







CONNECTED TO INNOVATION

What is a **compressed air system?**

A compressed air system moves energy throughout a network to power workstations and machinery.

Mount the ringmain of a Prevost 100% aluminium pipe system a minimum height of 2.5 m from the floor.

Install smaller diameter «downpipes» or «drops» off the main line to terminate at distribution points throughout the network approximately 1.2 m from the floor. From these points various accessories can be attached (manifolds, safety couplings, filtration, hoses, etc.).

SIZING A COMPRESSED AIR SYSTEM

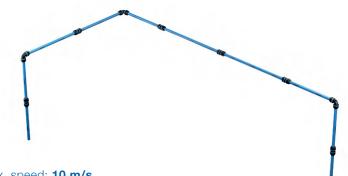
When designing a system, consider the following:

- desired flow rate
- the length of the main line.

Use the table to determine the appropriate pipe diameter with an operating pressure of **8 bar** and a maximum pressure drop is 5%.



SIZE AN OPEN SYSTEM



Pressure: 8 bar | Max. pressure drop 5% (0.4 bar) | Max. speed: 10 m/s

Compressor*					Length of the main line								
Power		Flow rate		50 m	100 m	150 m	300 m	500 m	750 m	1 000 m	1 300 m	1 600 m	
kW	с۷	Nm3/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	5,5	40	667	24	20	20	25	25	32	32	32	32	32
5,5	7,5	50	834	29	20	25	25	25	32	32	32	40	40
7,5	10	70	1 1 6 7	41	20	25	25	32	32	40	40	40	40
11	15	100	1 667	59	25	32	32	32	40	40	40	50	50
15	20	150	2 500	88	32	32	32	40	50	50	50	50	63
18	25	180	3000	106	32	32	40	40	50	50	50	63	63
22	30	220	3667	129	40	40	40	50	50	50	63	63	63
26	35	260	4 3 3 4	153	40	40	40	50	50	63	63	63	63
30	40	300	5000	176	40	40	50	50	63	63	63	63	80
37	50	370	6167	218	50	50	50	50	63	63	63	80	80
45	60	450	7 500	265	50	50	50	63	63	80	80	80	80
55	75	550	9167	324	63	63	63	63	80	80	80	80	100
75	100	750	12500	441	63	63	63	80	80	80	100	100	100
90	120	900	15000	529	80	80	80	80	80	100	100	100	100
110	150	1 100	18334	647	80	80	80	80	100	100	100	100	160
130	175	1 300	21 667	765	80	80	80	80	100	100	100	160	160
160	215	1 600	26 667	941	100	100	100	100	100	160	160	160	160
200	270	2 000	33 334	1 1 7 6	100	100	100	100	160	160	160	160	160
250	340	2500	41667	1471	160	160	160	160	160	160	160	160	160
300	405	3000	50000	1765	160	160	160	160	160	160	160	160	160
350	475	3500	58334	2059	160	160	160	160	160	160	160	160	160
400	540	4000	66667	2353	160	160	160	160	160	160	160	160	
450	600	4500	75000	2647	160	160	160	160	160	160	160		
500	700	5000	83334	2941	160	160	160	160	160	160			
600	810	6000	100000	3529									
700	950	7000	116667	4118									
800	1080	8000	133334	4706									

* These values may vary slightly from compressor data

THERMAL **EXPANSION**



As temperatures fluctuate up or down, aluminium naturally expands and contracts. To compensate, we recommend installing equipment along the line to absorb the movement.

- Use a flexible hose for small diameters
- Install expansion kits to accommodate large diameters.

An expansion hose is necessary when a straight line exceeds 50 meters or more. Use this flexible hose to easily change direction of the air flow (angles) or avoid obstacles in the facility (pillars, beams, etc.).

SIZE A CLOSED SYSTEM

Compressor*					Length of the main line								
Power		Flow rate		50 m	100 m	150 m	300 m	500 m	750 m	1 000 m	1 300 m	1 600 m	
kW	с۷	Nm3/h	NI/min	Scfm	164 ft	328 ft	492 ft	984 ft	1640 ft	2460 ft	3280 ft	4265 ft	5249 ft
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Pressure: 8 bar | Max. pressure drop 5% (0.4 bar) | Max. speed: 10 m/s

* These values may vary slightly from compressor data

EXPANSION COEFFICIENT: 0.024 mm per METRE and per DEGREE °C.



