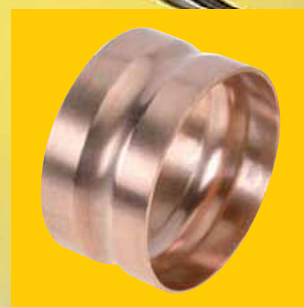
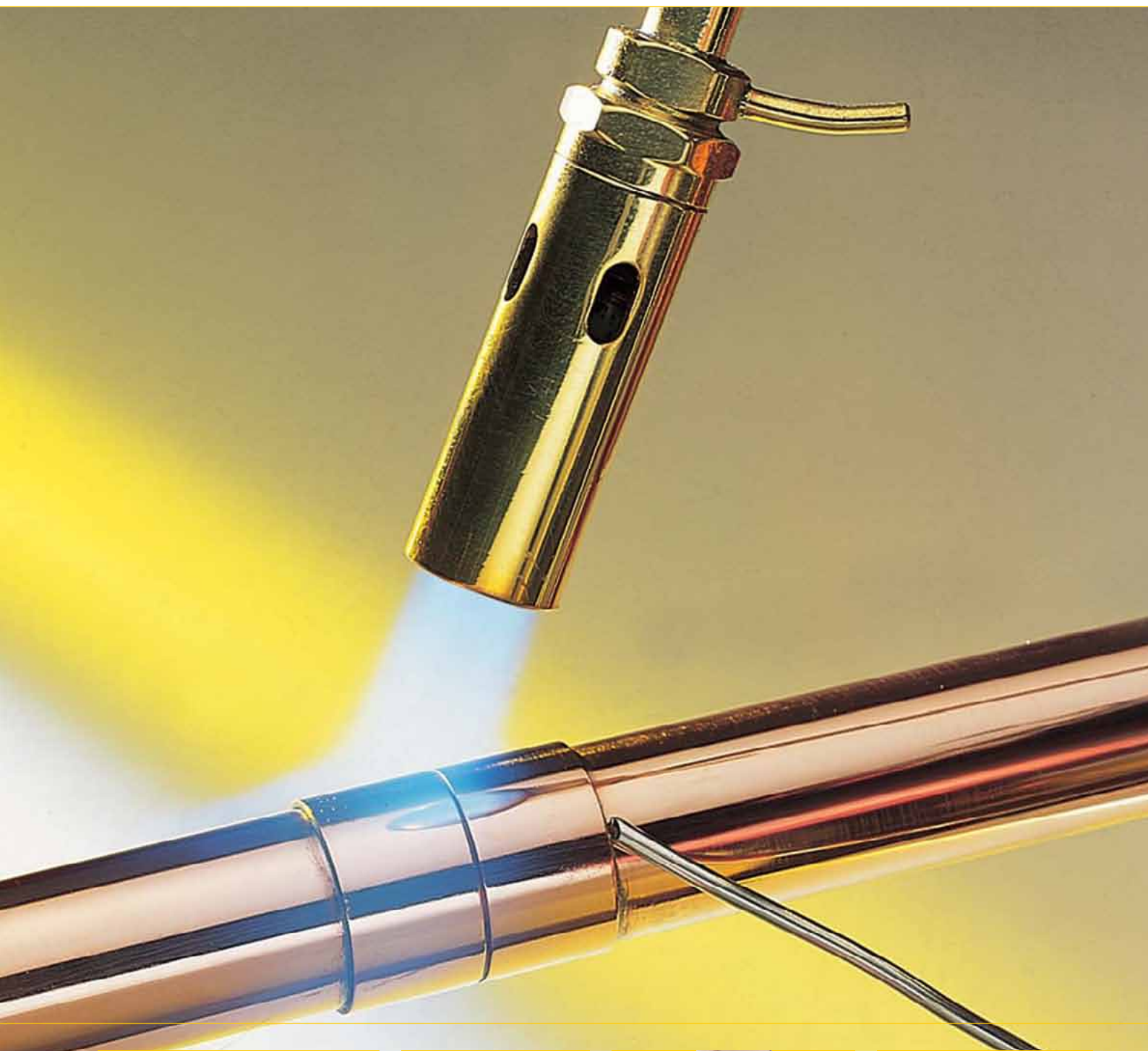


# ENDEX

*End feed solutions*



# 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. In meeting all the challenges of the 20th and 21st centuries both companies have 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 such a diverse 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 is 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:



Association of Plumbing and Heating Contractors



The Bathroom Manufacturers Association



Construction Products Association

## Brass

The Brass Page for specifiers, designers, engineers and manufacturers



British Plumbing Employers Council



Builders Merchants Federation



The Copper Development Association



The UK Copper Board



Institute of Plumbing



Heating and Ventilating Contractors Association



Thermostatic Mixing Valve Manufacturers Association

Thermostatic Mixing Valve Manufacturers Association



Scottish and Northern Ireland Plumbing Employers Federation



Yorkshire recommends contacting OFTEC for fuel oils advice. [www.oftec.co.uk](http://www.oftec.co.uk)



*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.*

## Section 1

### Product range overview

The Endex range	4-6
Standards, approvals and guarantees	7

## Section 2

### Product range details

End feed fittings	8-33
Endbrazed large size fittings	34-39
Endbrazed flanges	40-41
End feed fittings degreased	42-51
Endex waste fittings	52-54
Endex accessories	55

## Section 3

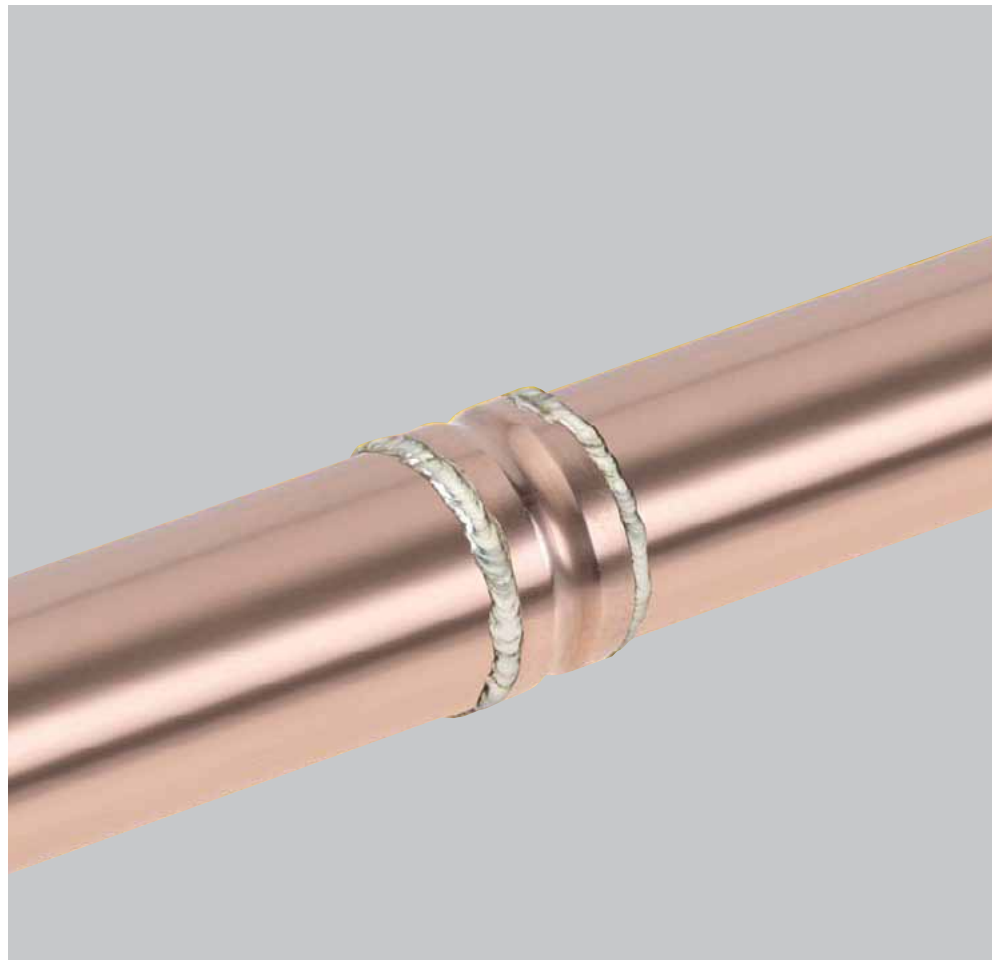
### Technical Data

Tube compatibility and applications	56
Working temperatures and pressures	57
Performance and equipotential bonding	58
System design considerations and tube expansion	59-60

## Section 4

### Installation instructions

For soft solder	
Preliminaries	61
Preparation	61
Jointing	61
For brazing alloys	
Preliminaries	62-63
Preparation	62-63
Jointing	62-63



# ENDEX

## End feed solutions The complete range

At Pegler Yorkshire we are constantly striving to develop jointing solutions that meet the changing needs of specifiers and installers alike. The Endex suite of end feed fittings comprises a number of product ranges which suit a broad spectrum of applications across the domestic and commercial sectors.

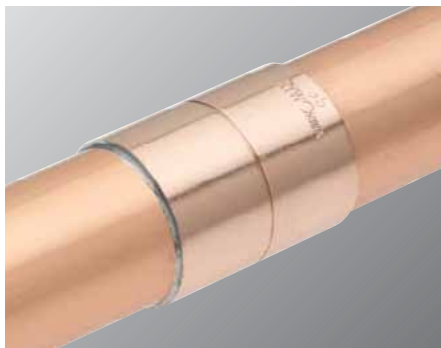
### Advantages of Endex

Endex end feed fittings are a simple and cost-effective method of jointing copper tubes to BS EN 1057. Light and neat, they make handling and installation easy. The fittings' compact dimensions make them the ideal choice for use in areas where there is limited space. Additionally, their smooth lines minimise flow restrictions and are unobtrusive on exposed pipelines.

Endex end feed fittings are manufactured from copper, gunmetal or other dezincification resistant alloy (DZR).

### The principle of the Endex joint

The Endex joint is created through the process of capillary action. When the fitting and tube are assembled and heated to the correct temperature, solder applied to the mouth of the fitting becomes molten. Capillary attraction ensures the solder is drawn into the gap between tube and fitting, forming a sturdy and reliable joint.



Users of Endex fittings can be confident that they are purchasing an established product with a proven reputation for reliability and quality.

### The range

The Endex end feed fittings range includes standard line fittings, large size and waste fittings, and an extensive selection of flanges and accessories.





# ENDEX

## End feed solutions Product overview

# 1

## ENDEX

Endex end feed fittings are designed for jointing copper tube manufactured to BS EN 1057 using soft or hard solder (brazing alloy).

For fuel oils, refer to OFTEC for advice.

### Features

- Available in sizes 6mm to 54mm
- Manufactured from copper, gunmetal or other DZR alloy with nuts supplied in duplex brass (DZR versions also available)
- Suitable for use on above ground hot and cold domestic/potable water services in small bore and mini bore central heating systems and in low-pressure steam heating and pressurised unvented heating systems
- Also suitable for sanitation services and compressed air lines, gas distribution systems for natural and manufactured gases, with fuel oils (hard solder only) and Kerosene, and on engineering pipeline services that convey liquids, oils, air and gases at temperatures up to 110°C
- Available degreased and individually bagged for use on medical gas lines
- WRAS approved



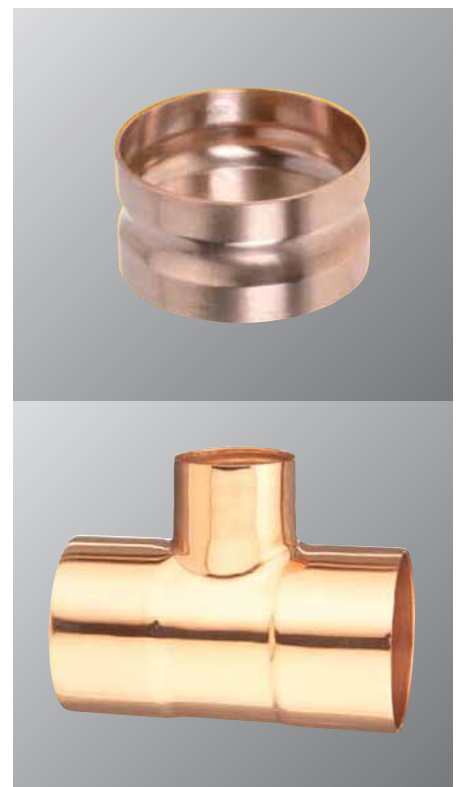
## ENDEX

### Endbraz

Endbraz large size end feed fittings are designed for jointing copper tubes to BS EN 1057 using hard solder (brazing alloy). 67mm fittings can be soft soldered.

### Features

- Available in sizes 67mm to 159mm
- Manufactured from copper or copper alloy with sizes 133mm and above fabricated from copper components
- Suitable for use with hot and cold potable water services, heating systems, gas installation pipework and many engineering applications
- Includes bi-metal, gunmetal and slip on flanges designated PN10 designed to aid pipework assembly
- Available degreased and individually bagged for use on medical gas lines
- WRAS approved



# ENDEX

## End feed solutions Product overview

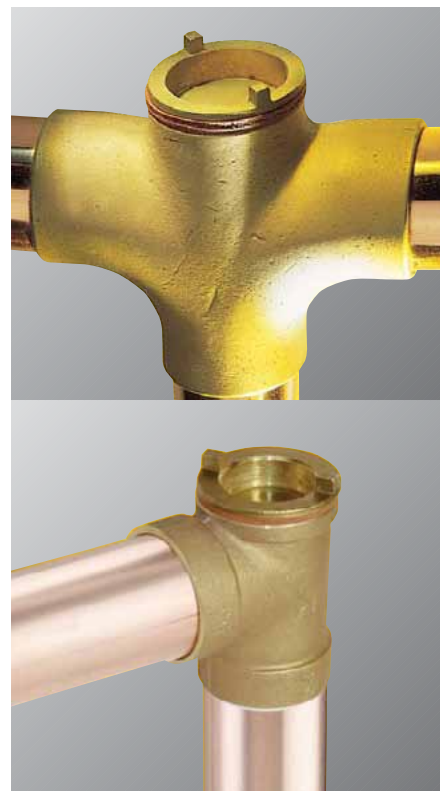
### ENDEX

#### Waste

Endex waste fittings are designed for use in domestic and commercial waste systems for connecting basins, baths, sinks and other sanitary appliances.

#### Features

- Available in sizes 35mm to 54mm
- Range includes bends, tees, crosses and fittings with rodding eyes to enable inspection and maintenance
- Bends, tees and crosses designed with built-in fall, in line with good plumbing practice



### ENDEX

#### Accessories

Endex fittings are complemented by a range of accessories which includes solders, fluxes and tap connector washers.

#### Traditional Craftsman's Flux

Available in the Yorkshire range it will maintain its consistency over a long period and has excellent lubricating properties which enables close-fitting joints to be readily assembled. The flux can be used with all sizes of soft solder fitting for applications, including gas, and is char-resistant to normal heating levels of 250°C.

#### Yorkshire Flux

Like Traditional Craftsman's Flux, this will maintain its consistency and be used with all types and sizes of soft solder fittings. It must not be used for gas applications.

#### Degussa H

A ready-mixed paste for brazing copper and copper alloys such as Endbraz large size fittings



It is Pegler Yorkshire's policy to provide a range of products and services which meet, or exceed, the requirements of our customers in respect of quality, cost and delivery.

### Guarantees



Our policy of continuously and rigorously testing Endex end feed fittings means we are

confident they will give you years of trouble free service. To demonstrate the total confidence we have in our products and our commitment to customer service, all Endex end feed fittings are guaranteed against manufacturing defects for 25 years, when installed in accordance with our instructions on specified tube materials and applications.

### Quality

Quality is of paramount importance to Pegler Yorkshire. Our products conform to current British, European and International standards where applicable and also meet our own rigorous internal quality approvals.



Pegler Yorkshire 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.



Pegler Yorkshire is a British Standards Institution registered company.

Product	PRODUCT APPROVALS						
	WRAS	Kiwa	DVGW	Kitemark	GL Industries	Gute	EM1
Endex end feed	✓	✓	✓	✓	✓	✓	✓

The Endex range meets the following standards:

#### Endex fittings

**WRAS APPROVED PRODUCT** All Endex general range fittings are listed and comply with the requirements of The Water Supply (Water Fittings) Regulations/Byelaws (Scotland).

**BS EN 1254** Part 1 Specification for copper and copper alloy fittings with capillary ends for soldering and brazing for use with copper tubes.

**BS EN ISO 228** (formerly BS 2779/ISO 228/1) Specification for tubes and fittings where pressure tight joints are not made on the threads (metric dimensions).

**BS 7786** Specification for PTFE tape for water and general applications.

**BS EN 751-3** (formerly BS 6974) Specification for PTFE tape for gas applications.

#### Endbraz fittings

**WRAS APPROVED PRODUCT** All Endex general range fittings are listed and comply with the requirements of The Water Supply (Water Fittings) Regulations/Byelaws (Scotland).

**BS EN 1254** Part 5 Specification for copper and copper alloy fittings with short ends for capillary brazing to copper tube.

**BS 10** (obsolescent) Specification for flanges and bolting for pipes, valves and fittings.

**BS EN 1092-3** (formerly BS 4504 Part 3.3) Specification for copper alloy circular flanges and their joints. PN designated.

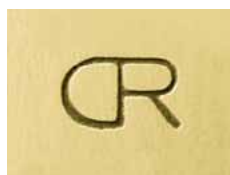
**BS EN 1044** (formerly BS 1845) Specification for filler metals for brazing.

#### Endex waste fittings

Endex waste fittings are manufactured to our own exacting standards.

### Markings

#### Universal marking



All dezincification resistant Endex fittings carry the distinctive CR mark.



All Endex products display the RYW symbol, a brand recognised throughout Europe.

