TOPRING QuickLINE

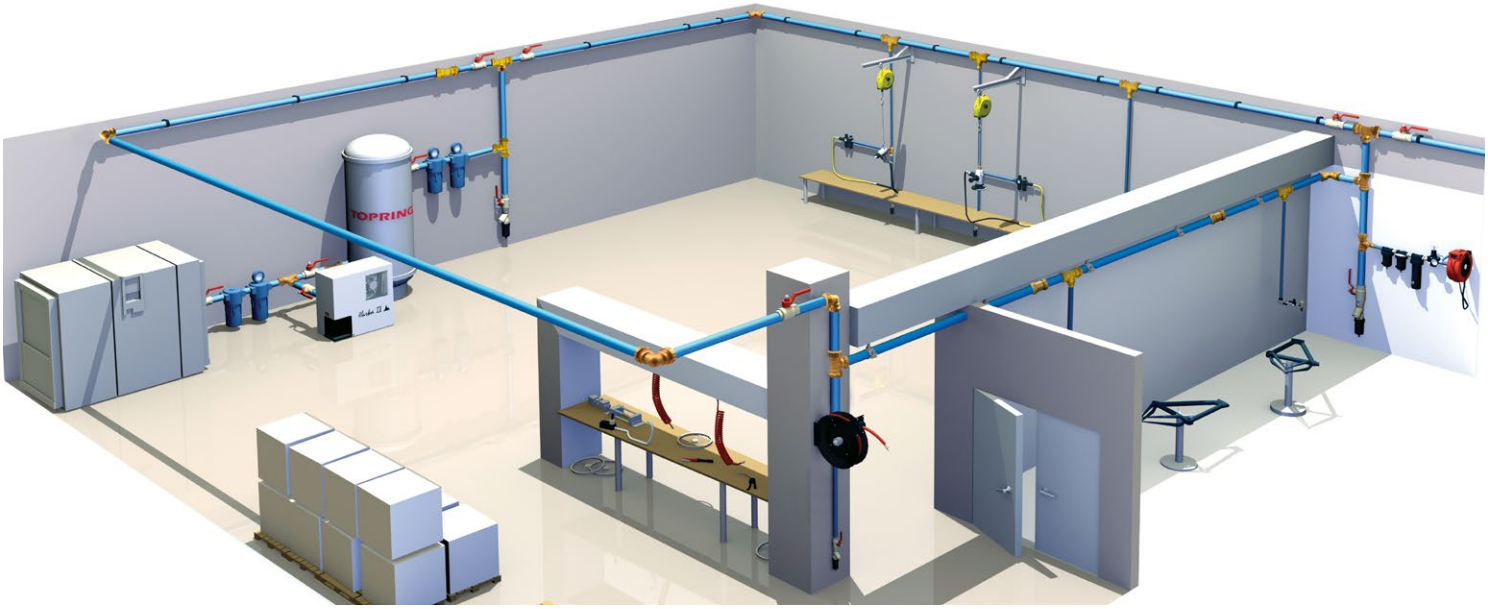
COMPRESSED AIR PIPING SYSTEM
Series 7

DESIGN AND INSTALLATION GUIDE

mm	15	22	28	40	50	63
∅ in	1/2	3/4	1	1-1/2	2	2-1/2

96.612 TOPRING Version 2022-07-21

TOPRING QuickLINE compressed air system



SAFETY GUIDELINES

Read this guide carefully as it provides important information and warnings relating to the safety, use, and maintenance of the system. Please keep this guide.

- After removing the packaging, verify the integrity of all components; in case of any doubt do not use the components and contact TOPRING.
- It is essential to respect the instructions contained in this guide.
- Any installation or use performed that is not consistent with the requirements specified in this guide may endanger the safety of the user, incur your liability and, in some cases, cause serious injury.
- Tubes and fittings must not be installed for outdoor use and cannot come into contact with sources of vibration, movement or thermal shock that may cause safety limits to be exceeded, as specified in the section “Checking before pressurizing” on page 17.
- Anyone who uses a TOPRING product, unit and/or network acknowledges and accepts the inherent risks of their use. Please read attentively the section “Liability of all buyers and/or users” on page 17.

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OVERVIEW OF TOOLS NEEDED FOR INSTALLATION

See these items on page 9

Pipe chamfering tool

Deburring tool

Assembly gel

Drop coupling drill bit

Pipe cutter

You will also need

Drill

Marker

Tape measure

Protective goggles

Gloves

NOTE: To learn more about the various products mentioned in this guide and their technical specifications, please consult the TOPRING Quickline catalog online at TOPRING.com

1. BASIC RULES FOR INSTALLING A COMPRESSED AIR NETWORK

Certain basic rules are required before proceeding with the installation of pipes and fittings or any other components that will form the TOPRING QuickLINE compressed air piping system.

Prior to the installation

Before the installation of a TOPRING QuickLINE compressed air distribution system, the installer must ensure that the installation area complies with any regulations applicable to explosive hazards or others. The downstream pressure should be released prior to any repair or modifications to the system. Installers should only use TOPRING QuickLINE components and accessories, including pipe clips and fixture clamps. The technical features of the TOPRING QuickLINE components must be respected.

For safety reasons, the main network must be installed at a minimum height of 2.5 m from the ground. The piping will be fixed with a sufficient number of supports (P12) to ensure its maintenance while allowingexpansion or contraction of the pipes (P10). A slope of 1% is also recommended in order to direct the condensates towards the low points (P12).

TOPRING QuickLINE aluminium pipe

Pipes should be protected from potential impacts with handling equipment such as a forklift or, when located in an environment with moving overhead loads. The pipeline system must never be welded.

Component assembly

Follow the guidelines and recommendations listed in this guide or contact TOPRING for technical assistance.

Pressurizing the system

Once the installation has been completed and prior to pressurizing, the installer should complete all tests, inspections and compliance as stated in any contract and according to sound engineering practices and current local regulations (P17).

Expansion / Contraction factors

The system designer and/or installer must calculate the elongation and retraction factor of each system according to the recommendations in this installation guide (P10).

Situations to avoid

- Installation integrated within a solid mass preventing the expansion of the system (concrete, foam, etc.).
- Exposure to chemicals incompatible with components.
- Use for grounding or as a support for electrical equipment (it should be only used for transportation of air or nitrogen).

Connexion at the air compressor

It is mandatory to install a flexible anti-vibration hose between the compressor and the airline system. A flexible anti-vibration hose will extend the airline system service life by reducing stress from vibration and high temperatures generated by the compressor (P13).