EXPANSION IS CALCULATED AS FOLLOWS:

- C = COEFFICIENT OF EXPANSION (0.024 mm)
- L = STRAIGHT LINE LENGTH (m)

 $\Delta T^{\circ} =$ difference between maximum and minimum room temperature in °C.

DL = OVERALL EXPANSION (mm)

IN OTHER WORDS: $\mathbf{DL} = \mathbf{C} \times \mathbf{L} \times \Delta \mathbf{T}^{\circ}$

EXAMPLE:

A 20 meter line laid with ø40 mm piping, at an ambient temperature of 15°C, can be subjected to a maximum temperature of 40°C

→, i.e. a difference of 25°C.

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

PREVOST PIPING SYSTEM The 100% aluminium concept



The PREVOST PIPING SYSTEM's pipes and fittings are 100% aluminium, compact, lightweight and professional strength.

They can be installed easily and quickly for immediate pressurisation.

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The **PREVOST PIPING SYSTEM** range ensures:

- clean, high quality air at all times
- a sealed system
- an optimised flow rate
- an operating pressure range: from 0.98 bar to + 16 bar
- a temperature range: from 20°C to + 80°C

Workstations are well supplied, accessible and ergonomically designed. The facility is durable and can be easily upgraded.

BENEFITS OF A Prevost Piping System

COMPACT AND LIGHTWEIGHT

NADE IN EULOT WHY 2 O PREVOSE (PPS AAXBB - CCXDD ASTM B221 6060 T6 WP

The 100% aluminium composition of the **PPS** range creates a system that is compact, lightweight and durable.

HIGH TECH, MODERN MATERIAL

Aluminium alloy, combined with external electrostatic paint and internal treatments all **protect the pipe against the oxidation and corrosion.**

100% CUSTOMIZABLE

The wide range of sizes and fittings allow the system for modular and scalable construction.

+ EASY AND QUICK TO ASSEMBLE

Simply insert the pipe into the **PPS** fitting then **tighten the nut.**

LEAK FREE WITH MINMAL PRESSURE LOSS

The **"PPS Grip Concept"**, creates a secure, **leak free connection**. The smooth internal surface generates a laminar flow, a low friction coefficient and a maximum flow diameter which are all factors **to reduce pressure loss**.

COMPATIBLE WITH COMPRESSOR OILS

Aluminium and viton seals are compatible with compressor lubricants.

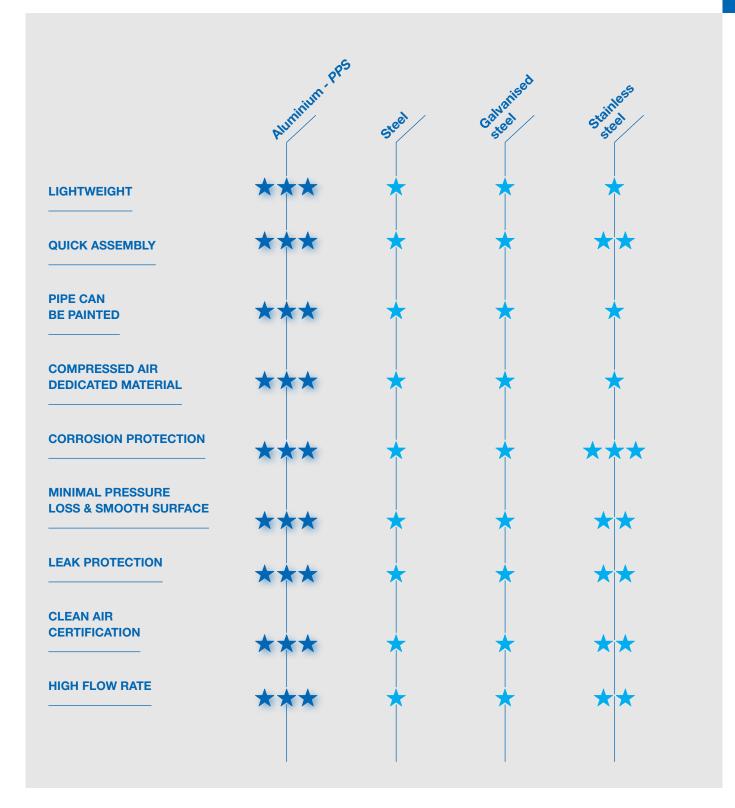
TOUGH MATERIAL

Aluminium guarantees long term performance:

- mechanical strength
 - pressure resistance
 - shocks absorbent

THE **BENEFITS** OF ALUMINIUM COMPARED TO **OTHER MATERIALS**





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

CERTIFICATIONS BY INDUSTRY APPLICATION

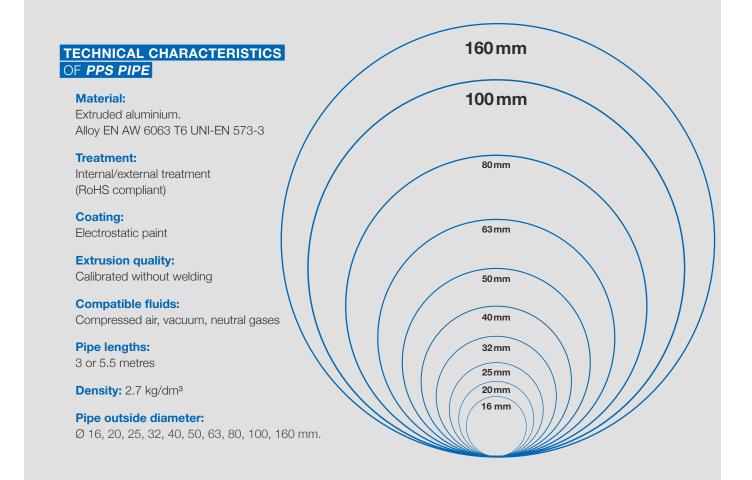


PREVOST PIPING SYSTEM 100% ALUMINIUM PIPES



STAINLESS STEEL

- MINIMAL PRESSURE LOSS laminar flow from smooth internal surface
- UV AND HEAT RESISTANT low coefficient of expansion
- ISO MARKING AND COLOUR all diameters are available for RAL 5012 (blue) and RAL 7001 (grey) pipes. 20, 25 and 50 mm diameters are also available for RAL 6029 (green).
- NO FIRE HAZARD system does not require a fire permit
- SIMPLE TOOLS easy to cut and chamfer for simplified installation and maintenance
- LIGHTWEIGHT
- COST-EFFECTIVE



PREVOST PIPING SYSTEM 100% aluminium fittings

Prevost designs and manufactures compact, high-performance fittings.



IDENTIFICATION _____







POSITIONING arrow indicates mounting direction

DIAMETER

Pipe outside diameter (mm/in)

THE **PPS GRIP CONCEPT**

The tube's retention in the fitting is ensured by a stainless steel ring whose teeth penetrate the aluminum.

This is what we call the **PPS** Grip **Concept** unique in the market.

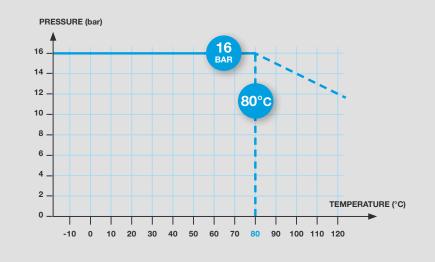
The double-lobed, lubricated seal guarantees a secure connection and provides optimum results even in the harshest working conditions.