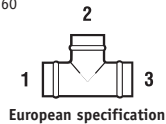
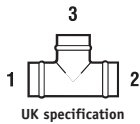
#### Gunmetal



Some Endex fittings and valves are manufactured from gunmetal and can be identified by the mark on the body.

## Tee specification

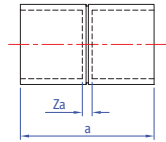
See page 60



# ENDEX

## End feed fittings

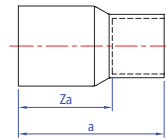
### End feed fittings – NS range



#### NS1/5270 Straight coupling

Size	a	Za	Order code
15mm	23	1	88015
22mm	32	1	88019

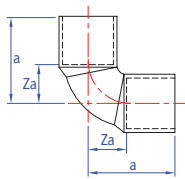
Suitable for: Copper x copper



#### NS6/5243 Reducer

Size	a	Za	Order code
22 x 15mm	33	22	88267

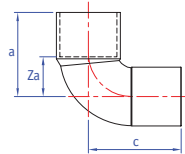
Suitable for: Larger end male copper x female copper



#### NS12/5090 Elbow 90°

Size	A	B	Order code
15mm	22	12	88445
22mm	29	10	88450

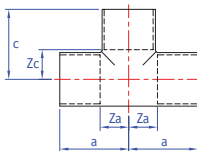
Suitable for: Copper x copper



#### NS12S/5092 Street elbow 90°

Size	A	B	Za	Order code
15mm	23	25	12	88465

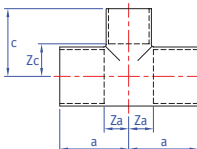
Suitable for: Female copper x male copper



#### NS24/5130 Equal tee

Size	a	c	Za	Zc	Order code
15mm	19	19	7	7	88705
22mm	29	29	13	13	88709

Suitable for: All ends copper



#### NS25/5130 Reducing tee

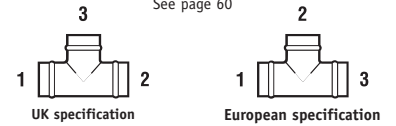
Size	a	c	Za	Zc	Order code	
UK	European				UK	
22 x 22 x 15mm	22 x 15 x 22mm	25	29	9	10	88755

Suitable for: All ends copper



## Tee specification

See page 60



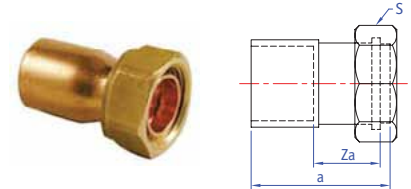
- Endex general range is designed for end-feeding with soft solder or hard solder (brazing alloy)
- Available in sizes from 6mm to 54mm ideal for use in hot and cold water services, central heating, fuel services and general engineering applications

2

### NS62/5240G Tap connector

Size	a	Za	s	Order code
15mm x 1/2"	37	24	24	89103

Suitable for: Copper x BSP hexagonal union nut spigot and washer joint

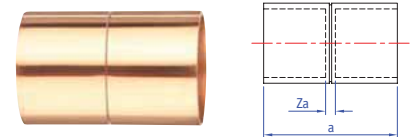


## General range

### N1/5270 Straight coupling

Size	a	Za	Order code
6mm	16	1	88010
8mm	20	1	88011
10mm	17	1	88012
12mm	19	2	88013
14mm	23	2	88014
<b>15mm•</b>	23	1	88015
16mm	25	1	88016
18mm	27	1	85890
<b>22mm•</b>	32	1	88019
28mm	38	1	88022
35mm	48	2	88023
42mm	56	2	88026
54mm	65	2	88027

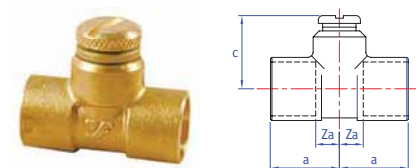
Suitable for: Copper x copper



### N1AV Air vent coupling

Size	a	c	ZA	Order code
15mm	20	24	9	88043
22mm	21	36	4	88044

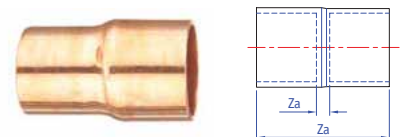
Suitable for: Copper x copper



### N1IM Adaptor coupling

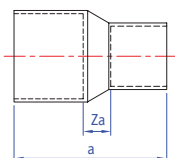
Size	a	Za	Order code
1/2" x 15mm	23	1	88047
3/4" x 22mm	35	2	88048
1" x 28mm	42	1	88049

Suitable for: Imperial copper x metric copper



•These items comprise the NS range.

## End feed fittings



### N1R/5240 Reducing coupling

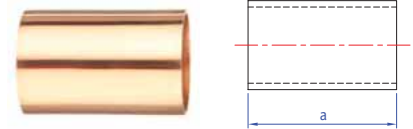
Size	a	Za	Order code
8 x 6mm	16	3	88051
10 x 8mm	19	2	88053
12 x 8mm	23	4	85657D
12 x 10mm	21	3	88055
14 x 12mm	24	2	88056
15 x 10mm	26	6	88059
15 x 12mm	24	5	88060
15 x 14mm	24	2	88061
16 x 12mm	26	4	88062
16 x 14mm	25	2	88063
16 x 15mm	25	3	85666D
18 x 10mm	30	7	88064
18 x 12mm	29	6	85668D
18 x 14mm	28	4	85669D
18 x 15mm	29	4	85670D
18 x 16mm	28	2	85671D
22 x 12mm	36	10	85676D
22 x 14mm	37	8	85677D
22 x 15mm	35	7	88076
22 x 16mm	35	6	88077
22 x 18mm	35	5	80601D
28 x 12mm	43	15	85682D
28 x 15mm	45	14	88089
28 x 16mm	44	13	85685D
28 x 18mm	42	10	85686D
28 x 22mm	42	7	88094
35 x 18mm	55	17	85692D
35 x 22mm	53	14	89895
35 x 28mm	50	7	88099
42 x 22mm	66	23	88101
42 x 28mm	62	14	89898
42 x 35mm	60	7	88103
54 x 22mm	80	30	88105
54 x 28mm	76	24	80603
54 x 35mm	78	18	85700
54 x 42mm	77	14	88108

Suitable for: Copper x copper

### N1SLIP/5270S Slip coupling

Size	a	Order code
12mm	17	85969D
15mm	23	88037
18mm	26	85892
22mm	41	88039
28mm	38	88042
35mm	46	88031
42mm	54	88032
54mm	64	88033

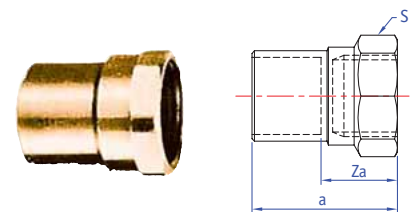
Suitable for: Copper x copper



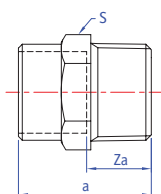
### N2/4270G Straight female connector

Size	a	Za	S	Order code
10mm x 3/8"	22	14	20	88123
12mm x 3/8"	22	13	20	84734D
12mm x 1/2"	26	17	25	84735D
15mm x 1/4"	18	8	20	88128
15mm x 3/8"	23	12	20	88129
15mm x 1/2"	32	21	25	88130
15mm x 3/4"	30	19	30	84739D
16mm x 1/2"	27	17	25	84740D
18mm x 1/2"	29	16	25	84741D
18mm x 3/4"	32	19	30	84742D
22mm x 1/2"	31	15	25	84743D
22mm x 3/4"	34	18	30	88137
22mm x 1"	37	21	39	88138
28mm x 1/2"	35	16	30	84746D
28mm x 3/4"	35	16	30	84747D
28mm x 1"	39	22	37	88142
28mm x 1 1/4"	43	24	46	84749
35mm x 3/4"	40	16	30	84750D
35mm x 1"	43	20	37	84751D
35mm x 1 1/4"	48	24	46	88143
42mm x 1"	48	21	37	84753D
42mm x 1 1/4"	45	18	48	84754
42mm x 1 1/2"	51	23	55	88144
54mm x 1 1/2"	50	18	53	84756
54mm x 2"	60	28	67	88145

Suitable for: Copper x BSP parallel female thread



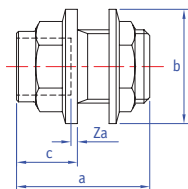
## End feed fittings



### N3/4243G Straight male connector

Size	a	Za	S	Order code
10mm x 3/8"	21	13	15	88166
10mm x 1/2"	26	18	17	84677D
12mm x 3/8"	21	12	15	88169
12mm x 1/2"	26	17	19	88170
14mm x 1/2"	26	15	19	84680D
15mm x 1/4"	25	15	19	88173
15mm x 3/8"	24	13	19	88174
15mm x 1/2"	26	15	19	88175
15mm x 3/4"	28	17	19	88176
16mm x 1/2"	25	14	19	84684D
16mm x 3/4"	28	15	19	84685D
18mm x 1/2"	28	15	21	84686D
18mm x 3/4"	28	15	21	84687D
22mm x 1/2"	32	16	25	88184
22mm x 3/4"	32	17	25	88185
22mm x 1"	33	17	27	88186
28mm x 1/2"	36	17	32	84670D
28mm x 3/4"	36	18	32	88188
28mm x 1"	38	19	32	88189
28mm x 1 1/4"	39	20	34	84693D
35mm x 1"	43	19	40	84694D
35mm x 1 1/4"	40	17	45	88192
35mm x 1 1/2"	40	17	40	84696
42mm x 1 1/4"	50	23	46	84697D
42mm x 1 1/2"	52	25	51	88195
42mm x 2"	47	20	46	84699D
54mm x 1 1/2"	56	24	59	84648
54mm x 2"	65	31	81	88198

Suitable for: Copper x BSP taper male thread



### N5 Tank connector

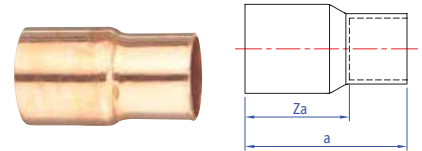
Size	a	b	c	Za	Order code
15mm x 1/2"	35	30	17	11	88210
22mm x 3/4"	42	37	20	26	88215
28mm x 1"	43	50	21	27	88220

Suitable for: Copper x BSP parallel male thread with backnut



## N6/5243 Reducer

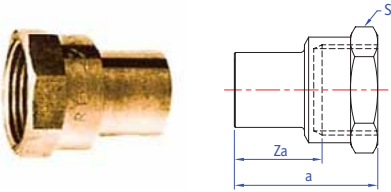
Size	<i>a</i>	<i>Za</i>	Order code
8 x 6mm	18	12	88240
10 x 6mm	18	12	88241
10 x 8mm	19	12	88247
12 x 8mm	21	14	88244
12 x 10mm	21	13	88245
14 x 12mm	24	14	85730D
15 x 8mm	25	17	88248
15 x 10mm	24	16	88249
15 x 12mm	23	15	88250
16 x 10mm	26	18	88258
16 x 12mm	24	15	88259
16 x 14mm	26	16	85735D
16 x 15mm	24	14	88260
18 x 10mm	29	21	85736D
18 x 12mm	27	17	85737D
18 x 15mm	28	17	85739D
18 x 16mm	28	17	85740D
22 x 10mm	35	28	88264
22 x 12mm	34	26	88265
<b>22 x 15mm•</b>	33	22	88267
22 x 16mm	32	21	88261
22 x 18mm	33	19	85750
28 x 10mm	44	35	88270
28 x 12mm	43	33	85753D
28 x 14mm	42	31	85754D
28 x 15mm	41	29	88280
28 x 16mm	33	22	89852
28 x 18mm	41	28	85757D
28 x 22mm	42	24	88284
35 x 12mm	56	46	85762D
35 x 15mm	56	43	88287
35 x 18mm	52	41	89902
35 x 22mm	50	35	88289
35 x 28mm	49	21	88290
42 x 15mm	62	49	88293
42 x 18mm	61	47	80208
42 x 22mm	61	45	88296
42 x 28mm	60	40	88297
42 x 35mm	58	34	88298
54 x 15mm	84	73	88300
54 x 22mm	66	49	88301
54 x 28mm	59	38	88302
54 x 35mm	74	50	88303
54 x 42mm	71	42	88304



Suitable for: Larger end male copper x female copper

•These items comprise the NS range.

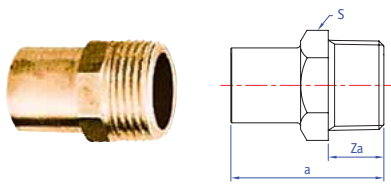
## End feed fittings



### N7/4246G Straight female adaptor

Size	a	Za	S	Order code
12mm x 3/8"	25	17	21	84710D
12mm x 1/2"	29	19	25	84711D
15mm x 3/8"	26	18	20	84714D
15mm x 1/2"	30	20	25	88320
18mm x 1/2"	32	19	25	84716D
22mm x 1/2"	34	23	25	84717D
22mm x 3/4"	37	22	30	88321
28mm x 1"	43	30	37	88322
35mm x 1"	56	38	46	88326
35mm x 1 1/4"	51	38	46	88323
42mm x 1 1/2"	55	40	52	88324
54mm x 2"	64	66	40	88325

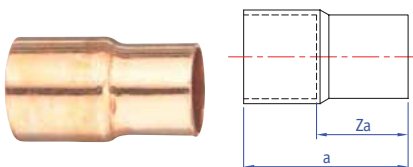
Suitable for: Male copper x BSP parallel female thread



### N8/4280G Straight male adaptor

Size	a	Za	S	Order code
12mm x 1/2"	32	14	15	84767
15mm x 1/2"	37	15	24	88330
18mm x 1/2"	35	14	19	84769
22mm x 1/2"	39	14	25	84774D
22mm x 3/4"	40	16	25	88331
28mm x 1"	46	17	32	88332
35mm x 1 1/4"	54	20	40	88333
42mm x 1 1/2"	61	20	50	88334
54mm x 2"	63	21	60	88335

Suitable for: Male copper x BSP taper thread



### N9 Adaptor

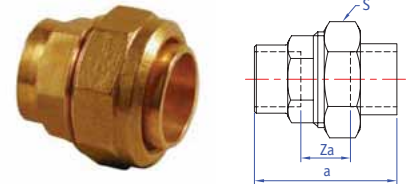
Size	a	Za	Order code
1/2" x 15mm	29	16	88390
3/4" x 22mm	43	23	88391

Suitable for: Imperial female copper x metric male copper

### N11 Union coupling

Size	<i>a</i>	<i>Za</i>	<i>S</i>	Order code
15mm	56	30	30	88400
22mm	60	44	38	88401
28mm	57	39	46	88402
35mm	61	24	53	88403
42mm	70	43	65	88404
54mm	88	56	82	88405

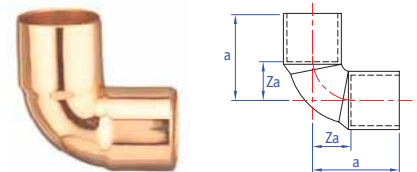
Suitable for: Copper x copper cone joint



### N12/5090 Elbow 90°

Size	<i>A</i>	<i>B</i>	Order code
6mm	17	10	88441
8mm	19	11	88440
10mm	17	9	88442
12mm	19	10	88443
<b>15mm•</b>	22	12	88445
16mm	23	12	80347
18mm	25	12	80701
<b>22mm•</b>	29	10	88450
28mm	37	18	88451
35mm	46	23	88452
42mm	56	29	88454
54mm	66	33	88455

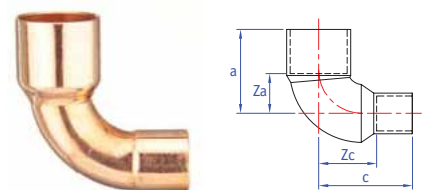
Suitable for: Copper x copper



### N12R/5090 Reducing elbow 90°

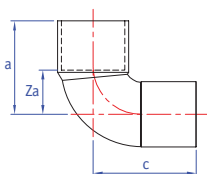
Size	<i>a</i>	<i>c</i>	<i>Za</i>	<i>Zc</i>	Order code
18 x 15mm	30	24	17	13	88482
22 x 15mm	37	28	17	17	88483
22 x 18mm	33	38	18	26	88484

Suitable for: Copper x copper



•These items comprise the NS range.

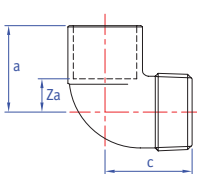
## End feed fittings



### N12S/5092 Street elbow 90°

Size	a	c	Za	Order code
8mm	15	18	10	88463
10mm	18	20	9	85321D
12mm	20	21	11	85322D
<b>15mm•</b>	23	25	12	88465
16mm	23	25	12	88466
18mm	29	30	15	80221
22mm	35	33	16	88470
28mm	41	39	19	88471
35mm	49	45	25	88472
42mm	54	54	30	88474
54mm	71	68	34	88475

Suitable for: Female copper x male copper



### N13/4092G Male elbow 90° with male thread

Size	a	c	Za	Order code
12mm x 3/8"	15	24	6	84535
12mm x 1/2"	16	28	7	84536
15mm x 3/8"	17	27	6	84539
15mm x 1/4"	17	23	6	88495
15mm x 1/2"	20	33	9	88497
15mm x 3/4"	22	29	11	84541
18mm x 1/2"	22	30	9	84543
18mm x 3/4"	25	31	12	84544
22mm x 3/4"	27	34	11	88505
22mm x 1"	30	38	14	84547
28mm x 3/4"	30	39	11	84548
28mm x 1"	34	38	15	88509
35mm x 1 1/4"	45	50	21	88510
42mm x 1 1/2"	48	52	20	88511
54mm x 2"	60	60	27	88512

Suitable for: Copper x BSP taper male thread

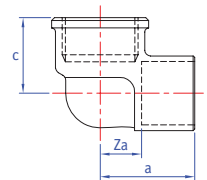
•These items comprise the NS range.