2 . BASIC ELEMENTS FOR THE OPTIMIZATION OF A COMPRESSED AIR SYSTEM

Reasonable engineering practice for the optimization of a compressed air system

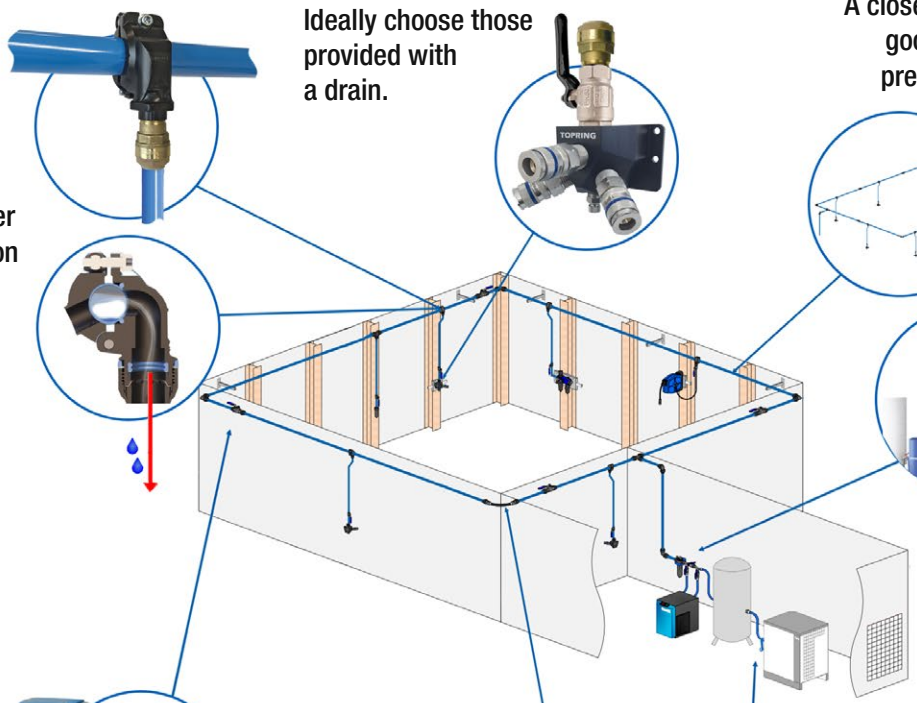
- The installation should be performed in accordance with good engineering practice.
- Bends and bypasses cause pressure drops. To avoid pressure loss, use a flexible hose to offset the network or to by pass obstacles. Keep in-line pipe diameter reductions to a minimum.
- Use adequate filtration at the compressor outlet and at the point of use in order to maintain good quality air.
- The diameter of the pipe will influence pressure drops at the point-of-use. Select the diameter according to the required flow rate and the acceptable pressure drop at the point of use.

The take-off drop couplings are used to install drop legs to supply workstations on new or existing compressed air systems.

The installation of distributors with couplers powers up to 3 tools simultaneously. Ideally choose those provided with a drain.

A closed network promotes good flow and balances pressure while reducing pressure drops.

Accumulated water in the lower section of the main pipe will be drained towards a lower point by an automatic drain.



A bypass isolates a section of the air network requiring regular maintenance (water separator, refrigerated dryer, filters).

Ball valve allows to isolate portions of the network for maintenance or when an emergency occurs without cutting air from the entire system.

Flexible anti-vibration hose absorb expansion or contraction movements due to thermal variations.

A high temperature anti-vibration hose must always be installed between the compressor and the beginning of the air piping network to protect the air network against vibrations and heat.

3. POINT OF HIGHEST PRESSURE DROP

The point of the highest pressure drop is typically the furthest point of use in the system. All pressure drops are taken into consideration between the start point and each outlet. A high pressure drop requires a higher loading pressure on the compressor to compensate for the losses along the network.

+2 PSI = +1% energy consumption

A 2 PSI increase in operating pressure results in a 1% increase in energy consumption. Pressure drops drastically increase the electric bill.

4. ELEMENT CONTRIBUTING TO PRESSURE DROPS

To properly design a compressed air system, consider all of the following:

- **Inside diameter of pipes**
  Increasing the pipe diameter reduces pressure drops.
- **Total Required Air Flow (SCFM)**
  Air demand is directly related to the number of points of use and the air consumption of each point of use.
- **Friction factor**
  TOPRING SicoAIR aluminium pipes have a very low friction factor due to their smooth surface as opposed to galvanized pipes.
- **Length of the network**
  The longer the network, the higher the pressure drops.
- **Design of the network**
  It is recommended to build a closed loop network in order to reduce pressure drops.
- **Working pressure**
  When the working pressure is lower, the pressure drop increases.
- **Fittings**
  Every direction change, cross manifold, “T” connection or reduction in line size within the network will cause pressure drops equivalent to adding additional line length. Connections are responsible for most pressure drops. Refer to the table “Equivalent lengths for various connections” below.

Equivalent lengths for various connections

FITTINGS		DIAMETERS					
		15 mm	22 mm	28 mm	40 mm	50 mm	63 mm
Union 	in	5.1	6.7	8.7	11.8	15.7	19.7
	cm	13	17	22	30	40	50
90° Elbow 	in	13.8	16.9	21.7	31.5	37.4	49.2
	cm	35	43	55	80	95	125
“T” Union 	in	6.7	9.4	13.4	19.7	27.6	37.4
	cm	17	24	34	50	70	95
“T” Reducer 	in	21.7	26.4	37.0	55.1	66.9	90.6
	cm	55	67	94	140	170	230

5. DETERMINING THE PIPE DIAMETER NEEDED FOR A COMPRESSED AIR SYSTEM

1. Identify type of network: closed loop or dead end
2. Calculate total length of the line (feet)
3. Determine total flow required (SCFM)
4. Use the tables below to determine the correct diameter

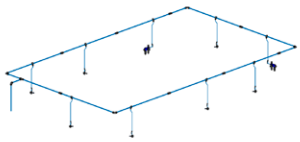
Note: Total flow required takes account of all flows for all compressed air powered tools and equipment.
A typical compressor will produce approximately 4 SCFM per horsepower.

