

**JG** John Guest®

***Speedfit***® Air Products



*Celebrating 50 Years of Innovation*



**COMPRESSED AIR SYSTEMS  
PNEUMATIC FITTINGS  
LLDPE TUBE  
JUNE 2011**



The John Guest Group has a long established reputation as a world leading manufacturer of push-fit fittings, tube and other fluid control products. A reputation built on producing consistently high quality products with an ongoing commitment to value engineering and product development.



## *Quality Manufacture*

**A commitment to quality is at the heart of the John Guest philosophy.**

The strictest control is maintained by virtue of the fact that design and manufacture is carried out in modern purpose built manufacturing centres in West London and at Maidenhead in Berkshire.



Maintaining control over the whole process from initial tool design and tool making through to final assembly and testing ensuring that only products of the highest quality are produced.

The company believe it is this commitment to quality that has led to it receiving prestigious awards from many of the world's leading testing and approvals organisations.

John Guest is a preferred supplier to many international companies.



Since 1989



# Contents

## Compressed Air Pipe and Fittings

### Compressed Air Products



A push-fit system of fittings and pipe which means a compressed air supply can be installed quickly and easily with much reduced production down time

05 - 24

## Pneumatic Fittings

### Metric Size Fittings



Metric Size Fittings in 4 to 12mm sizes. Selected items have Superthread. A unique thread with integral seal suitable for 5 different thread forms.

25 - 40

### Miniature Fittings



Miniature Fittings, specially designed for miniature pneumatics applications.

43 - 44

### Banjo Flow Controls



Banjo Flow Controls, compact envelope size and precise adjustment.

41 - 42

### Imperial Size Fittings



Inch Size Fittings in 5/32" to 1/2" sizes.

45 - 56

# Speedfit® Air Products

## Tubing

### LLDPE Tube



Strong but flexible and available in 9 colours.

59 - 60

## Accessories

### Accessories



Tube Cutters, Flow Bend Clips, Collet Covers and Tube Inserts

57 - 58

## Technical Specification

Compressed Air Products

23 - 24

Pneumatics Fittings

61 - 62

Product Selection and Installation, Maintenance and Replacement, Cleaners and Sanitising, and Warranty

63 - 64

# *The easy to use push-fit system for Compressed Air*

The John Guest range of push-fit fittings and pipe provide the ideal connection from compressor receiver to air line service components through to complete ring main and take off points. A compressed air system can be installed quickly and easily, compared with other installation methods, time savings of at least 50% are easily achievable.



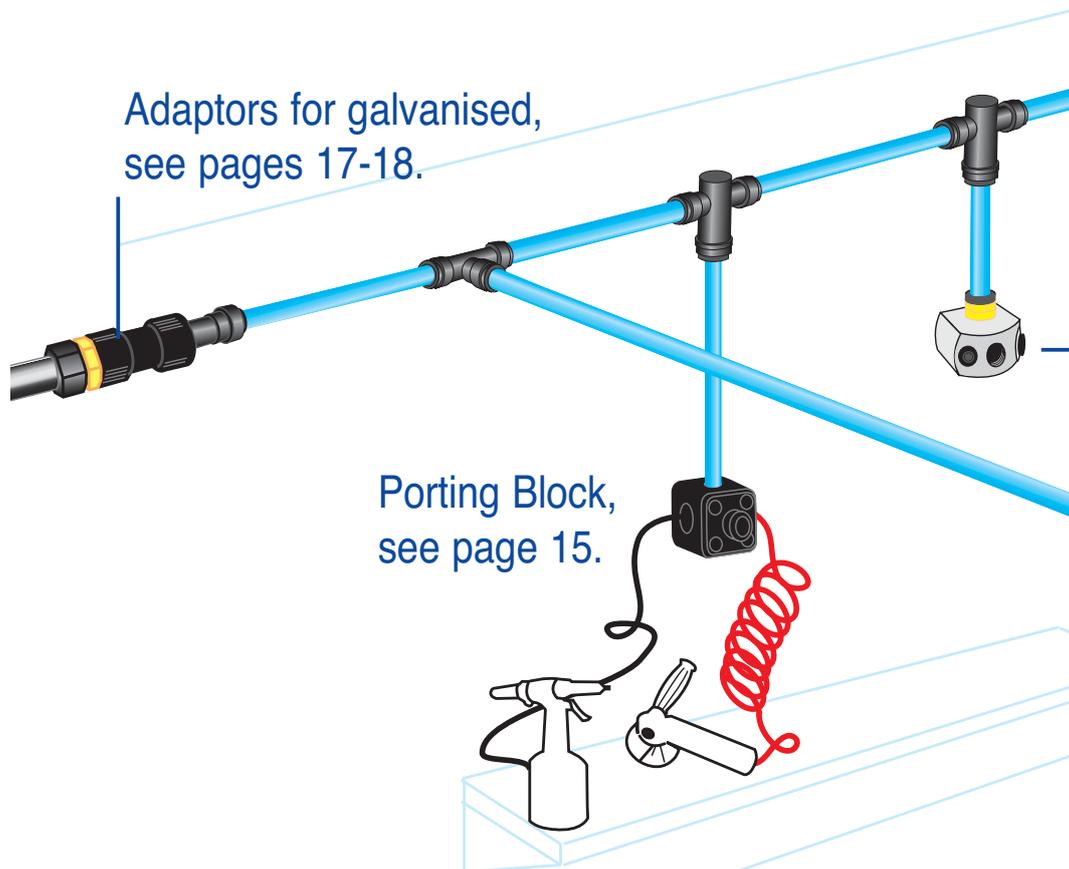
No need to prepare threaded pipe or solvent, all the connections can be made with a simple push-fit action. The system is then immediately ready for use. Complex systems can be assembled much more rapidly than with traditional methods and because fittings are easy to disconnect, systems can be altered or extended with much reduced production down time.

