

Fittings for CO₂

Pipe Threads

Pipe thread references quoted in this catalogue conform with the requirements specified in the latest issue and amendments of the following ISO Standards:

- ISO 7-1 (BS21)** Pipe threads for tubes and fittings where pressure-tight joints are made on the threads (requires PTFE sealing tape or liquid sealant).
- ISO 228-1 (BS2779)** Pipe threads for tubes and fittings where pressure-tight joints are not made on the threads (requires a sealing washer such as a bonded seal or 'O' ring).

References to pipe threads are in accordance with ISO 7 as follows:

- BS 21** Rc* = BSP Taper Female
R* = BSP Taper Male
Rp = BSP Parallel Female
- BS 2779** G* = BSP Parallel Female
G*A = BSP Parallel Male

* Nominal pipe diameter (inches)

These thread systems should not be mixed as it may lead to a failure of the pressure connection.

CO₂ Threaded Fittings

Throughout the world, carbon dioxide cylinder valves have a special thread. In Europe, Africa and much of Australasia, the thread conforms to British Standard BS 341 Part 1 No. 8 (0.860 in x 14 TPI) or the direct European equivalent (DIN 477 No. 6). These threads are in effect interchangeable.

American CGA 320 and Japanese JIS B 8246 CO₂ threads are different and are not compatible with each other nor with BS or DIN CO₂ threads.

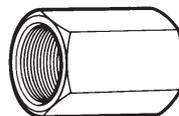
The following fittings have threads to BS 341 Part 1 No.8. The material is brass.

Maximum working pressure 240 bar.

CO₂ Female Fittings

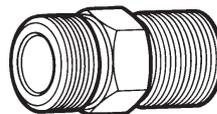


Adapter CO ₂ female x R $\frac{1}{2}$	2222.0102
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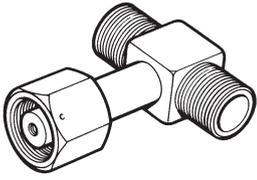
Coupling CO ₂ female x G $\frac{1}{2}$	2222.0103
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CO₂ Male Fittings



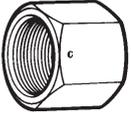
Nipple CO ₂ male x R $\frac{1}{2}$	2222.0101
Nipple CO ₂ male x G $\frac{1}{4}$ A cone	2222.0107
Nipple CO ₂ male x R $\frac{1}{4}$	2222.0108

CO₂ Tee Piece

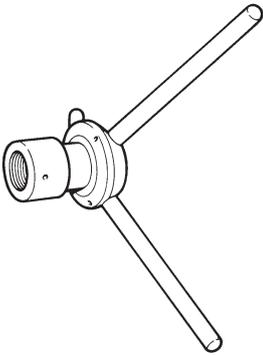


Tee CO ₂ female x CO ₂ male x CO ₂ male	2233.0601
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CO₂ Coupling Nuts for Use with Tailpieces

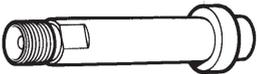


Hexagonal CO ₂ female coupling nut	2222.0301
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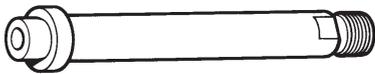


Spoked CO ₂ female coupling nut	2222.0303
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Tailpieces for CO₂ Coupling Nuts



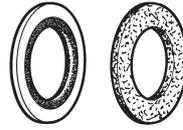
Tailpiece short (70 mm) G1/4A cone	2222.0504
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Tailpiece long (120 mm) G1/4A cone	2222.0503
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Washers

Sealing washers are held in stock for CO₂ couplings and other duties.



Sealing washers for CO₂ female connections

CO ₂ metal bonded sealing washer (reusable)	2222.0601
CO ₂ fibre washer (non-reusable)	2222.0602

Sealing washers for BSP parallel male threads

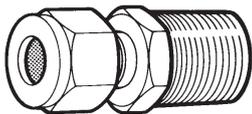
3/8 in metal bonded	2222.0602
1/2 in fibre	2232.0208
3/4 in metal bonded	2232.0604
1 in metal bonded	2223.5805

Compression Fittings

Using thick walled copper tube $\frac{3}{8}$ in o.d., Part number 2222.2401, is a convenient way of running small flows of liquid carbon dioxide or CO₂ gas between equipment items. Compression fittings are a reliable and simple method of joining together sections of $\frac{3}{8}$ in o.d. tube and connecting the tube to other threaded items.

