

Tectite



CARBON

*Carbon steel
push-fit systems*



Pegler Yorkshire

Pegler Yorkshire

Unrivalled quality, innovation, customer service and long-term value for money

As part of the global Aalberts Industries NV Group, Pegler Yorkshire is one of Britain's largest and most respected manufacturers of innovative products for the demanding and diverse plumbing and heating industries.

Pegler Yorkshire – a unique story

It was in the late 19th century when two separate and altruistic companies set out on the long road to satisfying the needs of prospective customers and, of course, to profit in the process. Coincidentally located just 30 miles apart, each was driven by the same vision and ideals of a no-compromise culture. Cutting corners was never an option and only the best could ever be good enough.

These two companies were Pegler and Yorkshire Fittings. Although in meeting all the challenges of the 20th and 21st centuries each has changed a great deal, the business ethos common to both never has. And now these two like minds have come together as Pegler Yorkshire – a single source of proven, flow control solutions for installers, specifiers and engineers in the domestic, public and commercial markets.

Reputable and established brands

Just as Pegler and Yorkshire have endured over such a long period, many of the brand names they have created over time are similarly very well established, in many cases as market leaders in their respective categories. The very extensive Pegler Yorkshire product range now comprises more than 15,000 lines – without rival for the choice and coverage it offers and for the number and scope of applications it satisfies.

A mind for innovation

Brands which endure and are not easily displaced must by definition be the product of innovative thinking and technology that continually stand the test of time. Pegler Yorkshire's no-compromise philosophy will always put new product development high on the agenda, based on not only meeting the needs of today's markets, but also anticipating and meeting customers' future needs.

The true value of knowledge

As well as the benefit of unparalleled experience of the flow control market and its growth over many decades, Pegler Yorkshire has strong associations with major industry bodies such as those responsible for determining product and performance standards.

The result is a comprehensive store of knowledge and reference which is invaluable in the key areas of research, development and dealing efficiently and accurately with customer enquiries – particularly with regard to product application and suitability.

A charter for the best in customer service

With so diverse a product range and customer base, Pegler Yorkshire's no-compromise standards of quality, reliability and value for money naturally go hand in hand with the principle of delivering the best in customer service.

Green awareness and responsibilities

Developing products which reduce the carbon footprint by saving water and energy is only one side of the green issues coin. Pegler Yorkshire is also increasingly committed to recycling key production materials (such as brass), eliminating the need for excessive packaging wherever possible, and looking for new ways in which the company's day-to-day operations can be improved to reduce waste and minimise the impact on the environment.

Likewise, social responsibilities such as supporting employee and local community welfare are aspects of the very fabric and philosophy upon which both Pegler and Yorkshire were founded.

Standards

Pegler Yorkshire are dedicated to designing, developing and manufacturing products of the highest quality. We are members of numerous standards committees and take an active part in their development. Our products, where applicable, comply with the relevant British, European and International standards. Whatever the latest developments, we guarantee that our products will always meet the latest and highest standards.



Trade bodies

Pegler Yorkshire is pleased to be associated with several influential industry organisations:





This data book has been produced in clearly defined sections to help the user to find relevant information quickly and easily. At the foot of each page there is a reminder of the brochure sections with the relevant page numbers.

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Product range overview

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Carbon steel push-fit solutions

The complete range

Tectite Carbon is an innovative push-fit system. A revolutionary approach to vented and unvented closed circuit heating and chilled water installations.

Tectite Carbon push-fit benefits

A completely heat-free system offering the following benefits:

- Galvanised carbon steel tube and fittings in sizes 15mm to 54mm
- Compact, slender profile with guaranteed electrical continuity
- High quality polymer collar, offers excellent mechanical strength and optimum tube alignment
- Fittings can be rotated in situ making it ideal for use in confined or awkward areas



Faster installation

5 times faster than screwed steel joints and 3 times faster than compression and solder joints - saves time, saves money.



Ease of use

Heat free jointing. No tools or adhesives required to make a joint. Lightweight with a clean bore for reduced flushing.



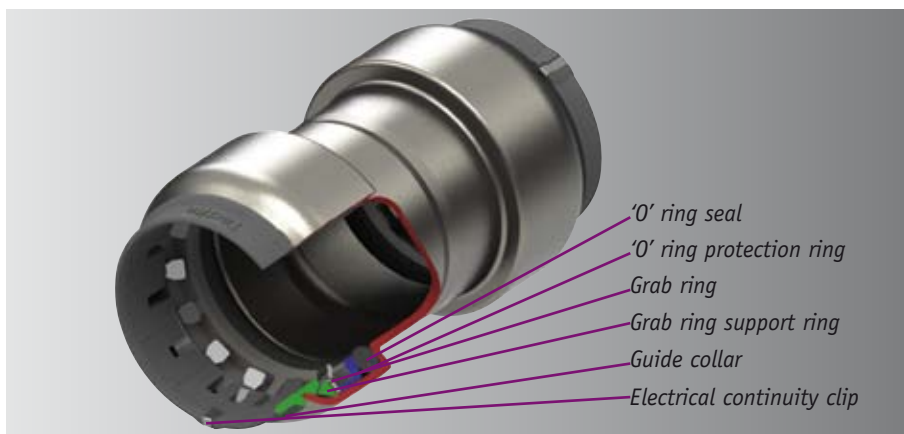
High performance

MAX Pressure of up to 20 bar. MAX Temperature of up to 114oC. MIN temperature of up to -24oC.



