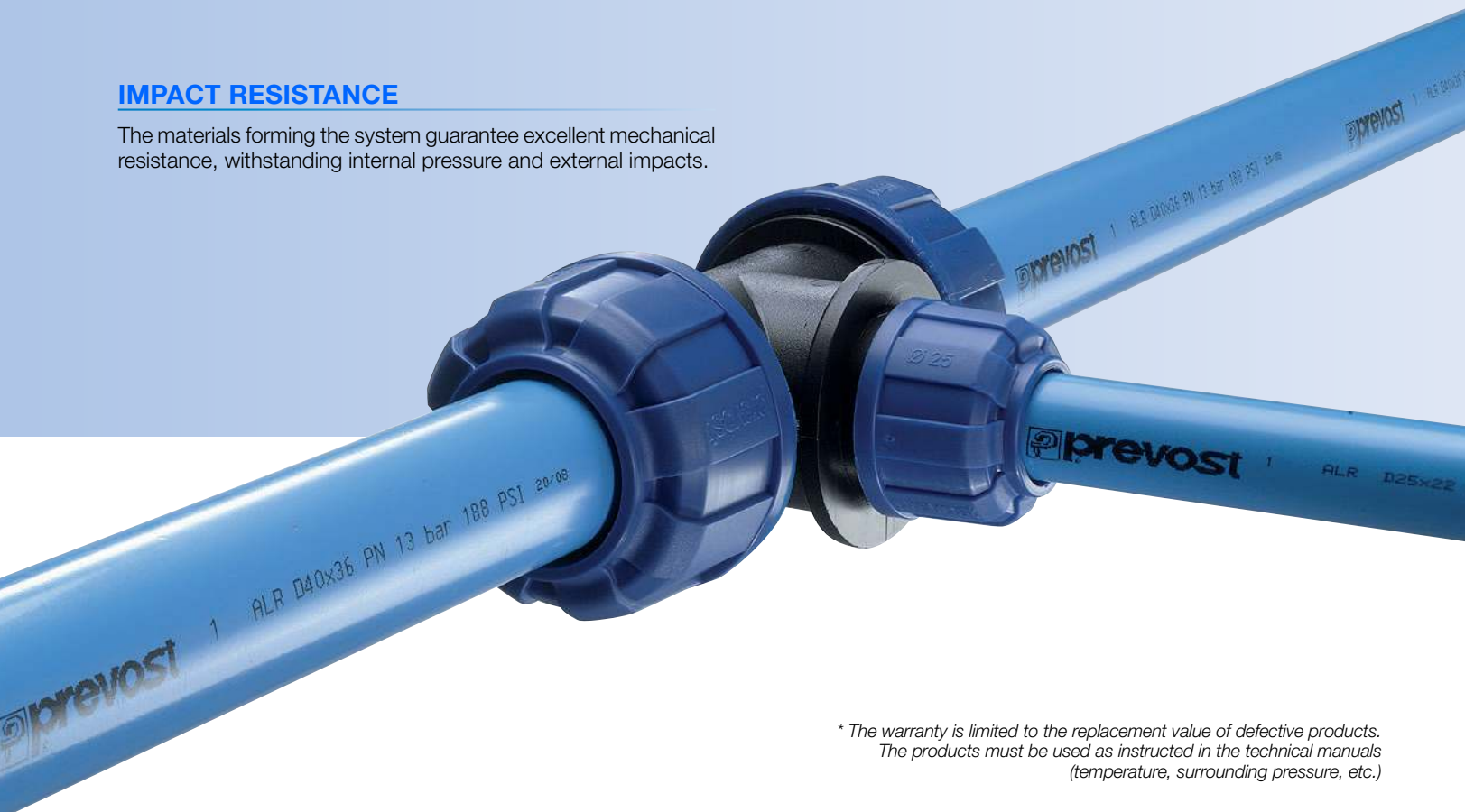
TOTALLY FUTURE-PROOF

The materials and the assembly mechanism ensure that the resulting system is flexible, upgradeable, and capable of solving even the most complex equipment issues.

The fitting system is straightforward and does not require heavy or costly tooling.