LEAK-TIGHT CONNECTION

THE **INTERNAL PARTS** REMAIN ATTACHED TO THE BODY AFTER ASSEMBLY

TECHNICAL SPECIFICATIONS OF FITTINGS



PRESSURE/TEMPERATURE GRAPH

Body and nut: 100% aluminium EN AB 46100

PPS Grip Concept: stainless ring

Tapping flangeto remove condensates



Available diameters

Ø	16	20	25	32	40	50	63	80	100	160
mm										

AVAILABLE FITTING OPTIONS

STRAIGHT FITTINGS

Ø 16 to 80 mm















Simple union

Reducer

Pipe cap

Straight male threaded fitting

Straight female threaded fitting

Expansion kit

Sliding union

Ø 100-160 mm







Sliding union 160

Simple union

BENT FITTINGS Ø 16 to 80 mm

Reducer



Pipe cap



Straight female threaded fitting

Ø 100-160 mm





90° elbow

Ø 100-160 mm





Equal T-piece

Female threaded T-piece



Cross connector

T-PIECE FITTINGS

90° elbow

Ø 16 to 80 mm

Equal T-piece



90° elbow threaded male



























Female threaded T-piece



Cross connector



Reduced T-piece





TAPPING FLANGE

A tapping flange connects a down pipe (drop) to workstations. It's purpose is to replace a traditional "gooseneck" configuration and reduce condensates in the line.

Flanges transport clean air from the side of the pipe to workstations. Any remaining condensates which remain at the bottom of the pipe are then evacuated via drains located throughout the system. Tapping flanges can quickly integrate into existing systems, no disassembly required.

The flange is **compact** and equipped with an anti-rotation system which securely locks the fitting in place.



TAPPING FLANGES FOR DRILLING UNDER PRESSURE

Ø 25 to 100 mm





VALVES Ø 16 to 50 mm





Pipe/pipe

Female threaded/pipe



Threaded male/pipe



Ø 63-80 mm

Pipe/pipe Aluminium body



Compact Connection Concept - *CC concept*

The CC Concept is the solution for

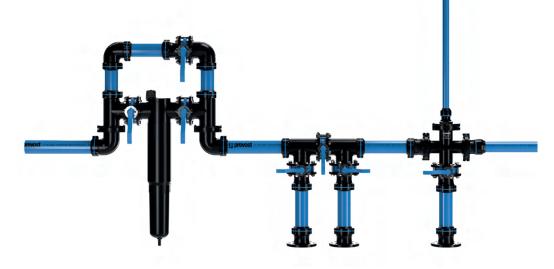
- Directly connect two fittings
- Optimise space
- Specifically designed for «compressor rooms»

STRAIGHTFORWARD, FAST CONNECTION METHODS	CHARACTERISTICS AND BENEFITS
• CONNECTION WITH A FLANGE + $()$ = $()$	 ANSI/ASME general-purpose flange Ideal for connecting a system to a compressor, a dryer or to an existing system through the standard ANSI flange
• CONNECTION WITH A CLAMP	 Quickly connect two fittings with a clamp instead of cutting the pipe or installing a flange Design allows for easy installation and elimination of assembly errors

ONNECTION VALVE



THE FULLY CUSTOMIZABLE CC CONCEPT



COMPACT CONNECTION FITTINGS - CC CONCEPT

UNIONS





Connector union with 2 different diameters

Connector union

2-connector

T-piece

ELBOWS





Equal 90° elbow





1-connector T-piece with 2 different diameters







Clamp

Flange

ACCESSORIES









3-connector

T-piece

Ø 63-80-100 mm

ALUMINIUM VALVES





1-connector valve



Female threaded body

Plug

O-ring seal

Male threaded body

Valve Ø 160

Bolts/nuts

45° elbow

connector

CROSS TING



4-connector cross-piece



2-connector valve









Safety and energy savings





1/2"-3/4"-1"

- Compact and lightweight
- Easy to operate even at ceiling height
- Quick to install
- 100% aluminium
- Fully pneumatic
- Available in Ø 40-50-63-80-100 mm.

Every compressed air installation, replacement, repair or retrofit should include at least one shut off valve.

This shut off valve can quickly depressurise certain areas of the system in the event of emergency or if maintenance is necessary. By isolating only targeted areas of the system, productivity will not be lost.