Minimum diameter of the Pipe required for a closed-loop network

TOTAL LENGTH OF THE NETWORK (FEET)

TOTAL FLOW REUIRED

SCFM \ FEET	100'	150'	200'	250'	300'	400'	500'	600'	700'	800'	900'	1000'	1250'	1500'	2000'
5	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
10	15	15	15	15	15	15	15	15	15	15	15	15	22	22	22
15	15	15	15	15	15	15	15	22	22	22	22	22	22	22	22
20	15	15	15	15	15	22	22	22	22	22	22	22	22	22	22
30	15	22	22	22	22	22	22	22	22	22	22	22	22	22	28
40	22	22	22	22	22	22	22	22	22	22	28	28	28	28	28
60	22	22	22	22	22	28	28	28	28	28	28	28	28	28	40
80	22	22	22	28	28	28	28	28	28	28	28	40	40	40	40
100	22	28	28	28	28	28	28	28	40	40	40	40	40	40	40
125	28	28	28	28	28	40	40	40	40	40	40	40	40	40	40
150	28	28	28	28	40	40	40	40	40	40	40	40	40	40	40
200	28	28	40	40	40	40	40	40	40	40	40	40	50	50	50
300	40	40	40	40	40	40	40	50	50	50	50	50	50	50	63
400	40	40	40	40	40	50	50	50	50	50	50	63	63	63	63
500	40	40	50	50	50	50	50	50	63	63	63	63	63	63	63
750	50	50	50	50	63	63	63	63	63	63	63	63			
1000	50	50	63	63	63	63	63								
1500	63	63	63	63											

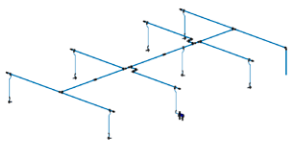


Minimum diameter of the pipe required for a linear / dead-ended network

TOTAL LENGTH OF THE NETWORK (FEET)

TOTAL FLOW REUIRED

SCFM \ FEET	25'	50'	75'	100'	150'	200'	250'	300'	400'	500'	600'	700'	800'	900'	1000'
5	15	15	15	15	15	15	15	15	15	15	15	22	22	22	22
10	15	15	15	15	15	22	22	22	22	22	22	22	22	22	22
15	15	15	22	22	22	22	22	22	22	22	22	22	28	28	28
20	15	22	22	22	22	22	22	22	22	28	28	28	28	28	28
30	22	22	22	22	22	28	28	28	28	28	28	28	28	40	40
40	22	22	22	22	28	28	28	28	28	40	40	40	40	40	40
60	22	28	28	28	28	28	40	40	40	40	40	40	40	40	40
80	22	28	28	28	40	40	40	40	40	40	40	40	40	40	50
100	28	28	28	40	40	40	40	40	40	40	40	50	50	50	50
125	28	40	40	40	40	40	40	40	50	50	50	50	50	50	50
150	28	40	40	40	40	40	40	50	50	50	50	50	50	63	63
200	40	40	40	40	40	50	50	50	50	63	63	63	63	63	63
300	40	40	50	50	50	50	63	63	63	63	63	63	63		
400	40	50	50	50	63	63	63	63	63						
500	50	50	50	63	63	63	63								
750	50	63	63	63											
1000	63	63													
1500	63														

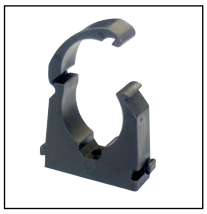


Note: Diameters are based on the CAGI Handbook's recommendations for pressure drop less than 3 psi,
with the following conditions: pressure 100 psig at 20 degrees C, main loop including 2 valves and 4 elbows

6. MOUNTING ACCESSORIES

MONTING CLIP

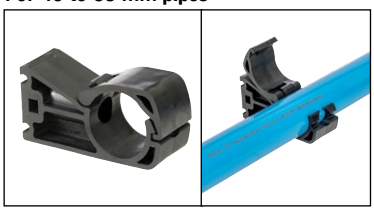
For 15 to 28 mm pipes



Product No	Pipe diameter	
	mm	in
07.500	15	1/2
07.505	22	3/4
07.510	28	1

Ouverture de 5.2 mm / Vis #14

For 40 to 63 mm pipes

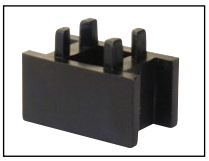


Product No	Pipe diameter	
	mm	in
07.591	40	1-1/4
07.593	50	1-1/2
07.595	63	2

Note: Integrated nut for ceiling installation with threaded rod 3/8 UNC

CLIP SPACER

For 15 to 28 mm pipes



Product No	Thickness (mm)
07.512	12.7

For 40 to 63 mm pipes

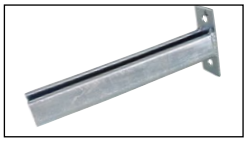
Product No	Thickness (mm)
07.599	20

INSTALLATION TIP

The clip spacer compasates for the eight difference creared aaby connecting pipes of different diameters. The clip spacer ensures a perfect aligment.

CANTILEVER ARM

• 1-5/8 X 1-5/8 IN

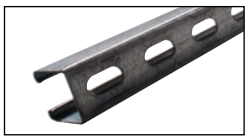


Product No	Length / in
07.550	6
07.551	12

For wall mounting

STRUT CHANNEL

• 1-5/8 X 1-5/8 IN



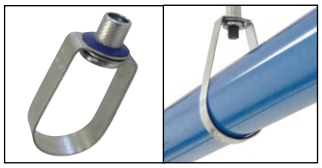
Product No	Length / in
07.555	10

For ceiling mounting

SWIVEL LOOP HANGER

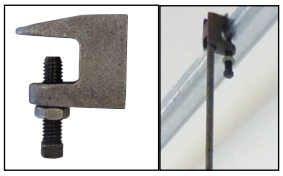
No de produit	Tube		Filetage UNC
	mm	po	
07.508	28	1	3/8 - 16
07.518	40	1-1/4	3/8 - 16
07.520	50	1-1/2	3/8 - 16
07.525	63	2	3/8 - 16

SUSPENSION PIPE CLIP



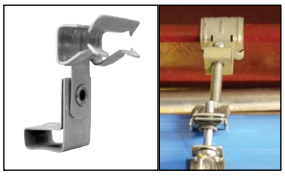
No de produit	Tube		Filetage UNC
	mm	po	
07.507	28	1	3/8 - 16
07.517	40	1-1/4	3/8 - 16
07.521	50	1-1/2	3/8 - 16
07.522	63	2	3/8 - 16
07.522.01	63	2	1/2 - 13

I-BEAM CLAMP



Product No	Beam Thickness (in)	Thread UNC
07.535	3/4	3/8 - 16
07.535.01	3/4	1/2 - 13

