

How Super Speedfit Works

To make a connection, the tube is simply pushed in by hand. The unique patented John Guest collet locking system then holds the tube firmly in place without deforming it or restricting flow.

Grips before it seals

The Collet (gripper) has stainless steel teeth which hold the tube firmly in position while the o-ring provides a permanent leakproof seal.

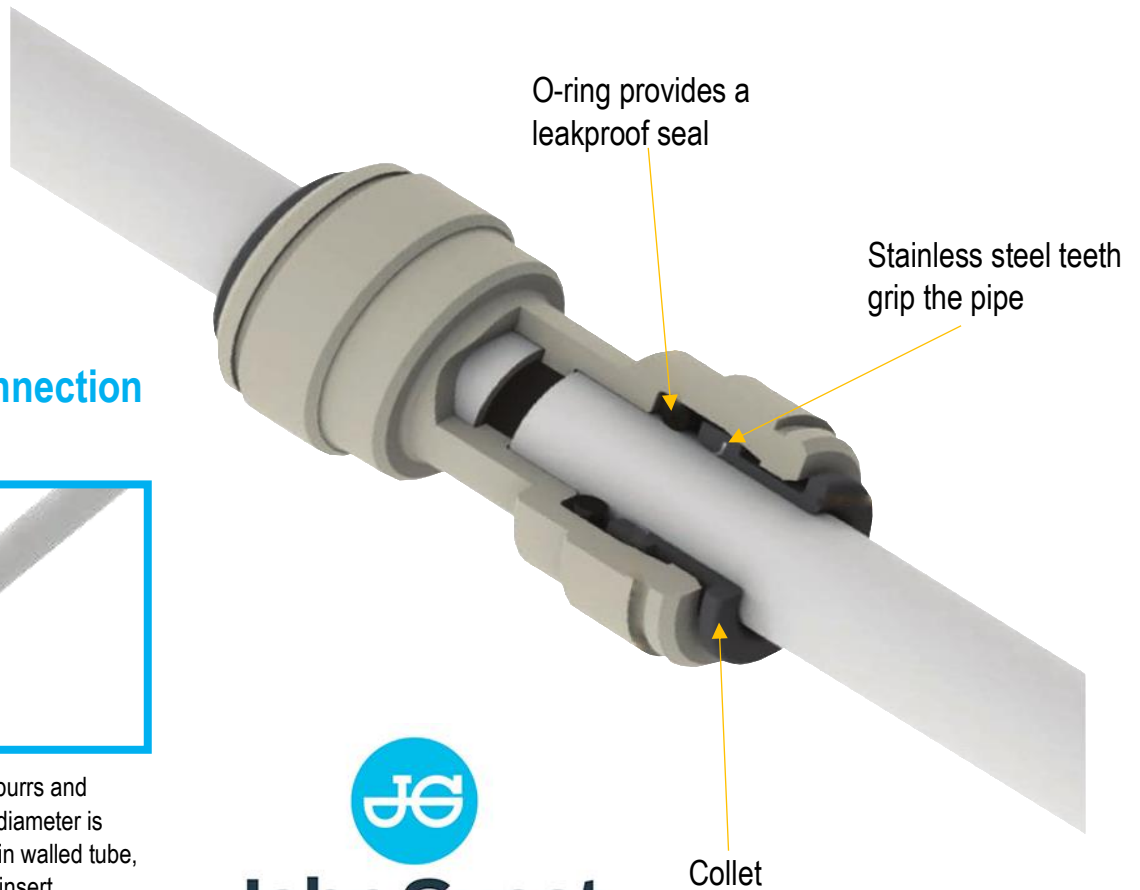
Materials of construction

Super Speedfit fittings are made up of 3 components:

Bodies are produced in an acetal copolymer or polypropylene

O-Rings are Nitrile rubber or EPDM

Collets are produced in acetal copolymer or polypropylene with stainless steel teeth.



How to make a connection

Cut the tube square



Cut the tube square and remove burrs and sharp edges. Ensure the outside diameter is free of score marks. For soft or thin walled tube, we recommend the use of a tube insert.

Push up to tube stop



Push the tube into the fitting to the tube stop.

Pull to check secure



Pull on the tube to check it is secure.
Test the system before use.

To disconnect

Push in collet and remove tube



To disconnect, ensure the system is depressurized. Push the collet square against the fitting. With the collet held in this position the tube can be removed.