Reliable

System guarantees of up to 10 years if used with Pegler Yorkshire Carbon Steel System tube.**



Time-saving The perfect solution all round

A heat-free, time saving jointing method which guarantees uncontaminated installation. Ideal for applications as diverse as domestic maintenance and refurbishment, new build and large-scale public sector projects.

Renowned Pegler Yorkshire quality and reliability

Assurance with peace of mind – comes as standard with Tectite Carbon. Pegler Yorkshire also operates a Quality Management System for the development, manufacture and supply of fittings, tube, valves and accessories which complies with the requirements of BS EN ISO 9001:2000.

**To qualify for these guarantees, products must be installed in accordance with our instructions on specified applications.

Applications



Education

Schools, universities and colleges



Leisure

Sports centres, camp sites and caravan parks



Utilities

Public buildings and prisons



Healthcare

Hospitals and clinics



Commercial

Offices, business premises and shops



Housing

Local authority, housing associations and new build

Tectite Carbon

Designed for use in conjunction with carbon steel System tube, the non-demountable Tectite Carbon System is five times quicker to install than a traditional screwed steel installation. With installed cost savings of up to 70%, borne out in an independent industry report, Tectite Carbon can help to deliver projects on time and within budget.

Features

- Available in sizes from 15mm to 54mm
- Manufactured from galvanised carbon steel
- Provides electrical continuity
- Can be used with XPress carbon steel System tube and plastic coated XPress tube
- Light weight and easy to fit
- Designed for use with unvented closed circuit heating and chilled water services (closed loop)



Tectite

Push-fit Commercial Valves

A wide range of Pegler push-fit valves is available for use in conjunction with Tectite Carbon systems. These offer all of the same installation features and benefits and are available in Bronze, Duplex Brass and DZR to suit operating requirements.

- Commercial valves
- Gate valves
- Quarter turn ball valves
- Check valves
- Strainers
- Isolating valves
- Radiator valves



Tectite Carbon carbon steel push-fit fittings for carbon steel tube

System tubes



SC640 Carbon steel system tube

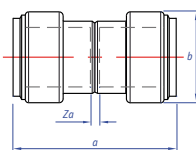
Size	Finish	Length	Order code
15mm x 1.2mm	Galvanised steel	6m	25080
18mm x 1.2mm	Galvanised steel	6m	25081
22mm x 1.5mm	Galvanised steel	6m	25082
28mm x 1.5mm	Galvanised steel	6m	25083
35mm x 1.5mm	Galvanised steel	6m	25084
42mm x 1.5mm	Galvanised steel	6m	25085
54mm x 1.5mm	Galvanised steel	6m	25086



SC660 Plastic coated carbon steel system tube

Size	Finish	Order code
15mm x 2.2mm x 6m	Galvanised steel	25060
18mm x 2.2mm x 6m	Galvanised steel	25061
22mm x 2.5mm x 6m	Galvanised steel	25062
28mm x 2.5mm x 6m	Galvanised steel	25063
35mm x 2.5mm x 6m	Galvanised steel	25064
42mm x 2.5mm x 6m	Galvanised steel	25065
54mm x 2.5mm x 6m	Galvanised steel	25066

Carbon steel push-fit fittings



TC1/TC270 Straight coupling

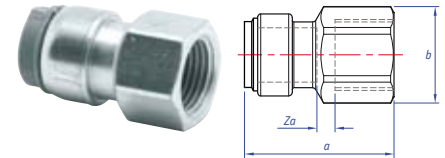
Size	a	b	Za	Order code
15mm	57	23	3	76301
18mm	60	26	4	76302
22mm	60	31	4	76303
28mm	66	38	6	76304
35mm	87	46	7	76305
42mm	91	55	7	76306
54mm	97	67	7	76307

Connections: push-fit x push-fit

TC2/TC270G Straight female connector

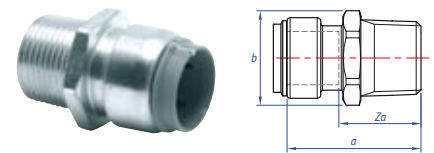
Size	<i>a</i>	<i>b</i>	<i>Za</i>	Order code
15mm x 1/2"	48	27	3	76336
18mm x 1/2"	47	30	2	76337
18mm x 3/4"	50	34	3	76338
22mm x 3/4"	51	36	5	76339
28mm x 1"	57	41	4	76340
35mm x 1 1/4"	72	48	5	76341
42mm x 1 1/2"	72	55	3	76342