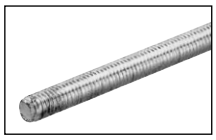
I-BEAM MOUNTING CLIP



Product No	Beam Thickness (in)	Thread UNC
07.530	1/8 - 1/4	3/8 - 16
07.531	3/8 - 1/2	3/8 - 16
07.532	1/2 - 3/4	3/8 - 16

THREADED ROD

• 10 FT

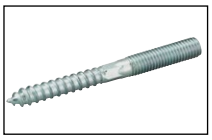


Product No	Thread UNC
07.526	3/8 - 16
07.541	1/2 - 13

COUPLING NUT FOR THREADED ROD

Product No	Thread UNC
07.528	3/8 - 16
07.542	1/2 - 13

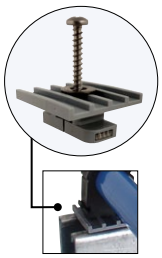
SCREW



Product No	Thread UNC
07.529	3/8 - 16
07.543	1/2 - 13

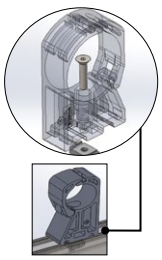
STRUT CHANNEL ADAPTER KIT FOR MOUNTING CLIP

For installation on a 1-5/8 x 1-5/8 in standard strut channel



Kit 07.540 includes:
- 1 strutcatcher
- 1 flat washer
- 1 x 316 stainless steel screw

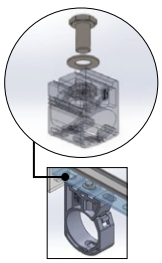
Product No	Pipe diameter	
	mm	in
07.540	15 22 28	1/2 3/4 1



Kit 07.557 includes:
- 1 sping nut
- 1 flat head Phillips screw 1/4

Product No	Pipe diameter	
	mm	in
07.557	40 50 63	1-1/4 1-1/2 2

For installation on a 1-5/8 x 1-5/8 in slotted strut channel



Kit 07.556 includes:
- 1 flat washer
- 1 hex cap screw 3/8 UNC

Product No	Pipe diameter	
	mm	in
07.556	40 50 63	1-1/4 1-1/2 2

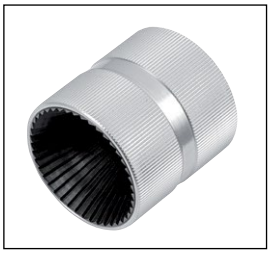
7. TOOLS REQUIRED FOR INSTALLATION

PIPE CUTTER

Product No	Pipe diameter	
	mm	in
07.566	3 to 30	1/8 to 1-1/8
07.567	Replacement blade for 07.566	
07.568	6 to 64	1/4 to 2-1/2
07.569	Replacement blade for 07.568	
07.558	50 to 140	2 to 5-1/2
07.559	Replacement blade for 07.558	

CHAMFER TOOL

Product No	Pipe diameter	
	mm	in
07.570	3 to 35	1/8 to 1-3/8

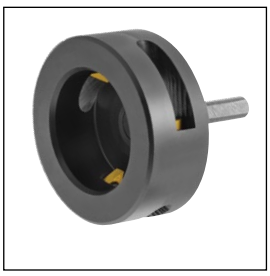


Product No	Pipe diameter	
	mm	in
07.574	15 to 50	1/2 to 2

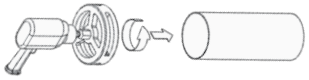
Product No	Pipe diameter	
	mm	in
07.579	63 to 100	2-1/2 to 4

CHAMFER TOOL FOR DRILL

Product No	Pipe diameter	
	mm	in
07.610	15 to 50	1/2 à 2



Product No	Pipe diameter	
	mm	in
07.615	28	1
07.616	40	1-1/2
07.617	50	2
07.618	63	2-1/2



DEBURRING TOOL

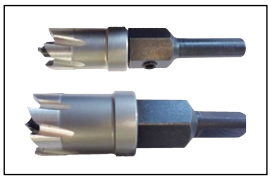
Product No	Description
07.571	Deburring tool
07.572	Replacement blades (x2)

GEL FOR ASSEMBLY

Product No	Description
08.579	200 ml

- Integrated brush easy to use
- Facilitates pipe and fitting connection without any drip
- NSF H1 certified for the food industry

DRILLING BIT



Product No	Drilling diameter		Size	
	mm	in	mm	in
08.575	15	1/2	22 to 28	3/4 / 1
08.576	22	55/64	40 /50	1-1/2 / 2
08.577	30	1-3/16	63	2-1/2

For the installation of ta ke-off drop couplings

Integrated stop bumper to prevent a complete perforation of the pipe

DISMANTLING CLIP

Product No	Pipe diameter	
	mm	in
07.560	15	1/2
07.561	22	3/4
07.562	28	1

8. TECHNICAL REFERENCES FOR DESIGNING A COMPRESSED AIR SYSTEM

8.1 Thermal variations

Aluminum compressed air pipes are subjected to temperature variations and expansion movements which may be compensated by absorption devices on the system network. Several solutions are explained in the following pages to counter this phenomenon.

Explanation of thermal expansion and contraction

Comparison of the linear expansion coefficients for materials frequently used in compressed air systems

Steel	1.3 x 10^{-5} m/m-°C
Copper	1.7 x 10^{-5} m/m-°C
QuickLINE 100% aluminum	**2.3 x 10^{-5} m/m-°C**
AIR LINE PA (polyamide)	1.2 x 10^{-4} m/m-°C
ABS	1.5 x 10^{-4} m/m-°C
PVDF	1.5 x 10^{-4} m/m-°C
PP	1.7 x 10^{-4} m/m-°C
PE	1.1 x 10^{-4} m/m-°C

The linear expansion coefficient (d) is 0.23 mm / m °C, or 0.23 millimeter per meter, per degree Celsius.