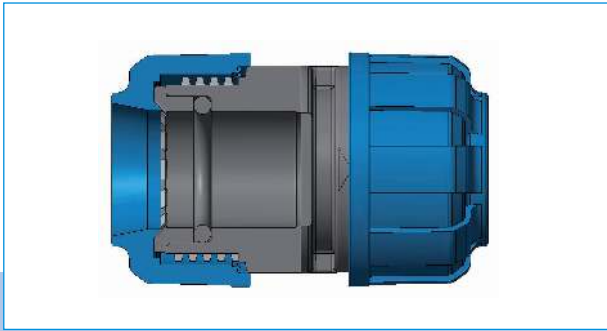
FLUID CARRIED

Compressed air.



** The warranty is limited to the replacement value of defective products. The products must be used as instructed in the technical manuals (temperature, surrounding pressure, etc.)*

TECHNICAL SPECIFICATIONS



The teeth grip into the aluminium to hold the tube inside the coupling.
 An internal nitrile gasket ensures that the join is leaktight.
 The tube is inserted deeply in the coupling.
 The system remains perfectly leaktight even in the harshest conditions.

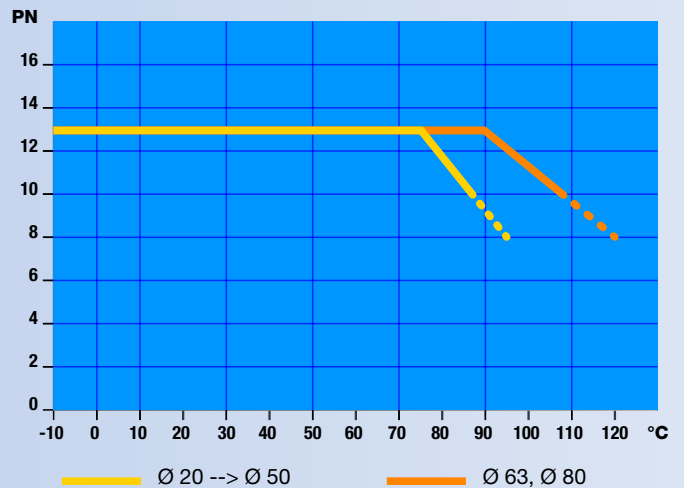
Fluid carried

- Compressed air

Pipes

- Material Ductile aluminium alloy
- Density 2.7 kg/dm³
- Coating Painting epoxy
Blue
- Compatible fluid Compressed air
- Pipe lengths 6 metres for all diameters,
3 metres for 20, 32 and 40 mm diameters
- Temperatures: -20°C to + 60°C
- Operating pressure: 13 bar

Curve showing compressed air pressure as a function of temperature



Coupling

- Dia. 20 to 50 mm
- Body: Polyamide
- Nut: Polyamide
- Toothed ring: Stainless steel 316 L
- Gasket: Nitrile
- Compatible fluid: Compressed air
- Dia. 63 to 80 mm
- Body: aluminium alloy
- Nut: aluminium alloy
- Toothed ring: Stainless steel 316 L
- Gasket: Nitrile
- Compatible fluid: Compressed air

BASIC INSTALLATION RULES

**PLANS AND ESTIMATES
ON REQUEST**
for your proposed installation

The main network must be in a loop configuration and equipped with shut-off valves.

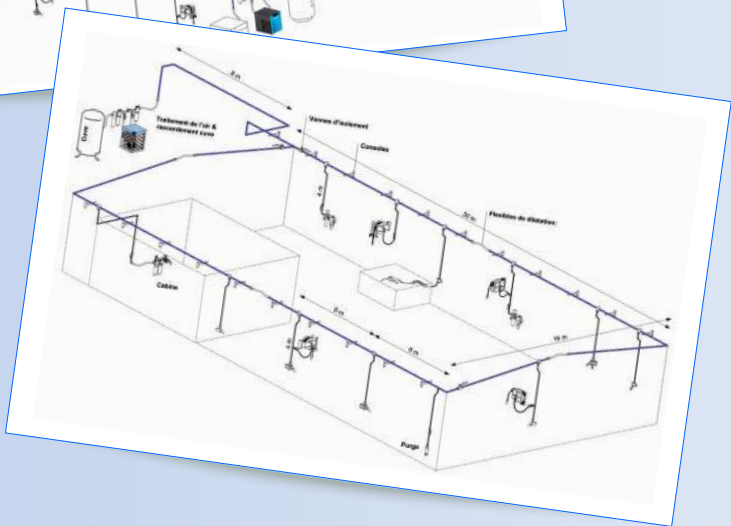
The diameter of the main pipe (primary pipe) must be large enough to avoid pressure drops and allow for future extensions.