The fittings are produced in either a tough engineering plastics material or in brass in sizes 12mm to 28mm. They are intended for use with John Guest nylon pipe but can also be used with copper or aluminium pipe.



- Installation time reduced by at least 50%
- **Safe, secure, leakproof**
- Easy to alter or extend a system
- Lightweight and easy to handle
- No corrosion, reduced maintenance

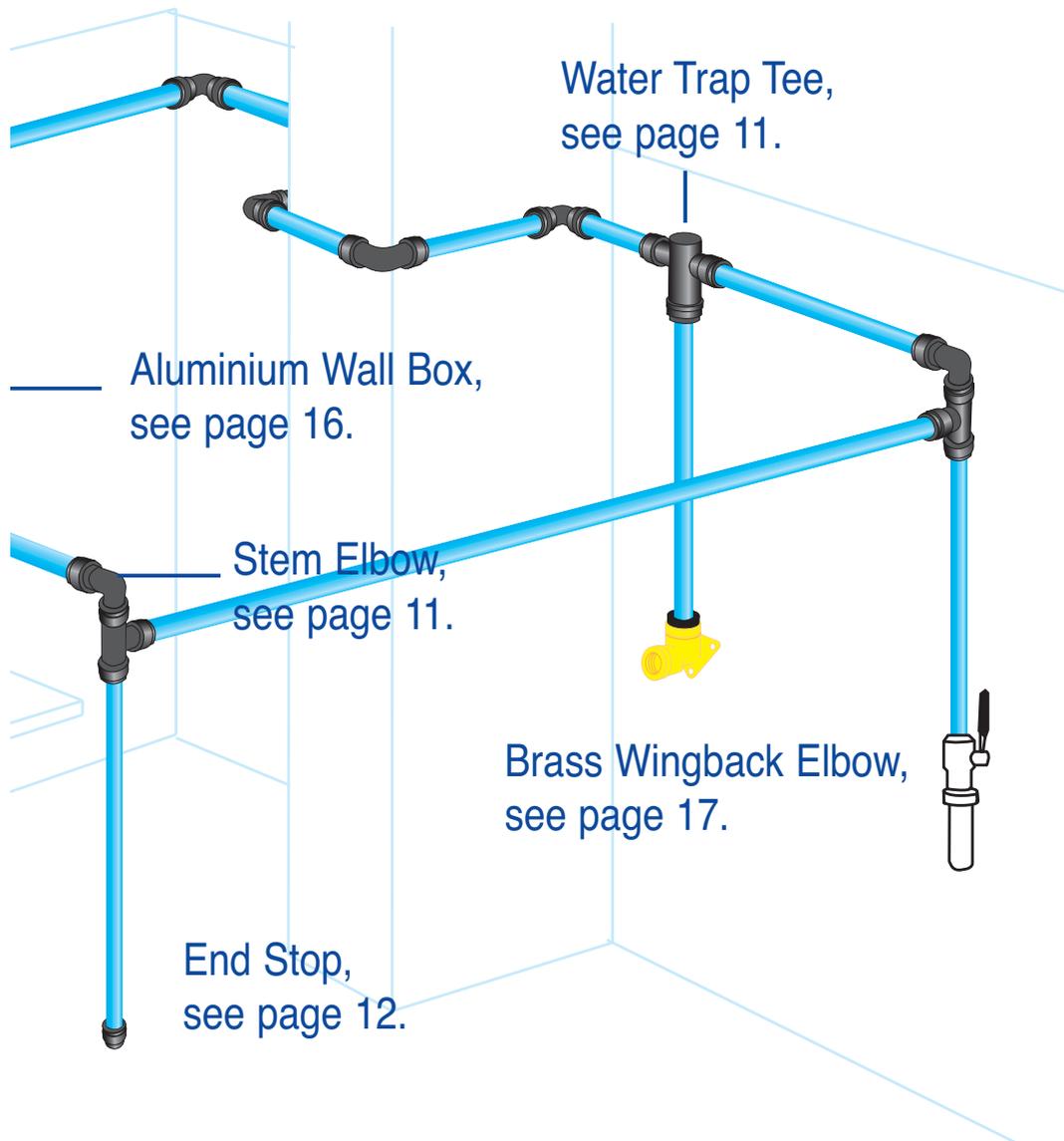
## COMPRESSED AIR SYSTEM



Complex systems easy to produce.



