

Stainless steel tubes and fittings for the food industry and other hygienic applications —

Part 5: Specification for recessed ring joint type couplings

ICS 67.260; 77.140.75

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Piping Systems Components Standards Policy Committee (PSE/-) to Technical Committee PSE/8, upon which the following bodies were represented:

Adhesive Tape Manufacturers' Association
British Compressed Air Society
British Gas plc
British Malleable Tube Fittings Association
British Steel Industry
British Valve and Actuator Manufacturers' Association
British Welded Steel Tube Association
Engineering Equipment and Materials Users' Association
Food and Drink Federation
Institution of Civil Engineers
Institution of Gas Engineers
Institution of Water and Environmental Management
Large Diameter Steel Tube Association
Mechanical Handling Engineers' Association
Stainless Steel Fabricators' Association of Great Britain
Steel Tube Fittings Manufacturers' Technical Association
Water Companies Association
Water Research Centre
Water Services Association of England and Wales
Coopted member

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

Brewers Society
Dairy Trade Federation
Institution of Production Engineers
Milking Machine Manufacturers' Association

This British Standard, having been prepared under the direction of the Piping Systems Components Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 31 January 1992

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The following BSI references relate to the work on this standard:
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Amendments issued since publication

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Amendment No. 1	31 August 2009	See foreword

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Foreword

This Part of BS 4825 has been prepared under the direction of the Piping Systems Components Standards Policy Committee.

BS 4825-5:1991+A1:2009 supersedes BS 4825-5:1991, which is withdrawn.

BS 4825 is published in five Parts:

- *Part 1: Specification for tubes;*
- *Part 2: Specification for bends and tees;*
- *Part 3: Specification for clamp type couplings;*
- *Part 4: Specification for threaded (IDF type) type couplings;*
- *Part 5: Specification for recessed ring joint type couplings.*

This Part of BS 4825 specifies the dimensional details of all components for ring joint type fittings and covers surface finish, manufacturer's certificate and marking.

Couplings specified in BS 4825 are intended for the following uses:

- *Part 3: where either in-place cleaning or frequent dismantling is necessary;*
- *Part 4: where cleaning in-place techniques are normally practised;*
- *Part 5: where piping systems are frequently dismantled.*

The essential differences between this Part of BS 4825 and BS 1864:1966 are as follows.

- a) Specifications for tube sizes and materials are now given in BS 4825-1.
- b) Dimensions for bends and tees are given in BS 4825-2.
- c) Dimensions for straight through and three way cocks have been withdrawn.
- d) The range of sizes has been extended to include 4 in couplings.

The start and finish of text introduced or altered by Amendment No. 1 is indicated in the text by tags **[A1]** **[A1]**. Minor editorial changes are not tagged.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 17 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 4825 specifies the dimensions, tolerances, surface finish, materials, assembly and hygienic requirements for welded and expanded type male parts, liners, nuts and seals for recessed ring joint type fittings for the food industry and other hygienic applications.

NOTE 1 The male parts and liners specified are intended to be used with stainless steel tubes specified in BS 4825-1.

NOTE 2 The titles of the publications referred to in this standard are listed on [A1](#) page 17 [A1](#).

2 Information to be supplied by the purchaser

2.1 The purchaser is to provide to the supplier the information given in Appendix A to enable products to be supplied in accordance with this standard.

2.2 A number of options are permitted by this standard as given in Appendix B.

Both the definitive requirements specified throughout this standard and the options selected by the purchaser shall be satisfied by the manufacturer before a claim of compliance with this standard can be made and verified. In the event that the purchaser does not indicate his requirements at the time of enquiry and order the manufacturer shall select the options where appropriate.

3 Definitions

For the purposes of this Part of BS 4825 the following definitions apply.

3.1

expanded male part

externally threaded part of the coupling providing a sealing groove. To be attached to a tube end by expansion

3.2

expanded liner

coupling part having a shoulder and providing a sealing face. To be attached to a tube end by expansion

3.3

welded male part

externally threaded part of the coupling providing a sealing groove. To be attached to a tube end by a butt weld

3.4

welded liner

coupling part having a shoulder and providing a sealing face. To be attached to a tube end by butt weld

3.5

seal

an elastomer which provides a liquid tight joint when compressed by the liner sealing face

3.6

hexagon nut

an internally threaded component providing the clamping of the coupling and compressing the seal between the liner and male part

4 Symbols

For the purposes of this Part of BS 4825, the following symbols apply:

C_1	outside diameter of neck of expanded type male part and liner
C_2	spigot diameter of welded type male part
C_3	inside diameter of nut
C_5	inside diameter of expanded type male part and liner
C_6	inside diameter of welded type male part and liner
C_7	outside diameter of expanded and welded type liner
C_{10}	outside diameter of neck of welded type male part and liner
C_{11}	centring diameter of the ring groove
C_{12}	diameter of spigot recess of expanded and welded type liner
C_{13}	inside diameter of spigot recess of welded type liner
C_{14}	diameter of flange neck of welded type liner
C_{15}	diameter of thread undercut of nut
d	major diameter of male part thread
d_1	minor diameter of male part thread
d_2	pitch diameter of male part thread
D	major diameter of nut thread
D_1	minor diameter of nut thread
D_2	pitch diameter of nut thread
F_1	total length of expanded type male part
F_2	effective length of welded type male part
F_3	total length of expanded type liner
F_6	total length of welded type liner
G_1	length of external thread of expanded and welded type male part
G_2	length of internal thread of nut
K_1	ring groove depth
K_2	length of spigot of welded type male part

- K_3 ring groove section diameter
- L_1 flange thickness of expanded type liner
- L_2 inside flange thickness of nut
- L_3 flange thickness of welded type liner
- L_4 depth of recess of expanded type male part
- L_5 depth of recess of expanded type liner
- L_6 depth of recess of welded liner
- N_2 width across flats of nut
- R_3 radius of groove of expanded and welded male parts
- U diameter of gasket section.

5 Design

NOTE The purchaser should specify whether expanded or welded type couplings are required in his enquiry and/or order (see Appendix A).

5.1 The dimensions of the couplings shall be as given in Table 1 to Table 6 and Figure 1 to Figure 6.

5.2 The screwed components of the couplings shall be of the basic Whitworth parallel form as specified in BS 84. The cross section of screwed coupling assemblies shall be as shown in Appendix C.

5.3 The design of the coupling shall be such to ensure satisfactory operation in a properly assembled pipeline system operating at a maximum working pressure of 1 MPa.

Table 1 — Expanded type male part
(see Figure 1)

Tube outside diameter	C_1	C_5	C_{11}	F_1
mm	mm	mm	mm	mm
25.4	32.5	25.4	33.3	20
38.1	45.2	38.1	46.0	24
50.8	57.9	50.8	58.7	28
63.5	70.6	63.5	71.4	32
76.2	83.3	76.2	84.1	32

Tolerances (see [A1](#)) BS EN 20286-1 and BS EN 20286-2 ([A1](#))

C_1 : + 0, - 0.08 mm
 C_5 : A10
 C_{11} : ± 0.13 mm
 F_1 : ± 0.25 mm
 G_1 : ± 0.20 mm
 K_1 : ± 0.13 mm
 R_3 : ± 0.13 mm

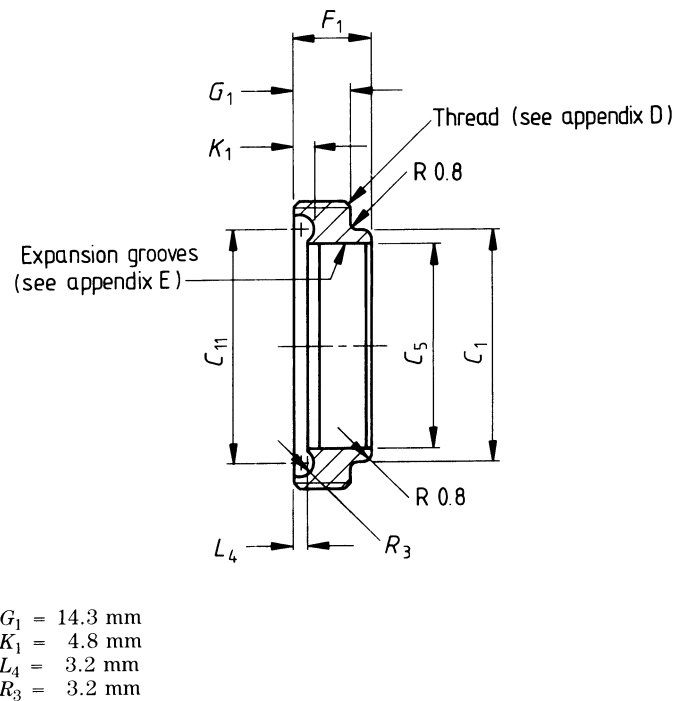


Figure 1 — Expanded type male part (see Table 1)