The main pipe must be fixed at a slope of **1%** to evacuate condensates to low points (drain tappings).

Pipes must be installed with sufficient sliding clamps to hold them in position whilst allowing for pipe expansion and contraction (**ref. AVR CI**).

Residual condensates should be evacuated from the main pipe via direct downpipes installed under the pipe and fitted with drain systems.

Tappings carry dry air to user outlets, drawing air from the front of the main pipe.



NETWORK CALCULATION

The pipe diameter is calculated taking into account:

- the desired flow rate (max. pressure drop 5% relative to inlet pressure)
- the required length of main pipe

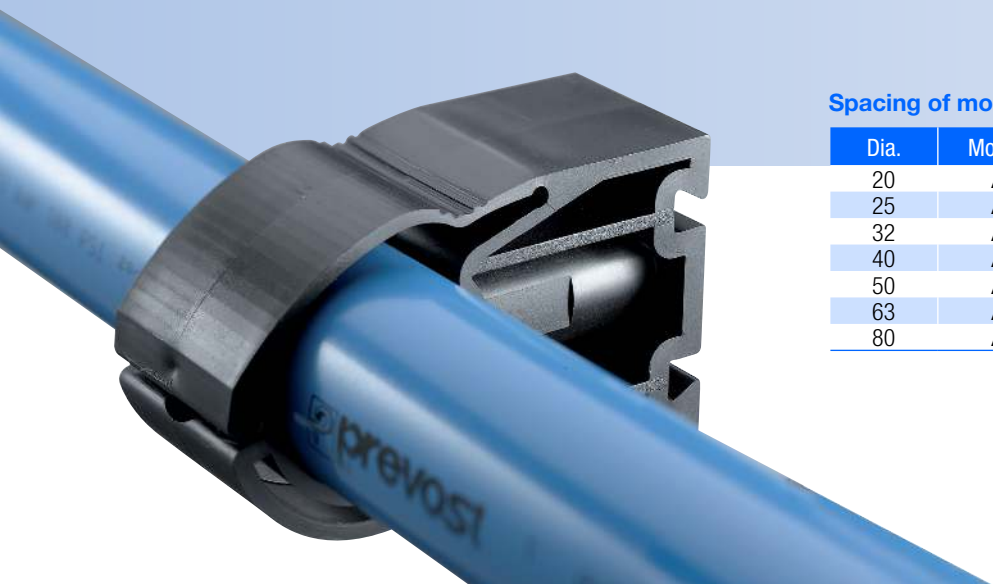
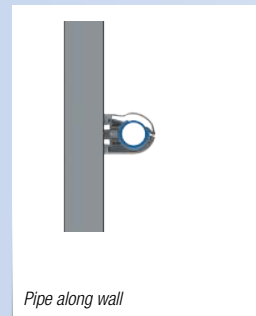
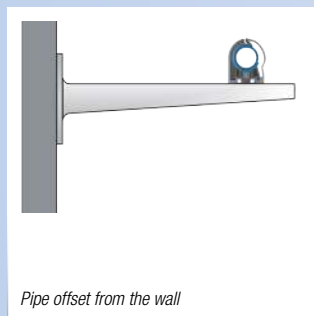
Pipe length