System design must factor in the phenomenon of expansion, which is calculated with the formula: DL = d x L x DT

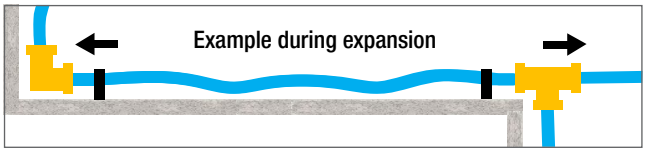
Example with an aluminum pipe:
Installation temperature: +10 °C
Pipe length: 20 m
Service temperature: 35 °C
Linear expansion coefficient: 0.023 mm/m

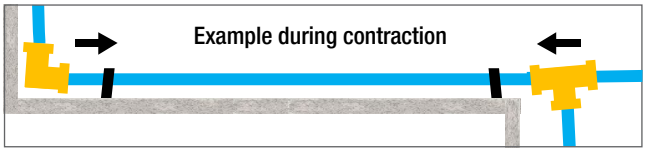
Calculation:
DT = 35 – 1 0 = 25 °C
DL = 0.023 x 20 x 25 = 12 mm

LEGENDE	DESCRIPTION
d	Linear expansion coefficient
L	Length of the pipe
DT	Temperature difference in degrees Celsius
DL	Difference in length (expansion or contraction)

Effects of expansion or contraction if the expansion coefficient is not considered:

- Strain of pipes between two fixed points
- Compression of clamps or equipment with risk of strain, sagging or rupture

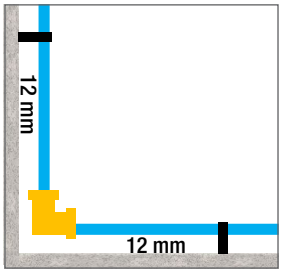




Solutions to counter the effects of thermal variations

Leave space between pipe and wall

To prevent the effects of expansion/contraction and make sure there is enough room, space should be left between the pipes and walls at the time of installation.



Example using the calculation above:
DL = 0.023 mm/m coefficient for an aluminum pipe x 20 m x 25 °C = **12 mm**
Since the difference in length (DL) is 12 mm, the space between pipe and wall must be at least 12 mm.

8. TECHNICAL REFERENCES FOR DESIGNING A COMPRESSED AIR SYSTEM

8.2 Expansion loops

Adding expansion loops or expansion connectors

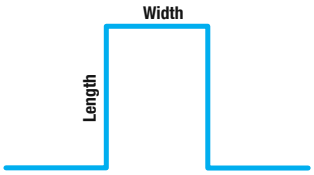
Aluminum compressed air piping is subject to temperature variations and expansion movements.
Each 50 meter straight section must contain an elastic element to absorb the expansion, without causing excessive stress to the piping.

For systems with pipe diameters of 22 to 63 mm (3/4 to 2-1/2 in)

Expansion loops are a good way to absorb expansion. The diagram and table beside indicate the recommended dimensions for the loops.

Dimensions of the expansion loops

Pipe diameter		Length		Width	
mm	in	m	ft	m	ft
22	3/4	1.2	4	1.2	4
28	1-1/2	1.5	5	1.2	4
50	2	1.8	6	1.2	4
63	2-1/2	2.1	7	1.2	4



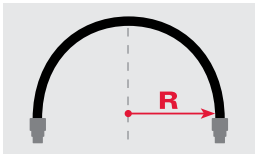
CAUTION

Dimensions for reference only.
TOPRING assumes no responsibility for the design of any particular piping system. It is the responsibility of the project designer to ensure compliance with the applicable standards. These dimensions are only valid for an expansion loop intended to absorb the expansion of a straight section of up to 50 meters in length, in aluminum piping subject to a temperature variation relative to the building of up to 60 degrees Celsius.

For systems with pipe diameters of 15 to 50 mm (1/2 to 2 in)

Series 7 anti-vibration hoses can also absorb expansion movements.
Available in 24 and 48-inch lengths, with or without a Canadian Registration Number (CRN).

CRN CANADIAN REGISTRATION NUMBER



Rubber anti-vibration hoses

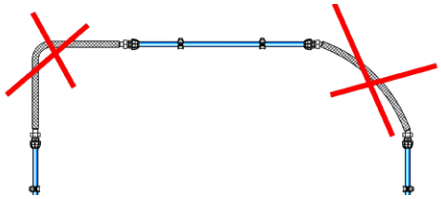
Inside diameter Pipe / Connector		Minimum bending radius R	
mm	in	mm	in
16	1/2	178	7
20	3/4	241	9-1/2
25	1	305	12
32	1-1/4	419	16-1/2
40	1-1/2	500	19-11/16
50	2	635	25

CRN rubber anti-vibration hoses

Inside diameter Pipe / Connector		Minimum bending radius R	
mm	in	mm	in
16	1/2	89	3-1/2
20	3/4	121	4-3/4
25	1	152	6
32	1-1/4	210	8-1/4
40	1-1/2	254	10
50	2	318	12-1/2

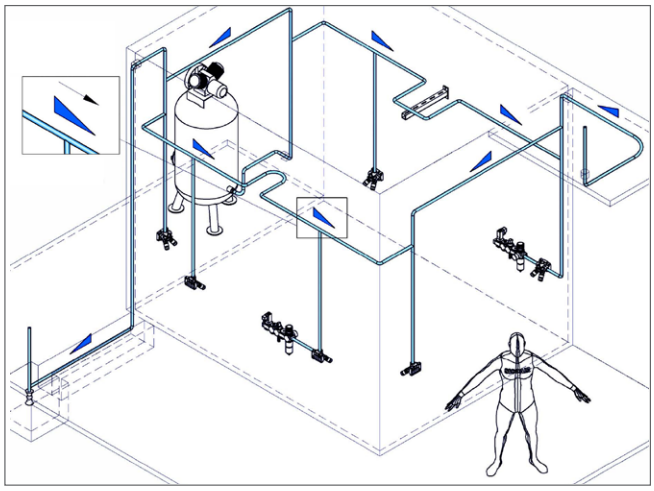
TECH TIP

The anti-vibration hose must not be overly bent (too squared or not rounded enough). This hose is used to change direction and bypass obstacles.



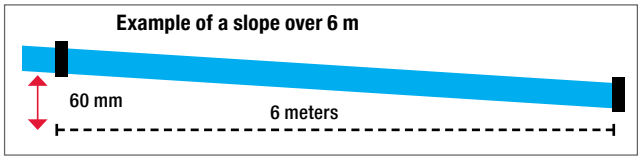
To see the full line of anti-vibration hoses offered, consult the QuickLINE catalog online at **TOPRING**.com.

8. TECHNICAL REFERENCES FOR DESIGNING A COMPRESSED AIR SYSTEM



8.3 Determining the slopes

All horizontal pipes must have a slope of 1% to allow drainage of condensate. Descending slopes must lead to drain downspouts fitted with condensate drains, placed at the low points of the network.