Grey Acetal Imperial (PI) & Black Acetal Metric (PM) Fittings

The PI and PM Range of fittings are manufactured from an acetal copolymer with food grade nitrile O-Rings. Being especially produced for foodstuff and potable liquids, they are equally suitable for air and inert gases and can therefore be used on N₂/CO₂ mixed gas dispense lines and pneumatic and vacuum applications.



| Temperature | | Pressure | | Temperature | | Pressure | |
|-------------|-------|--------------------------------------|---------------------------------------|-----------------|---------------|--------------------------------------|---------------------------------------|
| AIR/VACUUM | -20°C | 5/32" – 5/16" (PI) 4mm – 8mm (PM) | 3/8" – 5/16" (PI) 10mm – 22mm (PM) | POTABLE LIQUIDS | +1°C | 5/32" – 5/16" (PI) 4mm – 8mm (PM) | 3/8" – 5/16" (PI) 10mm – 22mm (PM) |
| | +1°C | 1600kpa | 1000kpa | | DO NOT FREEZE | 1600kpa | 1000kpa |
| | +20°C | 1600kpa | 1000kpa | | +20°C | 1600kpa | 1000kpa |
| | +65°C | 1600kpa | 700kpa | | +65°C* | 1600kpa | 700kpa |
| | | | | | | | |

White Acetal Imperial (CI) & Acetal Metric (CM) Fittings

Manufactured from an acetal copolymer with food grade EPDM O-Rings, the CI and CM range have been developed for the water purification/filtration industry, but are equally suitable for other potable liquids. They are also recommended for intermittent hot water applications. The CI and CM Fittings are NOT suitable for compressed air and vacuum applications.



| Temperature | | Pressure | | Temperature | | Pressure | |
|-------------|--|-------------------------------------|--|-----------------|---------------|-------------------------------------|--|
| AIR/VACUUM | | 1/4" – 3/8" (CI) 6mm – 12mm (CM) | | POTABLE LIQUIDS | +1°C | 1/4" – 3/8" (CI) 6mm – 12mm (CM) | |
| | | NOT SUITABLE | | | DO NOT FREEZE | 1000kpa | |
| | | | | | +20°C | 1000kpa | |
| | | | | | +65°C* | 700kpa | |
| | | | | | | | |

White Polypropylene Imperial (PP) and Metric (PPM) Fittings

The PP range of push-to-connect fittings is produced in white polypropylene and fitted with EPDM seals. Developed for the water industry, they also suit a wide range of applications. Polypropylene has the advantage of being more chemically resistant than acetal.



| Temperature | | Pressure | | Temperature | | Pressure | |
|-------------|--|--------------------------------------|--|-----------------|---------------|--------------------------------------|--|
| AIR/VACUUM | | 1/4" – 1/2" (PP) 8mm – 15mm (PPM) | | POTABLE LIQUIDS | +1°C | 1/4" – 1/2" (PP) 8mm – 15mm (PPM) | |
| | | NOT SUITABLE | | | DO NOT FREEZE | 1000kpa | |
| | | | | | +20°C | 1000kpa | |
| | | | | | +60°C* | 400kpa | |
| | | | | | | | |

Brass Fittings (MI) – Beverage Dispense Applications

The MI range of brass fittings are manufactured in brass with a polypropylene collet and a food grade EPDM O-Ring and are designed for the use in coffee brewing equipment, dispensing and vending machine applications.



| Temperature | | Pressure | | Temperature | | Pressure | |
|-------------|--|------------------|--|-----------------|---------------|------------------|--|
| AIR/VACUUM | | 1/4" – 3/8" (MI) | | POTABLE LIQUIDS | +1°C | 1/4" – 3/8" (MI) | |
| | | NOT SUITABLE | | | DO NOT FREEZE | 1000kpa | |
| | | | | | +20°C | 1000kpa | |
| | | | | | +60°C* | 400kpa | |
| | | | | | | | |

Valves

Manufactured from a range of compounds to suit your needs and designed to offer a variety of control measures, the JG range features Stop Valves, Shut Off Valves, Check Valves & Service Valves

Angle Stop Valve



| Temperature | | Pressure | | Temperature | | Pressure | |
|-------------|--|--------------------|--|-----------------|---------------|--------------------|--|
| AIR/VACUUM | | 3/8" – 1/2" – 15mm | | POTABLE LIQUIDS | +1°C | 3/8" – 1/2" – 15mm | |
| | | NOT SUITABLE | | | DO NOT FREEZE | 1200kpa | |
| | | | | | +20°C | 1200kpa | |
| | | | | | +65°C* | 600kpa | |
| | | | | | | | |

Shut Off Valve – White PP



| Temperature | | Pressure | | Temperature | | Pressure | |
|-------------|--|---------------------------|--|-----------------|---------------|---------------------------|--|
| AIR/VACUUM | | 1/4" – 3/8" 6mm – 12mm | | POTABLE LIQUIDS | +1°C | 1/4" – 3/8" 6mm – 12mm | |
| | | NOT SUITABLE | | | DO NOT FREEZE | 1000kpa | |
| | | | | | +20°C | 1000kpa | |
| | | | | | +60°C* | 400kpa | |
| | | | | | | | |