The table below can be used to define the pipe diameter (in mm) as a function of the total pipe length and the flow rate (m³/h):

| Compressor kW | Flow rate | | | Length | | | | | | | | | |
|------------------|--------------------|--------|-------|----------------|-----------------|-----------------|-----------------|-------------------|-------------------|---------------------|---------------------|---------------------|---------------------|
| | Nm ³ /h | l/min | cfm | 50 m 164 ft | 100 m 328 ft | 150 m 492 ft | 300 m 984 ft | 500 m 1 640 ft | 750 m 2 460 ft | 1 000 m 3 280 ft | 1 300 m 4 265 ft | 1 600 m 5 240 ft | 2 000 m 6 561 ft |
| > 1.5 - 7.5 | 10 | 167 | 6 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 25 | 25 | 25 |
| | 30 | 500 | 18 | 20 | 20 | 20 | 25 | 25 | 25 | 25 | 25 | 25 | 32 |
| | 50 | 833 | 29 | 20 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 32 |
| > 7.5 - 30 | 70 | 1 167 | 49 | 20 | 25 | 25 | 25 | 32 | 32 | 40 | 40 | 40 | 50 |
| | 100 | 1 667 | 50 | 25 | 25 | 32 | 32 | 32 | 40 | 40 | 50 | 50 | 63 |
| | 150 | 2 500 | 88 | 32 | 32 | 32 | 32 | 40 | 40 | 50 | 63 | 63 | 80 |
| | 250 | 4 167 | 147 | 32 | 32 | 40 | 40 | 50 | 50 | 63 | 63 | 80 | 80 |
| > 30 - 75 | 350 | 5 883 | 206 | 32 | 40 | 40 | 50 | 50 | 63 | 63 | 63 | 80 | 80 |
| | 500 | 8 333 | 294 | 40 | 50 | 50 | 50 | 50 | 63 | 63 | 80 | 80 | 80 |
| | 750 | 12 500 | 441 | 50 | 50 | 60 | 60 | 60 | 63 | 80 | 80 | 80 | 80 |
| | 1 000 | 16 667 | 589 | 50 | 50 | 50 | 50 | 63 | 80 | 80 | 80 | 80 | 80 |
| > 75 - 315 | 1 500 | 25 000 | 833 | 50 | 50 | 63 | 63 | 63 | 80 | 80 | 80 | 80 | 80 |
| | 2 000 | 29 167 | 1 030 | 50 | 50 | 63 | 63 | 80 | 80 | 80 | 80 | 80 | 80 |
| | 3 000 | 50 000 | 1 766 | 50 | 63 | 63 | 80 | 80 | | | | | |

Attaching the network

- o The pipe network should be attached to the wall or the ceiling depending on the workshop configuration.
- o The pipes should be assembled such that they are perfectly aligned, ensuring strength and a sleek appearance.



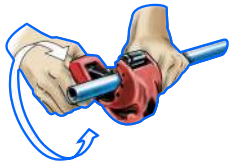
Spacing of mounting brackets

| Dia. | Mounting clamps | Spacing between brackets |
|------|-----------------|--------------------------|
| 20 | AVR C120 | 2,5 m |
| 25 | AVR C125 | 3 m |
| 32 | AVR C132 | 3,5 m |
| 40 | AVR C140 | 4 m |
| 50 | AVR C150 | 4 m |
| 63 | AVR C163 | 4 m |
| 80 | AVR C180 | 4 m |

ALR SYSTEM: ASSEMBLY PRINCIPLE

Cutting

Pipes must be cut straight. Use a pipe cutter, ref. ALR CTU.



Chamfer the pipe

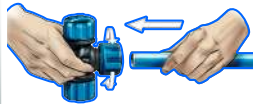
to facilitate insertion and avoid damaging the gasket. A slight internal chamfer enables any cutting residues to be eliminated.



(For diameters 63 and 80 mm, use a cut and chamfer tool, ref. ALR CTCHE6380).

Unscrew

the nut by a few turns, then insert the tube, rotating slightly to reach the coupling seat.



Retighten

the nut by hand, then lock in place by turning a further half-turn with the wrench ref. ALR CLE.



For disassembly

unscrew the nut and remove the pipe from the coupling.