Connections: push-fit x parallel female thread

**TC3/TC243G Male connector**

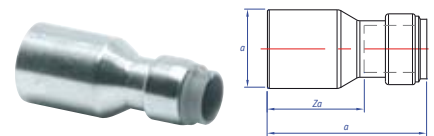
Size	<i>a</i>	<i>b</i>	<i>Za</i>	Order code
15mm x 3/8"	43	22	16	76348
15mm x 1/2"	48	27	21	76349
18mm x 1/2"	50	30	22	76350
18mm x 3/4"	51	30	22	76351
22mm x 3/4"	52	36	24	76352
28mm x 1"	56	46	26	76353
35mm x 1 1/4"	69	52	29	76354
42mm x 1 1/2"	72	63	30	76355
54mm x 2"	79	78	34	76356

Connections: push-fit x BSP taper male thread

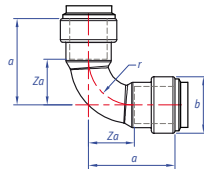
**TC6/TC243 Reducer**

Size	<i>a</i>	<i>b</i>	<i>Za</i>	Order code
18 x 15mm	52	18	25	76361
22 x 15mm	54	22	27	76362
22 x 18mm	58	22	30	76363
28 x 15mm	61	28	34	76364
28 x 18mm	60	28	32	76365
28 x 22mm	60	28	32	76366
35 x 15mm	75	35	48	76367
35 x 18mm	75	35	47	76368
35 x 22mm	71	35	43	76369
35 x 28mm	73	35	43	76370
42 x 22mm	81	42	53	76371
42 x 28mm	78	42	48	76372
42 x 35mm	86	42	46	76373
54 x 22mm	93	54	65	76374
54 x 28mm	91	54	61	76375
54 x 35mm	94	54	54	76376
54 x 42mm	96	54	54	76377

Connections: push-fit x male



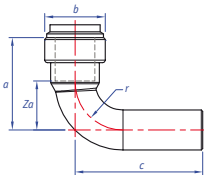
Tectite Carbon carbon steel push-fit fittings for carbon steel tube



TC12/TC090 Elbow

Size	a	b	Za	r	Order code
15mm	44	23	17	18	76391
18mm	49	26	21	22	76392
22mm	54	31	26	27	76393
28mm	65	38	35	34	76394
35mm	82	46	42	42	76395
42mm	93	55	51	50	76396
54mm	109	68	64	65	76397

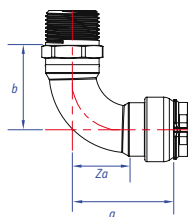
Connections: push-fit x push-fit



TC12S/TC092 Street elbow

Size	a	b	c	Za	r	Order code
15mm	44	23	52	17	18	76406
18mm	49	26	52	21	22	76407
22mm	54	31	58	26	27	76408
28mm	65	38	68	35	34	76409
35mm	82	46	93	42	42	76410
42mm	93	55	105	51	50	76411
54mm	110	68	117	65	65	76412

Connections: push-fit x male



TC13/TC092G Male elbow

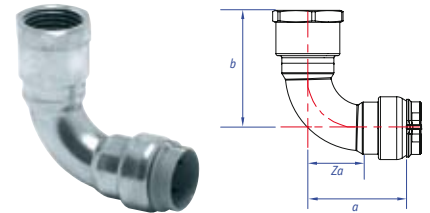
Size	a	b	Za	Order code
15mm x 1/2"	44	43	17	76416
18mm x 1/2"	49	47	21	76417
22mm x 3/4"	54	54	26	76418

Connections: push-fit x BSP taper male thread

TC14/TC090G Female elbow

Size	a	b	Za	Order code
15mm x 1/2"	44	43	17	76426
18mm x 1/2"	49	47	21	76427
22mm x 3/4"	54	52	26	76429

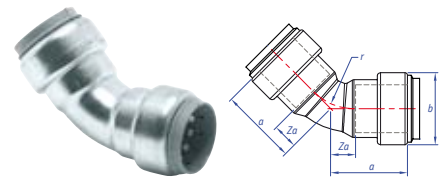
Connections: push-fit x BSP taper female thread



TC21/TC041 45° elbow

Size	a	b	Za	r	Order code
15mm	34	23	7	18	76441
18mm	37	26	9	22	76442
22mm	39	31	11	27	76443
28mm	45	38	15	34	76444
35mm	57	46	17	42	76445
42mm	63	55	21	50	76446
54mm	71	68	26	65	76447

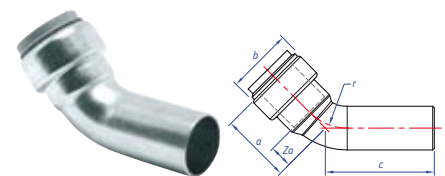
Connections: push-fit x push-fit



TC21S/TC040 45° street elbow

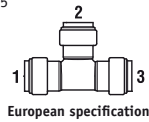
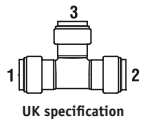
Size	a	b	c	Za	r	Order code
15mm	34	23	37	7	18	76456
18mm	37	26	39	9	22	76457
22mm	39	31	42	11	27	76458
28mm	45	38	48	15	34	76459
35mm	57	46	68	17	42	76460
42mm	63	55	76	21	50	76461
54mm	71	68	86	26	65	76462

Connections: push-fit x male



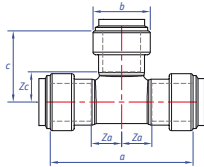
Tee specification

See page 15



Tectite® Push-fit solutions

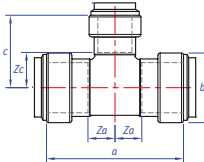
Tectite Carbon carbon steel push-fit fittings for carbon steel tube