# Speedfit® Air Products

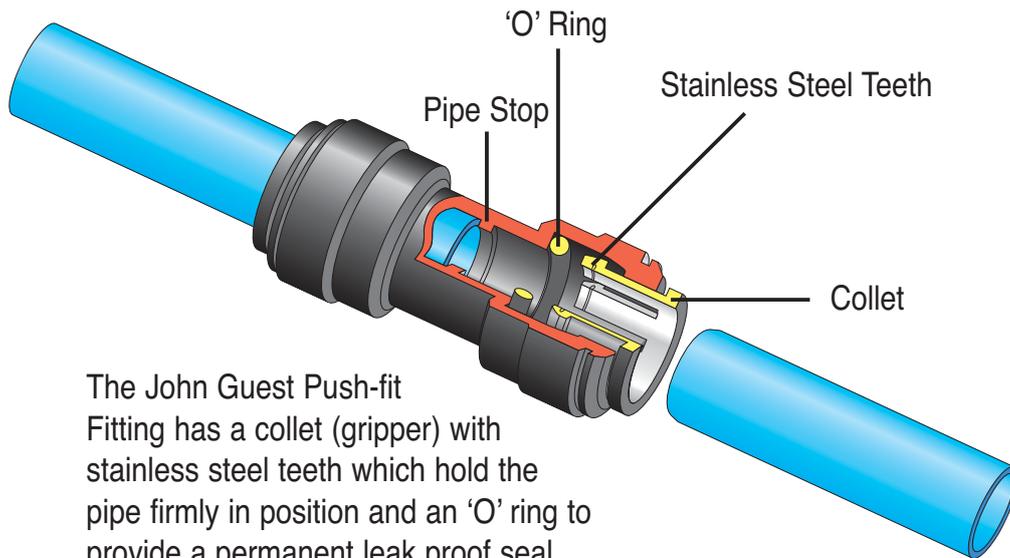


**3. Easy to use in confined spaces**

**4. Complex systems easy to achieve**

**5. System complete in 2 days**

# EASY TO MAKE A CONNECTION



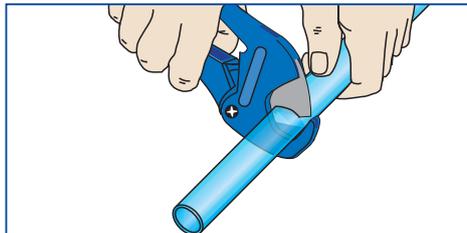
The John Guest Push-fit Fitting has a collet (gripper) with stainless steel teeth which hold the pipe firmly in position and an 'O' ring to provide a permanent leak proof seal.

## THREE EASY STEPS

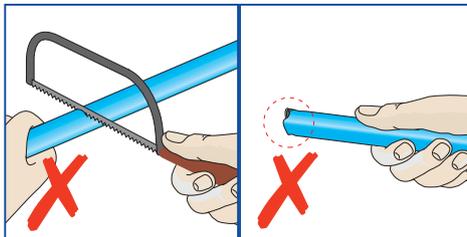
Fittings and pipe should be kept clean and undamaged before use.

### Cut the pipe square.

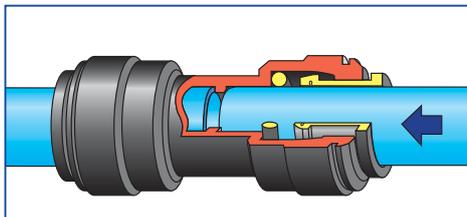
We recommend the use of the JG Pipe Cutter.



**DO NOT** use a hacksaw. To avoid damage to the 'O' ring remove burrs and sharp edges.

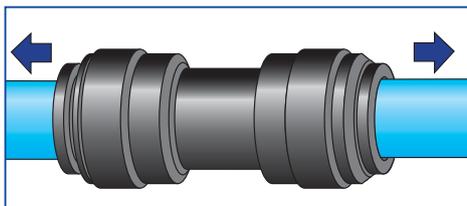


### Push up to pipe stop.

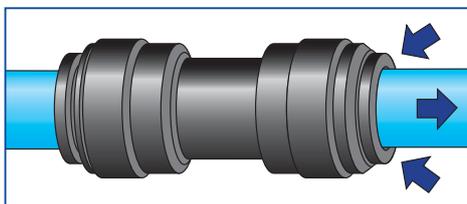


### Pull to check secure.

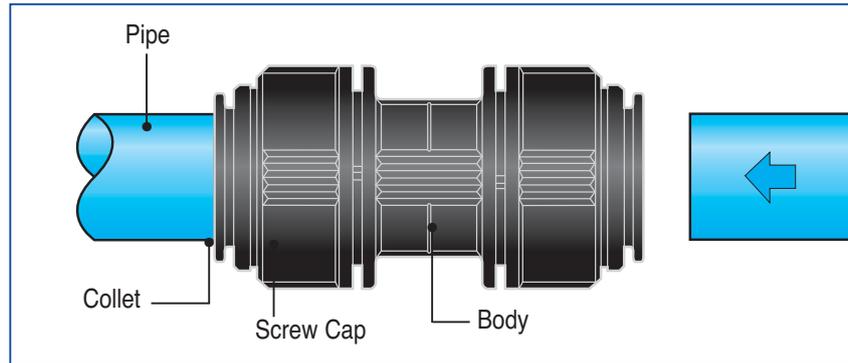
Test the system before use.