### N14/4090G Female elbow 90° with female thread

Size	a	c	Za	Order code
10mm x 3/8"	18	16	10	84505
10mm x 1/2"	20	19	12	84506
12mm x 3/8"	18	16	9	84507
12mm x 1/2"	21	19	12	89805
14mm x 3/8"	20	18	9	88523
14mm x 1/2"	22	21	11	88524
15mm x 1/2"	23	21	12	88525
15mm x 3/4"	25	23	14	88526
16mm x 1/2"	23	21	11	89824
18mm x 1/2"	25	22	12	89825
18mm x 3/4"	28	25	15	84516
22mm x 1/2"	27	24	12	88534
22mm x 3/4"	30	27	14	88535
22mm x 1"	33	32	18	84519
28mm x 3/4"	33	30	15	84520
28mm x 1"	34	37	15	88540
35mm x 1"	41	35	18	88541
35mm x 1 1/4"	36	40	13	88542
42mm x 1 1/2"	39	47	12	88543
54mm x 2"	52	53	20	88544

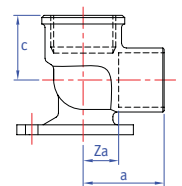
Suitable for: Copper x BSP parallel female thread



### N15 Backplate elbow 90°, 3 hole

Size	a	c	Za	Order code
15mm x 1/2"	23	41	12	88555
22mm x 3/4"	31	27	15	88559

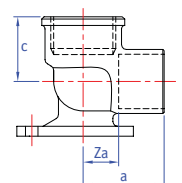
Suitable for: Copper x BSP parallel female thread



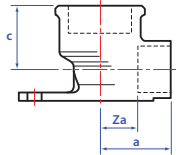
### N15F/4471G Backplate elbow 90°, 3 hole

Size	a	c	Za	Order code
10mm x 3/8"	17	16	9	84914
10mm x 1/2"	19	18	11	84913
12mm x 3/8"	18	17	9	84916
12mm x 1/2"	21	19	12	84915
15mm x 1/2"	23	22	12	84918
18mm x 1/2"	25	22	12	84919
18mm x 3/4"	27	24	15	84920
22mm x 3/4"	29	26	14	84922
28mm x 3/4"	33	30	15	84926
28mm x 1"	37	32	19	84923

Suitable for: Copper x BSP parallel female thread



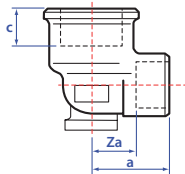
## End feed fittings



### N15FE/4471F Backplate extended elbow

Size	a	b	c	Za	Zb	Order code
15mm x 1/2"	22	47	37	12	38	84910

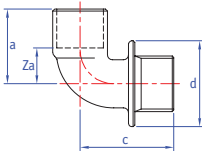
Suitable for: Copper x parallel female thread



### N16/4472G Backplate elbow 90°, 2 hole

Size	a	c	Za	Order code
12mm x 3/8"	18	17	9	84932
12mm x 1/2"	21	19	9	84933
15mm x 3/8"	20	18	9	84921
15mm x 1/2"	23	22	12	84935
15mm x 3/4"	25	24	14	84934
18mm x 1/2"	25	22	13	84937
22mm x 3/4"	30	26	14	84938

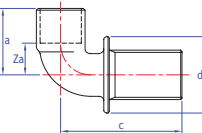
Suitable for: Copper x parallel female thread



### N17 Flanged bend

Size	a	c	d	Za	Order code
22mm x 3/4"	31	46	42	15	88565

Suitable for: Copper x BSP parallel male thread



### N17FC Overflow bend

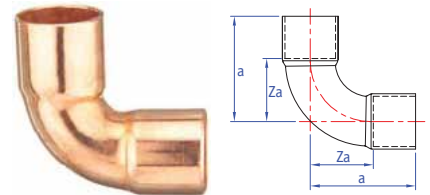
Size	a	b	d	Za	Order code
22mm x 3/4"	31	65	42	16	88570

Suitable for: Copper x BSP parallel male thread

**N18/5002A Bend 90°**

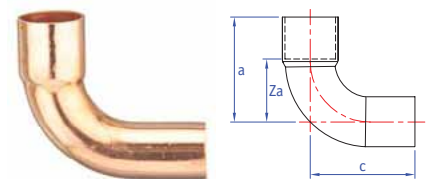
Size	<i>a</i>	<i>Za</i>	Order code
6mm	15	9	88582
8mm	17	10	88583
10mm	20	10	80674
12mm	24	15	80675
15mm	29	7	88584
16mm	32	21	89224
18mm	34	22	88585
22mm	43	26	88588
28mm	52	33	88590
35mm	65	41	88591
42mm	79	54	88593
54mm	95	62	88594

Suitable for: Copper x copper

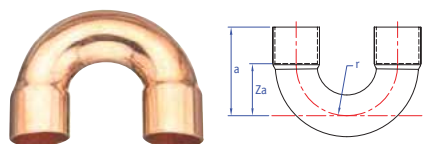
**N18S/5001A Street bend**

Size	<i>a</i>	<i>c</i>	<i>Za</i>	Order code
8mm	14	13	6	80660
10mm	21	21	13	80662
12mm	23	24	8	80663
14mm	27	27	16	80664
15mm	29	31	18	88602
16mm	31	32	20	88603
18mm	34	35	22	88100
22mm	43	44	26	88604
28mm	52	54	33	88605
35mm	65	67	42	85030
42mm	77	79	50	85032
54mm	97	99	65	85033

Suitable for: Female copper x male copper



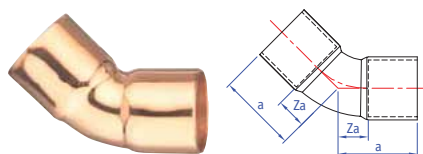
## End feed fittings



### N20/5060 Return bend

Size	a	r	Za	Order code
12mm	26	17	17	88621
15mm	35	22	23	88622
16mm	43	24	24	88623
18mm	39	26	26	85196D
22mm	49	33	36	88624
28mm	62	40	42	88625
35mm	75	52	52	85199D
42mm	90	63	63	88626
54mm	140	108	108	88627

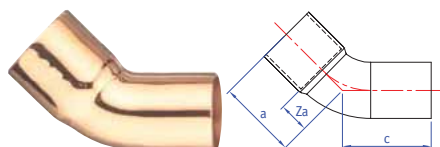
Suitable for: Copper x copper



### N21/5041 Bend 45°

Size	a	Za	Order code
10mm	14	6	85162D
12mm	14	5	85163D
14mm	17	6	85164D
15mm	18	7	88640
16mm	19	8	85166D
18mm	20	7	85167D
22mm	26	10	88645
28mm	29	10	88647
35mm	38	15	88648
42mm	43	16	88650
54mm	54	22	88651

Suitable for: Copper x copper



### N21S/5040 Street elbow 45°

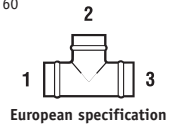
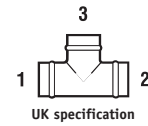
Size	a	c	Za	Order code
8mm	12	12	5	85127D
10mm	14	16	6	85128D
12mm	12	13	4	85129D
14mm	17	17	6	85130D
15mm	17	19	6	88661
16mm	19	19	8	85132D
18mm	20	21	7	85133D
22mm	26	27	12	88665
28mm	29	30	10	88667
35mm	38	39	15	88671
42mm	42	15	46	88673
54mm	61	29	62	88674

Suitable for: Female copper x male copper



## Tee specification

See page 60

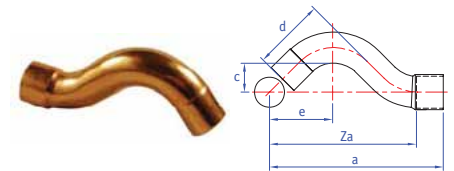


# 2

### N22/5086 Partial crossover

Size	<i>a</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>Za</i>	Order code
12mm	80	20	44	31	71	85238D
15mm	87	19	36	36	81	88682
18mm	99	20	42	36	86	85242D
22mm	115	20	49	44	100	88685

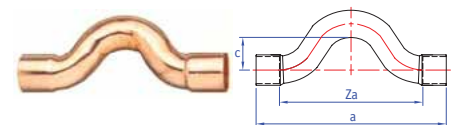
Suitable for: Female copper x male copper



### N23/5085 Full crossover

Size	<i>a</i>	<i>c</i>	<i>Za</i>	Order code
12mm	98	20	81	85217D
15mm	113	20	89	88692
18mm	126	20	101	85221D
22mm	142	20	110	88695

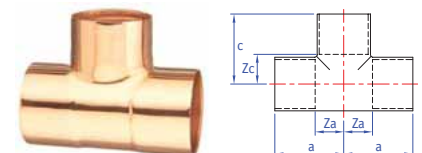
Suitable for: Copper x copper



### N24/5130 Equal tee

Size	<i>a</i>	<i>c</i>	<i>Za</i>	<i>Zc</i>	Order code
6mm	11	11	5	5	88700
8mm	13	13	6	6	88701
10mm	15	15	6	6	88702
12mm	17	17	8	8	88703
14mm	18	18	20	20	85352D
<b>15mm•</b>	19	19	7	7	88705
16mm	20	20	10	10	85354D
18mm	23	23	10	10	80250
<b>22mm•</b>	29	29	13	13	88709
28mm	36	36	16	16	88711
35mm	43	43	21	21	88713
42mm	51	51	24	24	88716
54mm	62	62	30	30	88717

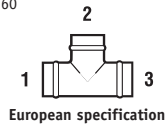
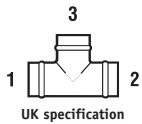
Suitable for: All ends for copper



•These items comprise the NS range.

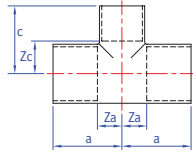
## Tee specification

See page 60



# ENDEX

## End feed fittings



### N25/5130 Tee reduced branch

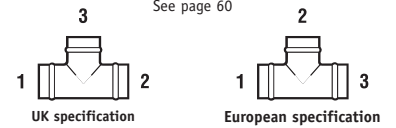
Size UK	European	a	c	Za	Zc	Order code UK
8 x 8 x 6mm	8 x 6 x 8mm	12	11	6	4	88725
10 x 10 x 6mm	10 x 6 x 10mm	13	14	5	8	88726
10 x 10 x 8mm	10 x 8 x 10mm	14	15	6	7	88727
12 x 12 x 6mm	12 x 6 x 12mm	15	15	5	10	88728
12 x 12 x 8mm	12 x 8 x 12mm	16	15	6	8	88729
12 x 12 x 10mm	12 x 10 x 12mm	15	16	10	8	88730
14 x 14 x 10mm	14 x 10 x 14mm	18	21	7	13	88731
15 x 15 x 8mm	15 x 8 x 15mm	17	17	6	10	88733
15 x 15 x 10mm	15 x 10 x 15mm	18	20	7	12	88734
15 x 15 x 12mm	15 x 12 x 15mm	19	18	7	9	88735
16 x 16 x 10mm	16 x 10 x 16mm	19	22	8	14	88736
16 x 16 x 12mm	16 x 12 x 16mm	19	20	7	10	88737
18 x 18 x 10mm	18 x 10 x 18mm	20	18	7	11	85414D
18 x 18 x 12mm	18 x 12 x 18mm	22	21	8	13	85415D
18 x 18 x 14mm	18 x 14 x 18mm	22	21	8	9	85416D
18 x 18 x 15mm	18 x 15 x 18mm	21	21	9	10	80251
18 x 18 x 16mm	18 x 16 x 18mm	22	21	9	10	85418D
22 x 22 x 10mm	22 x 10 x 22mm	22	29	7	21	88752
22 x 22 x 12mm	22 x 12 x 22mm	23	23	7	16	85426D
<b>22 x 22 x 15mm</b>	<b>22 x 15 x 22mm</b>	25	29	9	10	88755
22 x 22 x 16mm	22 x 16 x 22mm	26	24	10	13	85429
22 x 22 x 18mm	22 x 18 x 22mm	27	25	11	12	80368
28 x 28 x 12mm	28 x 12 x 28mm	26	25	8	16	85434D
28 x 28 x 15mm	28 x 15 x 28mm	28	26	9	17	88764
28 x 28 x 16mm	28 x 16 x 28mm	30	28	10	14	88738
28 x 28 x 18mm	28 x 18 x 28mm	30	30	10	16	85438D
28 x 28 x 22mm	28 x 22 x 28mm	33	36	14	20	88770
35 x 35 x 15mm	35 x 15 x 35mm	40	47	17	36	88775
35 x 35 x 18mm	35 x 18 x 35mm	36	36	12	12	85443D
35 x 35 x 22mm	35 x 22 x 35mm	38	45	15	29	88778
35 x 35 x 28mm	35 x 28 x 35mm	38	42	14	19	88779
42 x 42 x 15mm	42 x 15 x 42mm	38	49	11	38	88788
42 x 42 x 18mm	42 x 18 x 42mm	38	38	11	20	85448D
42 x 42 x 22mm	42 x 22 x 42mm	41	48	13	32	88793
42 x 42 x 28mm	42 x 28 x 42mm	43	49	16	29	88794
42 x 42 x 35mm	42 x 35 x 42mm	57	64	24	36	88795
54 x 54 x 15mm	54 x 15 x 54mm	43	45	12	33	88797
54 x 54 x 22mm	54 x 22 x 54mm	46	62	14	47	88799
54 x 54 x 28mm	54 x 28 x 54mm	49	63	16	29	88800
54 x 54 x 35mm	54 x 35 x 54mm	52	61	20	40	88801
54 x 54 x 42mm	54 x 42 x 54mm	57	64	24	36	88802

Suitable for: All ends for copper

•These items comprise the NS range.

## Tee specification

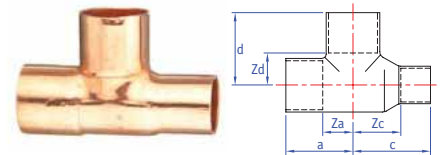
See page 60



# 2

### N26/5130 Tee, one end reduced

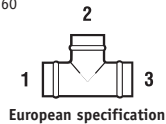
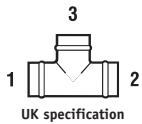
Size UK	European	a	c	d	Za	Zc	Zd	Order code UK
12 x 10 x 12mm	12 x 12 x 10mm	16	21	16	7	13	7	85487D
15 x 10 x 15mm	15 x 15 x 10mm	19	23	19	8	15	8	85500D
15 x 12 x 15mm	15 x 15 x 12mm	19	23	19	8	14	8	85501
16 x 12 x 16mm	16 x 16 x 12mm	19	19	20	8	11	8	85502
18 x 12 x 18mm	18 x 18 x 12mm	23	26	23	10	17	10	85523D
18 x 15 x 18mm	18 x 18 x 15mm	22	23	21	8	11	9	85525D
22 x 15 x 22mm	22 x 22 x 15mm	29	32	29	13	20	13	88845
22 x 18 x 22mm	22 x 22 x 18mm	28	31	28	12	18	12	85553D
28 x 15 x 28mm	28 x 28 x 15mm	35	41	35	16	30	16	88850
28 x 16 x 28mm	28 x 28 x 16mm	34	41	34	15	31	16	80450
28 x 18 x 28mm	28 x 28 x 18mm	34	38	34	15	25	15	85571D
28 x 22 x 28mm	28 x 28 x 22mm	35	38	35	15	21	15	88853
35 x 15 x 35mm	35 x 35 x 15mm	45	53	45	21	42	21	88856
35 x 22 x 35mm	35 x 35 x 22mm	43	50	43	10	33	10	88854
35 x 28 x 35mm	35 x 35 x 28mm	43	47	43	21	28	21	88855
42 x 28 x 42mm	42 x 42 x 28mm	51	62	51	22	39	22	88857
42 x 35 x 42mm	42 x 42 x 35mm	51	56	51	24	33	24	88858
54 x 35 x 54mm	54 x 54 x 35mm	62	81	64	48	38	50	88860
54 x 42 x 54mm	54 x 54 x 42mm	61	74	61	29	48	29	88859