TC24/TC130 Equal tee

Size	a	b	c	Za	Zc	Order code
15mm	78	23	39	12	12	76466
18mm	84	26	41	14	13	76467
22mm	88	31	44	16	16	76468
28mm	102	38	50	21	20	76469
35mm	128	47	64	24	24	76470
42mm	138	55	70	27	28	76471
54mm	170	68	80	40	35	76472

Connections: push-fit all ends



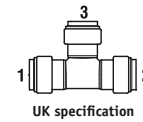
TC25/TC130 Tee, reduced branch

Size	a	b	c	Za	Zc	Order code
18 x 18 x 15mm	84	26	43	14	16	76482
22 x 22 x 15mm	96	31	44	20	17	76483
22 x 22 x 18mm	96	31	46	20	18	76484
28 x 28 x 15mm	102	38	48	21	21	76485
28 x 28 x 18mm	102	38	47	21	19	76486
28 x 28 x 22mm	102	38	48	21	20	76487
35 x 35 x 15mm	128	47	51	24	24	76488
35 x 35 x 18mm	128	47	52	24	24	76489
35 x 35 x 22mm	128	47	50	24	22	76490
35 x 35 x 28mm	128	47	55	24	25	76491
42 x 42 x 22mm	138	55	53	27	25	76492
42 x 42 x 28mm	138	55	57	27	27	76493
42 x 42 x 35mm	138	55	69	27	29	76494
54 x 54 x 22mm	170	68	59	40	31	76495
54 x 54 x 28mm	170	68	63	40	33	76496
54 x 54 x 35mm	170	68	75	40	35	76497
54 x 54 x 42mm	170	68	80	40	38	76498

Connections: push-fit all ends

Tee specification

See page 15

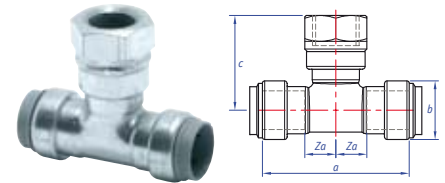


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TC30/TC130G Female branch tee

Size	a	b	c	Za	Order code
15 x 15mm x 1/2"	82	25	47	14	76536
18 x 18mm x 1/2"	84	29	52	14	76537
22 x 22mm x 1/2"	86	31	53	16	76538
28 x 28mm x 1/2"	98	41	59	19	76539
35 x 35mm x 1/2"	128	59	66	24	76540
42 x 42mm x 1/2"	155	70	63	27	76541
54 x 54mm x 1/2"	167	68	70	35	76542

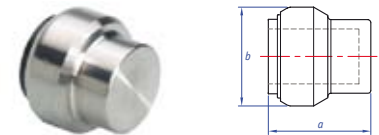
Connections: push-fit x BSP parallel female thread



TS61/TS301 Stop end

Size	a	Order code
15mm*	24	25866
18mm*	24	25870
22mm*	29	25874
28mm*	34	25876
35mm*	57	25878
42mm*	62	25880
54mm*	69	25882

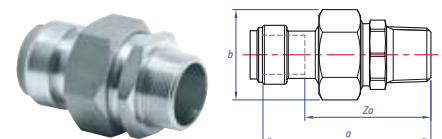
Connection: push-fit (Tectite stainless steel range)



TC69/TC331G Straight male union connector

Size	a	b	Za	Order code
15mm x 1/2"	80	32	53	76571
18mm x 1/2"	81	32	53	76572
22mm x 3/4"	87	38	59	76573
28mm x 1"	95	48	65	76574
35mm x 1 1/4"	106	53	66	76575
42mm x 1 1/2"	113	67	71	76576
54mm x 2"	133	67	88	76577

Connections: push-fit x BSP taper male thread



Accessories



TC143 Internal swivel blade - Cobalt - For use with TC147

Size	Order code
All tube sizes	76200



TC144 Internal swivel blade - Carbide - BS2015 For use with TC147

Size	Order code
All tube sizes	76201



TC145 External chamfer bit - For use with TC146/148

Size	Order code
15-22mm	76202



TC146 Rotodrive holder - For use with TC145/148

Size	Order code
	76203



TC147 Noga 1000 handle - For use with TC143/144

Size	Order code
	76208



TC148 Noga 3000 handle - For use with TC145/146

Size	Order code
	76206

TC150 Noga deburring kit - Contains TC148/146/145

Size	Order code
15-22mm	76207

**TC155 Carbon cutter wheel - For use with Rems Cento**

Size	Order code
N/A	76250

**TC117 Socket depth insertion tool**

Size	Order code
15-54mm	76121

**S115 Tube stripper**

Size	Order code
15mm	39260
18mm	39261
22mm	39262
28mm	39263
35-54mm	39264

**S120 Deburring tool**

Size	Order code
15-54mm	39168



Carbon steel push-fit solutions

Materials specification and manufacturing standards

Materials specification

Component	Tectite Carbon
Body	Carbon steel (zinc plated)
'O' ring	EPDM*
Alignment collar	PVDF
Cartridge/ Demounting ring	N/A
Grab ring	Stainless steel
End Caps	Stainless steel
Support disc	Mild steel (Zinc plated)
Continuity strip	Stainless steel