VALVES

ø40 to 80 mm







Push button





Programmable control module

VALVE REMOTE

Several options to control the valve are available:

PUSH BUTTON

Immediately stops air flow with a push of a button

KEY SWITCH Provides limited access to the valve control

PROGRAMMABLE CONTROL MODULE

A programmable control module turns the system on and off at designated days or times. Automatically shutting off a system during down time will reduce energy waste and drops in pressure when the system is not in use.



CC CONCEPT ø100 mm

Guidelines for **installing a compressed air system**

Ideally, the compressor **room** should be:

- spacious
- ventilated & insulated
- separate from the rest of the workshop

Connect the air compressor to the *PPS* system with a **hose** to eliminate vibrations and allow for maintenance (ref. LEF and LEM).

Install bypasses:

- between each machine
- between tanks
- between filters

Preferably, the **main** line should form a **loop**. For safety reasons, install the primary air lines at a height of **2.50 m** from the ground.

The diameter of the main line should be **large enough** to avoid drops in **pressure** and **to accommodate future expansion**.

The main line:

- should be installed with a 1% slope to gravity feed condensates to low points that terminate in drains.
- should be securely mounted with a sufficient number of sliding clamps that will allow the pipe to expand and contract as the temperature fluctuates (ref. PPS CI).

Remove residual condensates from the main line **with down pipes** (drops) that terminate in an automatic drain system.



OFFSET FROM THE WALL



DIRECTLY TO THE WALL



SUSPENDED



SUSPENDED BY A CABLE



FASTENED TO IPN/HEA BEAM WITH PLATES

MOUNTING THE SYSTEM

The mounting style is dictated by the layout of the facility.

Chose the method that is most structurally sound and aligned with the environment.

Always abide by the recommended pipe support distances between each clamp: the **maximum spacing is 3 meters.**

Supplemental equipment

A COMPLETE, UNIFIED SYSTEM

Prevost offers a full line of pneumatic tools and accessories to accommodate every compressed air system.

SAFETY WALL MANIFOLDS

Installed at the bottom of a downpipe (drop) to quickly connect your equipment.

Air inlet: G 1/2 or G 3/4

Multiple connection profiles available

Material: aluminium alloy

Robust 4-point wall attachment

Fitted with a manual drain

Air outlet: 1/2/4/6/8/10 single push safety couplings

Outlets equipped with anti-hose whip safety couplings which comply with ISO 4414 standard for user protection

Coupling body swivels to ergonomically position the button

Quick, reliable connection and disconnection







HOSE REELS

The automatic hose reel

is an essential piece of equipment for an organized workshop.

The retractable hoses will **save time, increase efficiency** and enhance safety.

All automatic hose reels comply with the Machine Directive 2006/42/EC.

The following standards also apply:

- EN ISO 12100: 2010-11-01 "Safety of machinery -General principles for design -Risk assessment and risk reduction"
- EN 13857: 2008 "Safety of machinery: safety distance to prevent upper and lower limbs from reaching hazardous areas"





AIR TREATMENT UNITS

Protect pneumatic tools and equipment by purifying the compressed air.

Three treatment levels are recommended:

- Cyclonic separator: removes the largest solid and water particulates from the system [ref. SPC]
- 25 µm standard filtration : eliminates contaminants present (particulates, water, etc.) in an air system. Units are equipped with a drain to remove pollutants [ref. ALTO]
- Submicron filtration (optimum quality): removes the smallest residual contaminants (solid, liquid and oil aerosols) from compressed air with 99.99% efficiency rates. Provides the highest level of air quality [ref. MICRO AIR]



BENT LIMBS

Use a bent pipe to compensate for equipment that does not properly align or to overcome obstacles.

MOUNT ACCESSORIES ON IPN/HEA BEAMS WITH PLATES

Create **ergonomic, secure** workstations.

The metal plates are designed to attach equipment on **IPN/HEA** beams:

- In complete safety
- Without drilling
- Seamless
- Conforms with the current industry requirements.



Prevost, as a **compressed air specialist**, now offers a complete solution from the compressor room to the point of use.

prevost

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The **PPS SQ** allows the distribution of compressed air energy directly at the workstation with an ergonomic, compact and aesthetic design.