Suitable for: All ends for copper

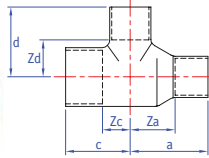
## Tee specification

See page 60



# ENDEX

## End feed fittings



### N27/5130 Tee, one end and branch reduced

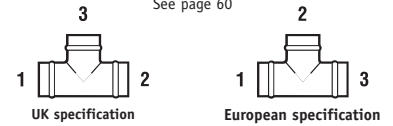
Size UK	European	a	c	d	Za	Zc	Zd	Order code UK
12 x 10 x 10mm	12 x 10 x 10mm	20	15	15	12	6	7	85486D
14 x 12 x 12mm	14 x 12 x 12mm	20	18	18	11	7	9	88900
15 x 10 x 10mm	15 x 10 x 10mm	21	17	17	13	6	9	88901
15 x 12 x 10mm	15 x 10 x 12mm	21	17	17	13	6	9	85497D
15 x 10 x 12mm	15 x 12 x 10mm	12	18	18	14	7	9	88902
15 x 12 x 12mm	15 x 12 x 12mm	21	18	18	12	7	9	89953
16 x 14 x 12mm	16 x 12 x 14mm	22	19	20	11	-	-	88903
18 x 12 x 12mm	18 x 12 x 12mm	23	21	19	14	8	10	85511D
18 x 12 x 15mm	18 x 15 x 12mm	24	21	21	15	8	10	88906
18 x 14 x 12mm	18 x 12 x 14mm	24	21	19	12	8	10	88904
18 x 15 x 12mm	18 x 12 x 15mm	24	21	19	13	8	10	85513D
18 x 15 x 15mm	18 x 15 x 15mm	22	21	21	11	8	10	85417D
18 x 16 x 12mm	18 x 12 x 16mm	20	21	20	10	8	11	88905
18 x 16 x 16mm	18 x 16 x 16mm	25	22	21	14	9	10	88907
22 x 15 x 12mm	22 x 12 x 15mm	23	27	21	7	16	12	88908
22 x 15 x 15mm	22 x 15 x 15mm	28	24	24	17	14	14	88910
22 x 15 x 18mm	22 x 18 x 15mm	28	27	26	19	17	14	85546D
22 x 16 x 16mm	22 x 16 x 16mm	29	24	26	18	8	15	80354
22 x 16 x 18mm	22 x 18 x 16mm	30	27	25	19	11	12	85548D
22 x 18 x 12mm	22 x 12 x 18mm	26	23	21	13	7	12	88909
22 x 18 x 15mm	22 x 15 x 18mm	27	25	23	14	9	12	85541D
22 x 18 x 18mm	22 x 18 x 18mm	29	27	25	16	11	12	85547D
28 x 15 x 15mm	28 x 15 x 15mm	33	28	28	23	18	18	88925
28 x 15 x 18mm	28 x 18 x 15mm	34	29	28	23	10	15	88927
28 x 18 x 18mm	28 x 18 x 18mm	34	29	28	21	10	15	85562D
28 x 15 x 22mm	28 x 22 x 15mm	36	33	33	25	18	18	88926
28 x 22 x 15mm	28 x 15 x 22mm	33	27	27	9	16	16	88935
28 x 22 x 18mm	28 x 18 x 22mm	36	31	32	12	23	19	85563D
28 x 18 x 22mm	28 x 22 x 18mm	38	32	31	25	13	15	85567D
28 x 22 x 22mm	28 x 22 x 22mm	36	32	32	20	13	13	88940
35 x 22 x 22mm	35 x 22 x 22mm	41	36	36	25	20	20	88942
35 x 22 x 28mm	35 x 28 x 22mm	47	39	38	31	15	19	88943
35 x 28 x 15mm	35 x 15 x 28mm	38	45	45	19	32	32	88944
35 x 28 x 22mm	35 x 22 x 28mm	44	36	36	25	20	20	88947
35 x 28 x 28mm	35 x 28 x 28mm	47	40	40	28	19	19	88948
42 x 28 x 28mm	42 x 28 x 28mm	51	41	41	31	22	22	88950
42 x 28 x 35mm	42 x 35 x 28mm	49	43	41	26	16	23	85587D
42 x 35 x 28mm	42 x 28 x 35mm	48	42	42	25	23	23	88952
42 x 35 x 35mm	42 x 35 x 35mm	53	53	53	29	30	30	88957
54 x 42 x 42mm	54 x 42 x 42mm	67	59	59	40	30	30	88958

Suitable for: All ends for copper



## Tee specification

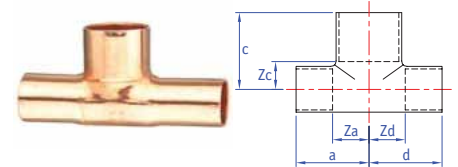
See page 60



# 2

### N28/5130 Tee, both ends reduced

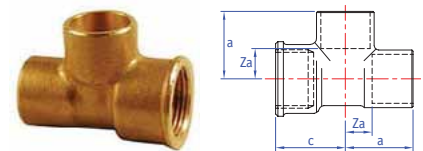
Size UK	European	a	c	d	Za	Zc	Zd	Order code UK
6 x 6 x 8mm	6 x 8 x 6mm	12	11	12	6	4	6	88970
10 x 10 x 12mm	10 x 12 x 10mm	18	18	18	10	9	10	88971
12 x 12 x 15mm	12 x 15 x 12mm	18	18	18	9	7	9	85396D
14 x 12 x 18mm	14 x 18 x 12mm	28	24	28	17	11	17	88972
15 x 15 x 18mm	15 x 18 x 15mm	21	22	21	10	9	10	85406D
15 x 15 x 22mm	15 x 22 x 15mm	33	30	33	22	16	22	88978
15 x 15 x 28mm	15 x 28 x 15mm	41	36	41	30	16	30	88979
16 x 14 x 18mm	16 x 18 x 14mm	28	24	28	11	17	17	88973
16 x 16 x 18mm	16 x 18 x 16mm	28	24	28	11	17	17	88974
16 x 16 x 22mm	16 x 22 x 16mm	33	30	33	22	14	22	88975
18 x 15 x 22mm	18 x 22 x 15mm	29	28	32	16	13	21	85503
18 x 18 x 22mm	18 x 22 x 18mm	29	28	29	16	12	16	85419D
18 x 18 x 28mm	18 x 28 x 18mm	41	35	41	28	16	28	88976
22 x 22 x 28mm	22 x 28 x 22mm	35	32	35	19	13	19	88990
28 x 28 x 35mm	28 x 35 x 28mm	43	42	43	24	19	24	88993
35 x 35 x 42mm	35 x 42 x 35mm	51	49	51	27	22	27	88995



Suitable for: All ends for copper

### N29 Female tee

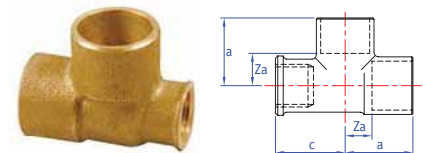
Size UK	European	a	c	Za	Order code UK
15 x 1/2" x 15mm	15 x 15mm x 1/2"	22	22	11	89005
22 x 3/4" x 22mm	22 x 22mm x 3/4"	29	29	14	89010



Suitable for: Copper x BSP parallel female end x copper branch

### N29R Female tee

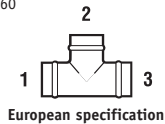
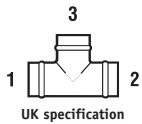
Size UK	European	a	c	Za	Order code UK
22 x 1/2" x 22mm	22 x 22mm x 1/2"	27	25	12	89020
28 x 1/2" x 28mm	28 x 28mm x 1/2"	34	30	15	89021



Suitable for: Copper x BSP parallel female end x copper branch with reduced female end

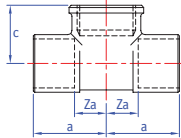
## Tee specification

See page 60



# ENDEX

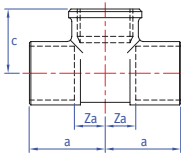
## End feed fittings



### N30 Female tee

Size UK	European	a	c	Za	Order code UK
15 x 15mm x 1/2"	15 x 1/2" x 15mm	23	21	12	89033
22 x 22mm x 3/4"	22 x 3/4" x 22mm	30	27	14	89034
28 x 28mm x 1"	28 x 1" x 28mm	37	26	19	89035

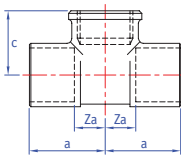
Suitable for: Copper ends x BSP parallel female branch



### N30R/4130G Female tee

Size UK	European	a	c	Za	Order code UK
15 x 15mm x 3/8"	15 x 3/8" x 15mm	20	19	10	84627
22 x 22mm x 3/8"	22 x 3/8" x 22mm	25	21	9	84634
22 x 22mm x 1/2"	22 x 1/2" x 22mm	27	25	12	89040
28 x 28mm x 1/2"	28 x 1/2" x 28mm	30	28	11	89041
28 x 28mm x 3/4"	28 x 3/4" x 28mm	34	34	16	89042
35 x 35mm x 1/2"	35 x 1/2" x 35mm	34	31	11	84640
35 x 35mm x 3/4"	35 x 3/4" x 35mm	37	36	14	84641
35 x 35mm x 1"	35 x 1" x 35mm	41	35	18	84642
42 x 42mm x 1/2"	42 x 1/2" x 42mm	39	35	12	84643
54 x 54mm x 1/2"	54 x 1/2" x 54mm	44	44	12	84644

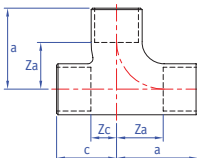
Suitable for: Copper ends x BSP parallel female branch



### 4130G Female tee

Size UK	European	a	c	Za	Order code UK
12 x 12mm x 3/8"	12 x 3/8" x 12mm	18	17	10	84625
12 x 12mm x 1/2"	12 x 1/2" x 12mm	20	20	11	84624
15 x 15mm x 3/4"	15 x 3/4" x 15mm	25	23	15	84629
18 x 18mm x 1/2"	18 x 1/2" x 18mm	24	22	11	84632
18 x 18mm x 3/4"	18 x 3/4" x 18mm	27	24	15	84633

Suitable for: Copper ends x BSP parallel female branch



### N37/5131 Sweep tee 90°

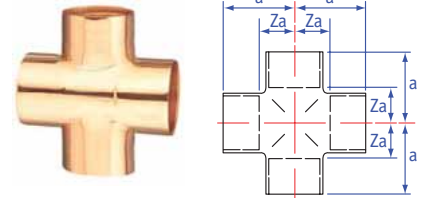
Size	a	c	Za	Zc	Order code
15mm	27	26	13	11	89060
18mm	35	25	22	12	89063
22mm	42	33	26	17	89061
28mm	49	33	31	14	89062

Suitable for: All ends for copper

### N50/5180 Cross

Size	$a$	$Za$	Order code
15mm	20	9	89050
18mm	24	11	89051
22mm	28	13	89052
28mm	35	17	89053
35mm	43	20	89054

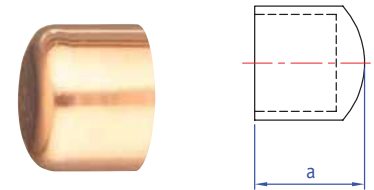
Suitable for: All ends for copper



### N61/5301 Stop end

Size	$a$	Order code
8mm	14	89076
10mm	11	89077
12mm	12	86045
14mm	14	86046
15mm	14	89080
16mm	14	86048
18mm	16	86049
22mm	18	89084
28mm	21	89085
35mm	27	89087
42mm	31	89088
54mm	36	89089

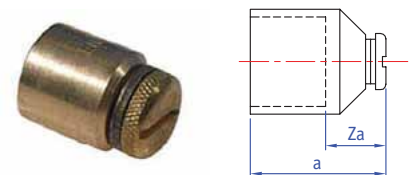
Suitable for: For use with copper tube



### N61AV/5301AV Air release stop end

Size	$a$	$Za$	Order code
15mm	25	7	89091
22mm	29	8	89092

Suitable for: Female end

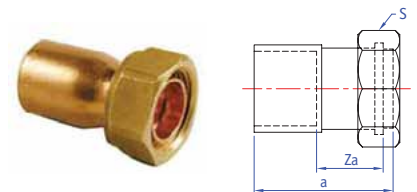


### N62 Straight tap connector

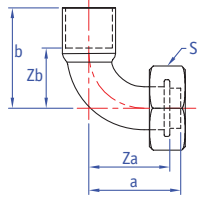
Size	$a$	$Za$	$S$	Order code
12mm x 1/2"	17	8	24	89100
<b>15mm x 1/2"</b> •	37	24	24	89103
15mm x 3/4"	38	24	30	89104
22mm x 3/4"	48	29	30	89106

Suitable for: Copper x BSP hexagonal union nut spigot and washer joint

•These items comprise the NS range.



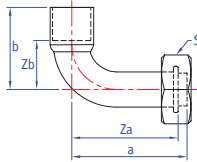
## End feed fittings



### N63 Bent Tap connector

Size	a	b	Za	Zb	s	Order code
15mm x 1/2"	38	28	33	18	24	89110
15mm x 3/4"	37	34	24	18	24	89116
22mm x 3/4"	51	42	45	22	30	89111

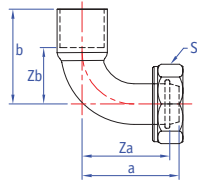
Suitable for: Copper x BSP hexagonal union nut spigot and washer joint



### N63L Long bent tap connector

Size	a	b	Za	Zb	S	Order code
15mm x 1/2"	56	27	51	11	24	89115

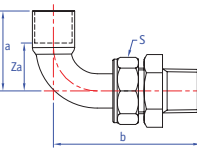
Suitable for: Copper x BSP hexagonal union nut spigot and washer joint



### N64 Bent union adaptor

Size	a	b	Za	Zb	S	Order code
15mm x 3/4"	47	40	40	29	31	89120
22mm x 1"	64	49	56	33	37	89127
28mm x 1 1/4"	49	51	39	32	46	89135

Suitable for: Copper x BSP union nut cone joint



### N65 Bent male union connector

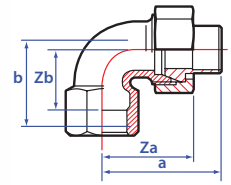
Size	a	b	Za	S	Order code
15mm x 1/2"	38	82	24	30	89145
22mm x 3/4"	46	100	30	37	89152
28mm x 1"	49	88	30	46	89155
35mm x 1 1/4"	81	114	58	53	89156
42mm x 1 1/2"	74	131	47	66	89157
54mm x 2"	103	172	71	82	89158

Suitable for: Copper x BSP taper male thread cone joint

### 4096G Female union elbow 90° with conical seal

Size	a	b	S	Za	Zb	Order code
15mm x 1/2"	44	32	30	33	23	84581D
18mm x 1/2"	44	32	30	31	23	84583D
18mm x 3/4"	50	36	37	36	26	84584D
22mm x 3/4"	50	36	37	33	26	84585D
28mm x 1"	56	44	46	36	21	84587D
35mm x 1 1/4"	67	50	52	44	35	84588D
42mm x 1 1/2"	74	53	58	47	39	84589
54mm x 2"	85	64	75	53	47	84590

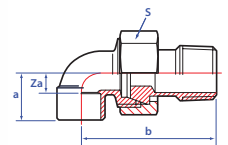
Suitable for: Female BSP thread x female socket



### 4098G Male union elbow 90° with conical seal

Size	a	b	Za	S	Order code
15mm x 1/2"	16	53	5	30	84605D
18mm x 1/2"	22	54	9	30	84608D
18mm x 3/4"	21	54	9	37	84609D
22mm x 3/4"	27	60	10	37	84610D
22mm x 1"	31	63	16	46	84611D
28mm x 1"	35	71	17	46	84612D
35mm x 1 1/4"	43	81	20	53	84613D
42mm x 1 1/2"	51	89	24	65	84614D

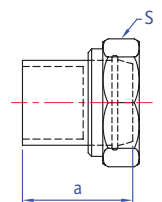
Suitable for: Female socket x male BSP thread



### N68 Straight union adaptor, cone joint

Size	a	S	Order code
15mm x 3/4"	27	30	89190
22mm x 1"	31	37	89197
28mm x 1 1/4"	33	46	89205

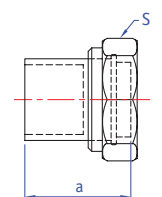
Suitable for: Copper x BSP union nut cone joint



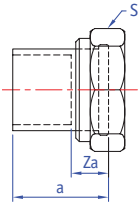
### N68CL Straight union adaptor, spigot and washer joint

Size	a	S	Order code
15mm x 3/4"	17	30	89220

Suitable for: Copper x union nut spigot and washer joint



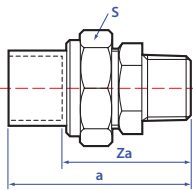
## End feed fittings



### N68FF Flat faced union adaptor

Size	a	Za	S	Order code
22mm x 3/4"	38	21	29	89535

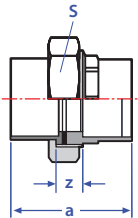
Suitable for: Copper x BSP union nut, flat face



### N69 Straight male union connector

Size	a	Za	S	Order code
15mm x 1/2"	61	46	30	89235
22mm x 3/4"	66	48	37	89242
28mm x 1"	74	55	46	89245
35mm x 1 1/4"	74	50	53	89248
42mm x 1 1/2"	81	53	65	89250
54mm x 2"	108	71	82	89251

Suitable for: Copper x BSP taper male thread cone joint



### 4330 Straight union connector with flat seal

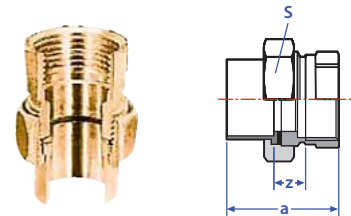
Size	a	Z	S	Order code
15mm	42	20	30	84781D
18mm	41	15	30	84782D
22mm	49	18	37	84783D
28mm	55	18	46	84784D
35mm	62	16	52	84785D
42mm	69	15	58	84786
54mm	84	19	75	84787

Suitable for: Copper x flat face x copper

### 4330G Female union connector with flat seal

Size	<i>a</i>	<i>Z</i>	<i>S</i>	Order code
15mm x 1/2"	39	28	30	84795D
18mm x 1/2"	39	26	30	84796D
18mm x 3/4"	48	35	30	84797D
22mm x 3/4"	52	36	37	84798D
28mm x 1"	51	13	46	84799D
35mm x 1 1/4"	63	40	52	84800D
42mm x 1 1/2"	68	41	58	84802D
54mm x 2"	73	41	75	84801D

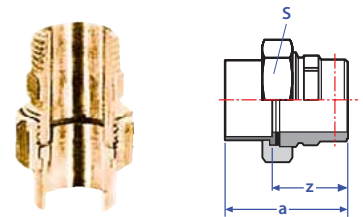
Suitable for: Copper x flat face x female BSP thread



### 4331G Male union connector with flat seal

Size	<i>a</i>	<i>Z</i>	<i>S</i>	Order code
12mm x 3/8"	44	35	24	84820
15mm x 1/2"	50	39	30	84810D
18mm x 1/2"	50	37	30	84811D
22mm x 3/4"	57	41	37	84812D
22mm x 1"	59	42	37	84896D
28mm x 1"	62	43	46	84813D
35mm x 1 1/4"	68	44	52	84814D
42mm x 1 1/2"	73	46	58	84815D
54mm x 2"	84	52	75	84816D