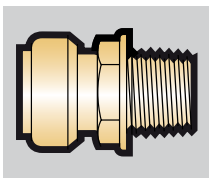
NB. The 'O' ring in all Tectite fittings is manufactured from Ethylene Propylene Diene Monomer (EPDM) and is supplied lubricated for easy tube insertion.
 *Ethylene Propylene Diene Monomer

Manufacturing standards

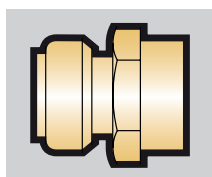
Component	Standard	Summary	Tectite Carbon
Taper end thread	ISO 7/EN10226-1 (formerly BS 21/ISO 7)	Pipe-threads, where pressure-tight joints are made on the threads (metric dimensions)	✓
Parallel end thread	BS EN ISO 228:2003 (formerly BS 2779/ ISO R228/1)	Pipe-threads, where pressure-tight joints are not made on the threads (metric dimensions)	✓

Connectors

Male connectors



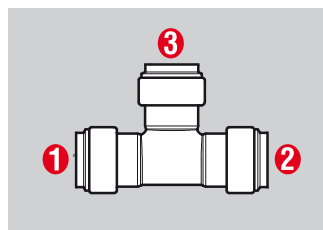
Tectite male connectors have either taper male BSP threads to ISO 7 (formerly BS 21) or parallel BSP threads to BS EN ISO 228:2003. Inert jointing compounds or PTFE tape should be applied to taper threads and good quality jointing washers should be used with parallel threaded fittings.



Female connectors

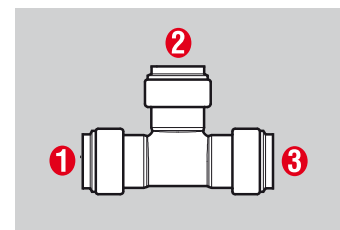
Tectite female threaded connectors have internal parallel threads to BS EN ISO 228:2003.

Tee specification



UK specification

First quote the ends on the run (larger end first) and then the branches.



European specification

Quote the larger end first, then the branch, followed by the remaining end.

Working temperatures and pressure tables

The maximum temperature and pressure range in any system is dictated by the component with the lowest performance rating. Remember to pressure test all systems thoroughly after completion. Tectite installations may be tested to 1.5 times their normal working pressure at ambient temperature.

Achieving low temperatures

For products used in water systems, working temperatures of less than 4°C can only be achieved if antifreeze is added to the system.

Pressure Equipment Directive

Since 30th May 2002 most pressure equipment and assemblies on the market in the United Kingdom have had to comply with

the Pressure Equipment Directive (P.E.D.) 1999. Fittings are exempt from the P.E.D. unless they are incorporated into pressure equipment, meaning that all Tectite fittings are exempt.

Tectite valves are also exempt.

For a detailed explanation please visit: www.pegleryorkshire.co.uk/technical.cfm

Fitting	Tube/pipe used with	Min. temperature		Max. temperature	
Tectite Carbon	Carbon steel	-24°C	30°C	65°C	114°C
		20 bar	20 bar	16 bar	10 bar

All performance figures based on correct assembly of fittings and tube/pipe as detailed in installation instructions.

Pressure testing of carbon steel systems

The following recommendations apply concerning the testing of XPress Carbon and Tectite Carbon systems.

Due to the potential for corrosion and perforation of carbon steel tube and fitting systems left partially drained for extended periods following hydraulic testing. It is recommended that XPress Carbon and Tectite Carbon systems be air/nitrogen tested.

If hydraulic testing must be undertaken the following should be considered.

1. The test water should contain anti-corrosion chemicals with the intention that post testing the system shall be left completely full of test water (suitable protection against freezing will also have to be considered).
2. If leaving the system full of water is not practical then every effort shall be made to fully drain and dry the pipe work by purging with dry air.

Regarding the air/nitrogen testing of pipe work with XPress Carbon crimped or Tectite Carbon push-fit fittings the following points will need to be considered.

1. The air should be clean, dry and free from oil. Excessive oil carry over in compressed air may be detrimental to the EPDM seals. This is not a problem with nitrogen.
2. Air is many times more searching than water. Hence, if the purpose of the air test is only leak detection, then 0.5 bar pressure will be more than sufficient. Higher pressures can in fact mask sealing issues that would be revealed by low-pressure tests.
3. The need for higher test pressures to prove the mechanical integrity of the joints brings with it serious safety issues. Testing for such a failure mode with high-pressure air/nitrogen is potentially very dangerous as the energy stored in 5 bar air/nitrogen, when released suddenly, could lead to damage to equipment or more seriously, injury to personnel. HSE issue guidelines for such testing should be strictly adhered to.