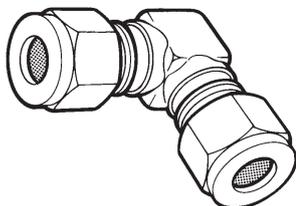
Material Brass
Maximum Working Pressure (bar) 103

Adapter $\frac{3}{8}$ in o.d. Compression x Male Thread



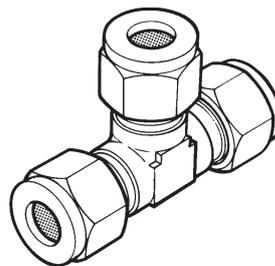
Adapter $\frac{3}{8}$ in o.d. x R $\frac{1}{2}$	2222.0701
Adapter $\frac{3}{8}$ in o.d. x R $\frac{1}{4}$	2222.0704
Adapter $\frac{3}{8}$ in o.d. x G $\frac{1}{4}$ A	2222.0705
Adapter $\frac{3}{8}$ in o.d. x G $\frac{3}{8}$ A	2222.0706
Adapter $\frac{3}{8}$ in o.d. x $\frac{1}{8}$ in NPT/API	2222.0707
Adapter $\frac{3}{8}$ in o.d. x $\frac{1}{4}$ in NPT/API	2222.0709

Elbow 90° $\frac{3}{8}$ in o.d. Compression



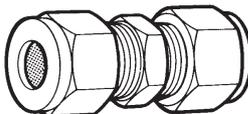
Elbow $\frac{3}{8}$ in o.d.	2222.0901
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Tee $\frac{3}{8}$ in o.d. Compression



Tee $\frac{3}{8}$ in o.d.	2222.1201
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Coupling $\frac{3}{8}$ in o.d. Compression



Coupling $\frac{3}{8}$ in o.d.	2222.0801
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Threaded Pipe Fittings

For complete safety, all CO₂ pipework and fittings should be of impact-tested low temperature steel in accordance with PED requirements. The fittings below are manufactured from low temperature materials which fully conform to UK and European code requirements (unless otherwise stated).

Material Forged steel (unless otherwise stated)

Maximum Working Pressure (bar) 207

Bush, Hexagon, Male x Female



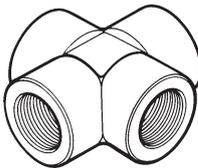
R $\frac{1}{2}$ x Rc $\frac{1}{4}$	2222.1505
R $\frac{1}{2}$ x Rc $\frac{3}{8}$	2222.1508
R $\frac{3}{4}$ x Rc $\frac{3}{8}$	2222.1509
R $\frac{3}{4}$ x Rc $\frac{1}{2}$	2222.1501
R1 x Rc $\frac{1}{2}$	2222.1503
R1 x Rc $\frac{3}{4}$	2222.1502
R1 $\frac{1}{2}$ x Rc1	2222.1504
R2 x Rc1 $\frac{1}{2}$	2222.1507

Cap, Female



Rc $\frac{1}{2}$	2222.1601
Rc $\frac{3}{4}$	2222.1604
Rc1	2222.1605

Cross, Female



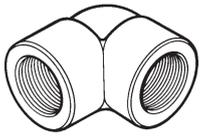
Rc $\frac{1}{2}$ equal	2222.1801
Rc $\frac{3}{4}$ equal	2222.1802
Rc1 equal	2222.1803
Rc1 $\frac{1}{2}$ x Rc1 x Rc1 $\frac{1}{2}$ x Rc1	2222.1804
Rc1 $\frac{1}{2}$ equal	2222.1805

Coupling, Female x Female



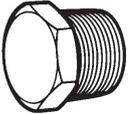
Rc $\frac{1}{4}$ equal	2222.1701
Rc $\frac{1}{2}$ x Rc $\frac{1}{4}$	2222.1702
Rc $\frac{1}{2}$ equal	2222.1703
Rc $\frac{3}{4}$ x Rc $\frac{1}{2}$	2222.1705
Rc $\frac{3}{4}$ equal	2222.1706
Rc1 x Rc $\frac{3}{4}$	2222.1707
Rc1 equal	2222.1708
Rc1 $\frac{1}{2}$ x Rc1	2222.1709
Rc1 $\frac{1}{2}$ equal	2222.1710

Elbow 90°, Female



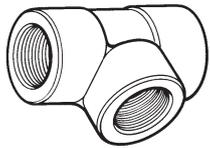
Rc½ equal	2222.1901
Rc¾ equal	2222.1902
Rc1 equal	2222.1903
Rc1½ equal	2222.1904