Prevost -

RECTANGULAR PROFILES ADAPTED TO YOUR WORKSTATION

Color: **blue or grey** Dimension: **1 m or 2 m** Rectangular section size: **30 x 45 mm** Internal diameter: **Ø 25 mm**

Part Numbers PPS BSQ2510 Part Numbers PPS GSQ2510 Part Numbers PPS GSQ2520 Part Numbers PPS GSQ2520 Part Numbers PPS GSQ2520 Samm 30 mm

The design of the **PPS SQ** profile section includes a groove that allows the use of accessories (nuts, etc.) **compatible** with the most common profiles on the market.

45 mm

It is the essential complement to *PREVOST PIPING SYSTEM* air systems that installs at the bottom of your existing downspouts to ensure the delivery of compressed air to the point of end use:

- Individual workstations
- Automatic machine lines







THE ACCESSORIES

Fixing clamp
 Part Numbers
 PPS SQCI25HN8



Fixing clamp
 Part Numbers
 PPS SQCI25

A **COMPLETE RANGE OF ACCESSORIES** TO CREATE YOUR IDEAL ENVIRONMENT

THE CONNECTING PIECES FOR CONNECTING **PPS SQ** PROFILE BARS

- Union fittings
- Connection plates
- Connection fittings



Cross connection fitting Part Numbers PPS1 CR27

⊕ THE **BENEFITS**

- 100% aluminium
- Ergonomics of workstations
- Space saving
- Modularity
- Quality & Safety
- Watertightness guaranteed
- User comfort