Downpipes

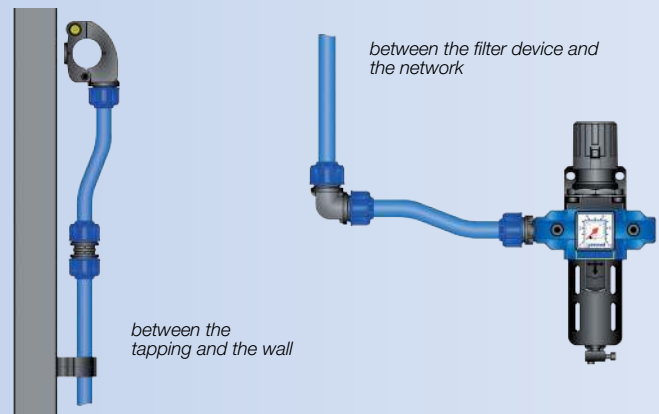
Tappings

Tappings are used to connect a downpipe to a workstation. They replace the gooseneck fittings previously used, and enable air with lower water and condensate content to be obtained. They are easily installed by drilling a single hole.



Wall link

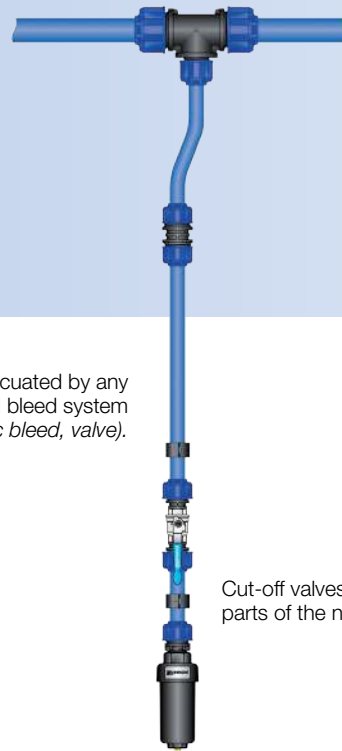
Wall link elbows can be used to compensate for centre offsets.



Low points

Low points are required to drain condensates properly. They must be placed at strategic locations along the network.

Condensates may be evacuated by any conventional bleed system (electronic bleed, automatic bleed, valve).



Cut-off valves can be used to isolate parts of the network for maintenance.

INSTALLATION



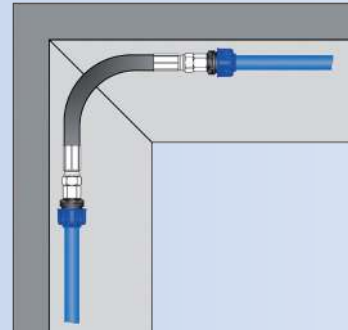
Like all other materials, aluminium can undergo expansion and contraction phenomena due to temperature variations.

To compensate for this expansion, absorption devices should be fitted to pipes.

Hoses can be used for this purpose.

They can also be used for changes of direction (*corners*) and to avoid obstacles in the workshop (*pillars, beams, etc.*).

Inserting a fixed point (**ref. CPF**) in the middle of each rectilinear segment is recommended to split the expansion on either side of the point.



Compensation hoses for network expansion and contractions (due to temperature variations)

| Standard male conical | BSP thread | Length (m) | Max. service pressure (bar) | Radius of curvature (mm) |
|-----------------------|------------|------------|-----------------------------|--------------------------|
| LAM 27 | R 3/4 | 0.75 | 105 | 240 |
| LAM 34 | R 1 | 0.75 | 88 | 300 |
| LAM 42 | R 1 1/4 | 1.1 | 63 | 420 |
| LAM 49 | R 1 1/2 | 1.25 | 50 | 500 |
| LAM 60 | R2 | 1 | 40 | 630 |

Hoses for connecting the compressor to the network

| Standard female | Standard male conical | Safety female | Safety male conical | BSP thread | Length(m) | Service pressure | Radius of curvature (mm) |
|-----------------|-----------------------|---------------|---------------------|------------|-----------|------------------|--------------------------|
| LEF 17 | LEM 17 | LEF 179 | LEM 179 | 3/8 | 1.5 | 180 | 130 |
| LEF 21 | LEM 21 | LEF 21S | LEM 21S | 1/2 | 1.5 | 160 | 180 |
| LEF 27 | LEM 27 | LEF 27S | LEM 27S | 3/4 | 1.5 | 105 | 240 |
| LEF 34 | LEM 34 | LEF 34S | LEM 34S | 1 | 1.5 | 88 | 300 |
| LEF 42 | LEM 42 | | | 1 1/4 | 2.2 | 60 | 420 |
| LEF 49 | LEM 49 | | | 1 1/2 | 2.5 | 50 | 500 |
| LEF 60 | LEM 60 | | | 2 | 2 | 80 | 630 |