Plug



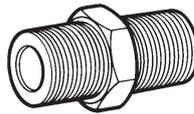
R¼ (socket)	2223.1008
R½ (hex.)	2222.2201
R¾ (hex.)	2222.2202
R1 (hex.)	2222.2203
R1½ (hex.)	2222.2204

Tee, Female



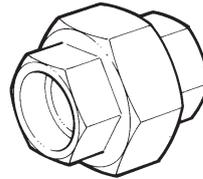
Rc¼ equal	2222.2309
Rc½ equal	2222.2302
Rc¾ x Rc½ x Rc¾	2222.2304
Rc¾ equal	2222.2303
Rc1 x Rc½ x Rc1	2222.2307
Rc1 equal	2222.2305
Rc1½ x Rc1 x Rc1½	2222.2308
Rc1½ equal	2222.2306

Nipple, Male x Male



R¼ equal	2222.2002
R½ x R¼	2222.2024
R½ x R¾	2222.2007
R½ equal	2222.2009
R¾ x R½	2222.2010
R¾ equal	2222.2012
R1 x R½	2222.2011
R1 x R¾	2222.2015
R1 equal	2222.2016
R1½ x R1	2222.2017
R1½ equal	2222.2018

Union, Female

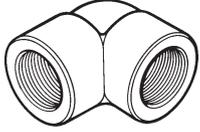


Rc½ equal	2222.2501
Rc¾ equal	2222.2502
Rc1 equal	2222.2503
Rc1½ equal	2222.2504

Special Fittings

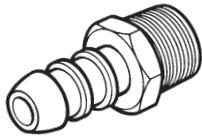
In order to facilitate connections between various items of equipment for use with CO₂ liquid and vapour, a number of special fittings are stocked. The material of construction is plated carbon steel unless otherwise stated.

Elbow 90°, Female



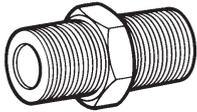
G1/4 equal (brass)	2222.1905
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Hosetail Adapter, Male x Hosetail (brass)



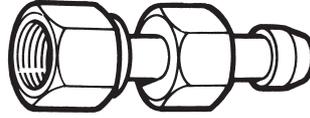
R1/4 x 1/4 in o.d. hosetail	2222.1601
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Nipple, Male x Male



G1/4A cone x 1/8 in NPT (API)	2222.2005
G1/4A cone x 1/4 in NPT (API)	2222.2026
G1/4A cone x R1/4	2222.2001
G1/4A cone equal	2222.2003
R1/2 x G1/4A cone (brass)	2222.2004
R3/4 x G3/4A	2222.2014

Adapter



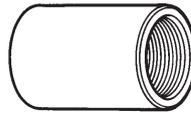
G1/4 x G1/4 cone adapter	2222.1301
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Bush, Hexagon, Male x Female



R1/2 x G1/4	2222.1506
R3/4 x G1/2	2222.1510

Coupling, Female x Female



Rc1/2 x G1/2	2222.1704
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Pipe and Tube

All the pipe and tube described below is able to withstand the high pressures of carbon dioxide gas and the low temperature of liquid CO₂. The steel pipe is made from low temperature material which conforms to UK and European code requirements.

Copper Tube

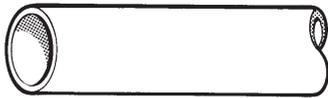


3/8 in o.d., seamless thick walled	2222.2401
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Steel Pipe : Schedule 80



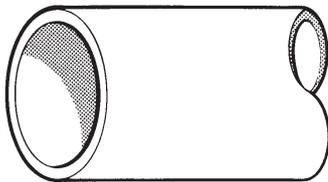
1/2 in n.b. seamless	2222.2402
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3/4 in n.b. seamless	2222.2404
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1 in n.b. seamless	2222.2406
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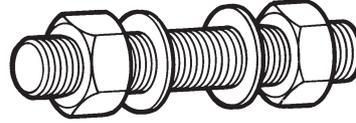
1 1/2 in n.b. seamless	2222.2408
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Steel pipe is supplied in random lengths 5-8 metres long. Please state total length required, and the longest length required in one place.

Flanges, Gaskets & Fasteners

These flanges, gaskets and fasteners are for use with the steel pipe shown in the pipe and tube section.

