



Stainless steel tubes and tube fittings for food processing and hygienic applications

Part 4: Clamp tube fittings



AS 1528.4:2019

This Australian Standard® was prepared by FT-027, Stainless Steel Tubes and Tube Fittings for Food Processing and Hygienic Applications. It was approved on behalf of the Council of Standards Australia on 26 August 2019.

This Standard was published on 24 October 2019.

The following are represented on Committee FT-027:

- Australian Chamber of Commerce and Industry
- Australian Food Engineering Association
- Australian Industry Group
- Australian Stainless Steel Development Association
- Dairy Australia
- Winery Engineering Association

This Standard was issued in draft form for comment as DR AS 1528.4:2018.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

www.standards.org.au

ISBN 978 1 76072 588 4



Stainless steel tubes and tube fittings for food processing and hygienic applications

Part 4: Clamp tube fittings

Originated as AS N32—1960.
Previous edition AS 1528.4—2001.
Third edition AS 1528.4:2019.

COPYRIGHT

© Standards Australia Limited 2019

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Cth).

Preface

This Standard was prepared by the Standards Australia Committee FT-027, Stainless Steel Tubes and Tube Fittings for Food Processing and Hygienic Applications, to supersede AS 1528.4—2001, *Tubes (stainless steel) and tube fittings for the food industry, Part 4: Clamp liners with gaskets*.

The objective of this Standard is to specify the materials, dimensions, and surface finish requirements for welded-type and expanded-type clamp tube fittings, comprising clamps, clamp liners (ferrules), end caps and gaskets in tube couplings for effecting joins in pipelines in food processing and hygienic applications.

This is Part 4 of a series of Standards for stainless steel tubes and tube fittings for food processing and hygienic applications. The Standards in the series are as follows:

AS 1528.1, *Stainless steel tubes and tube fittings for food processing and hygienic applications, Part 1: Tubes*

AS 1528.2, *Stainless steel tubes and tube fittings for food processing and hygienic applications, Part 2: Screwed tube couplings*

AS 1528.3, *Stainless steel tubes and tube fittings for food processing and hygienic applications, Part 3: Butt weld tube fittings*

AS 1528.4, *Stainless steel tubes and tube fittings for food processing and hygienic applications, Part 4: Clamp tube fittings* (this Standard)

This revision of the AS 1528 series closely aligns with other national and international Standards applicable to stainless steel tube and tube fittings for hygienic applications, while retaining a number of requirements that were identified in the prefaces to the 2001 editions as lacking in ASTM and ISO Standards.

ISO, European and other national Standards were reviewed and found not suitable for current Australian requirements.

Major changes to this Standard in the current revision include the following:

- (a) The title of the Standard was changed to include “hygienic applications” in recognition of a broader application than simply the food processing industry.
- (b) Common internal surface requirements for all parts of the Standard.
- (c) Closer alignment of tolerances with International, European and US-based Standards.
- (d) Expansion of the diameter range and inclusion of wall thicknesses common to various tube diameters.
- (e) Expanded range of dimensions for welded-type clamp liners and gaskets.
- (f) Addition of end caps, now standard for the intended applications.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

Contents

Preface	ii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols	2
5 Working pressure	3
6 Materials	3
6.1 Clamp liners, end caps and clamps	3
6.2 Gaskets	3
7 Groove detail	4
8 Expanded-type clamp liner	5
9 Welded-type clamp liner	6
10 End cap	7
11 Gaskets	7
12 Surface finish	9
12.1 External surfaces	9
12.2 Internal surfaces	9
13 Hygienic requirements	9
13.1 Accessibility of surfaces of coupling	9
13.2 Welded liners	9
13.3 Gaskets	9
14 Packaging	9
15 Identification marking	9
15.1 On the container	9
15.2 On parts	10
16 Inspection certificates	10
17 Assembling	10
17.1 Welding	10
17.2 Expanding	10
17.3 Installation	10
Appendix A (informative) Information to be supplied for purchase	11
Appendix B (normative) Cross-section of clamp coupling assembly	12
Appendix C (normative) Clamp conditions at installation	13
Appendix D (normative) Grooves for expanded-type clamp liners	14
Appendix E (informative) Method for expanding with straight tube — Clamp liners	15

NOTES

Australian Standard[®]

Stainless steel tubes and tube fittings for food processing and hygienic applications

Part 4: Clamp tube fittings

1 Scope

This Standard specifies requirements for welded-type and expanded-type clamp tube fittings, comprising clamps, clamp liners (ferrules), end caps and gaskets in tube couplings for effecting joins in pipelines in food processing and hygienic applications. Requirements for materials, dimensions, and surface finish are specified.

Dimensions for a clamp coupling assembly are specified in [Appendix B](#).

Clamp liners in tube couplings for food processing and hygienic applications are intended to be used with stainless steel tubes in accordance with AS 1528.1 and fittings in accordance with AS 1528.2 and AS 1528.3.

NOTE Information to be supplied for purchase is given in [Appendix A](#).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

AS 1528.1, *Stainless steel tubes and tube fittings for food processing and hygienic applications, Part 1: Tubes*

AS 1528.2, *Stainless steel tubes and tube fittings for food processing and hygienic applications, Part 2: Screwed tube couplings*

AS 1528.3, *Stainless steel tubes and tube fittings for food processing and hygienic applications, Part 3: Butt weld tube fittings*

AS/NZS 1554.6, *Structural steel welding, Part 6: Welding stainless steel for structural purposes*

ISO 4288, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Rules and procedures for the assessment of surface texture*

ASTM A182M, *Standard Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service*

ASTM A240M, *Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications*

ASTM A276M, *Standard Specification for Stainless Steel Bars and Shapes*

ASTM A351M, *Standard Specification for Castings, Austenitic, for Pressure-Containing Parts*

AWS D18.1M, *Specification for Welding of Austenitic Stainless Steel Tube and Pipe Systems in Sanitary (Hygienic) Applications*

EN 10204, *Metallic products — Types of inspection documents*

3 Terms and definitions

For the purposes of this Standard the following definitions apply: