alr range

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

prevost   1   ALR D63x59 PN 13 bar 188 PSI   03/11

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

ADVANTAGES OF **ALR** NETWORKS

GUARANTEED*
10 years
QUALITY

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.
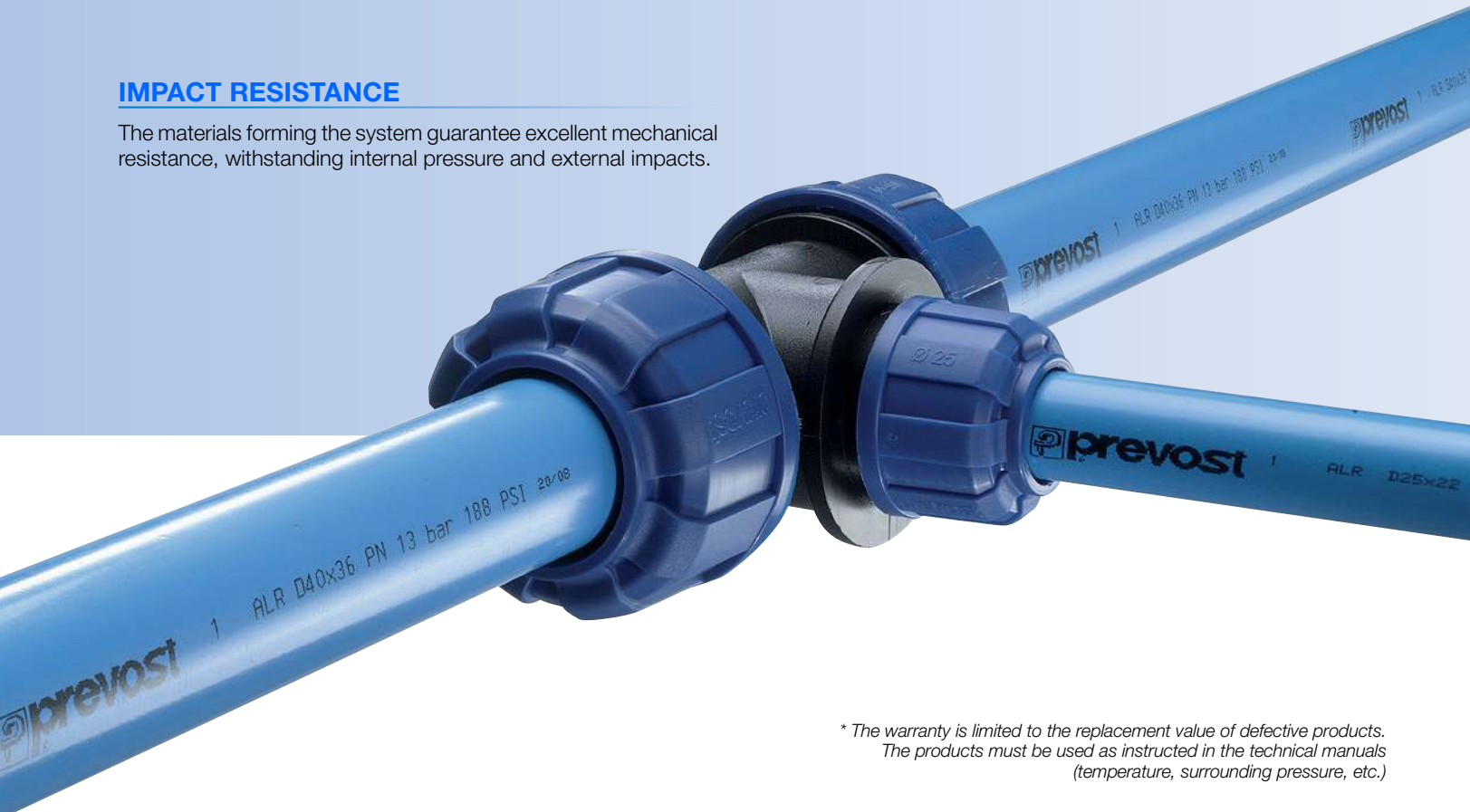
TOTALLY FUTURE-PROOF

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.
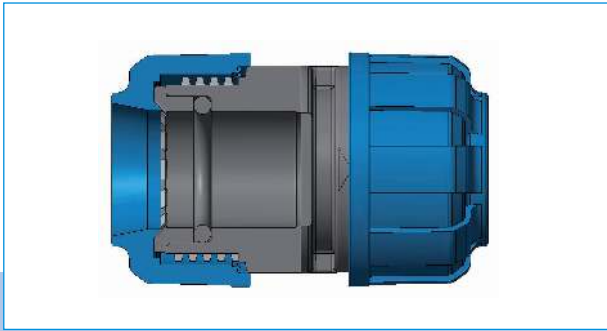
FLUID CARRIED

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.)

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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/dm^3
- 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

Ø 20 --> Ø 50   Ø 63, Ø 80
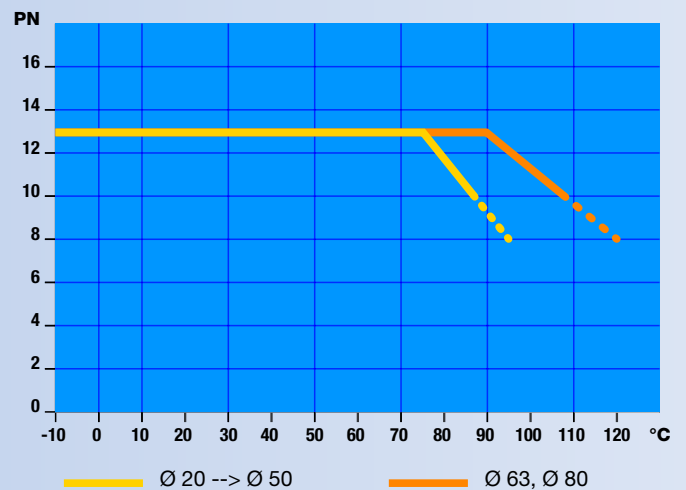
Coupling

- 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

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BASIC INSTALLATION RULES

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.

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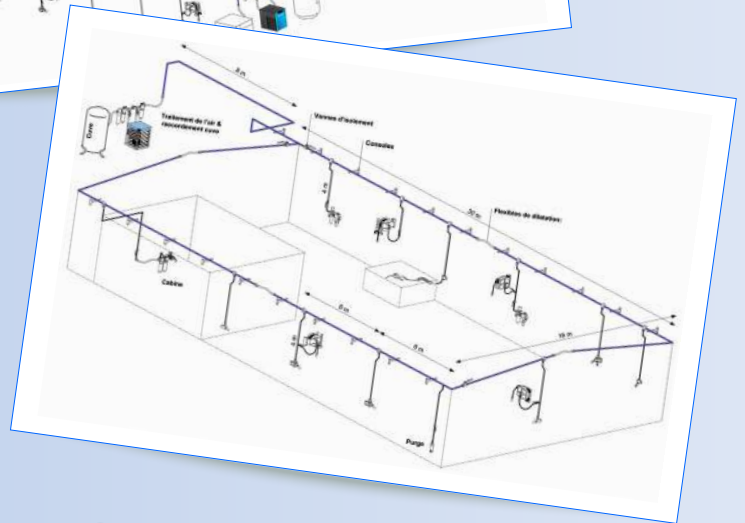
The pipe diameter is calculated taking into account:

- 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	Flow rate			Length									
kW	Nm³/h	Nl/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 - 3.0	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

- The pipe network should be attached to the wall or the ceiling depending on the workshop configuration.

- The pipes should be assembled such that they are perfectly aligned, ensuring strength and a sleek appearance.

Pipe offset from the wall

Pipe along wall

Suspended pipe
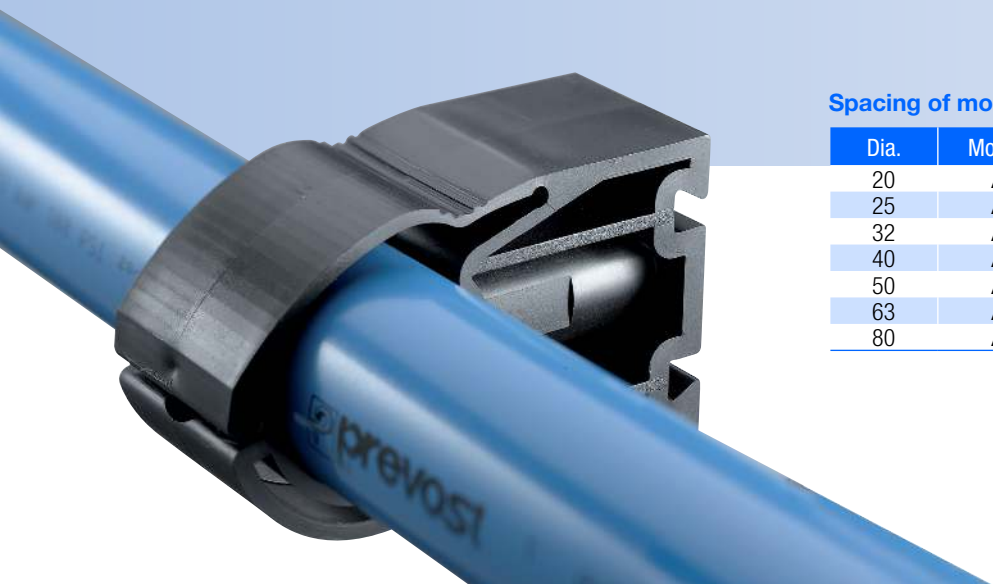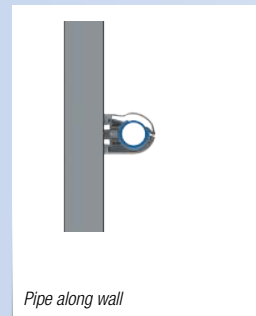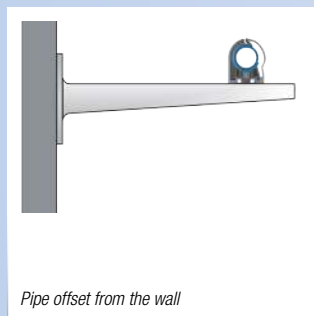
Spacing of mounting brackets