Single Check Valve



| Temperature | | Pressure | | Temperature | | Pressure | |
|-------------|--|---------------------------|--|-----------------|---------------|---------------------------|--|
| AIR/VACUUM | | 1/4" – 3/8" 6mm – 12mm | | POTABLE LIQUIDS | +1°C | 1/4" – 3/8" 6mm – 12mm | |
| | | NOT SUITABLE | | | DO NOT FREEZE | 1000kpa | |
| | | | | | +20°C | 1000kpa | |
| | | | | | +65°C* | 700kpa | |
| | | | | | | | |

LLDPE Tube – PE Range

Strong yet flexible

The John Guest PE Range of plastic tubing is produced in Linear Low Density Polyethylene for cold and intermittent hot water applications.

Our LLDPE tubing provides the benefits of a wide range of temperature and pressure suitability, broad chemical compatibility and is made from non-contaminating materials. Common applications being water purification, water conditioners, ice makers and misting systems. LLDPE is more robust than traditional low or medium density polyethylene and is recommended for use with cold and intermittent hot water.

Our tubing is made from FDA approved materials and is NSF International certified.

John Guest Polyethylene tubing is designed for use with John Guest Speedfit Push-to-connect fittings, John Guest Shut-Off Valves and virtually all standard tubing connectors.

| Tube OD | Tube ID | Maximum Pressure and Temperature |
|---------|---------|----------------------------------|
| 1/4" | 0.170" | |
| 5/16" | 0.187" | |
| 3/8" | 0.25" | 1600kpa @ 20°C |
| 4mm | 2.5mm | 800kpa @ 65°C |
| 6mm | 4mm | |
| 10mm | 7mm | |
| 1/2" | 0.375" | |
| 8mm | 6mm | 1000kpa @ 20°C |
| 12mm | 9mm | 600kpa @ 65°C |
| 15mm | 11.5.. | |

Maximum Working Temperature 65°C at pressures shown in chart above.

The above maximum temperatures and pressures do not take chlorine content into account. This could reduce service life. Please note maximum pressure rating for a system depends on the lowest rated component, eg. most John Guest fittings have a different rating from the tube ratings shown above.

Burst pressures are approximately 3 times the maximum working pressure.

LLDPE Tube – Technical Specifications

Potable Water Applications

John Guest LLDPE Tubing is suitable for potable cold water applications with a maximum chlorine content of 4 parts per million (4ppm). Heating water above 20°C and/or pressures above the maximum will significantly reduce service life. Direct exposure to sunlight will also significantly reduce its useful service. As part of good practice tubing should be inspected regularly. If there is any evidence of damage, hardening or cracking it should be replaced immediately.

Biofilm Growth

Only black LLDPE tube should be installed in areas exposed to any light if biofilm growth is considered an issue. In the case other coloured tube is used in such applications, it must be protected from exposed light. See section on UV Resistance for further details regarding light exposure of pipe fittings.

UV Resistance

Speedfit products should not be installed in direct or reflected sunlight as the material may degrade with extended UV exposure. The exception to this is the Black Acetal Fittings – PM Range and black LLDPE tube which are UV stabilised and can be installed where exposed to direct or indirect sunlight (UV)

Chemical Resistance

For use of LLDPE tube with chemicals or potentially aggressive liquids, please refer to our Customer Service Department. When using cleaning agents or other potentially aggressive liquids, please ensure compatibility with tubing and fittings. LLDPE is not recommended for mineral oils, gases and fuels or high pressure compressed air/pneumatic systems.

Pneumatic Applications

John Guest LLDPE tube is suitable for pneumatic applications providing pressure is maximum 1000kpa @ 20°C. At elevated temperatures (50°C+) mineral oil will degrade LLDPE tube, therefore, LLDPE tube used in pneumatic circuits should be periodically checked and replaced if necessary.

Tube Inserts

If the LLDPE tube is used in a warm water system a tube insert is necessary.

LLDPE Tube Tolerances

| Tube OD | Tolerance |
|--------------|----------------|
| 1/4" to 1/2" | +0.001/-0.004" |
| 4mm | +0.05/-0.07mm |
| 6mm to 12mm | +0.05/-0.10mm |
| 15mm | +0.10/-0.10mm |

Minimum Bend Radii

| Tube OD | Tube ID | Minimum Bend Radius |
|---------|---------|---------------------|
| 1/4" | 0.170" | 1.00" |
| 5/16" | 0.187" | 1.13" |
| 3/8" | 0.250" | 1.25" |
| 1/2" | 0.375" | 2.50" |
| 4mm | 2.5mm | 25mm |
| 6mm | 4mm | 25mm |
| 8mm | 6mm | 30mm |
| 10mm | 7mm | 32mm |
| 12mm | 9mm | 63mm |
| 15mm | 11.5mm | 100mm |