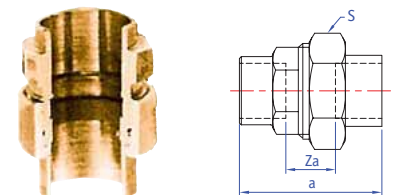
Suitable for: Copper x flat face x male BSP thread



### 4340 Straight union connector, cone joint

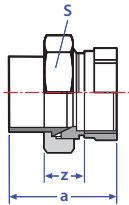
Size	<i>a</i>	<i>Za</i>	<i>S</i>	Order code
12mm	37	19	24	84826D
15mm	42	20	30	84827D
18mm	38	12	30	84828D
22mm	45	14	37	84829D
28mm	52	14	46	84830D
35mm	61	15	52	84831D
42mm	67	13	58	84832D
54mm	81	17	75	84833D

Suitable for: Copper x copper cone joint





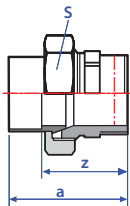
## End feed fittings



### 4340G Female union connector, cone joint

Size	a	Za	S	Order code
15mm x 1/2"	38	17	30	84842D
15mm x 3/4"	46	22	30	84843D
18mm x 1/2"	39	27	30	84844D
18mm x 3/4"	48	36	30	84845D
22mm x 3/4"	46	21	37	84846D
22mm x 1"	50	23	37	84847D
28mm x 1"	48	15	46	84848D
35mm x 1 1/4"	63	16	52	84849D
42mm x 1 1/2"	67	26	58	84850D
54mm x 2"	71	22	75	84851D

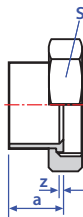
Suitable for: Female BSP thread, cone joint



### 4341G Male union connector, cone joint

Size	a	Z	S	Order code
12mm x 3/8"	48	38	24	84861D
12mm x 1/2"	46	37	24	84862D
15mm x 3/8"	45	34	27	84863D
15mm x 1/2"	49	38	30	84864D
15mm x 3/4"	50	39	30	84865D
18mm x 1/2"	50	37	30	84866D
18mm x 3/4"	51	38	30	84867D
22mm x 1/2"	53	38	37	84860D
22mm x 3/4"	53	38	37	84868D
22mm x 1"	55	40	37	84869D
28mm x 1"	59	40	46	84870D
35mm x 1 1/4"	67	43	52	84871D
42mm x 1 1/2"	72	48	58	84872D
54mm x 2"	81	49	75	84873D

Suitable for: Copper x BSP taper male thread cone joint



### 4359 Half union with flat seal

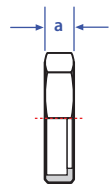
Size	a	Z	S	Order code
15mm x 3/4"	17	6	30	84969
18mm x 3/4"	18	5	30	84970D
22mm x 1"	20	5	37	84971D
28mm x 1 1/4"	22	3	46	84972D

Suitable for: Copper x BSP female nut, flat face

### 4374 Union nut

Size	Order code
1/2"	84976D
5/8"	84977D
3/4"	84978D
1"	84980D
1 1/4"	84982D
1 1/2"***	84983D
1 3/4"***	84984D

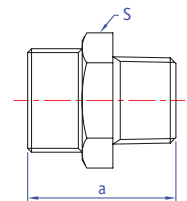
Suitable for: European union connectors



### YP70 Male nipple

Size	a	S	Order code
3/8" x 1/4"*	27	17	08870
1/2" x 3/8"*	31	23	08871
3/4" x 1/2"*	39	28	08872
1" x 3/4"*	41	33	08873
1 1/4" x 1"*	46	44	08874
1 1/2" x 1 1/4"*	51	50	08875
2" x 1 1/2"*	53	62	08876
2 1/2" x 2"*	62	77	08877

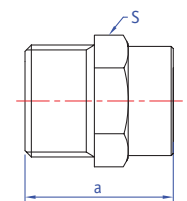
Suitable for: Union thread x BSP taper male thread cone joint



### YP72 Female nipple

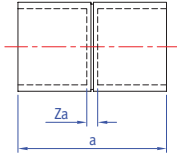
Size	A	B	Order code
1/2" x 3/8"*	25	21	08891
3/4" x 1/2"*	31	28	08892
1" x 3/4"*	33	34	08893
1 1/4" x 1"*	36	44	08894
1 1/2" x 1 1/4"*	43	50	08895
2" x 1 1/2"*	45	62	08896
2 1/2" x 2"*	48	77	08897

Suitable for: Union thread x BSP parallel female thread cone joint



\*Supplied and priced from the Yorkshire range. \*\*Special order.

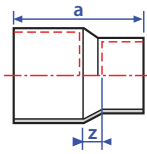
## Endbrazed large size fittings



### N1/5270 Straight coupling

Size	a	Za	Order code
<b>Short socket</b>			
67mm	83	29	88030
76mm	49	29	89600
108mm	62	23	89601
133mm*	97	27	89697
159mm*	99	29	89698
<b>Long socket</b>			
64mm	79	14	85904
76mm	82	15	89903
89mm	90	15	85907
108mm	113	18	89904

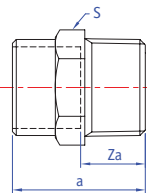
Suitable for: Copper x copper



### 5240 Reduced coupling long socket

Size	a	Z	Order code
64 x 42mm	77	14	88109
64 x 54mm	75	11	88110
76 x 54mm	84	19	88111
76 x 64mm	78	12	88112

Suitable for: Copper x copper



### N3/4243G Straight male connector

Size	a	Za	S	Order code
<b>Short socket</b>				
76mm x 3"	69	51	93	89615
108mm x 4"	76	55	119	89616
<b>Long socket</b>				
64mm x 2 1/2"	60	25	78	84704
67mm x 2 1/2"	64	30	80	88200
76mm x 2 1/2"	63	29	86	84705

Suitable for: Copper x BSP taper male thread

All sizes for brazing only. \*Products may be fabricated.

- Large size fittings for use with brazing alloys
- Available in sizes from 64mm to 159mm
- The range includes flanges and is ideal for use in hot and cold water services, heating systems, gas service pipework and many engineering applications
- Available degreased and individually bagged for use on medical gas lines

## N6/5243 Reducer

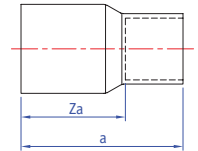
Size	a	Za	Order code
------	---	----	------------

### Short socket

67 x 28mm	75	54	88310
67 x 35mm	77	51	88311
67 x 42mm	77	50	88312
67 x 54mm	77	51	88313
76 x 35mm	57	41	89624
76 x 42mm	53	38	89625
76 x 54mm	48	31	89626
76 x 67mm	44	26	89627
108 x 42mm	79	61	89630
108 x 54mm	70	52	89631
108 x 67mm	60	44	89632
108 x 76mm	58	42	89633
133 x 42mm*	101	83	89699
133 x 54mm*	95	77	89700
133 x 67mm*	93	74	89701
133 x 76mm*	96	65	89702
133 x 108mm*	84	44	89703
159 x 54mm*	91	56	89704
159 x 67mm*	100	71	89705
159 x 76mm*	98	69	89706
159 x 108mm*	97	61	89707
159 x 133mm*	97	53	89708

### Long socket

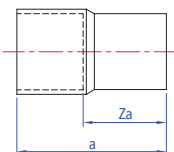
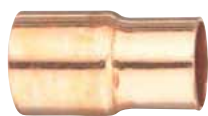
64 x 35mm	76	53	85779
64 x 42mm	79	52	85780
64 x 54mm	76	43	85781
76 x 35mm	78	55	89905
76 x 42mm	83	56	89906
76 x 54mm	86	54	89907
76 x 64mm	78	46	85787
108 x 42mm	115	85	89908
108 x 54mm	113	79	89909
108 x 76mm	105	70	89912



Suitable for: Larger end male copper x female copper

All sizes for brazing only. \*Products may be fabricated.

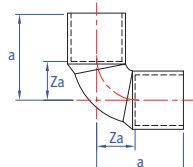
## Endbrazed large size fittings



### N9 Adaptor

Size	a	Za	Order code
3" x 76mm	50	27	89635
4" x 108mm	53	31	89636

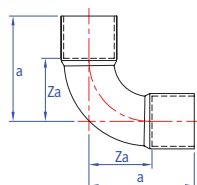
Suitable for: Female copper x metric male copper



### N12 Elbow

Size	a	Za	Order code
67mm	77	43	88456

Suitable for: Copper x copper



### N18/5002A Slow bend

Size	a	Za	Order code
<b>Short socket</b>			
76mm	97	79	89640
108mm	135	114	89641
133mm*	253	218	89709
159mm*	303	272	89710
<b>Long socket</b>			
64mm	99	76	85087
76mm	110	90	89913
89mm	130	92	85090
108mm	161	114	89916

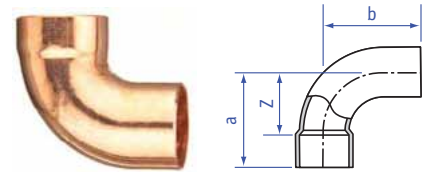
Suitable for: Copper x copper

All sizes for brazing only. \*Products may be fabricated.

### 5001A Slow street bend long socket

Size	a	b	Z	Order code
64mm	99	111	76	85034
76mm	111	127	90	89926
89mm	144	147	107	85036
108mm	153	156	106	89927

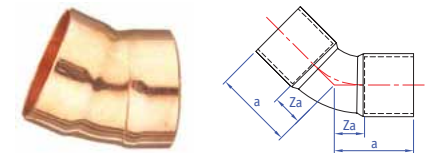
Suitable for: Female copper x male copper



### N21/5041 Obtuse elbow 45°

Size	a	Za	Order code
<b>Short socket</b>			
64mm	60	28	88652
76mm	43	25	89645
108mm	64	44	89646
133mm*	120	85	89711
159mm*	155	120	89712
<b>Long socket</b>			
67mm	59	21	88653
76mm	58	26	89928
89mm	67	30	85175
108mm	85	37	89929

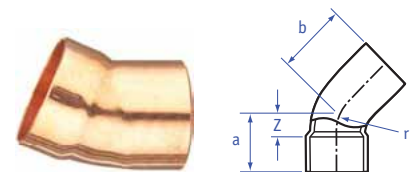
Suitable for: Copper x copper



### 5040 Obtuse street elbow 45° long socket

Size	a	b	Z	Order code
64mm	60	62	28	88675

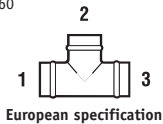
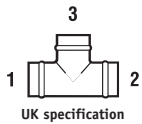
Suitable for: Copper x copper



All sizes for brazing only. \*Products may be fabricated.

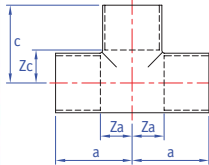
## Tee specification

See page 60



# ENDEX

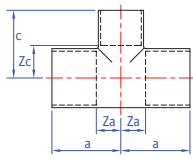
## Endbrazed large size fittings



### N24/5130 Equal tee

Size UK	a	c	Za	Zc	Order code UK
<b>Short socket</b>					
64mm	82	48	85	48	85366
76mm	65	70	47	52	89648
108mm	90	96	68	74	89649
133mm*	130	130	98	98	89713
159mm*	135	135	100	100	89714
<b>Long socket</b>					
67mm	73	73	32	32	88719
76mm	82	48	82	48	89930
89mm	99	60	99	60	85369
108mm	112	64	112	64	89931

Suitable for: All ends for copper



### N25/5130 Tee, reduced branch

Size UK	European	a	c	Za	Zc	Order code UK
<b>Short socket</b>						
67 x 67 x 28mm	67 x 28 x 67mm	54	66	19	47	88807
76 x 76 x 35mm	76 x 35 x 76mm	46	67	28	52	89000
76 x 76 x 42mm	76 x 42 x 76mm	51	69	34	53	89654
76 x 76 x 54mm	76 x 54 x 76mm	55	69	38	52	89001
108 x 108 x 54mm	108 x 54 x 108mm	61	90	39	73	89660
108 x 108 x 76mm	108 x 76 x 108mm	70	85	48	68	89002
133 x 133 x 54mm*	133 x 54 x 133mm*	90	125	56	88	89715
133 x 133 x 108mm*	133 x 108 x 133mm*	105	133	70	99	89716
159 x 159 x 54mm*	159 x 54 x 159mm*	90	145	55	110	89717
159 x 159 x 133mm*	159 x 133 x 159mm*	120	150	87	114	89718
<b>Long socket</b>						
64 x 64 x 35mm	64 x 35 x 64mm	72	77	40	54	88803
64 x 64 x 42mm	64 x 42 x 64mm	58	64	26	36	88804
64 x 64 x 54mm	64 x 54 x 64mm	65	68	33	36	88805
76 x 76 x 35mm	76 x 35 x 76mm	65	73	30	49	85461
76 x 76 x 42mm	76 x 42 x 76mm	65	78	31	51	89932
76 x 76 x 54mm	76 x 54 x 76mm	75	83	40	50	85459
89 x 89 x 54mm	89 x 54 x 89mm	77	88	39	56	85463
108 x 108 x 54mm	108 x 54 x 108mm	84	96	36	64	89933
108 x 108 x 76mm	108 x 76 x 108mm	105	101	56	66	85465

Suitable for: All ends for copper

All sizes for brazing only. \*Products may be fabricated.



### N61/5301 Stop end

Size	A	Order code
------	---	------------

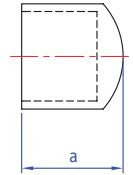
#### Short socket

67mm	37	89090
76mm	21	89694
108mm	26	89695

#### Long socket

76mm	15	86055
108mm	18	86057

Suitable for: For use with copper tube

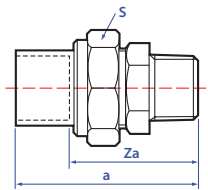


### N69P Straight male union connector

Size	a	Za	S	Order code
------	---	----	---	------------

67mm x 2 <sup>1</sup> / <sub>2</sub> "	93	60	96	89253
--	----	----	----	-------

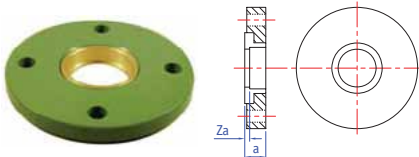
Suitable for: Copper x BSP parallel male thread cone joint



All sizes for brazing only.

# Endbrazed large size fittings

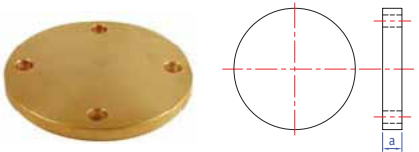
## Metric flanges



### N1FMGI Bi-metal flange

Size	a	Za	Holes	Order code
42mm DN40	19	2	4	88028
54mm DN50	22	3	4	88029
67mm DN65	20	2	4	88114
76mm DN80	22	2	8	89603
108mm DN100	22	2	8	89604
133mm DN125	21	2	8	89602
159mm DN150	25	2	8	89719

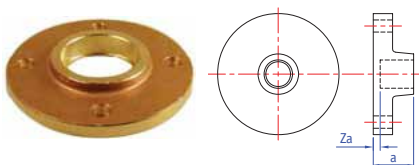
Steel outer with gunmetal inserts to BS 4504 part 2, table 16/23



### N1FMB Gunmetal flange

Size	a	Holes	Order code
67mm DN65	21	4	88115
76mm DN80	21	8	89605
108mm DN100	21	8	89606

Blank to BS 4504 part 3.3 type 305



### N1FMS Brazing metal slip-on flange

Size	a	Za	Holes	Order code
67mm DN65	33	2	4	88116
76mm DN80	35	2	8	89607
108mm DN100	41	2	8	89608

To BS 4504 part 3.3 type 314

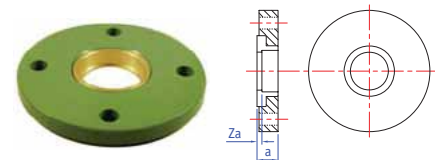
All sizes for brazing only.

## Imperial flanges

### N1FDGI Bi-metal flange

Size	$a$	$Za$	Holes	Order code
54mm 2"	11	2	4	88050
67mm 2½"	13	2	4	88117
76mm 3"	15	2	4	89609
108mm 4"	15	2	4	89610

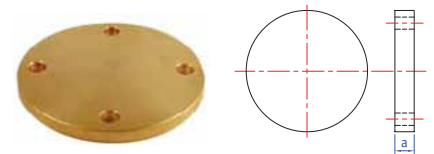
Steel outer with gunmetal insert to BS 10, table D



### N1FDB Gunmetal flange

Size	$a$	Holes	Order code
67mm 2½"	12	4	88118
76mm 3"	13	4	89611
108mm 4"	15	4	89612

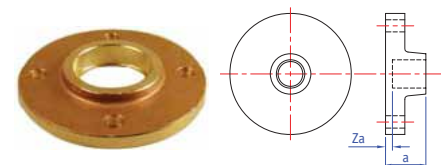
Steel outer with gunmetal insert to BS 10, table D



### N1FDS Brazing metal slip-on flange

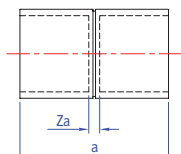
Size	$a$	$Za$	Holes	Order code
67mm 2½"	22	2	4	88119
76mm 3"	25	2	4	89613
108mm 4"	27	2	4	89614

To BS 10, table D



All sizes for brazing only. A further selection of 219mm fittings and flanges is available to special order. Product list available on request.