Threaded Fasteners – Studbolt



Studbolt 5/8 in UNC x 3 in long c/w hexagon nuts (for 3/4 in flange)	2222.3803
Studbolt 5/8 in UNC x 3 1/4 in long c/w hexagon nuts (for 1 in flange)	2222.3802
Studbolt 3/4 in UNC x 3 1/2 in long c/w hexagon nuts (for 1 1/2 in flange)	2222.3807

Gaskets for Raised Face Flanges (BS 1560/ANSI Class 300)

Material Aramid fibre
Nitrile binder
Thickness 1.6 mm



3/4 in ANSI 300	2222.3502
1 in ANSI 300	2222.3503
1 1/2 in ANSI 300	2222.3504

Raised Face Flanges (BS 1560/ANSI Class 300)



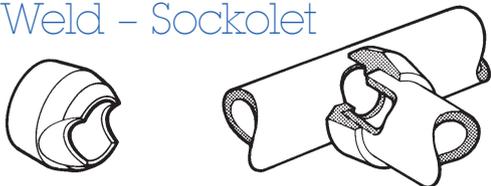
3/4 in slip-on	2222.3403
1 in slip-on	2222.3404
1 1/2 in slip-on	2222.3406
1 in blank	2222.3409

Welding Fittings

A range of low temperature steel fittings are available for socket weld connection. All measurements refer to the nominal bore of the connecting steel pipe. The fittings conform to European Pressure Equipment code requirements.

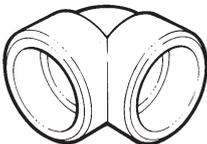
Material Forged steel
Maximum Working Pressure (bar) 207

Branch Connector – Socket Weld – Sockolet



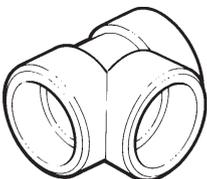
1 1/2 in line x 1 in branch socket weld	2222.2903
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Elbows



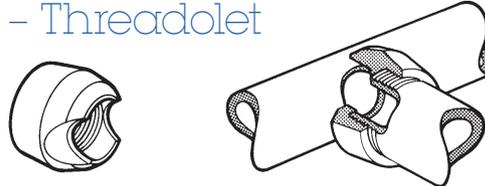
3/4 in equal socket weld	2222.3302
1 in equal socket weld	2222.3304
1 1/2 in equal socket weld	2222.3305

Tees



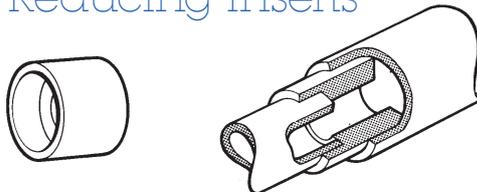
3/4 in equal socket weld	2222.4002
1 in equal socket weld	2222.4004
1 1/2 in x 1 in x 1 1/2 in socket weld	2222.4005

Branch Connector – Threaded – Threadolet



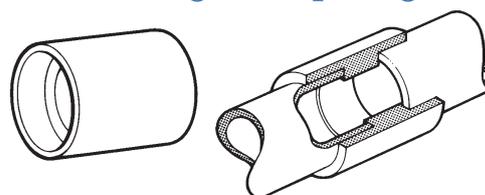
3/4 in line x Rc 1/2 branch	2222.3003
1 in line x Rc 1/2 branch	2222.3002
1 in line x Rc 3/4 branch	2222.3005
1 1/2 in line x Rc 1/2 branch	2222.3001
1 1/2 in line x Rc 1 branch	2222.3004

Reducing Inserts



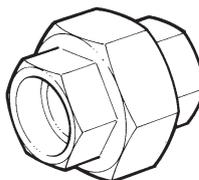
1 in x 1/2 in socket weld	2222.3903
1 in x 3/4 in socket weld	2222.3908

Reducing Coupling



1 in x 3/4 in socket weld	2222.3907
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Unions

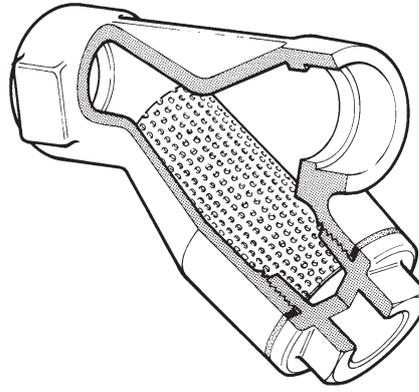


3/4 in equal socket weld	2222.4201
1 in equal socket weld	2222.4202
1 1/2 in equal socket weld	2222.4203

Strainers & Filters

Strainers are designed to trap any swarf or grit present in a pipeline and to prevent the particles from entering and damaging pipework equipment, such as reducing valves or pressure controllers.