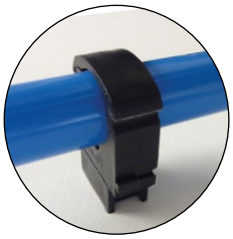


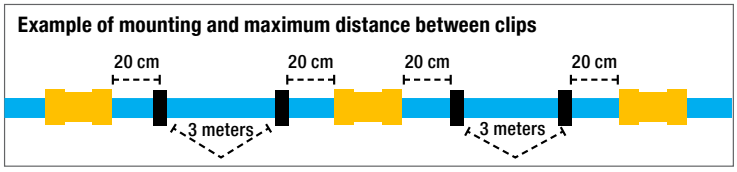
8.4 Pipe mounting clips

The maximum distance between each mounting clip must be 3 meters, regardless of pipe diameter. Mounting clips should be installed 20 cm from a fitting (upstream or downstream). This will prevent pipes from bending

For pipe 15 to 28 mm

For pipe 40 to 63 mm



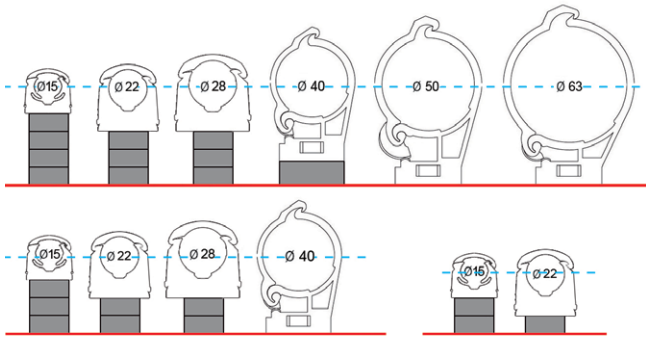


8.5 Spacers for mounting clips and for distributors

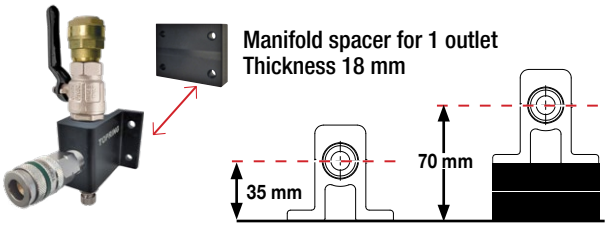
The installation of a spacer combined with a mounting clip may be necessary to align the pipes from their center and especially during a descent with the main line. The spacer allows perfect alignment.

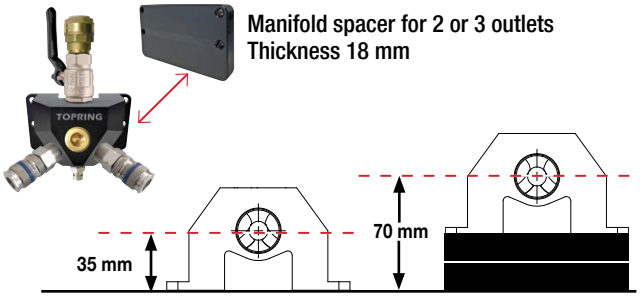
For pipe 15 to 28 mm
Thickness 12.7 mm

For pipe 40 to 63 mm
Thickness 20 mm



Installation of a distributor spacer may be necessary if the distance between the wall and the center of the pipe is greater than 35 mm. The distributor must be correctly aligned with the drop.



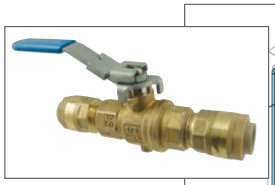


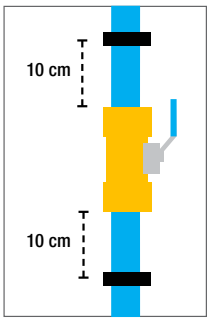
8. TECHNICAL REFERENCES FOR DESIGNING A COMPRESSED AIR SYSTEM

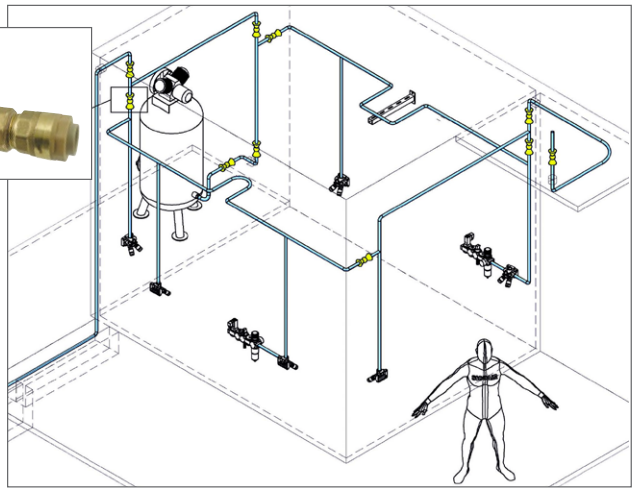
8.6 Ball valves

Ball valves should be installed in order to facilitate maintenance and isolate the system into sections.

For a drop, a mounting bracket should be installed on both sides of the ball valve to prevent pipe distortion and vibration at the application.







SAFETY SOLUTION

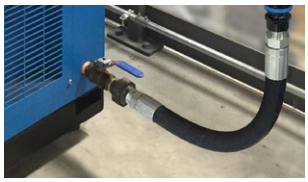
Since maintenance operations can sometimes be carried out on a non-depressurized system, **TOPRING** offers ball valves with a safety exhaust that can be locked to safely isolate a section of the network during maintenance.

8.7 The importance of take-off drop couplings and drain units

- A compressed air system must be designed by taking into account that the air taken from the main pipe may contains unwanted condensate that can be transfered throughout all the piping system.
- A simple and efficient way to prevent water from the main line to infiltrate the drop is to install a take-off drop coupling.
- You also have to think about installing drains at the bottom of a drop leg that is not created with a take-off drop coupling.
- The use of automatic drains will facilitate maintenance.

8.8 Anti-vibration hoses

Anti-vibration hoses are available with or without a Canadian Registration Number (CRN). They are available in steel reinforced rubber and stainless steel. Anti-vibration hoses are also used for changes in direction and to bypass obstacles.



CAUTION

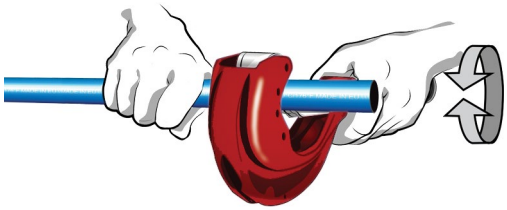
An anti-vibration hose must always be installed between the compressor and the beginning of the piping system to protect the system from vibrations and expansion forces.