Expansion of aluminium

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

Expansion is calculated as follows:

- C** = Expansion coefficient
- L** = Length of straight line (between two fixed points)
- ΔT** = Difference between maximum and minimum ambient temperature in °C.
- EL** = Overall linear expansion

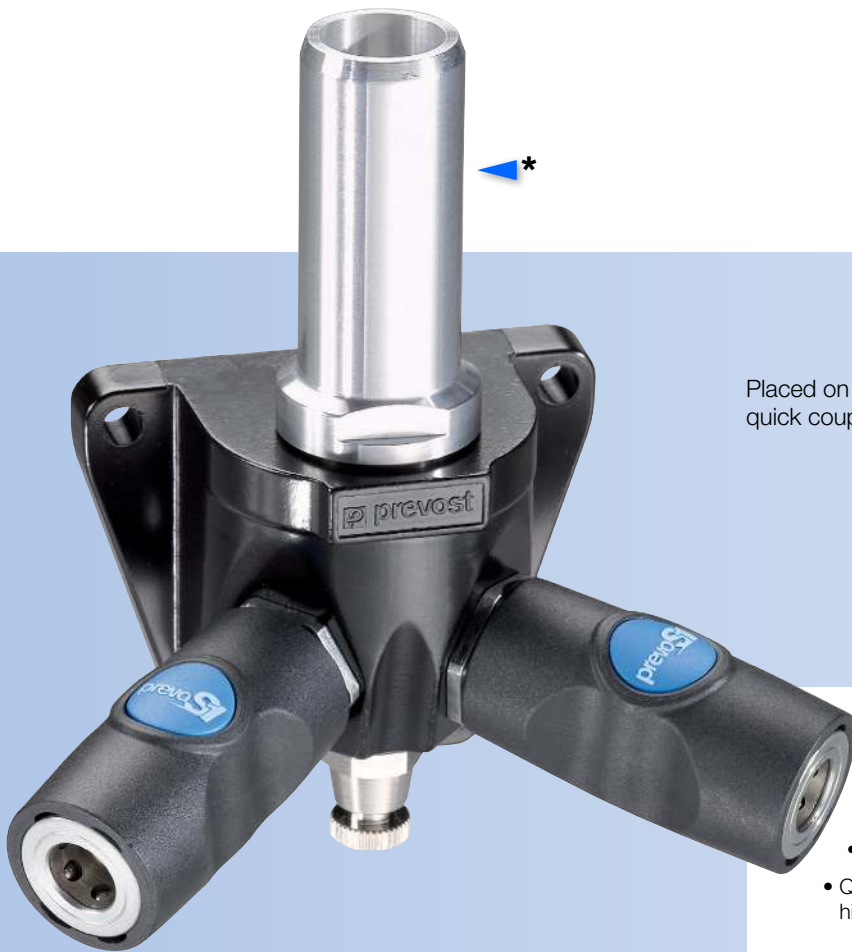
Where **EL = C × L × ΔT°**

For example, a 20-metre line of 40 mm pipe, installed at an ambient temperature of 15°C and subjected to a maximum temperature of 40°C.

Difference = 25°C.

EL: $0.024 \times 20 (m) \times 25^{\circ}C (45^{\circ}C - 15^{\circ}C) = 12 \text{ mm.}$





Placed on a secondary pipe, the wall fastener **prevoSi** offers quick coupling capability for two connections.

- **prevoSi** anti-whiplash couplings compliant with the ISO 4414 standard guarantee user protection
- Swivel body enables button position to be adjusted
- Quick and effortless connection and disconnection for highly flexible use

- Air inlet: 1/2" G or 3/4" G
- Material: Aluminium alloy
- 4-point wall mounting
- Fitted with a sealed manual drain
- Connect to 20 or 25 mm ALR pipes via:
 - Straight metal pipe/thread coupling, Ref. **ALR MM**
 - or
 - Union for wall outlet, ref. **ALR JF** with a pipe/pipe union coupling, Ref. **ALR UN**
(single-piece aluminium alloy union)
 - * optional
- Air outlet: Two one-push safety couplings **prevoSi**