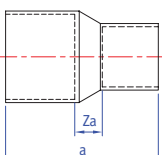
## End feed fittings degreased



### N1DW/5270DW Straight coupling

Size	a	Za	Order code
6mm	16	1	88010DW
8mm	20	1	88011DW
10mm	17	1	88012DW
12mm	19	2	88013DW
<b>15mm•</b>	23	2	88015DW
<b>22mm•</b>	32	1	88019DW
28mm	38	1	88022DW
35mm	48	2	88023DW
42mm	56	2	88026DW
54mm	65	2	88027DW
67mm	83	29	88030DW
76mm	49	29	89600DW
108mm	62	23	89601DW
133mm	97	27	89697DW
159mm	99	29	89698DW

Suitable for: Copper x copper



### N1RDW/5240DW Reducing coupling

Size	a	Za	Order code
10 x 8mm	19	2	88053DW
12 x 10mm	21	3	88055DW
15 x 10mm	26	6	88059DW
15 x 12mm	24	5	88060DW
22 x 15mm	35	7	88076DW
28 x 15mm	45	14	88089DW
28 x 22mm	42	7	88094DW
35 x 28mm	50	7	88099DW
42 x 22mm	66	23	88101DW
42 x 35mm	60	7	88103DW
54 x 42mm	77	14	88108DW

Suitable for: Copper x copper

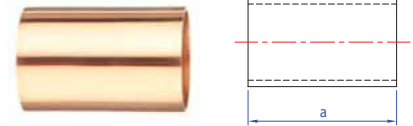
•These items comprise the NS range.

- Suitable for medical gas lines
- Available in sizes 6mm to 159mm
- Individually wrapped

### N1SLIPDW/5270SDW Slip coupling

Size	a	Order code
15mm	23	88037DW
22mm	41	88039DW
28mm	38	88042DW
35mm	46	88031DW
42mm	54	88032DW
54mm	64	88033DW

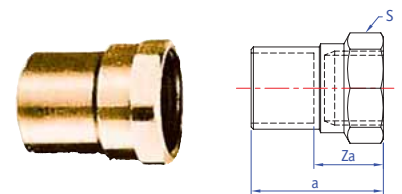
Suitable for: Copper x copper



### N2DW/4270GDW Straight female connector

Size	a	Za	S	Order code
15mm x 1/2"	32	21	25	88130DW
22mm x 3/4"	34	18	30	88137DW
22mm x 1"	37	21	39	88138DW
28mm x 1"	39	22	37	88142DW

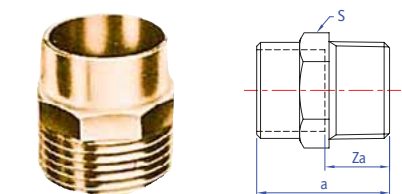
Suitable for: Copper x BSP parallel female thread



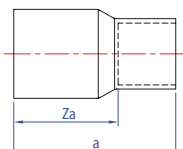
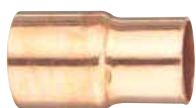
### N3DW/4243GDW Straight male connector

Size	a	Za	S	Order code
15mm x 1/4"	25	15	19	88173DW
15mm x 1/2"	26	15	19	88175DW
22mm x 1/2"	32	16	25	88184DW
22mm x 3/4"	32	17	25	88185DW
28mm x 1"	38	19	32	88189DW
35mm x 1 1/4"	40	17	45	88192DW
42mm x 1 1/2"	52	25	51	88195DW
54mm x 2"	65	31	81	88198DW
67mm x 2 1/2"	64	30	80	88200DW
76mm x 3"	69	51	93	89615DW
108mm x 4"	76	55	119	88616DW

Suitable for: Copper x BSP taper male thread



## End feed fittings degreased



### N6DW/5243DW Reducer

Size	a	Za	Order code
8 x 6mm	18	12	88240DW
10 x 8mm	19	12	88247DW
12 x 10mm	21	13	88245DW
15 x 8mm	25	17	88248DW
15 x 10mm	24	16	88249DW
15 x 12mm	23	15	88250DW
22 x 12mm	34	26	88265DW
<b>22 x 15mm</b> •	33	22	88267DW
28 x 15mm	41	29	88280DW
28 x 22mm	42	24	88284DW
35 x 15mm	56	43	88287DW
35 x 22mm	50	35	88289DW
35 x 28mm	49	21	88290DW
42 x 15mm	62	49	88293DW
42 x 22mm	61	45	88296DW
42 x 28mm	60	40	88297DW
42 x 35mm	58	34	88298DW
54 x 15mm	84	73	88300DW
54 x 22mm	66	49	88301DW
54 x 28mm	59	38	88302DW
54 x 35mm	74	50	88303DW
54 x 42mm	71	42	88304DW
67 x 28mm	75	54	88310DW
67 x 35mm	77	51	88311DW
67 x 42mm	77	50	88312DW
67 x 54mm	77	51	88313DW
76 x 35mm	57	41	89624DW
76 x 42mm	53	38	89625DW
76 x 54mm	48	31	89626DW
76 x 67mm	44	26	89627DW
108 x 42mm	79	61	89630DW
108 x 54mm	70	52	89631DW
108 x 67mm	60	44	89632DW
108 x 76mm	58	42	89633DW
133 x 108mm	84	44	89703DW
159 x 76mm	98	69	89706DW
159 x 108mm	97	61	89707DW

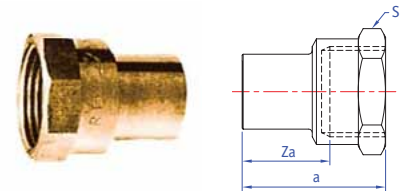
Suitable for: Larger end male copper x female copper

•These items comprise the NS range.

### N7DW/4246GDW Female adaptor

Size	<i>a</i>	<i>Za</i>	<i>S</i>	Order code
15mm x 1/2"	30	20	25	88320DW
22mm x 3/4"	37	22	30	88321DW

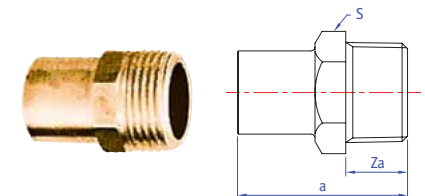
Suitable for: Male copper x BSP parallel female thread



### N8DW/4280GDW Male adaptor

Size	<i>a</i>	<i>Za</i>	<i>S</i>	Order code
15mm x 1/2"	37	15	24	88330DW
22mm x 3/4"	40	16	25	88331DW

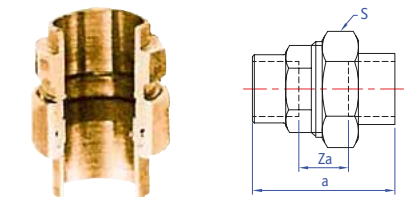
Suitable for: Male copper x BSP taper thread



### N11DW Union coupling

Size	<i>a</i>	<i>Za</i>	<i>S</i>	Order code
15mm	56	30	30	88400DW
22mm	60	44	38	88401DW
28mm	57	39	46	88402DW
35mm	61	24	53	88403DW
42mm	70	43	65	88404DW
54mm	88	56	82	88405DW

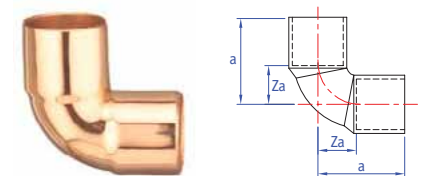
Suitable for: Imperial female copper x metric male copper



### N12DW/5090DW Elbow

Size	<i>A</i>	<i>B</i>	Order code
6mm	17	10	88441DW
8mm	19	11	88440DW
10mm	17	9	88442DW
12mm	19	10	88443DW
15mm●	22	12	88445DW
22mm●	29	10	88450DW
28mm	37	18	88451DW
35mm	46	23	88452DW
42mm	56	29	88454DW
54mm	66	33	88455DW
67mm	77	43	88456DW

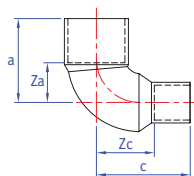
Suitable for: Copper x copper



●These items comprise the NS range.



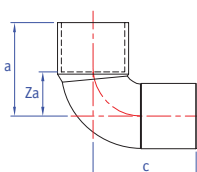
## End feed fittings degreased



### N12RDW/5090DW Reducing elbow 90°

Size	a	c	Za	Zc	Order code
22 x 15mm	37	28	17	17	88483DW

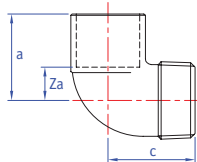
Suitable for: Copper x copper



### N12SDW/5092DW Street elbow

Size	a	c	Za	Order code
15mm•	23	25	12	88465DW
22mm	35	33	16	88470DW
28mm	41	39	19	88471DW
35mm	49	45	25	88472DW

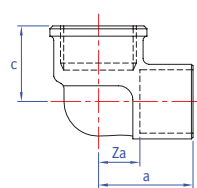
Suitable for: Female copper x male copper



### N13DW/4092GDW Male elbow

Size	a	c	Za	Order code
15mm x 1/2"	20	33	9	88497DW

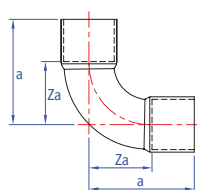
Suitable for: Copper x BSP taper male thread



### N14DW/4090GDW Female elbow

Size	a	c	Za	Order code
15mm x 1/2"	23	21	12	88525DW

Suitable for: Copper x BSP parallel female thread



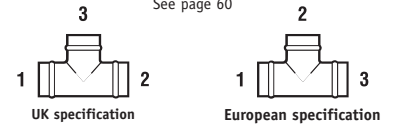
### N18DW/5002ADW Slow bend

Size	a	Za	Order code
18mm	34	22	88591DW
28mm	52	33	89590DW
42mm	79	54	88593DW
54mm	95	62	88594DW
76mm	97	79	89640DW
108mm	135	114	89641DW
133mm	253	218	89709DW
159mm	303	272	89710DW

Suitable for: Copper x copper

## Tee specification

See page 60

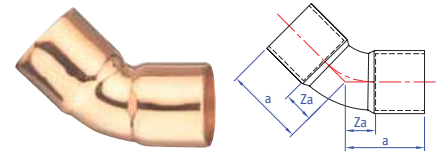


# 2

### N21DW/5041DW Obtuse elbow 45°

Size	a	Za	Order code
15mm	18	7	88640DW
22mm	26	10	88645DW
28mm	29	10	88647DW
35mm	38	15	88648DW
42mm	43	16	88650DW
54mm	54	22	88651DW
67mm	59	21	88653DW
76mm	43	25	89645DW
108mm	64	44	89646DW

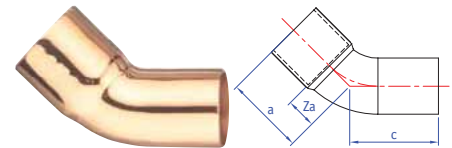
Suitable for: Copper x copper



### N21SDW/5040DW Obtuse street elbow 45°

Size	a	c	Za	Order code
15mm	17	19	6	88661DW
28mm	29	30	10	88667DW

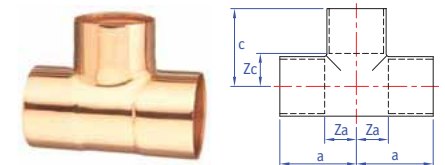
Suitable for: Female copper x male copper



### N24DW/5130DW Equal tee

Size	a	c	Za	Zb	Order code
6mm	11	11	5	5	88700DW
8mm	13	13	6	6	88701DW
10mm	15	15	6	6	88702DW
12mm	17	17	8	8	88703DW
<b>15mm•</b>	19	19	7	7	88705DW
<b>22mm•</b>	29	29	13	13	88709DW
28mm	36	36	16	16	88711DW
35mm	43	43	21	21	88713DW
42mm	51	51	24	24	88716DW
54mm	62	62	30	30	88717DW
67mm	73	32	73	32	88719DW
76mm	65	70	47	52	89648DW
108mm	90	96	68	74	89649DW
133mm	130	130	98	98	89713DW
159mm	135	135	100	100	89714DW

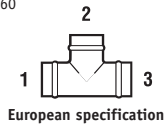
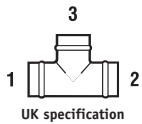
Suitable for: All ends for copper



•These items comprise the NS range.

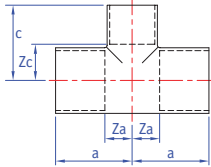
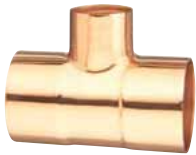
## Tee specification

See page 60



# ENDEX

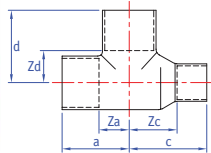
## End feed fittings degreased



### N25DW/5130DW Tee reduced branch

Size UK	European	a	c	Za	Zc	Order code UK
15 x 15 x 8mm	15 x 8 x 15mm	17	17	6	10	88733DW
15 x 15 x 10mm	15 x 10 x 15mm	18	20	7	12	88734DW
15 x 15 x 12mm	15 x 12 x 15mm	19	18	7	9	88735DW
22 x 22 x 10mm	22 x 10 x 22mm	22	29	7	21	88752DW
<b>22 x 22 x 15mm•</b>	<b>22 x 15 x 22mm•</b>	25	29	9	10	88755DW
28 x 28 x 15mm	28 x 15 x 28mm	28	26	9	17	88764DW
28 x 28 x 22mm	28 x 22 x 28mm	33	36	14	20	88770DW
35 x 35 x 15mm	35 x 15 x 35mm	40	47	17	36	88775DW
35 x 35 x 22mm	35 x 22 x 35mm	38	45	15	29	88778DW
35 x 35 x 28mm	35 x 28 x 35mm	38	42	14	19	88779DW
42 x 42 x 15mm	42 x 15 x 42mm	38	49	11	38	88788DW
42 x 42 x 22mm	42 x 22 x 42mm	41	48	13	32	88793DW
42 x 42 x 28mm	42 x 28 x 42mm	43	49	16	29	88794DW
42 x 42 x 35mm	42 x 35 x 42mm	57	64	24	36	88795DW
54 x 54 x 15mm	54 x 15 x 54mm	43	45	12	33	88797DW
54 x 54 x 22mm	54 x 22 x 54mm	46	62	14	47	88799DW
54 x 54 x 28mm	54 x 28 x 54mm	49	63	16	29	88800DW
54 x 54 x 35mm	54 x 35 x 54mm	52	61	20	40	88801DW
54 x 54 x 42mm	54 x 42 x 54mm	57	64	24	36	88802DW
67 x 67 x 28mm	67 x 28 x 67mm	54	66	19	47	88807DW
76 x 76 x 35mm	76 x 35 x 76mm	46	67	28	52	89000DW
76 x 76 x 42mm	76 x 42 x 76mm	51	69	34	53	89654DW
76 x 76 x 54mm	76 x 54 x 76mm	55	69	38	52	89001DW
108 x 108 x 54mm	108 x 54 x 108mm	61	90	39	73	89660DW

Suitable for: All ends for copper



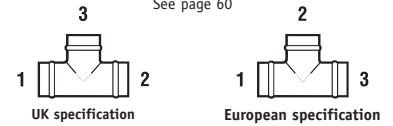
### N26DW/5130DW Tee, one end reduced

Size UK	European	a	c	d	Za	Zc	Zd	Order code UK
22 x 15 x 22mm	22 x 22 x 15mm	29	32	29	13	20	13	88845DW
28 x 15 x 28mm	28 x 28 x 15mm	35	41	35	16	30	16	88850DW
28 x 22 x 28mm	28 x 28 x 22mm	35	38	35	15	21	15	88853DW
35 x 15 x 35mm	35 x 35 x 15mm	45	53	45	21	42	21	88856DW
35 x 22 x 35mm	35 x 35 x 22mm	43	50	43	10	33	10	88854DW
35 x 28 x 35mm	35 x 35 x 28mm	43	47	43	21	28	21	88855DW
42 x 35 x 42mm	42 x 42 x 35mm	51	56	51	24	33	24	88858DW
54 x 35 x 54mm	54 x 54 x 35mm	64	81	64	48	38	50	88860DW
54 x 42 x 54mm	54 x 54 x 42mm	61	74	61	29	48	29	88859DW

Suitable for: All ends for copper

## Tee specification

See page 60

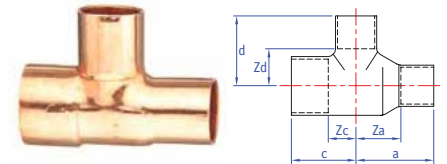


# 2

### N27DW/5130DW Tee, one end and branch reduced

Size UK	European	a	c	d	Za	Zc	Zd	Order code UK
22 x 15 x 15mm	22 x 15 x 15mm	28	24	24	17	14	14	88910DW
28 x 15 x 15mm	28 x 15 x 15mm	33	28	28	23	18	18	88925DW
28 x 15 x 22mm	28 x 22 x 15mm	36	33	33	25	18	18	88926DW
28 x 22 x 15mm	28 x 15 x 22mm	33	27	27	9	16	16	88935DW
28 x 22 x 22mm	28 x 22 x 22mm	36	32	32	20	13	13	88940DW
35 x 22 x 22mm	35 x 22 x 22mm	41	36	36	25	20	20	88942DW
35 x 28 x 28mm	35 x 28 x 28mm	47	40	40	28	19	19	88948DW
42 x 28 x 28mm	42 x 28 x 28mm	51	41	41	31	22	22	88950DW
54 x 42 x 42mm	54 x 42 x 42mm	67	59	59	40	30	30	88958DW

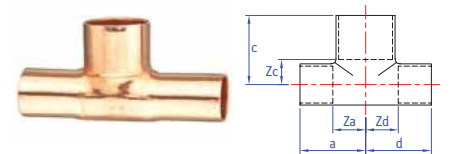
Suitable for: All ends for copper



### N28DW Tee, both ends reduced

Size UK	European	a	c	Za	Zc	Order code UK
15 x 15 x 22mm	15 x 22 x 15mm	33	30	22	16	88978DW
15 x 15 x 28mm	15 x 28 x 15mm	41	36	30	16	88979DW
22 x 22 x 28mm	22 x 28 x 22mm	35	32	19	13	88990DW

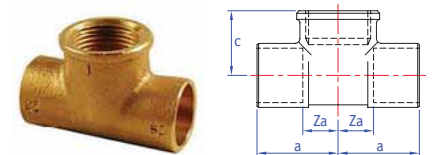
Suitable for: All ends for copper



### N30DW Female tee

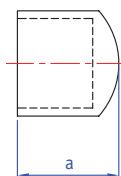
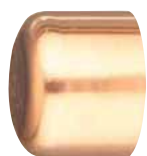
Size UK	European	a	c	Za	Order code UK
15 x 15mm x 1/2"	15 x 15mm x 1/2"	22	19	10	89033DW

Suitable for: Copper ends x BSP parallel female branch



•These items comprise the NS range.