**To disconnect**, ensure the system is depressurised. Push the collet towards the fitting and remove the pipe. The fitting can be reused.

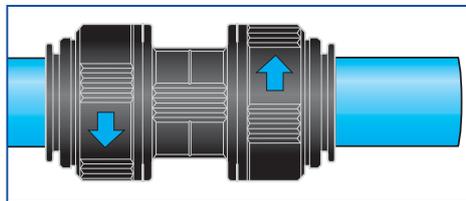


## 28MM FITTINGS

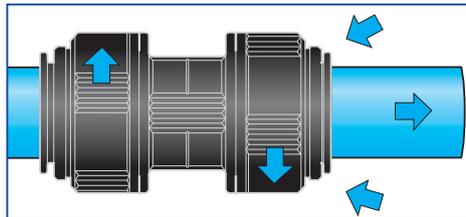


28mm fittings also have a collet with stainless steel teeth and an 'O' ring.

After inserting the pipe, a screw cap is turned approx 1/4 turn. This locks the collet in place and reduces lateral and sideways movement of the pipe.



**To disconnect,** turn the screw cap 1/4 turn, push in the collet and remove the pipe. The fitting and pipe can be reused.



### Nylon, Copper & Aluminium Pipe

Whilst we recommend the use of John Guest Rigid Nylon Pipe, John Guest Fittings can also be used with copper or aluminium pipe.



## UNIQUE FEATURES

### STEM ELBOW

Designed to simplify pipe connections in restricted spaces, the Stem Elbow gives an instant swivel fitting so a pipe can be orientated in any direction.



Can be used with an elbow to make 'U' turn connection.

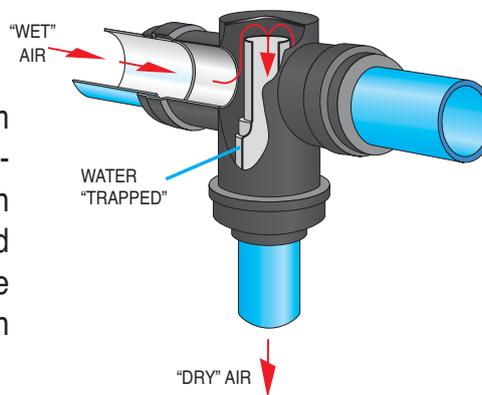


Can be used with a Tee.

Please note a collet cover cannot be used on a Speedfit end assembled with the stem of a 22mm Stem Elbow.

### WATER TRAP TEE

The new Water Trap Tee from John Guest solves the on-going problem of moisture in a compressed air system and provides the easy alternative to the need to install "Swan Necks".



The ingenious inside arrangement of the fitting allows air to flow, with minimum head loss, from the main to take-off point without allowing water to follow. The moisture is retained in the line to be drawn off at some suitable location.

### Installation

It is of vital importance for the correct function of the Water Trap Tee that the air distribution system be nearly horizontal and that the outlet port be facing downwards.

# Speedfit® Air Products

## WATER TRAP TEE CONVERTOR

The Water Trap Tee Convertor is a simple convenient way of converting a standard John Guest 28mm Tee to a Water Trap Tee.

This will stop condensing water entering the vertical take off spur.

The air supply needs to be installed with the correct fall and water drain points regularly vented.

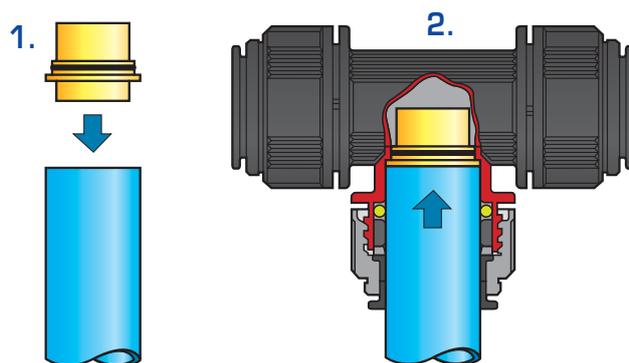
### To Assemble

Use either John Guest 28mm Nylon Pipe or 28mm copper pipe. The pipe to be cut square and be free of burrs.

Press the shorter spigot into the pipe. The fit on copper pipe will be loose, this will not affect the function.

Push the pipe and convertor up to the pipe stop of the centre leg of the tee.

Turn the screw cap approx 1/4 turn to lock the pipe in position.



## END STOP

The End Stop can be used to provide a permanent connection or a temporary shut off. Because it is easy to disconnect the fitting from the pipe, the End Stop can be put in place to be removed at a later date to allow a system to be extended or modified.