4. It is therefore; recommended that an initial low pressure test at 0.5 bar is carried out, having put the necessary safety measures in place, to enable any leaks to be found. Significantly leaking, un-pressed or damaged joints shall be replaced, but those with low leakage rates should be identified for close inspection during the high-pressure test. The full loading of the 'O' rings often resolve small leaks identified during the 0.5 bar test. When satisfied that the system is sound and having the necessary safety measures in place a 1.5 times working pressure test can be carried out as per the Copper Development Association (CDA) Guidelines document 'Pressure Testing Piping Systems'. Leaking joints at this stage should be identified and marked for replacement. The system pressure should then be reduced to 0.5 bar again to confirm that no persistent low-pressure leaks are present.

Equipotential bonding

All metallic pipework systems should comply with the equipotential bonding requirements of the current edition of the IEE electrical wiring regulations (BS 7671: 2001). After all plumbing work has been completed, always ensure guaranteed continuity checks are conducted by a qualified electrician in accordance with regulations. Tectite Carbon Steel fittings ensure electrical continuity.



Carbon steel push-fit solutions

Tubes, pipe and their compatibilities

XPress galvanised carbon steel System tube and plastic coated carbon steel System tube



Carbon steel System tube from our XPress range is available in 6m straight lengths in sizes from 15mm to 108mm (54mm if plastic coated). Galvanised carbon steel System tube is manufactured in accordance with EN 10305-3 from material with a very low carbon content and has a thin walled profile resulting in a lightweight easier to handle product.

The galvanised coating (external only) has a minimum thickness of 7 microns and is thermally applied which provides a superior bond to the tube.

Tectite Carbon can be used with our SC640 galvanised carbon steel System tube or our SC660 plastic coated carbon steel System tube.



When XPress galvanised carbon steel System tube or plastic carbon steel System tube is used with Tectite Carbon fittings as part of a complete system an enhanced 10 year guarantee will apply.

Tectite Carbon fittings can also be used with carbon steel tube and plastic coated carbon steel tube to the above standards, in which case a 5 year guarantee will apply.

XPRESS GALVANISED CARBON STEEL TUBE: Specification

Outside diameter	Outside diameter including plastic coating	Wall thickness EN 10312 Table 1	
		Galvanised tube	Including plastic coating
15mm	17mm	1.2mm	2.2mm
18mm	19mm	1.2mm	2.2mm
22mm	24mm	1.5mm	2.5mm
28mm	30mm	1.5mm	2.5mm
35mm	37mm	1.5mm	2.5mm
42mm	44mm	1.5mm	2.5mm
54mm	56mm	1.5mm	2.5mm

CARBON STEEL SYSTEM TUBE: Bends

Size	Minimum Radii
15mm	30mm
18mm	36mm
22mm	44mm
28mm	56mm

In sizes up to 28mm Carbon steel System tube, is suitable for bending using proprietary bend formers.

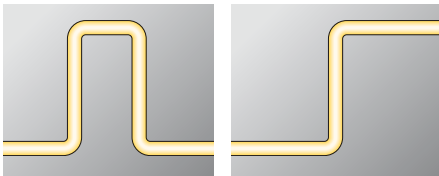
TECTITE CARBON STEEL*: Galvanised carbon steel System tube and plastic coated carbon steel System tube expansion										
Temperature change	Tube length									
	3m	4m	5m	6m	7m	8m	9m	10m	12m	25m
10°C	0.4mm	0.5mm	0.6mm	0.7mm	0.8mm	1.0mm	1.1mm	1.2mm	1.4mm	3.0mm
20°C	0.7mm	1.0mm	1.2mm	1.4mm	1.7mm	1.9mm	2.2mm	2.4mm	2.9mm	6.0mm
30°C	1.1mm	1.4mm	1.8mm	2.2mm	2.5mm	2.9mm	3.2mm	3.6mm	4.3mm	9.0mm
40°C	1.4mm	1.9mm	2.4mm	2.9mm	3.4mm	3.8mm	4.3mm	4.8mm	5.8mm	12.0mm
50°C	1.8mm	2.4mm	3.0mm	3.6mm	4.2mm	4.8mm	5.4mm	6.0mm	7.2mm	15.0mm
60°C	2.2mm	2.9mm	3.6mm	4.3mm	5.0mm	5.8mm	6.5mm	7.2mm	8.6mm	18.0mm
70°C	2.5mm	3.4mm	4.2mm	5.0mm	5.9mm	6.7mm	7.6mm	8.4mm	10.1mm	21.0mm
80°C	2.9mm	3.8mm	4.8mm	5.8mm	6.7mm	7.7mm	8.6mm	9.6mm	11.5mm	24.0mm
90°C	3.2mm	4.3mm	5.4mm	6.5mm	7.6mm	8.6mm	9.7mm	10.8mm	13.0mm	27.0mm
100°C	3.6mm	4.8mm	6.0mm	7.2mm	8.4mm	9.6mm	10.8mm	12.0mm	14.4mm	30.0mm

*Closed circuit systems only.

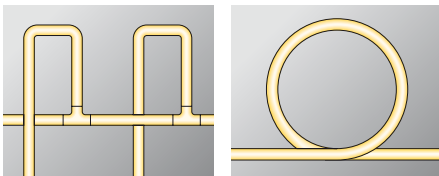
Correct anchoring

Always ensure the spur used to anchor the branch of a tee or connecting a radiator is long enough to allow normal thermal movement. Failure to observe this simple rule can lead to a failure. Incorporating expansion loops or bellows devices into the system can help guard against such problems, whilst a horseshoe link or offset (see diagrams) is an ideal way to counteract continual thermal cycling.