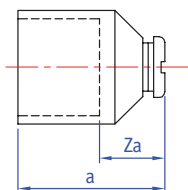
## End feed fittings degreased



### N61DW/5301DW Stop end

Size	a	Order code
10mm	11	89077DW
15mm	14	89080DW
22mm	18	89084DW
28mm	21	89085DW
35mm	27	89087DW
42mm	31	89088DW
54mm	36	89089DW
67mm	37	89090DW
76mm	21	89694DW
108mm	26	89695DW

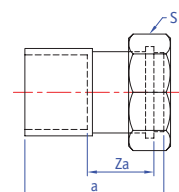
Suitable for: For use with copper tube



### N61AVDW/5301AVDW Air release stop end

Size	a	Za	Order code
15mm	25	7	89091DW

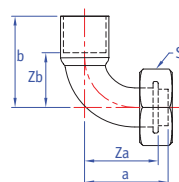
Suitable for: For use with copper tube



### N62DW Straight tap connector

Size	a	Za	S	Order code
15mm x 1/2"•	37	24	24	89103DW

Suitable for: Copper x BSP hexagonal union nut spigot and washer joint



### N63DW Bent Tap connector

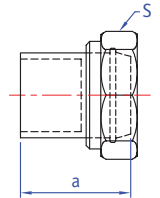
Size	a	b	Za	Zb	s	Order code
15mm x 1/2"	38	28	33	18	24	89110DW

Suitable for: Copper x BSP hexagonal union nut spigot and washer joint

### N68DW Straight union adaptor

Size	a	S	Order code
15mm x 3/4"	27	30	89190DW
22mm x 1"	31	37	89197DW
28mm x 1 1/4"	33	46	89205DW

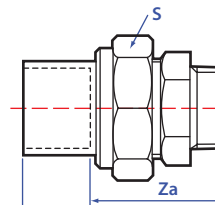
Suitable for: Copper x BSP union nut cone joint



### N69DW Straight male union connector

Size	a	Za	S	Order code
15mm x 1/2"	61	46	30	89235DW
22mm x 3/4"	66	48	37	89242DW
28mm x 1"	74	55	46	89245DW
35mm x 1 1/4"	74	50	53	89248DW
42mm x 1 1/2"	81	53	65	89250DW
54mm x 2"	108	71	82	89251DW

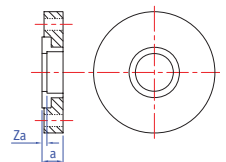
Suitable for: Copper x BSP taper male thread cone joint



### N1FMGIDW Bi-metal flange

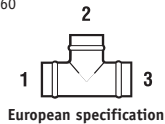
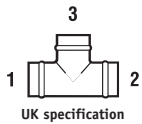
Size	a	Za	Order code
108mm	22	2	89604DW

Steel outer with gunmetal inserts to BS 4504 part 2, table 16/23



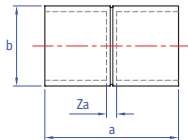
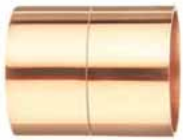
## Tee specification

See page 60



# ENDEX

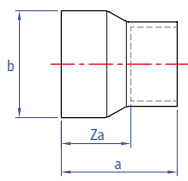
## Endex waste fittings



### N1W Straight coupling

Size	a	b	Za	Order code
35mm	28	38	1	89741
42mm	32	45	1	89742
54mm	35	57	1	89743

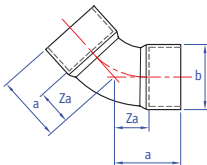
Suitable for: Copper x copper



### N6W Reducer

Size	a	b	Za	Order code
42 x 35mm	36	42	23	89745
54 x 35mm	45	54	33	89746
54 x 42mm	41	54	27	89747

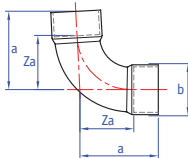
Suitable for: Larger end male copper x female copper



### N21W Obtuse elbow 45°

Size	a	b	Za	Order code
35mm	24	38	12	89750
42mm	28	45	14	89751
54mm	41	57	26	89752

Suitable for: Copper x copper



### N323 Copper bend 91.5°

Size	a	b	Za	Order code
35mm	58	38	44	89763
42mm	65	46	49	89764
54mm	83	57	64	89765

#### Polished chrome

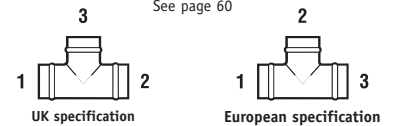
35mm	58	38	44	89763CP
42mm	65	46	49	89764CP

Suitable for: Copper x copper



## Tee specification

See page 60



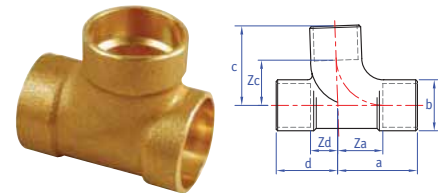
- Endex waste fittings are designed for connecting to basin, baths, sinks and other sanitary appliances in domestic and commercial properties
- Available in sizes from 35mm to 54mm
- The range includes bends, tee and crosses and fittings with rodding eyes to enable inspection and maintenance of the pipework

# 2

### N359 Pitcher tee 88.5°

Size	a	b	c	d	Za	Zc	Zd	Order code
35mm	42	40	43	26	29	30	14	89770
42mm	35	47	48	49	20	33	34	89771
54mm	42	60	56	57	26	40	40	89772

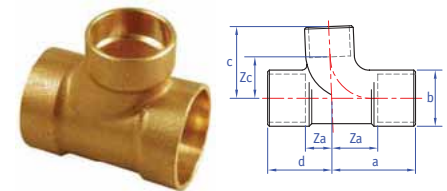
Suitable for: All ends for copper



### N359R Pitcher tee 88.5°

Size	a	b	c	d	Za	Zc	Zd	Order code
42 x 35mm	30	47	46	45	16	33	31	89773
54 x 35mm	32	60	54	48	15	41	32	89774
54 x 42mm	50	60	46	38	34	40	22	89775

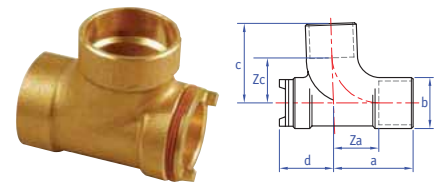
Suitable for: All ends for copper



### N363 Pitcher tee 88.5°

Size	a	b	c	d	Za	Zc	Order code
35mm	29	40	43	41	17	30	89776
42mm	34	47	49	48	19	34	89777
54mm	45	60	57	57	29	41	89778

Suitable for: Copper x copper



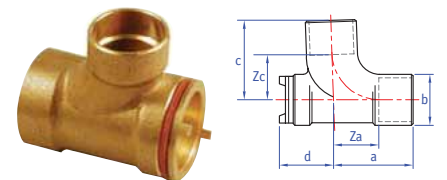
### N363R Pitcher tee 88.5°

Size	a	b	c	d	Za	Zc	Order code
42 x 35mm	35	47	48	44	21	35	89779
54 x 35mm	35	60	53	46	19	40	89780
54 x 42mm	35	60	56	38	18	41	89781

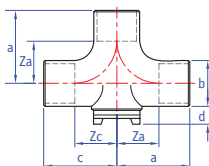
#### Polished chrome

54 x 42mm	35	60	56	38	18	41	89781CP
-----------	----	----	----	----	----	----	---------

Suitable for: All ends for copper



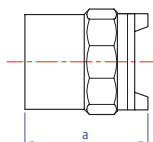
## Endex waste fittings



### N376 Sweep cross 88.5°

Size	a	b	c	d	Za	Zc	Order code
42mm	59	48	59	39	45	45	89782
54mm	63	59	63	49	47	47	89783

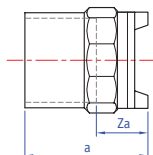
Suitable for: All ends for copper



### N377 Cleaning eye adaptor

Size	A	Order code
35mm x 1"	36	89784
42mm x 1 <sup>1</sup> / <sub>4</sub> "	41	89785
54mm x 1 <sup>1</sup> / <sub>2</sub> "	44	89786

Suitable for: Male copper for insertion into a fitting



### N378 Cleaning eye coupling

Size	A	Za	Order code
35mm x 1"	36	24	89787
42mm x 1 <sup>1</sup> / <sub>4</sub> "	42	26	89788
54mm x 1 <sup>1</sup> / <sub>2</sub> "	44	27	89789

Suitable for: Copper x screwed cleaning plug

## Accessories

### FW1 Tap connector washers

Size	Order code
1/2"*	73050
3/4"*	73051

Suitable for: Yorkshire and Kuterlite tap connectors (pack of 100)



### 130GHD Degussa H<sup>^</sup>

Size	Order code
500g tub	21068

High duty flux. Ready mix paste



### N161 Endex lead free solder wire

Size	Order code
1/2 kilo reel	71159

<sup>99</sup>/1 tin copper BS EN 29453 Alloy number 23



### N164 Brazing rods

Size	Order code
3mm x 600mm	71176

Silver brazing alloy to BS EN 1044 CP2



### N165 Silver-flo brazing alloy

Size	Order code
250g reel	71157

To BS EN 1044 AG14 (formerly BS 1485)



### N166 Brazing rods

Size	Order code
3mm x 600mm	71175

Silver brazing alloy to BS EN 1044 AG14 (formerly BS 1485)



\*Supplied and priced from the Yorkshire range. ▲COSHH sheets for these products are available at [www.pegleyorkshire.co.uk/SHE](http://www.pegleyorkshire.co.uk/SHE)

Endex end feed fittings are suitable for jointing copper tube, which must meet the requirements of BS EN 1057.

**BS EN 1057** Specification for copper and copper alloy – seamless round copper tubes for water (and gas) in sanitary and heating applications. BS EN 1057 includes specified temper conditions (material strength) expressed as an “R” number. Quite simply, the higher the number, the harder the material. As a result, tube diameter, wall thickness, length and the material temper must all be specified for full product designation.

**R220** Annealed condition with a tensile strength of 220N/mm<sup>2</sup> supplied in coils and suitable for connection by push-fit, capillary and compression fittings. Can be bent with suitable bending tools.

**R250** Half hard condition with a tensile strength of 250N/mm<sup>2</sup> supplied in straight lengths and suitable for connection by push-fit, press-fit, capillary and compression fittings. Can be bent with suitable bending tools.

**R290** Hard condition with a tensile strength of 290N/mm<sup>2</sup> supplied in straight lengths suitable for connection by push-fit, press-fit, capillary and non-manipulative compression fittings. Not suitable for bending.

### Imperial copper tube

Endex end feed fittings with metric or BSP ends are not compatible with imperial copper tube. However, the Endex range includes a number of imperial x metric adaptors, which are specifically designed for the purpose of connecting to imperial copper tube found in an existing installation.

### Stainless steel tube

The use of Endex fittings with stainless steel tube is not recommended.

**BS EN 1057 COPPER TUBE SPECIFICATIONS COMPATIBLE WITH ENDEX END FEED FITTINGS**

Outside diameter	Wall thickness								
	0.6mm	0.7mm	0.8mm	0.9mm	1.0mm	1.2mm	1.5mm	2.0mm	2.5mm
6mm	R220/R250		R220/R250						
8mm	R220/R250		R220/R250						
10mm	R250	R220	R220/R250						
12mm	R250		R220/R250						
14mm									
15mm		R250			R220/R250				
16mm									
18mm									
22mm				R250		R220/R250			
28mm				R250		R220/R250			
35mm					R290	R250	R250		
42mm					R290	R250	R250		
54mm					R290	R250		R250	
64mm									
67mm						R250/R290		R250	
76mm							R290	R250	
89mm									
108mm							R290		R250
133mm							R290		
159mm								R290	
219mm									

## Working temperatures and pressure

### Endex general range fittings

Endex general range end feed fittings can be assembled using a variety of soft or hard solders (brazing alloy). Their working temperatures and pressures vary according to which solder has been used. When correctly assembled with copper tube to BS EN 1057, the applicable temperatures and pressures are indicated in Table 1 opposite.

### Endbrazed fittings

Endbrazed fittings should be assembled with silver brazing alloys to BS EN 1044 (formerly BS 1845). When correctly assembled with copper tube to BS EN 1057, Endbrazed fittings are designed for the working temperatures and pressures shown in Table 2 opposite. Please contact us for performance information for Endbrazed 219mm fittings.

### Flanges

Endbrazed flanges are designed for assembly with silver brazing alloys to BS EN 1044 (formerly BS 1845). When correctly assembled with copper tube to BS EN 1057, they perform at the temperatures and pressures shown in Table 3 opposite.

### 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. Antifreeze must not be added to potable water systems.

### High performance

Endex end feed fittings used with copper tube to BS EN 1057 will withstand pressure ratings far exceeding normal service conditions.

### Gas Families

*There are three gas families*

1st Family	Manufactured gas
2nd Family	Natural gas
3rd Family	LPG, compressed propane and butane

**Table 1**

*Endex (and Endbrazed 67mm) performance when correctly assembled with copper tube to BS EN 1057 using tin/copper soft solder BS EN 29453 S-Sn99Cu1 or tin/silver soft solder BS EN 29453 L-SnAg5 DIN 1707*

Size	Min -40°C	Service temperature		Max 110°C
		30°C	65°C	
6mm to 28mm	25bar	25bar	25bar	16bar
35mm to 54mm	25bar	25bar	16bar	10bar
67mm	16bar	16bar	16bar	10bar

**Table 2**

*Endex (and Endbrazed 67mm) performance when correctly assembled with copper tube to BS EN 1057 using tin/lead soft solder BS EN 29453 D-Pb60Sn40  
Not suitable for use in potable water systems*

Size	Min -15°C	Service temperature		Max 110°C
		30°C	65°C	
6mm to 54mm	16bar	16bar	10bar	6bar
67mm	10bar	10bar	6bar	4bar

**Table 3**

*Endbrazed flange performance when correctly assembled with copper tube to BS EN 1057 with silver brazing alloy to BS EN 1044 Ag103 (formerly BS 1845 Ag14)*

Size	Min 180°C	Service temperature		Max 200°C
42mm to 219mm	10bar			8.5bar

### Pressure Equipment Directive (P.E.D.)

From 30th May 2002 most pressure equipment and assemblies on the market in the United Kingdom must 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, falling within its scope.

Maximum hydraulic working pressure for Endex fittings when assembled with copper tube to BS EN 1057 using hard solder (brazing alloy) to BS EN 1044 (formerly BS 1845)\*

Size	Service temperature					Max 200°C
	Min† -196°C	65°C	120°C	150°C	175°C	
6mm	81.1bar	81.1bar	76.2bar	60.5bar	46.0bar	30.3bar
8mm	62.5bar	62.5bar	58.8bar	46.7bar	35.5bar	23.3bar
10mm	50.9bar	50.9bar	47.9bar	38.0bar	28.9bar	19.0bar
12mm	42.9bar	42.9bar	40.3bar	32.0bar	24.3bar	16.0bar
14mm	42.4bar	42.4bar	39.9bar	31.7bar	24.0bar	15.8bar
15mm	40.3bar	40.3bar	37.9bar	30.1bar	22.8bar	15.0bar
16mm	37.5bar	37.5bar	35.3bar	28.0bar	21.3bar	14.0bar
18mm	38.6bar	38.6bar	36.3bar	28.8bar	21.9bar	14.4bar
22mm	35.6bar	35.6bar	33.5bar	26.6bar	20.2bar	13.3bar
28mm	28.2bar	28.2bar	26.5bar	21.1bar	16.0bar	10.5bar
35mm	25.2bar	25.2bar	23.7bar	18.8bar	14.3bar	9.4bar
42mm	23.2bar	23.2bar	21.8bar	17.3bar	13.1bar	8.6bar
54mm	19.8bar	19.8bar	18.6bar	14.7bar	11.2bar	7.4bar

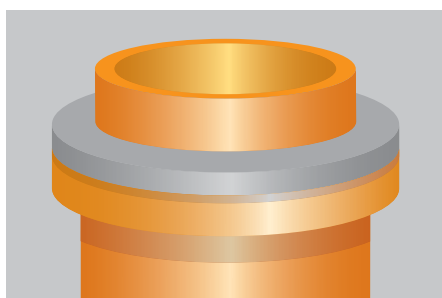
Endbrazed performance when correctly assembled with copper tube to BS EN 1057 with silver brazing alloy to BS EN 1044 (formerly BS 1845)

Size	Service temperature				Max 200°C
	Min† -196°C	65°C	120°C	150°C	
64mm	19.4bar	19.4bar	18.2bar	14.4bar	7.2bar
67mm	18.6bar	18.6bar	17.5bar	14.0bar	6.9bar
76mm	18.6bar	18.6bar	17.5bar	14.0bar	6.9bar
89mm	18.0bar	18.0bar	16.9bar	13.4bar	6.7bar
108mm	17.2bar	17.2bar	16.2bar	12.9bar	6.4bar
133mm	10.5bar	10.5bar	8.5bar	7.7bar	4.1bar
159mm	11.7bar	11.7bar	9.7bar	8.6bar	4.6bar

\* Not applicable to products containing non-metallic components. † Copper and gunmetal fittings only.