## COMPRESSED AIR FITTINGS

A push-fit system of fittings and pipe which means a compressed air system can be installed quickly and easily with much reduced production down time. It is also easy to rearrange and extend a system.

### STRAIGHT ADAPTOR



PART NO.	PIPE OD	THREAD BSP
PM011213E	12	3/8
PM011214E	12	1/2
PM011513E	15	3/8
PM011514E	15	1/2
PM011516E	15	3/4
PM011814E	18	1/2
PM012216E	22	3/4

### EQUAL ELBOW



PART NO.	PIPE OD
PM0312E	12
PM0315E	15
PM0318E	18
PM0322E	22
PM0328E	28

### STRAIGHT CONNECTOR



PART NO.	PIPE OD
PM0412E	12
PM0415E	15
PM0418E	18
PM0422E	22
PM0428E	28

# Speedfit® Air Products

## EQUAL TEE



PART NO.	PIPE OD
PM0212E	12
PM0215E	15
PM0218E	18
PM0222E	22
PM0228E	28

## REDUCING TEE



PART NO.	PIPE OD ENDS	TUBE OD BRANCH
PM3018AE	18	15
PM3022AE	22	15

## STEM ADAPTOR

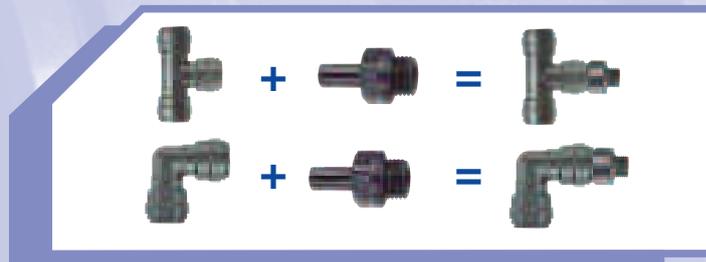


Converts push-fit end to male thread

PART NO.	STEM OD	THREAD BSP
PM051213E	12	3/8
PM051214E	12	1/2
PM051513E	15	3/8
PM051514E	15	1/2
PM051814E	18	1/2
PM052214E	22	1/2
PM052216E	22	3/4

## John Guest Adaptability

Standard *Super Speedfit®* products can be coupled together to form integral new fittings.



## STEM ELBOW



PART NO.	PIPE OD	STEM OD
PM221212E	12	12
PM221515E	15	15
PM221818E	18	18
PM222222E	22	22

Stem can swivel in any direction, see page 11.

## REDUCER



PART NO.	STEM OD	PIPE OD
PM061512E	15	12
PM061815E	18	15
PM062215E	22	15
PM062218E	22	18
PM062815E	28	15
PM062822E	28	22

## WATER TRAP TEE



PART NO.	PIPE OD ENDS
PMTT22E	22

Solves the problem of moisture in a compressed air system, see page 11.

## PORTING BLOCK



PART NO.	Connections
JG-L-WSK	5 1/2"

## ALUMINIUM WALL BOX



PART NO.	SIZE
JGWALLBOX 1/2	1/2
JGWALLBOX 3/4	3/4

1/2 or 3/4 female thread on the top.  
Both products have 3 x 1/2" female threads on the side.

## U-BEND



PART NO.	SIZE
PMUB15E	15

## END STOP



PART NO.	PIPE OD
PM4612E	12
PM4615E	15
PM4622E	22

Provides permanent or temporary shut off, see page 12.

## PLUG



PART NO.	STEM OD	COLOUR
PM0812R	12	RED
PM0815E	15	BLACK
PM0818E	18	BLACK
PM0822E	22	BLACK
PM0828E	28	BLACK

# COMPRESSED AIR FITTINGS

## BRASS FITTINGS

### WATER TRAP TEE CONVERTOR



PART NO.	SIZE
----------	------

<b>WTC28</b>	<b>28</b>
--------------	-----------

Converts a standard tee to a water trap tee, see page 12.

### BRASS WINGBACK ELBOW



PART NO.	PIPE OD	THREAD
----------	---------	--------

<b>PM15WB</b>	<b>15</b>	<b>1/2 BSP</b>
<b>PM22WB</b>	<b>22</b>	<b>3/4 BSP</b>

### BRASS STRAIGHT ADAPTOR



PART NO.	PIPE OD	THREAD
----------	---------	--------

<b>MM011504N</b>	<b>15</b>	<b>1/2 BSPT</b>
<b>MM012206N</b>	<b>22</b>	<b>3/4 BSPT</b>
<b>MM012808N</b>	<b>28</b>	<b>1 BSPT</b>

### MALE BRASS STEM ADAPTOR



Converts push fit end to male thread.

PART NO.	STEM OD	THREAD
----------	---------	--------

<b>MM051504N</b>	<b>15</b>	<b>1/2 BSPT</b>
<b>MM052206N</b>	<b>22</b>	<b>3/4 BSPT</b>
<b>MM052818N</b>	<b>28</b>	<b>1 BSP</b>
<b>MM052226N</b>	<b>22</b>	<b>3/4 NPT</b>
<b>MM052228N</b>	<b>22</b>	<b>1 NPT</b>
<b>MM052828N</b>	<b>28</b>	<b>1 NPT</b>

### FEMALE BRASS STEM ADAPTOR



Converts push fit end to female thread.