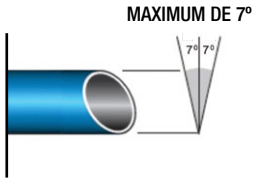
9. INSTALLATION GUIDELINES

9.1 Pipe preparation

CUT THE PIPE

Use the proper pipe cutter to match to the pipe diameter. The cut must be straight and perpendicular to the pipe with a maximum tolerance of 7°.

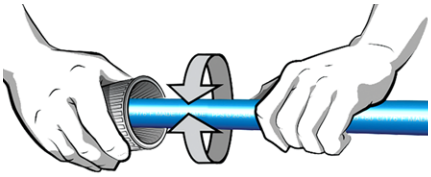




CAUTION
To ensure a proper seal, ends of the pipe must be smooth and free of scratches, impacts or distortions.

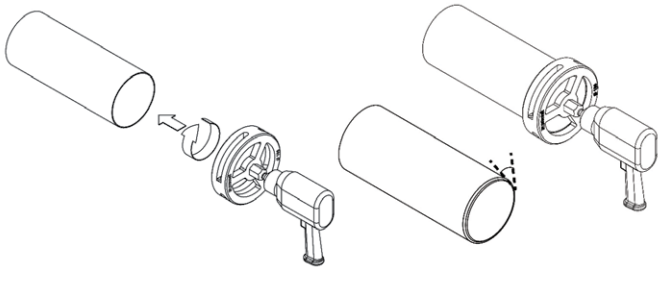
CHAMFER - DEBURR

After cutting, deburr the inside of the pipe to remove the aluminum chips and chamfer the outside of the pipe. The chamfer MUST eliminate any edges sharp at the end of the pipe. The surface of the tube should not be sanded or scratched.



MECHANICAL CHAMFERING

Check the direction of rotation of the drill prior to working on the pipe. The tool must be rotating before contact
with the pipe. Push forward until reaching the bottom of the tool.

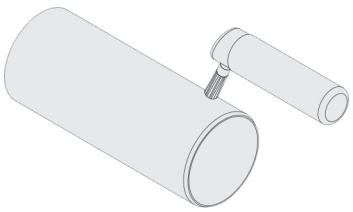


WARNING
Protective gloves and goggles are recommended. These steps are essential to ease the eastallation and avoid damaging the fitting seal.

CLEANING AND LUBRICATING THE PIPE

After cutting, check the surface condition and remove residue using a damp cloth and a mild degreaser.

To facilitate the assembly of the different parts, it is imperative to use assembly gel **08.579** (the use of lubricants, oils or fatty substances whose chemical compatibility is not guaranteed is to be avoided)



Refer to page 9 of this guide to locate the tool needed for the pipe diameter.

9. INSTALLATION GUIDELINES

9.2 Assembling pipe-fitting

PIPE-FITTING 15, 22 OR 28 MM

No fitting assembly required, simply push the pipe in slightly to the bottom of the fitting.

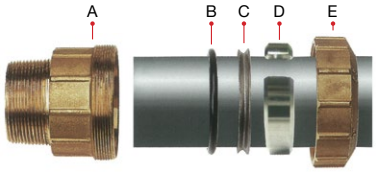
IMPORTANT

For diameters of 15, 22 and 28 mm, check by pulling on the pipe if the connection is properly engaged. It is important to do this before putting it under pressure.

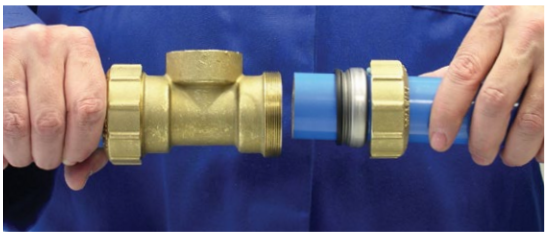
To dissemble a connection, simply press the clamping collar using the dismantling clip with same diameter as pipe and remove the pipe.

PIPE-FITTING 40, 50 OR 63 MM

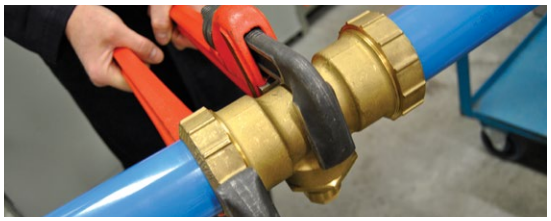
Place all the parts on the pipe as shown below and push the pipe to the bottom of the fitting.



A. Body
B. O-ring
C. Compression ring
D. Locking ring
E. Clamping nut



Tighten the nut with a tool until it stops. You should see less than one thread when properly tigthtened.

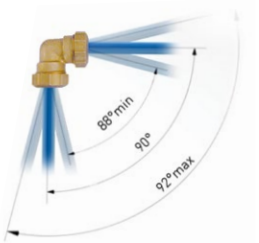


IMPORTANT

For diameters of 40, 50 and 63 mm, the locking ring, the compression ring and the O-ring must be replaced before reusing a compression fitting.

WARNING

Make sure the pipe is properly aligned with the fitting to avoid leaks. A misalignment of more than 2° may compromise the strength of the connections.



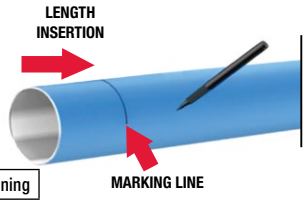
TECH TIP

PIPE INSERTION

The creation of a mark on the pipe according to the measurements indicated in the table below, will make it possible to check if the pipe is inserted correctly.

	Marking for pipe insertion (mm)					
	Push-to-connect type fitting			Compression type fitting		
Pipe diameter	15	22	28	40	50	63
Insertion length (mm)	36	42	45	36*	44*	57*

*Screwed nut without tightening

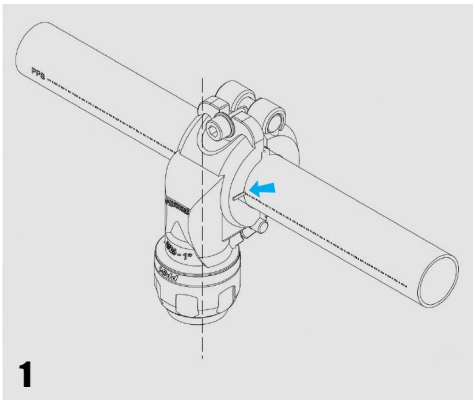


INCREASED SEALING

It is advisable to apply sealant to the fitting threads or PTFE tape and/or pipe fitting compound.