Techniques for expansion stress relief



Horseshoe expansion link Offset



Crossover tee arrangement expansion loop Suitable for 10mm tube only

Thermal expansion

Never use so-called 'cold draw techniques' when designing expansion joints into a system containing any Tectite push-fit fittings. These techniques may compromise the integrity of the surrounding joints.

Design considerations

Some contracts may still require that proprietary chemicals are used to cleanse and flush pipework before full commissioning. Tectite is compatible with a wide selection of products, to find out more contact us.

Pipe restraint

In any installation, the system should be supported to ensure the minimum stress is imposed on the tube/pipe and joints. For the maximum spacing of supporting brackets for internal installations, please see the tables (right).

Insulation

For all Tectite Systems, we recommend you adhere to the insulation requirements as specified in BS 5970. These requirements are equally applicable to plastic pipe and stainless steel tube.

Size	Maximum spacing of support brackets for internal fixing of carbon steel System tube	
	Horizontal run spacing	Vertical run spacing
15mm	1200mm	1800mm
18mm	1500mm	2100mm
22mm	1800mm	2400mm
28mm	1800mm	2400mm
35mm	2400mm	3000mm
42mm	2400mm	3000mm
54mm	2700mm	3000mm

Carbon steel push-fit solutions

System design considerations and tube expansion

Phenolic foam

When using rigid phenolic foam (or other thermal insulation) to lag pipework, always remember to refer to the lagging manufacturer's fixing instructions. To avoid the risk of external corrosion of pipework lagged with this foam, it is recommended that such insulation products be installed with a moisture barrier. Materials like Densopaste or a plastics covering applied by the tube manufacturer both provide an appropriate barrier between the outer surface of the tube or fitting and the foam.

Some manufacturers of this type of lagging supply their products with an internal, factory-applied sodium silicate or polyethylene barrier to prevent external corrosion problems. However, if you do need to add a barrier product, we recommend that all Tectite fittings are fully installed and pressure tested before these are applied and that they are completely coated.

Covered pipework

Making provision for thermal movement is vital where pipe-work of any material is installed under screed, plaster or passes through brick or blockwork. The preferred practice is to: pass tubes and pipes through sleeves or conduits or to lay them in ducts surrounded by loose, non-rigid material such as vermiculite or glass wool. For further information, consult the publication BS 6700:1997 Water Services in Buildings.

Local Water Authority

It's wise to consult the local water authority when it comes to pipework accessibility.

Tube bending

Portable bending machines are ideal for copper tubes up to 28mm. Most machines bend the tube between matched formers and back guides that support the outside diameter (OD) of the tube. This eliminates the risk of the tube wall collapsing.

The point at which the bending pressure is exerted must be maintained at the correct distance in front of the former's point of support. It's also important to keep formers and guides well lubricated. Bending tubes correctly will avoid any wrinkling and flattening that can affect flow conditions.

Using adjustable bending machines (which allow the pressure on the back guide to be adjusted) will ensure perfect bends every time so long as the root (inside) bending radius is at least 3 times the outside diameter of the tube.

Pipework clearance

When designing a Tectite System, please take care to ensure all joints can be made. Observe minimum gaps and insertion distances to ensure sufficient access for a demounting clip/tool, where applicable (see *fitting spacing tables*).

<i>Fitting spacing for Tectite Carbon Steel (not demountable)</i>		
<i>Sizes</i>	<i>Min. gap between fittings</i>	<i>Min. tube projection</i>
10mm	5mm	20mm
15mm	5mm	21mm
22mm	5mm	23mm
28mm	5mm	25mm

Connecting tubes made from dissimilar metal

The UK Water Regulations recommend that tubes and fittings made from different types of metals shall not be connected directly together except where galvanic action is unlikely or where effective measures are taken to prevent it. Galvanic corrosion is a process whereby the materials that come in to contact with each other oxidises or corrodes. If you are in doubt, we recommend you refer to the full and detailed information provided in Water Regulations Guide (G2.11 and R3.2), or by

contacting the Water Regulations Advisory Scheme info@wras.co.uk.

Mixed metal installations

The substitution of stainless steel XPress or Tectite 316 fittings on a galvanised carbon steel installation is acceptable in heating and chilled water applications, if required. When joining copper to carbon steel we recommend the use of a yellow metal i.e. brass or gunmetal to prevent galvanic corrosion.

When doing this, care must be taken to protect the SC640 galvanised tube surface from the increased risk of external corrosion at the stainless/galvanised steel interface. Galvanised carbon steel is anodic to stainless steel in air and, if the pipeline is allowed to become wet, there is a risk of localised corrosion of the carbon steel tube surface adjacent to the stainless steel fitting. This potential problem is less likely in heating pipe work which usually remains hot and dry.