PART NO.	STEM OD	THREAD
----------	---------	--------

<b>MM501514N</b>	<b>15</b>	<b>1/2 BSP</b>
<b>MM502216N</b>	<b>22</b>	<b>3/4 BSP</b>

## Easy to extend a galvanised system.



Using a Straight Adaptor.



Using a Female Stem Adaptor.



Using a Male Stem Adaptor.

John Guest fittings and pipe can form a stand alone system or be used to modify or extend an existing galvanised system.

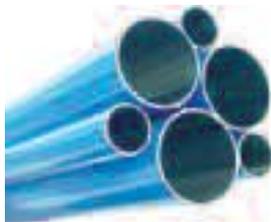
## COMPRESSED AIR PIPE

### RIGID NYLON PIPE



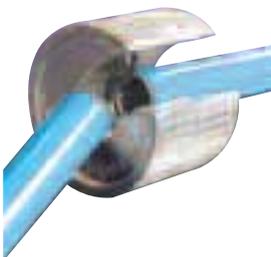
PART NO.	SIZE MM X M
PA-RM1209-3M-20B	12 x 3
PA-RM1512-3M-20B	15 x 3
PA-RM1814-3M-20B	18 x 3
PA-RM2218-3M-20B	22 x 3
PA-RM2823-3M-10B	28 x 3

### ALUMINIUM PIPE



PART NO.	SIZE MM X M
AL-RM1513-3M-20B	15 x 3
AL-RM1816-3M-20B	18 x 3
AL-RM2220-3M-20B	22 x 3
AL-RM2826-3M-10B	28 x 3

### ALUMINIUM PIPE CUTTER



PART NO.	PIPE OD
JG-AL-CUTTER15	15
JG-AL-CUTTER18	18
JG-AL-CUTTER22	22
JG-AL-CUTTER28	28

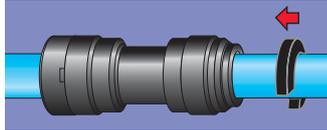
### DEBURRING TOOL



PART NO.	PIPE OD
JG-DEBURR	

# ACCESSORIES

## RELEASE AID



PART NO.	PIPE OD
----------	---------

15RA	15
22RA	22
28RA	28

The action of pressure in a system could increase the grip of the collet. The Release Aid allows a firmer grip on the collet while removing the pipe.

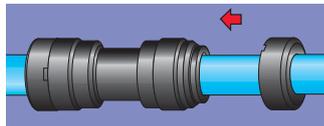
## COLLET COVERS



PART NO.	PIPE OD	COLOURS
----------	---------	---------

PM1912E	12	BLACK
PM1915E	15	BLACK
PM1918E	18	BLACK
PM1922E	22	BLACK

Collet Covers prevent accidental removal or tampering with piping. The pipe can be inserted with the Collet Cover already attached to the fitting or the cover can slide into position afterwards.



We recommend covers be fitted when pipework is hidden inside walls, ceilings etc.

Collet Covers can be removed to allow the pipe to be disconnected as and when required.

## PIPE CLIPS AND SPACERS



CLIP PART NO.	PIPE OD	COLOURS
---------------	---------	---------

PC15E	15	BLACK
PC22E	22	BLACK
PC28E	28	BLACK

SPACER PART NO.	COLOURS
-----------------	---------

PCSE	BLACK
------	-------

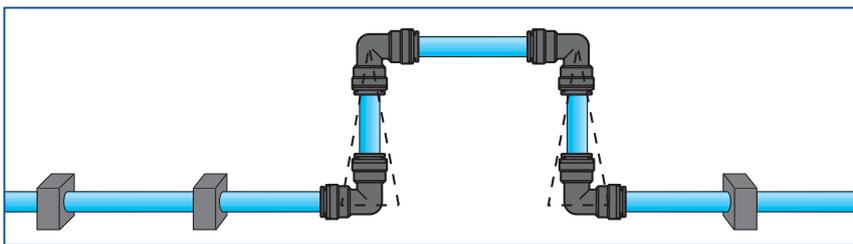
For Pipe cutters see pages 59-60.



## INSTALLING A SYSTEM

Thermoplastics have different properties to steel pipes and so different techniques need to be employed for the installation of the system. For example plastic pipe expands considerably more than metallic pipe, so the method of constraining the pipe needs to be suitable for this expansion to take place. If the pipe is constrained at both ends it will buckle and generate side loads and stress in the pipe. This can be alleviated by an expansion bend in the pipe work. Pipe should be able to slide through mounting brackets. Plastic pipe work is much lighter than that of steel pipe work and so the mountings do not need to be as robust and using John Guest connectors means that the system can be easily modified to any new requirements quickly and without significant specialist tools such as threading equipment and pipe benders. Using John Guest connectors means that no solvents or adhesives need to be employed in the installation. The coefficient of linear expansion of Rigid Nylon pipe is approximately 0.00012 metre per metre length per °C.