Materials of Construction

Speedfit fittings are made up of three components

- Bodies are produced in an acetal copolymer or polypropylene
- O-Rings are nitrile rubber or EPDM
- Collets are produced in acetal copolymer or polypropylene with stainless steel teeth

Pipe Types

- LLDPE tube – polyethylene, nylon and polyurethane conforming to the tolerances shown below. For soft tubing or thin wall pipe, we recommend the use of tube inserts.
- Braided pipe – use of Tube to Hose Stems listed in this manual is essential when using braided pipe. Use of clamps to retain braided tube on barbs is recommended.
- Metal pip (soft) – brass, copper or mild steel conforming to the tolerances below.
- Metal pipe (hard) – we do not recommend Speedfit fittings for hard metal or chromium plated pipes.

For stainless steel and other polished metal pipes, we recommend the use of Superseal fittings (refer to the Superseal Fittings – SM & SI Range chapter in this manual)

It is essential that outside diameters be free from score marks and that the pipe be deburred before inserting the fitting.

Installation and System Testing

Fittings and pipe should be kept clean and undamaged before use. All pipe and fittings installations must be pressure tested after the installation to ensure system integrity before handing over to the final user. See also the Speedfit Installation chapter for further details.

1/4 Turn Valves

These valves have been designed to allow temporary servicing of downstream equipment and must only be used in the fully open or fully closed position.

Do not use these valves in a partially open position to control flow; to provide a permanent termination; without pipe assembled or plugged (or threaded connections sealed, or as a tap or faucet).

Chemicals

Before using Speedfit fittings and pipe with chemicals or other potentially aggressive liquids, please contact our Customer Service Department.

In general, use only water or oil based paint. Do not allow contact with Cellulose based paint, paint thinners or strippers, solder flux or aggressive cleaners.

Keep away from ozone generators such as electric motors, mercury vapour lamps and high voltage electrical equipment.

Speedfit fittings are not recommended for use with explosive gasses, petroleum spirits, and other fuels or for central heating systems.

Collet Covers

Are available as additional security against removal of the pipe or to provide a simple means of colour coding.

Maximum Torque Values for Plastic Threads BSP, BSPT and NPT

Plastic threads are not generally as strong as brass threads. Customers and end users should be aware of this when choosing products for their applications. Overtightening of plastic threads will cause undue stress and eventual cracking and leakage. The maximum torque figures for BSP and BSPT threads used on John Guest fittings in mating threads conforming to the relevant BS or International thread standards are shown below.

| | 1/8" – 1/4" | Threads 3/8" – 1/2" | 3/4" |
|----------------|-------------|------------------------|-------|
| Maximum Torque | 1.5Nm | 3.0Nm | 4.0Nm |

John Guest recommends OEM customers to consider replacing threaded ports with the more modern Cartridge Systems. It is also recommended that all installations are checked prior to use to determine that a seal has been made.

Maintenance and Replacement Intervals

John Guest products generally require little maintenance but as a minimum, we recommend routine visual inspection. Frequency of visual inspections will depend on severity of application and risk of failure. If after visual inspection John Guest products appears to be damaged, cracked, charred, discoloured, heat distorted or corroded they should be replaced. Any product that is or appears to be leaking should be replaced.

Cleaners and Sanitising of Fittings

The external surfaces of John Guest products must not come into contact with oxidising or acidic cleaners and sanitising agents, for example (but not limited to) those below pH 4, high in sodium hypochlorite level (bleach) or containing hydrogen peroxide. Our plastic material suppliers recommend ECOLAB Oasis 133 as a suitable cleaner for the external surfaces of products manufactured by John Guest.

Several different methods exist for sanitising the internal surfaces of fluid systems, including sodium hypochlorite, hydrogen peroxide, chlorine dioxide or ozone. It is entirely the responsibility of the end user to determine if the chosen method is suitable for use with John Guest products over the planned working life of the system. However, to avoid unnecessary early failure, John Guest requires that the disinfection solution must be immediately flushed out at all draw off points with fresh water at the end of the disinfection period. **The solution must not be left in the system.** Disinfection solutions must only come into contact with the internal (fluid carrying) surfaces of the system. If any other surfaces of a fitting comes into contact with the disinfection solution, the whole fitting must be replaced immediately. Polypropylene fittings offer greater resistance to aggressive chemicals than Acetal fittings but do not have the same mechanical properties. John Guest polypropylene fittings are generally designated by the part number prefix PP or PPM.

Side Loads

John Guest products are not designed to be used whilst under side load as this may adversely affect their ability to function long-term. Always ensure tubes have good alignment with the fitting. They must also not be subjected to any form of impact or other damage, such as being hit or dropped, even accidentally. If fittings have damaged or suffered an impact, they should be replaced immediately. RWC warranty does not cover loss caused by any form of damage