Dia.	Mounting clamps	Spacing between brackets
20	**AVR CI20**	2,5 m
25	**AVR CI25**	3 m
32	**AVR CI32**	3,5 m
40	**AVR CI40**	4 m
50	**AVR CI50**	4 m
63	**AVR CI63**	4 m
80	**AVR CI80**	4 m

ALR SYSTEM: ASSEMBLY PRINCIPLE

Cutting
Pipes must be cut straight. Use a pipe cutter, **ref. ALR CTU.**
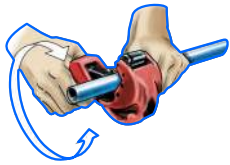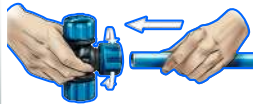
Chamfer the pipe
to facilitate insertion and avoid damaging the gasket. A slight internal chamfer enables any cutting residues to be eliminated.

*(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.

between the filter device and the network

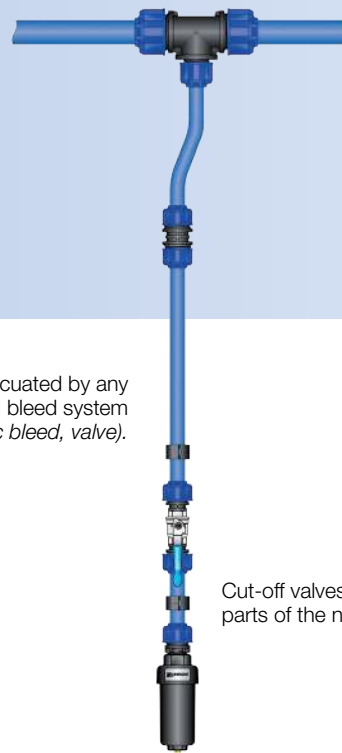*between the tapping and the wall*
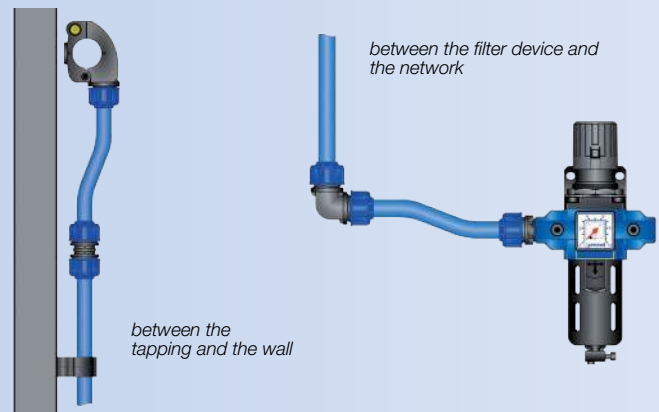
Low points
Low points are required to drain condensates properly.

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.

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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.
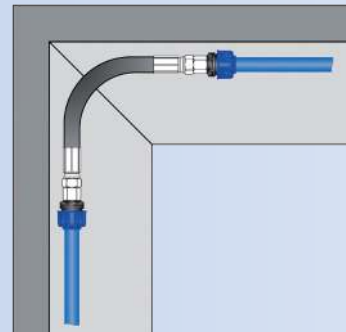
Compensation hoses for network expansion and contractions (due to temperature variations)				
Standard male conical	BSP thread	Length (m)	Max. service pressure (bar)	Radius of curvature (mm)
LAM 27	R 3/4	0.75	105	240
LAM 34	R 1	0.75	88	300
LAM 42	R 1 1/4	1.1	63	420
LAM 49	R 1 1/2	1.25	50	500
LAM 60	R2	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** $= \mathbf{C \times L \times \Delta T°}$

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 × 20 (m) × 25°C (45° C – 15°C) = 12 mm.

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Placed on a secondary pipe, the wall fastener **prevoS1** offers quick coupling capability for two connections.

- **prevoS1** 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 **prevoS1**