John Guest compressed air equipment is suitable to use above ground and below ground but we would strongly suggest that if it is installed below ground that it is installed in conduit so that the pipe can expand with temperature fluctuations and can easily be removed for service or maintenance. John Guest Ltd. would remind all persons involved with installation and service of compressed air systems that reference should be made to “Approved Code of Practice - Safety of Pressure Systems” available from HMSO in the United Kingdom. For installation in other countries, the appropriate Codes of Practice should apply.

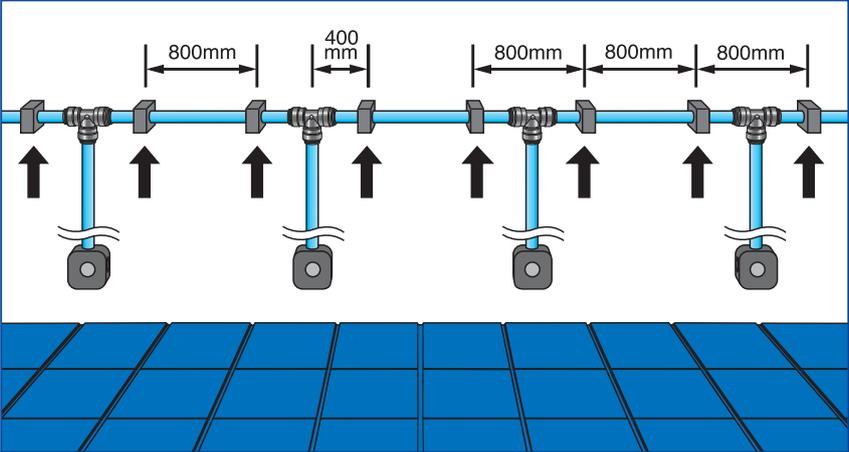


On long pipe runs, it is advisable to install an expansion bend, as shown in the diagram.

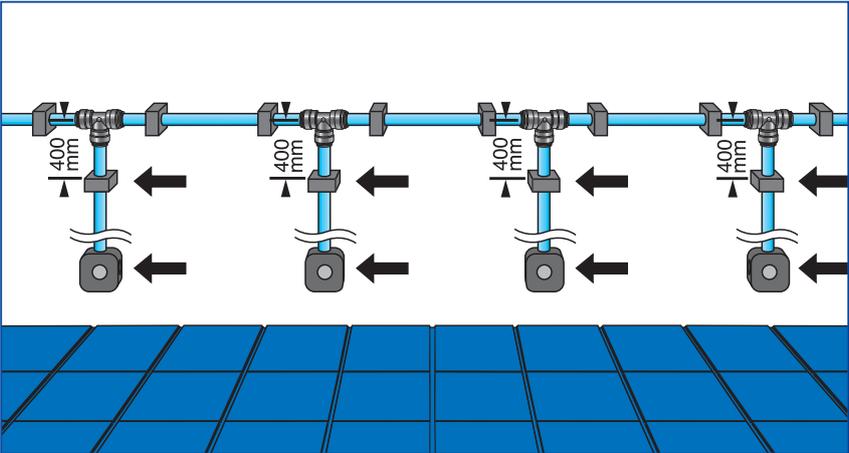
### Condensate and dirt in the system

It is always desirable to have clean dry air at the outlets of a compressed air system, as condensate and dirt will affect the performance and life of ancillary equipment. We would strongly recommend that a filter be fitted to the system to clean the air and that John Guest Water Trap Tees be used to trap any residue condensate and this should be taken to a “drain off” facility to extract it from the system.

When installing a compressed air system, it is advisable to first attach the horizontal pipe clips and only attach the clips to the vertical pipes after a small amount of pressure has been applied to the system. This will ensure that the vertical pipes have positioned themselves correctly before they are clipped.