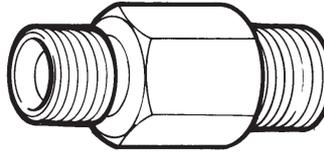
All the strainers below have internal stainless steel screens of 100 mesh which can be withdrawn for cleaning without disconnecting the pipework. All the strainer bodies are of forged or cast steel.



Strainer Type	Connections Inlet and Outlet Female	Maximum Pressure (bar)	Strainer Length (mm)	Unpacked Weight (kg)	Strainer Part Number	Spare Screen Part Number
Y	Rc ³ / ₄	50	90	0.7	2222.4501	2222.4504
Y	Rc ³ / ₄	99	149	1.8	2222.4506	-
Y	Rc1	99	149	2.0	2222.4505	-

In-Line Filter Unit

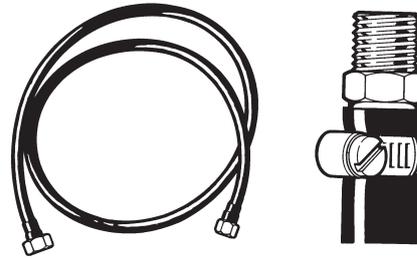
Where in-line filtration is needed in small bore pipework, the sintered filter unit can be fitted between cylinder and equipment. This will trap small particles, without causing a major pressure drop. The sintered filter is held in place by a star clip but it can be removed for cleaning in a solvent. The unit is suitable for both liquid and gaseous carbon dioxide.



Maximum Working Pressure (bar)	240
Material	Body: Brass Filter: Sintered bronze Star clip: Steel
Threads	G ¹ / ₄ A cone x G ¹ / ₄ A with internal No.1 BA female thread
Part Number	2233.0806

Hoses and Connections

Hoses of different materials, lengths and end connections are available from stock for various CO₂ duties. The hose internal diameter is 6.3mm unless otherwise stated. CO₂ male and female end fittings are machined to BS 341 Part 1 No.8 dimensions.



Hose and Connections			
Material	Braided stainless steel PTFE lined, plated steel end fittings		
Maximum Working Pressure (bar)	240		
Suggested Duty	Connecting cylinders to a manifold		
Length (m)	End Fitting	End Fitting	Part Number
0.45	CO ₂ female loose nut	G1/4A	2222.4301

Hose and Connections			
Material	Reinforced polymer, plated steel end fittings		
Maximum Working Pressure (bar)	240		
Suggested Duty	Cylinder filling hose between pump and connector		
Length (m)	End Fitting	End Fitting	Part Number
1.2	G1/4 loose nut, cone ended	G1/4 loose nut, cone ended	2222.4306

Hose and Connections			
Material	Reinforced nylon, plated steel end fittings		
Maximum Working Pressure (bar)	103		
Suggested Duty	High pressure CO ₂ gas transfer : not suitable for sustained use with liquid CO ₂		
Length (m)	End Fitting	End Fitting	Part Number
0.9	CO ₂ female loose nut	R1/4	2222.4319
2.4	CO ₂ female loose nut – Jetfreezer hose	G1/4 loose nut, cone ended	2222.4309

Hose and Connections – Road Tankers

Material Wire reinforced terylene, melinex and butyl coated canvas, stainless steel end fittings
Maximum Working Pressure (bar) 24

Internal Diameter 38 mm – for CO₂ liquid filling line

Length (m)	End Fitting	End Fitting	Part Number
3.7	G1½ loose nut, cone ended	G1½ loose nut, cone ended	2270.0013
Fill line hose adapter R1½ x G1½A male (brass)			2222.2021
Fill line hose connector G1½A x G1½A male (brass)			2222.2023
Fill line cap G1½ female (brass)			2222.1603

Internal Diameter 25 mm – for CO₂ vapour balance line

Length (m)	End Fitting	End Fitting	Part Number
3.7	G1 loose nut, cone ended	G1 loose nut, cone ended	2270.0014
Balance line hose adapter R1 x G1A male (brass)			2222.2020
Balance line hose connector G1A x G1A male (brass)			2222.2022
Balance line cap G1 female (brass)			2222.1602

Air Liquide CO₂ Equipment: Freeze, Pump, Vaporise, Protect



FM12962

Air Liquide UK Limited, Station Road, Coleshill, Birmingham B46 1JY.
 Tel: +44 (0)1782 822061 Fax: +44 (0)1782 826850
 Email: engineering.aluk@airliquide.com

[www.industry.airliquide.co.uk/
equipment-co2](http://www.industry.airliquide.co.uk/equipment-co2)



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