



## **Lifting points**

### **Part 1: Collared eyebolts and collared eyenuts—Grade 4**



AS 2317.1:2018

This Australian Standard® was prepared by ME-025, Lifting Tackle. It was approved on behalf of the Council of Standards Australia on 12 October 2018.

This Standard was published on 31 October 2018.

The following are represented on Committee ME-025:

- Australian Chamber of Commerce and Industry
- Australian Diecasting Association
- Australian Industry Group
- Chamber of Commerce and Industry Queensland
- Crane Industry Council of Australia
- Department of Defence (Australian Government)
- Engineers Australia
- Lifting Equipment Engineers Association
- National Association of Testing Authorities Australia
- SafeWork NSW
- WorkSafe Victoria

This Standard was issued in draft form for comment as DR AS 2317.1:2017.

### **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](http://www.standards.org.au)

[www.saiglobal.com](http://www.saiglobal.com) (sales and distribution)

ISBN 978 1 76072 215 9



## **Lifting points**

# **Part 1: Collared eyebolts and collared eyenuts—Grade 4**

Originated as AS B284—1969.  
Previous edition AS 2317—1998.  
Revised and redesignated as AS 2317.1:2018.

### **COPYRIGHT**

© Standards Australia Limited 2018

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 ME-025, Lifting Tackle, to supersede AS 2317—1998, *Collared eyebolts*.

This Standard is intended to promote the safety of collared eyebolts and collared eyenuts.

This edition includes the following technical changes from the superseded edition:

- (a) The inclusion of collared eyenuts.
- (b) A definition for a competent person has been included.
- (c) The definitions for working load have been amended.
- (d) The permitted types of screw threads have been extended to include a wider range of threads.
- (e) The range of nominal sizes for eyebolts has been extended. The working load limit (WLL) values and testing regimes have been altered to align more closely with ISO.
- (f) The requirements for testing of mechanical properties have been revised.
- (g) WLL marking requirements have been included.
- (h) The marked WLL is the transverse (or trunnion) loading.

This Standard is Part 1 of the AS 2317, *Lifting points*, series. When complete the series will include other parts that provide requirements for high tensile lifting points.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

The terms “normative” and “informative” have been used in this Standard to define the application of the appendix 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
Introduction .....	v
<b>Section 1 Scope and general</b> .....	<b>1</b>
1.1 Scope and application .....	1
1.1.1 Scope .....	1
1.1.2 Application .....	1
1.2 Normative references .....	1
1.3 Terms and definitions .....	2
<b>Section 2 Design and manufacture</b> .....	<b>5</b>
2.1 Material .....	5
2.1.1 Quality of material .....	5
2.1.2 Type of steel production .....	5
2.1.3 Deoxidation .....	5
2.1.4 Material requirements .....	5
2.1.5 Traceability .....	5
2.1.6 Temperature requirements .....	5
2.1.7 Ductility .....	6
2.2 Heat treatment .....	6
2.2.1 General .....	6
2.2.2 Hardness requirement .....	6
2.3 Design and manufacturing requirements .....	6
2.3.1 Design requirements .....	6
2.3.2 Forging .....	6
2.3.3 Machining .....	7
2.3.4 Screw thread .....	7
2.3.5 Surface finish .....	7
2.4 Mechanical properties .....	8
2.4.1 General .....	8
2.4.2 Axial strength .....	8
2.4.3 Transverse strength .....	8
2.5 Marking .....	9
2.5.1 General .....	9
2.5.2 Size .....	9
2.5.3 Information .....	9
<b>Section 3 Testing</b> .....	<b>10</b>
3.1 Type testing of mechanical properties .....	10
3.1.1 General .....	10
3.1.2 Test for deformation .....	10
3.1.3 Type test .....	10
3.1.4 Testing for transverse strength .....	11
3.1.5 Test samples .....	11
3.2 Manufacturing tests .....	11
3.2.1 Manufacturing examination .....	11
3.2.2 Manufacturing proof test .....	11
3.2.3 Non-destructive test .....	11
3.3 Proof loading .....	11
3.4 Requirements .....	11
3.5 Test certificates .....	12
<b>Section 4 Care and use of eyebolts and eyenuts</b> .....	<b>12</b>
4.1 Small eyebolts and eyenuts .....	12
4.2 Matching of threads .....	12
4.3 Anchorage .....	13
4.4 Threaded attachment .....	13

4.4.1	Collar interface .....	13
4.4.2	Washers .....	14
4.4.3	Untapped (through) holes .....	14
4.4.4	Hole tolerance.....	14
4.4.5	Tapped holes.....	15
4.4.6	Threaded studs.....	15
4.4.7	Soft or non-metallic materials.....	16
4.5	Tightening of eyebolts and eyenuts.....	16
4.6	Alignment of eye.....	16
4.7	Continuous slings .....	16
4.8	Loading when not aligned.....	17
4.8.1	General.....	17
4.8.2	Transverse loading.....	18
4.8.3	Lateral loading.....	19
4.9	Use with multiple eyebolts or eyenuts.....	19
4.10	Use with single eyebolt or eyenut.....	20
4.11	Service eyebolts and eyenuts.....	21
4.12	Lifting capacity while used with slings .....	21
4.13	Inspection .....	22
4.13.1	General.....	22
4.13.2	Cleaning.....	23
4.13.3	Before use .....	23
4.13.4	Periodic.....	23
4.13.5	Discard criteria.....	23
4.14	Temperature effects .....	24
<b>Appendix A (normative) Competent person requirements .....</b>		<b>25</b>
<b>Appendix B (informative) Information that should be supplied with enquiries and orders.....</b>		<b>26</b>
<b>Appendix C (informative) List of significant hazards.....</b>		<b>27</b>
<b>Appendix D (informative) Particular conditions for lifting capacity.....</b>		<b>28</b>
<b>Appendix E (informative) Standards for components used in lifting systems.....</b>		<b>29</b>
<b>Appendix F (informative) Typical eyebolt and eyenut dimensions.....</b>		<b>30</b>
<b>Appendix G (normative) Additional requirements for testing.....</b>		<b>32</b>
<b>Appendix H (normative) Manufacturing test regime acceptance criteria.....</b>		<b>34</b>
<b>Bibliography.....</b>		<b>37</b>

## Introduction

Eyebolts are used in lifting, tensioning and staying systems to connect the systems to a tapped hole or through a hole into a nut. Eyenuts are used in lifting, tensioning and staying systems to connect to a threaded stud.

In any lifting, tensioning or staying system, the working load of each component needs to take account of the conditions (such as the classification of load application as specified by AS 1418.1) and be compatible with any loads inherent in and applied to the system, and each component should readily connect with each adjacent component. Therefore, it is important that components of lifting, tensioning or staying systems be quickly and positively identified in service for size, lifting capacity and quality grade.

Only one grade of fitting is detailed in this Standard because the materials into which the eyebolts are fitted may have low mechanical strength properties. The material specified in this Standard is equivalent to the quality Grade 4 (previously referred to as Grade M) materials used for the manufacture of other types of lifting components. Eyebolts and eyenuts of a quality grade material greater than 4 are not excluded from use, provided they are interfaced with compatible materials and meet the required performance criteria.

## NOTES

This is a free 8 page sample. Access the full version online.



This is a free preview. Purchase the entire publication at the link below:

## **AS 2317.1 : 2018 : EN : COMBINED PDF**

- 
- ⏪ Looking for additional Standards? Visit SAI Global Infostore
  - ⏪ Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
- 

Need to speak with a Customer Service Representative - Contact Us