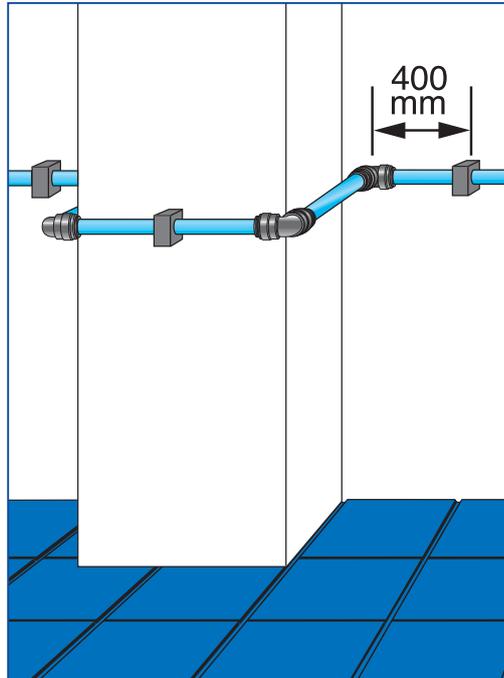


Phase 1: System without pressure

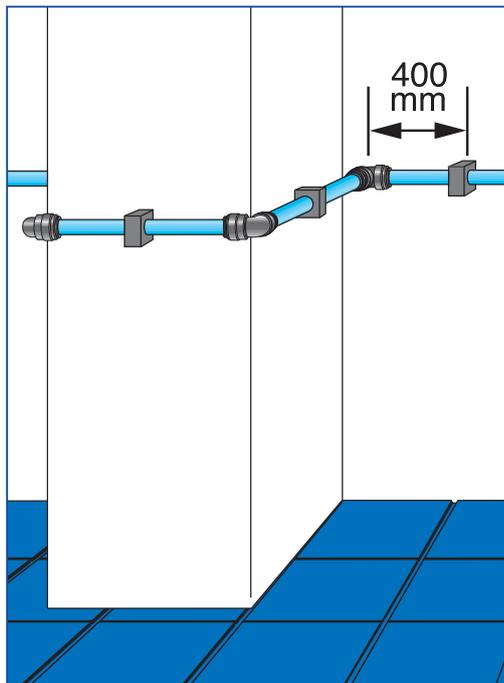
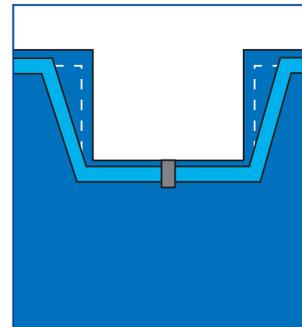


Phase 2: System with pressure

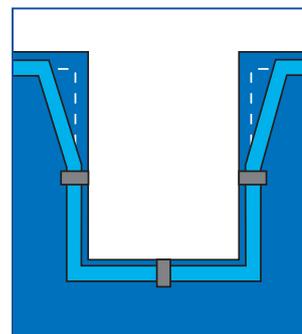
When installing around a column or pillar, maintain a distance of approximately 10cm between the wall and the pipe. Always maintain a distance of 400mm between the fittings and the pipe clip.



Column/Pillar  
smaller than 1 metre



Column/Pillar larger  
than 1 metre



Note: All compressed air systems should be equipped with an air line water trap, we recommend our PMTT22E Water Trap Tee for this purpose (as shown on page 11 of this brochure).

# TECHNICAL SPECIFICATION - COMPRESSED AIR SYSTEM

## Working Temperature Range

Minimum Working Temperature -20°C

Maximum Working Temperature +70°C

The above is for use with air. For below 0°C

Please consult our Customer Service Department.

## Working Pressure

The John Guest Compressed Air System is suitable for the following temperatures and pressures.

Temperature	Pressure
+ 23°C	10 BAR
+ 70°C	7 BAR

The above ratings are for air. For use with other fluids or at other temperatures and pressures please contact our Customer Service Department.

## Pipe Types

John Guest fittings are intended for use with John Guest nylon pipe but are also suitable for use with a wide range of plastic and soft metal pipes including UPVC, ABS, Polyethylene, Nylon, mild steel and copper to the tolerances set out below. Soft plastic pipe, such as Nylon to have a minimum wall thickness of 1.5mm. The pipe must have a good quality surface and be damage free.

## Pipe Tolerances

The John Guest fittings featured in this brochure are intended for pipes with outside diameters to the following tolerances.

Size	12mm to 28mm OD
Tolerance	+0.05 to -0.10mm OD

## Maximum Torque Values

The following maximum torque values should be applied.

Size	3/8"	1/2"	3/4"	1"
Plastic threads	3.0Nm	3.0Nm	4.0Nm	N/A
Metal threads	N/A	4.0Nm	5.0Nm	N/A

It is recommended that all installations are checked prior to use to determine that a seal has been made. The maximum torque figures quoted for use with John Guest fittings are dependant on the mating thread conforming to the relevant British or International thread standard.

Do not over tighten plastic fittings as this could cause undue stress and eventual failure. Recommended torque figures are shown above and must be adhered to. John Guest recommend OEM Customers consider replacing threaded 'ports' with the modern method of using John Guest Cartridge Systems.

## Material Specification

The fittings are made up of three components:

**Bodies** are produced in strong engineering plastic or in brass.

**'O' Rings** are Nitrile rubber.

**Collets** are produce in acetal copolymer with stainless steel teeth.

## Applications

Pipe and fittings should be kept clean and undamaged before use. These products are designed for use with air. For other applications please contact our Customer Services Department.

The system is not recommended for use with explosive gases, petroleum spirits and other fuels or for central heating systems.

## Installations - Our Recommendations

The pressure rating and installation guidelines of the tubing employed must also be considered during the design of compressed air system.

Pipe should be supported at minimum 800mm to prevent excessive load being applied to the fitting. These supports should not be closer than 25mm from the end of the fitting.

John Guest fittings and pipe should only be connected after the air receiver and not direct to a compressor.

We recommend collect covers be fitted when pipework is hidden inside walls and ceilings.

It is recommended that all pipe and fittings installations are pressure tested after installation and before handing over to the final user.

## Side Loads

Fittings should not be subject to excessive side loads and should not be used as support brackets. Tubing and fitting should be adequately supported to prevent excessive side loads.

**Note:** Aluminum pipe should NOT be connected direct to a compressor.