THE CHARACTERISTICS

- Pressure : -0.98 bar to +16 bar
- Temperature : -20 °C to +80 °C



Connection fitting
Part Numbers JN2527

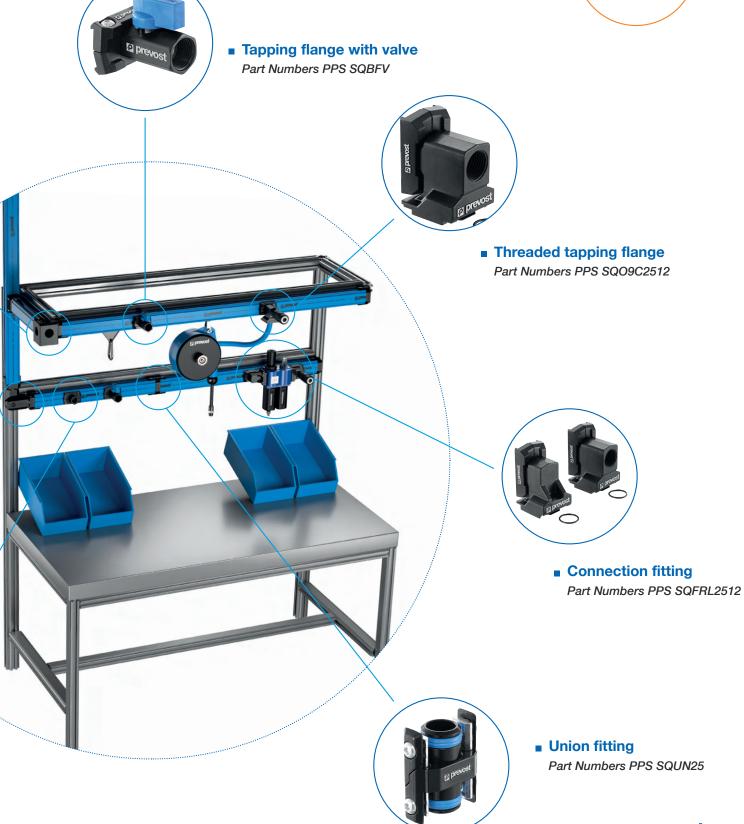




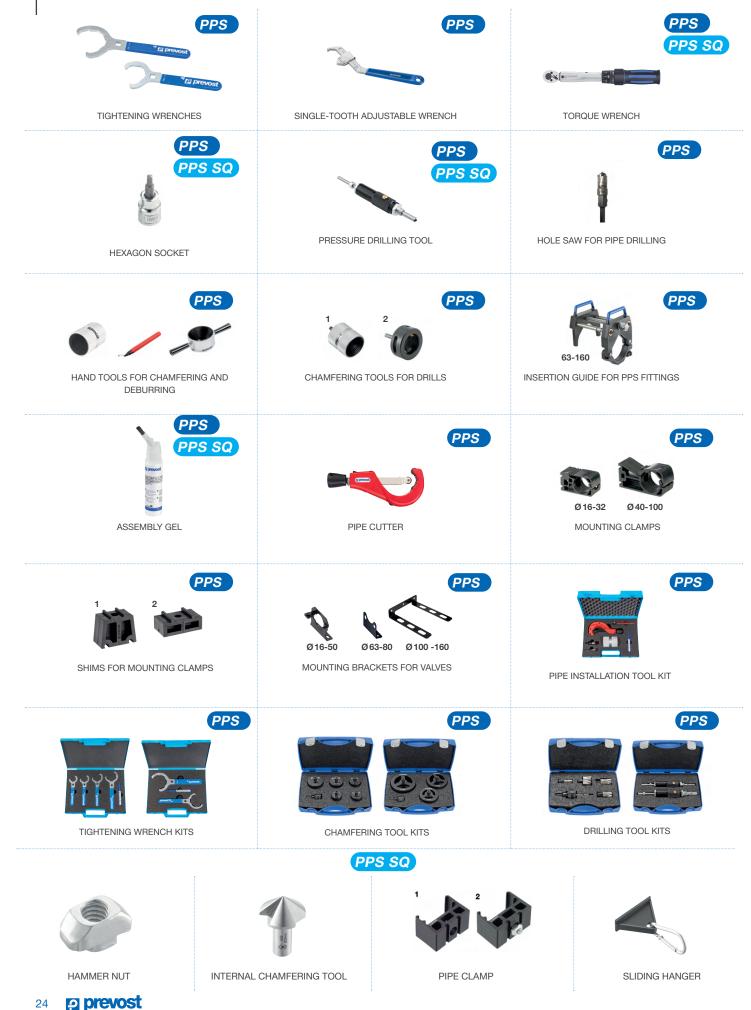
THE ACCESSORIES

Sliding carabiner
 Part Numbers PPS SQSH8





PPS SYSTEM INSTALLATION EQUIPMENT



INSTALLING A COMPRESSED AIR SYSTEM



FIND OUT ABOUT OUR VIDEOS



1 CUT The pipe should be cut perpendicular to the pipe axis. [ref. PPS CTU]



2 CHAMFER

Chamfer the pipe on the outside to facilitate insertion and avoid damaging the seal. Internal deburring will remove any cutting residue. [ref. PPS CH]



3 MARK

Make a mark on the pipe to check its position in the fitting before tightening (use the mark on the fitting or on the tightening wrench).



Assembly gel is recommended to facilitate inserting the pipe into the fitting. [ref. PPS AL]



6 ASSEMBLE

Slightly unscrew the nut, then push the pipe rotating it slightly to achieve the recommended insertion length.



6 **TIGHTEN** Tighten the nut by hand and then tighten it as recommended. [ref. PPS CLE]

Prevost services





Determining your compressed air needs can be complicated, that is why we are here to help.

If you are planning a complex installation or expanding on an existing system, our in house **Technical Design team** is here to support you from start to finish.

Our team will provide a complete bill of material, quote, design and consulting services throughout the process. For straightforward installations, we offer an **on line 3D design platform** to conceptualize and view your project.

Prevost provides customized **training** classes based on your business needs that cover a variety of compressed air energy topics.

Scan the QR code below to view our **P**REVOST **P**IPING **S**YSTEM videos:





Prevost UK Ltd.

Unit G, Tower Business Park, Commercial Rd, BB3 OFJ Darwen - Lancashire - United Kingdom Phone. +44 (0)1254 873389 sales@prevost-ltd.co.uk - **www.prevost.eu**



PPS DOC22EN

SAS capital: 1 840 000 Euros - RCS Annecy: B 313195026 - Siret: 313 195 026 00072 This document is non- contractual We reserve the right to modify the product specifications without notice **Prevost** publication - 06-2022 - Printed in France