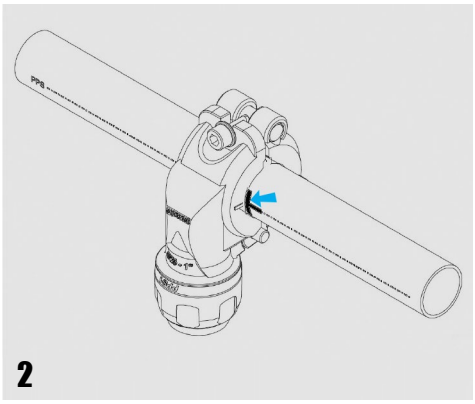
9. INSTALLATION GUIDELINES

9.3 Take-off drop coupling installation on a non-pressurized system



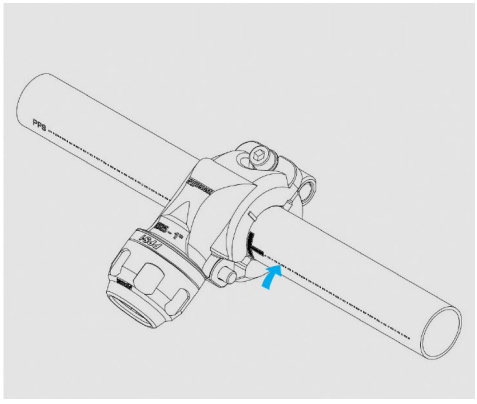
DROP COUPLING POSITIONNING

Use the notches on each side of the drop coupling to set the fitting to its desired position on the pipe.



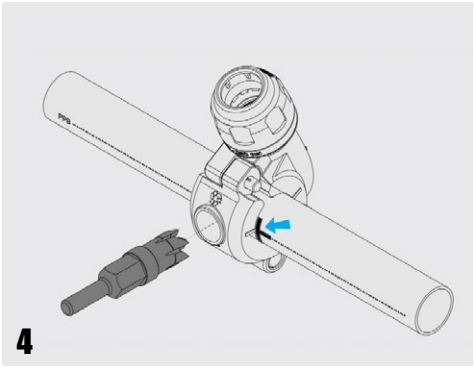
POSITION MARKING

Use the notches as a guide to mark the position on the pipe with a felt tip marker.



COUPLING REVERSAL

Rotate the drop coupling 180° by aligning with the marking on the tube.

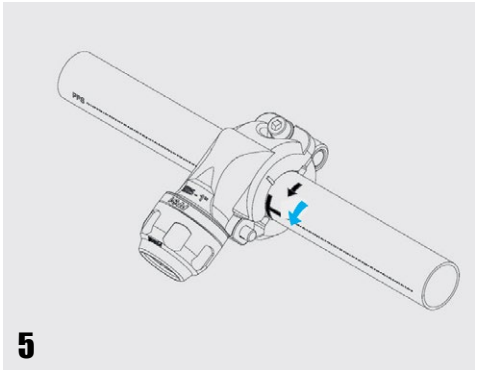


DRILLING THE PIPE

Insert the drilling tool into the drilling guide to drill the pipe.

NOTE
The drill bits **08.575, 08.576, 08.577** and **08.578** are specially designed to avoid damaging or puncturing the bottom of the tube, unlike conventional drilling tools. They are equipped with an integrated stop bumper to prevent a complete perforation of the pipe.

NOTE
Check the drill hole and remove any aluminum chips if present using the deburring tool (see page 9).



TIGHTENING THE DROP COUPLING

Reposition the drop coupling in the initial position and tighten the M8 screw reaching the recommended torque value.

DRILL BIT

For pipe diameter (mm)	Bit Product No	Torque (Nm)	
		mm	in
22 à 28	**08.575**	16	1/2
40 et 50	**08.576**	22	55/64
63	**08.577**	30	1-3/16

TORQUE REFERENCE TABLE FOR TAKE-OFF DROP COUPLING BOLT

For pipe diameter (mm)	Torque (Nm)	
	Min	Max
22	8	10
28	8	10
40	10	12
50	10	12
63	12	14

10. PRESSURIZING THE SYSTEM

1. Check the tightness of the couplings and inspect for scratches, dents, gashes or abrasions on the pipe; the marks made during assembly must still be visible. If you see any issues, replace faulty parts immediately.
2. Check all clamps and wall mounting brackets.
3. The pressurization of the network is done in 3 stages and taking into account the following conditions of use: do not exceed the maximum pressure of use of 217 PSI (16 BAR) and a temperature of use of -20 to 80 °C.
   - Gradually increase the pressure up to 45 PSI maximum, so as to identify any leaks and/or faulty junctions. Maintain the pressure at 45 PSI for at least 5 minutes before increasing again.
   - Gradually increase the pressure (14 PSI every 5 seconds) until the compressor's maximum pressure is reached. Caution: do not exceed 217 PSI.
   - Maintain constant test pressure for at least 10 minutes (without any significant drop in pressure).
4. Set the system's pressure to the desired service pressure.
5. After 72 hours power the system and check the fittings to confirm the nuts remained fully tightened (observe the marks made when you originally tightened the nuts).

11. LIABILITY OF ALL BUYERS AND/OR USERS

In addition to carefully reading the TOPRING design guide, product guidelines, system and/or network (hereinafter referred to as « TOPRING Product(s) »), purchasers and/or users of a TOPRING Product that involves compressed air must inquire, prior to its use, about the health and safety risks associated with compressed air.

Buyers and/or users acknowledge that by purchasing and using a TOPRING Product, they understand and accept that he or she is solely responsible for the installation, identification, maintenance, and use of the TOPRING Product, as well as the configuration of any system or network that uses a TOPRING Product. Subject to the limits of public policy as expressed in the law, buyers and/or users assume any risk and liability that may arise from loss, damage or injury caused by the improper installation, identification, maintenance and/or use of a TOPRING Product, or caused by a misconfiguration of any system or network using a TOPRING Product, to the extent to completely and entirely exonerate TOPRING, as well as its subsidiaries and affiliated corporations (hereinafter referred to as « TOPRING »). Buyers and/or users must take into consideration among other factors, the regulations in force, the type use of any TOPRING Product, preventative measures, as well as the particular nature of the premises or location, and the activities or operations that take place.

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