### Washers

Where tap connectors or other fittings are assembled with washers, service temperatures must not exceed 100°C. Washers are not suitable for use on gas service pipelines.



### Equipotential Bonding

Ensure all metallic pipework systems comply with the equipotential bonding requirements of the current edition of the IEE electrical wiring regulations (BS 7671:2001).

All Endex end feed fittings provide electrical continuity when the joint has been completed with copper tube.

After all plumbing work has been completed, always ensure continuity checks are conducted by a qualified electrician in accordance with regulations.



Specification clauses can be sourced from the Pegler Yorkshire website at [www.pegleryorkshire.co.uk](http://www.pegleryorkshire.co.uk)

Here are details of some of the specific design considerations it is important to take account of when designing and installing pipework systems containing Endex fittings.

### Thermal movement

Thermal movement is major consideration when designing and installing plumbing and heating systems and should be taken into account. Pipework systems expand and contract with changes in temperature. If they are fixed too rigidly and their movement restricted the installation will be subject to stress. Stress concentrations between "fixed points" – typically found at radiators, valves and other fittings – should be avoided wherever possible.

### Correct anchoring

Always ensure the free length of tube between the branch of the tee and the first anchor point (bracket or radiator valve) is long enough to allow normal thermal movement. Not doing this can lead to installation failure.

### Expansion of copper tube

Copper has a coefficient of linear expansion of  $17 \times 10^{-6} \text{ } ^\circ\text{C}$ . For example, a 10 metre length of copper tube carrying hot water at  $60^\circ\text{C}$  will increase in length by almost 7mm when heated from  $20^\circ\text{C}$ . Assuming that temperature cycling of the system is  $20^\circ\text{C}$ , there will be a continuous cycle of expansion and contraction of 3.4mm. Refer to table (below).

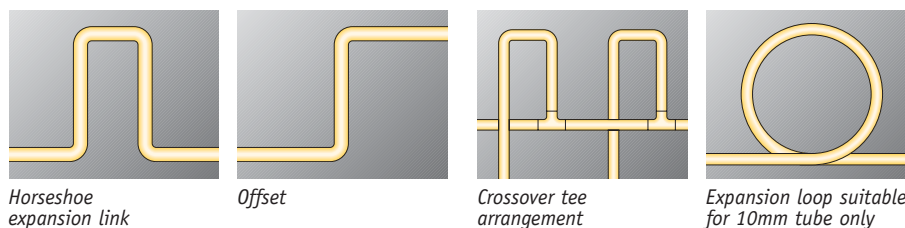
### Pipeline supports

Pipelines should always be assembled so that the joints are under neutral or compressive stress. Clipping to support the assembled pipeline is essential and tube manufacturer's recommendations should be adhered to. Pegler Yorkshire offers a wide range of pipe

clips and brackets to ensure safe and secure installations. Pipe joist clips are also available and are designed to protect pipework against accidental piercing when nailing or screwing down floorboards. For the maximum spacing of supporting brackets refer to the table (below).

Maximum spacing of support brackets for copper tube to BS EN 1057 R250 and R290			
Size	Wall thickness	Horizontal pitch	Vertical pitch
6mm	0.6mm	0.40m	0.60m
8mm	0.6mm	0.60m	0.90m
10mm	0.6mm	0.80m	1.20m
12mm	0.6mm	1.00m	1.50m
14mm			
15mm	0.7mm	1.20m	1.80m
16mm			
18mm			
22mm, 28mm	0.9mm	1.80m	2.40m
35mm, 42mm	1.2mm	2.40m	3.00m
54mm	1.2mm	2.70m	3.00m
64mm			
67mm	1.2mm	3.00m	3.60m
76mm, 108mm	1.5mm	3.00m	3.60m
89mm			

### Techniques for expansion stress relief



Temperature change	COPPER TUBE EXPANSION									
	Tube length									
	3m	4m	5m	6m	7m	8m	9m	10m	12m	25m
10°C	0.5mm	0.7mm	0.9mm	1.0mm	1.2mm	1.4mm	1.5mm	1.7mm	2.0mm	4.3mm
20°C	1.0mm	1.4mm	1.7mm	2.0mm	2.4mm	2.7mm	3.0mm	3.4mm	4.0mm	8.5mm
30°C	1.5mm	2.0mm	2.6mm	3.1mm	3.6mm	4.1mm	4.6mm	5.1mm	6.1mm	13.0mm
40°C	2.0mm	2.7mm	3.4mm	4.1mm	4.8mm	5.4mm	6.1mm	6.8mm	8.2mm	17.0mm
50°C	2.6mm	3.4mm	4.3mm	5.1mm	6.0mm	6.8mm	7.7mm	8.5mm	10.2mm	21.0mm
60°C	3.1mm	4.1mm	5.1mm	6.1mm	7.1mm	8.2mm	9.2mm	10.2mm	12.2mm	26.0mm
70°C	3.6mm	4.8mm	6.0mm	7.1mm	8.3mm	9.5mm	10.7mm	11.9mm	14.3mm	30.0mm
80°C	4.1mm	5.4mm	6.8mm	8.2mm	9.5mm	10.9mm	12.2mm	13.6mm	16.3mm	34.0mm
90°C	4.6mm	6.1mm	7.7mm	9.2mm	10.7mm	12.2mm	13.8mm	15.3mm	18.4mm	38.0mm
100°C	5.1mm	6.8mm	8.5mm	10.2mm	11.9mm	13.6mm	15.3mm	17.0mm	20.4mm	43.0mm
150°C	7.65mm	10.2mm	12.75mm	15.3mm	17.85mm	20.4mm	22.95mm	25.5mm	30.6mm	63.75mm
200°C	10.2mm	13.6mm	17.0mm	20.4mm	23.8mm	27.2mm	30.6mm	34.0mm	40.8mm	85.0mm



### Insulation

For all Endex installations, we recommend you adhere to the insulation requirements for copper tube as specified by The Water Supply (Water Fittings) Regulations 1999. These can be downloaded from [www.hms.gov.uk](http://www.hms.gov.uk).

### 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, the European Phenolic Foam Association recommends that such insulation products be installed with a moisture barrier, such as Densopaste or a plastic covering applied by the tube manufacturer. If you need to add a barrier product, we recommend that all Endex fittings are fully installed and are completely coated before these are applied.

### Covered pipework

Making provision for thermal movement is vital where pipe-work is installed under screed or 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 standard BS 6700.

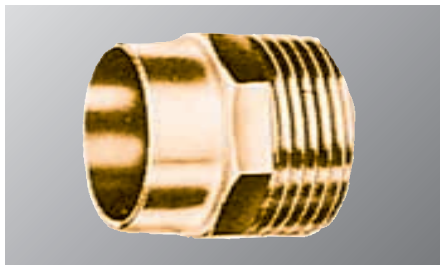
### Pipework accessibility

It's wise to take advice from the local water authority when it comes to pipework accessibility.

### Chemicals

Some contracts may require the use of proprietary chemicals to cleanse and flush pipework before full commissioning. Endex is compatible with a selection of products – contact us for a list.

### Connectors



#### Male connectors

Endex male connectors have threads to ISO 7/EN 10226-1. Inert jointing compounds or PTFE tape should be applied to taper threads and good quality jointing washers should be used with parallel threaded fittings.



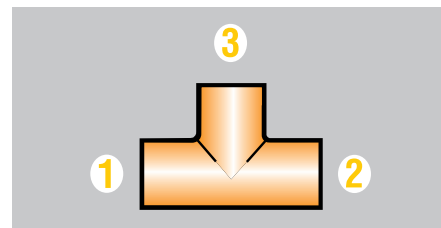
#### Female connectors

Endex female threaded connectors have internal parallel threads to ISO 7/EN 10226-1.

### Tee Specification

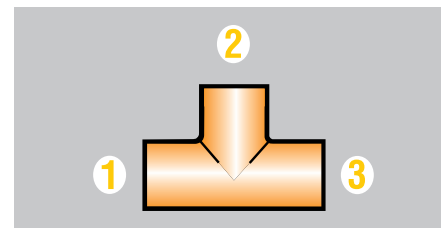
#### UK SPECIFICATION

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



#### EUROPEAN SPECIFICATION

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





The following instructions illustrate just how easy it is to make an Endex end feed joint. The fittings use the principle of capillary attraction to allow solder to fill the gap between fitting and tube to form a completely reliable joint.

### Endex general range fittings

The reliability of soft soldered joints is greatly influenced by the type of flux used. Yorkshire flux and Traditional Craftsman's flux are specially formulated for jointing copper tubes with Endex end feed fittings. All fluxes are to some extent, corrosive, but special care should be taken with so-called self cleaning fluxes.

### Preliminaries

Select the correct size of tube and fitting for the job. Ensure that both are clean, in good condition and free from damage and imperfections. If the tube is oval or damaged, use a re-rounding tool.

### Preparation

1. Cut the tube square using a rotary tube cutter wherever possible. If a hacksaw is used to cut the tube, a fine toothed blade should be used.



2. Remove any burrs from the inside and outside of the tube ends using a fine toothed file or a S120 deburring tool from the XPress accessories range.



3. Clean the inside of the fitting socket and the outside of the tube with a Yorkshire cleaning pad, fine sandpaper or steel wool.



### Jointing – soft solder

1. Using a suitable brush, apply adequate – but not excessive – flux to both the outside of the tube and the inside of the fitting socket. Do not use your finger.



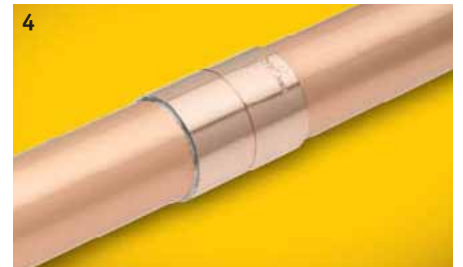
2. Insert the tube into the fitting until it reaches the tube stop, then wipe off any excess flux. Heat the assembled joint evenly on all sides.



3. Apply solder to the mouth of the fitting. When the correct temperature has been reached the solder will flow freely and be drawn into the joint. Briefly reapply the blowtorch and wipe off any excess solder.



4. Allow the joint to cool without disturbance. Clean the joint generally, wiping off any external flux residues. This will prevent unsightly stains or (in extreme cases) corrosion of pipework. Flush out the pipework.



### Fluxes

Yorkshire Flux, Traditional Craftsman's Flux and Degussa H high duty flux are subject to the requirements of the Control of Substances Hazardous to Health (COSHH) regulations. COSHH sheets are available to download from our website, [www.peglyorkshire.co.uk](http://www.peglyorkshire.co.uk)

### Heating DZR Brass

The corrosion resistance of DZR brass can be adversely affected by heating to temperatures in excess of 400°C. Care should be taken when using hard solder to avoid over heating DZR components.

### Threaded connectors

Jointing compounds should comply with BS 6956 Part 5 and be WRAS listed. PTFE tape for water and general applications should comply with BS 7786 and satisfy the requirements of BS 6920 Part 1. For gas applications, PTFE tape should comply with BS EN 751-3 (formerly BS 6974).

Female threaded connectors have internal threads to BS EN ISO 228 and should be used for general connections from male threaded fittings to copper pipework.

Male threaded connectors have taper male BSP threads and may require the use of jointing materials. Complete the soldering operation, then apply a WRAS listed jointing compound or PTFE tape to the threads. When installing fittings with parallel connector threads, a good quality jointing washer should be used.

## End feed solutions Installation instructions for brazing alloys

### Preliminaries

Select the correct size of tube and fitting for the job. Ensure that both are clean, in good condition and free from damage and imperfections. If the tube is oval or damaged, use a re-rounding tool.

### Union fittings (UK designation)

Union fittings have metal-to-metal cone joints to BS 1010. Avoid damaging the mating faces and, if required, apply a WRAS listed jointing compound or PTFE tape. Tighten the joint with a spanner. Where UK designation is given, these are union connections suitable for the UK style markets.

### Union fittings (European designation)

Where European designated unions are listed, these are for use in European markets.

These unions are not interchangeable with each other.

### Unmade ends

If one or more ends of an Endex fitting are to remain unmade, a short length of correctly sized, uncleaned tube should be inserted into the unjointed end. Keep this section cool by wrapping a wet rag around it while heating the remaining end.

### Taking apart and remaking Endex joints

Remaking of Endex general range joints is generally not recommended. However, in some situations, joints can be remade by fluxing the tinned portion of the tube and reinserting this into the fitting. Then, heat the joint and end feed the solder. If a new tube is to be used, clean and flux the tube before assembly.

If it is necessary to break into existing pipes for repairs or to fit new branches, slip couplings or tees which have no tube stops make the job easier and avoid disturbing the rest of the system.

### Adapting imperial to metric with Endex

Endex general range fittings can be easily connected to older imperial sized tube installations through the use of an Endex imperial to metric adaptor coupling. One end of the adaptor fits onto imperial pipe and the other onto metric pipe. Adaptors are available in a variety of size combinations.

### Brazing alloy (hard solder) installation – Endex general range and Endbraze

The same preliminaries and preparation guidelines apply as for soft soldering.

### Blowtorches and their use

For brazing joints, an oxy-propane, oxy-acetylene or other torch with a large soft, neutral or slightly reducing flame should be used. This should be kept moving throughout the making of the joint to avoid excessive local heating. It is better to melt the alloy by conduction than by heating it directly with the torch, although a combination of the two techniques can be used to aid the flow of alloy into the joint. The gap between the socket and the tube should be filled with the brazing alloy to leave a small, uniform bead of this alloy around the mouth of the socket.

### Preparation

1. Cut the tube square using a rotary tube cutter wherever possible. If a hacksaw is used to cut the tube, a fine toothed blade should be used.



2. Remove any burrs from the inside and outside of the tube ends using a fine toothed file or a S120 deburring tool from the XPress accessories range.



3. Clean the inside of the fitting socket and the outside of the tube with a Yorkshire cleaning pad, fine sandpaper or steel wool.



### Joining – brazing alloy

4. Heat the assembled joint evenly on all sides to 700–750°C (red heat in poor daylight).



5. Apply the filler rod to the mouth of the fitting, allowing the brazing alloy to melt and flow into the annular gap.



6. Allow the joint to cool without disturbance. Clean the joint generally and flush out the pipework.



### Use of flux with brazing alloys

Refer to Table 1 below for details of which fittings and brazing alloys require the use of a flux. Where required, Pegler Yorkshire recommends Degussa H ready mixed flux.

### System testing

We recommend all systems are thoroughly tested upon completion. In hydraulic based installations the system may be tested to 1.5 times the working pressure of the system (see tables on pages 57 and 58 for data). If higher test pressures are required advice should be sought from Pegler Yorkshire.

On completion, compressed air pipeline systems must be properly tested. The system designer and installation contractor must ensure safe methods are selected for system testing which will comply with all current Health and Safety regulations.

This may include testing compressed air lines with fluids or compressed air at a limited pressure, or a combination. In any event we do not recommend the maximum working pressure of the product be exceeded during this procedure.

**N.B. The maximum temperature and pressure range in any system is dictated by the component with the lowest performance rating.**

**Table 1**

Tube to fitting	Type of brazing alloys	
	Copper/phosphorous brazing alloy to BS EN 1044 CP104, CP105 (formerly BS 1845 CP4, CP2)	Silver brazing alloy to BS EN 1044 Ag103 (formerly BS 1845 Ag14)
Copper to copper	No flux	Flux
Copper to gunmetal	Flux	Flux



# Pegler Yorkshire

*Our brands:*

**terrier**

HEATING SOLUTIONS

**YORKSHIRE**

SOLDER RING SOLUTIONS

**Tectite**

PUSH-FIT SOLUTIONS

**XPress**

PRESS-FIT SOLUTIONS

**ENDEX**

END FEED SOLUTIONS

**KUTERLITE**

COMPRESSION SOLUTIONS

**PRESTEX**

DOMESTIC VALVE SOLUTIONS

**PEGLER**

COMMERCIAL VALVE SOLUTIONS

**meibes**

RENEWABLE SOLUTIONS

**PERFORMA**

UTILITY TAP SOLUTIONS

francis  
pegler

LUXURY TAP SOLUTIONS

## *UK sales*

Free Phone: 0800 156 0010

Free Fax: 0808 156 1011

Email: [uk.sales@pegleryorkshire.co.uk](mailto:uk.sales@pegleryorkshire.co.uk)

## *Export*

Tel: +44 (0) 1302 855 656

Fax: +44 (0) 1302 730 513

Email: [export@pegleryorkshire.co.uk](mailto:export@pegleryorkshire.co.uk)

## *Technical Help*

Free Phone: 0800 156 0050

Free Fax: 0808 156 1012

Email: [tech.help@pegleryorkshire.co.uk](mailto:tech.help@pegleryorkshire.co.uk)

## *Brochure Hotline*

Free Phone: 0800 156 0020

Free Fax: 0808 156 1011

Email: [info@pegleryorkshire.co.uk](mailto:info@pegleryorkshire.co.uk)

[www.pegleryorkshire.co.uk](http://www.pegleryorkshire.co.uk)

## **Pegler Yorkshire Group Limited**

St. Catherine's Avenue, Doncaster,  
South Yorkshire, DN4 8DF, England.

Tel: 0844 243 4400 Fax: 0844 243 9870

Registered in England Company No. 00401507

Registered Office: Haigh Park Road, Stourton, Leeds,  
West Yorkshire, LS10 1RT, England.

All brand names and logo styles are registered trademarks.  
Maintaining a policy of continual product development,  
Pegler Yorkshire reserves the right to change specifications, design  
and materials of products listed in this publication without prior notice.

LIT.REF: 880114.07.10