In chilled water installations, an accumulation of environmental condensate on the pipe work could, under some circumstances, leach out aggressive chemicals from the insulation, resulting in corrosion, particularly at the stainless steel/carbon steel interface. Consequently, we recommend that where stainless steel fittings are installed on carbon steel pipe, the joint area should be provided with additional protection to prevent localised corrosion. This can be as simple as wrapping the interface area with an impervious material such as Denso or PVC tape.

Provided these precautions are taken, there is no reason why the combination of stainless steel fittings and carbon steel tube should not be entirely satisfactory.



The Tectite jointing system has been designed with easy, efficient installation in mind.

Guide to installation **Painting**

The jointing procedures are almost identical for every type of Tectite fitting and compatible tube material. To ensure the fittings stay clean and the 'O' ring is protected from damage, never remove the fitting from its packaging until immediately prior to installation.

The tube can be fully inserted by hand. A damaged tube end will require excessive force to be used. If this is the case you should check the tube is round and deburred before continuing. Tectite Carbon fittings with plain male ends must not be used directly with capillary fittings, since heating will damage the non-metallic parts. Neither should plain ends on capillary fittings be used with Tectite Carbon.

Heat should not be applied to Tectite Carbon fittings, directly or indirectly. To avoid any possible damage to non-metallic parts, all heated/welded joints must be completed and allowed to cool prior to connecting Tectite Carbon fittings and that all pipe work is flushed removing any residual fluxes/debris left behind. Use pipe clips to secure finished installation and prevent vibration or movement.

Fittings can be painted with water-based paints. Oil-based or aggressive solvent paint should be avoided.

Socket depths

<i>Tectite Carbon socket depths</i>	
<i>Size</i>	<i>Socket depth</i>
15mm	28mm
18mm	28mm
22mm	30mm
28mm	32mm
35mm	40mm
42mm	42mm
54mm	45mm

To ensure Tectite Carbon fittings stay clean and free from damage, only remove the fitting from its packaging immediately prior to installation.

Preliminaries

Select the right size of tube and fitting. Ensure both are clean and free from damage, scores and imperfections, and that the "O" ring and grab ring are clean and intact within the fitting. Do not use any additional lubricant or sealing compounds.

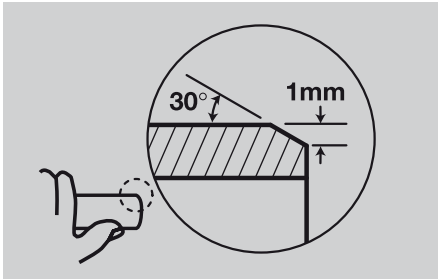
Preparation

1. For sizes 28-54mm cut the tube square using a Rems Cento cutting tool and the TA155 Carbon cutter wheel (76250). This will leave you with a 1mm chamfer on the outside of the tube as indicated in the diagram.



Carbon steel push-fit solutions

Installation instructions



When using a manual rotary tube cutter on sizes 15-22mm you will need chamfer the tube end using a TA145 external chamfer bit.



2. When using plastic coated Carbon steel tube, the coating must be removed to the socket depth of the fitting using the S115 stripping tool from the XPress accessories range. Select the correct sized tool, fully insert the tube and twist the tool until the excess of plastic is completely detached.



3. Remove any burrs or sharp edges from the external and internal tube end using an S120 deburring tool, wipe clean the tube end to remove all swarf and debris.



4. Mark the socket depth using a marker/pencil and the TC117 depth gauge or with a ruler to the correct depth (see table).



Joining

5. Inspect the fitting ensuring that the grab rings/'O'-rings have not been contaminated with grit or debris. Insert the tube/pipe into the mouth of the fitting to rest against the grab ring.



6. Hold the tube inline with the fitting socket and push the tube firmly with a slight twisting action until it reaches the tube stop with a positive "click".



7. Ensure the depth insertion mark corresponds with the mouth of the fitting, then pull firmly on the tube to ensure the fitting is secure.



NOTE: Tectite Carbon fittings must not be used with male ended fittings or valves from other Tectite or Pegler Yorkshire ranges (Except T526S). Other third party male-ended products shall NOT be used with Tectite Carbon. Do not use Tectite Carbon on gas services. Tectite Carbon Fittings are non-dismountable.



Carbon steel push-fit solutions
Notes



Carbon steel push-fit solutions
Notes





Pegler Yorkshire

Our brands:



UK sales

Free Phone: 0800 156 0010
Free Fax: 0808 156 1011
Email: uk.sales@pegler-yorkshire.co.uk

Export

Tel: +44 (0) 1302 855 656
Fax: +44 (0) 1302 730 513
Email: export@pegler-yorkshire.co.uk

Technical Help

Free Phone: 0800 156 0050
Free Fax: 0808 156 1012
Email: tech.help@pegler-yorkshire.co.uk

Brochure Hotline

Free Phone: 0800 156 0020
Free Fax: 0808 156 1011
Email: info@pegler-yorkshire.co.uk

www.pegler-yorkshire.co.uk

Registered in England Company No. 00401507
Registered Office: Haigh Park Road, Stourton, Leeds, West Yorkshire, LS10 1RT, England.

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Pegler Yorkshire Group Limited

St. Catherine's Avenue, Doncaster,
South Yorkshire, DN4 8DF, England.
Tel: 0844 243 4400 Fax: 0844 243 9870