Offshore Cargo Carrying Units

API STANDARD 2CCU
SECOND EDITION, AUGUST 2025



Special Notes

API publications necessarily address problems of a general nature. With respect to particular circumstances, local, state, and federal laws and regulations should be reviewed. The use of API publications is voluntary. In some cases, third parties or authorities having jurisdiction may choose to incorporate API standards by reference and may mandate compliance.

Neither API nor any of API's employees, subcontractors, consultants, committees, or other assignees make any warranty or representation, either express or implied, with respect to the accuracy, completeness, or usefulness of the information contained herein, or assume any liability or responsibility for any use, or the results of such use, of any information or process disclosed in this publication. Neither API nor any of API's employees, subcontractors, consultants, or other assignees represent that use of this publication would not infringe upon privately owned rights.

API publications may be used by anyone desiring to do so. Every effort has been made by the Institute to ensure the accuracy and reliability of the data contained in them; however, the Institute makes no representation, warranty, or guarantee in connection with this publication and hereby expressly disclaims any liability or responsibility for loss or damage resulting from its use or for the violation of any authorities having jurisdiction with which this publication may conflict.

API publications are published to facilitate the broad availability of proven, sound engineering and operating practices. These publications are not intended to obviate the need for applying sound engineering judgment regarding when and where these publications should be used. The formulation and publication of API publications is not intended in any way to inhibit anyone from using any other practices.

Any manufacturer marking equipment or materials in conformance with the marking requirements of an API standard is solely responsible for complying with all the applicable requirements of that standard. API does not represent, warrant, or guarantee that such products do in fact conform to the applicable API standard.

All rights reserved. No part of this work may be reproduced, translated, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission from the publisher. Contact the Publisher, API Publishing Services, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001-5571.

Copyright © 2025 American Petroleum Institute

Foreword

Nothing contained in any API publication is to be construed as granting any right, by implication or otherwise, for the manufacture, sale, or use of any method, apparatus, or product covered by letters patent. Neither should anything contained in the publication be construed as insuring anyone against liability for infringement of letters patent.

The verbal forms used to express the provisions in this document are as follows.

Shall: As used in a standard, “shall” denotes a minimum requirement in order to conform to the standard.

Should: As used in a standard, “should” denotes a recommendation or that which is advised but not required in order to conform to the standard.

May: As used in a standard, “may” denotes a course of action permissible within the limits of a standard.

Can: As used in a standard, “can” denotes a statement of possibility or capability.

This document was produced under API standardization procedures that ensure appropriate notification and participation in the developmental process and is designated as an API standard. Questions concerning the interpretation of the content of this publication or comments and questions concerning the procedures under which this publication was developed should be directed in writing to the Director of Standards, American Petroleum Institute, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001. Requests for permission to reproduce or translate all or any part of the material published herein should also be addressed to the director.

Generally, API standards are reviewed and revised, reaffirmed, or withdrawn at least every five years. A one-time extension of up to two years may be added to this review cycle. Status of the publication can be ascertained from the API Standards Department, telephone (202) 682-8000. A catalog of API publications and materials is published annually by API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001.

Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001, standards@api.org.

Contents

Page

1 Scope 1

2 Normative References 1

3 Terms, Definitions, Abbreviations, and Symbols 3
3.1 Terms and Definitions 3
3.2 Abbreviations 5
3.3 Symbols 6

4 Design 7
4.1 Classification 7
4.2 Protruding Components 7
4.3 Structural Design 7
4.4 Structural Strength 8
4.5 Welding 14
4.6 Additional Design Details 14

5 Materials for CCU Structures 20
5.1 General 20
5.2 Minimum Material Thickness 20
5.3 Wrought Steel 20
5.4 Aluminum 22
5.5 Non-metallic Material 22
5.6 Steel Bolts, Nuts, and Pins 23

6 Manufacturing 23
6.1 General 23
6.2 Primary Structure 23
6.3 Secondary Structure 25

7 Prototype Testing 26
7.1 Prototype Vertical Impact Test 26
7.2 Prototype Load Testing 26
7.3 Failure of Prototype CCUs 27

8 Production Testing and Inspection Requirements 27
8.1 CCU Load Testing 27
8.2 Load Testing Methods 28
8.3 Single Pad Eye Load Testing 28
8.4 All-point Load Test 28
8.5 Post-load Test Inspection and Examination 28
8.6 CCU Load Test Certification 28
8.7 Calibration/Certification 29
8.8 Document Retention 29
8.9 Non-destructive Examination of Critical Components 29

9 Cargo Carrying Unit Lifting Sets 30
9.1 Technical Requirements 30
9.2 Design Requirements 30
9.3 Lifting Set Manufacturing Methods 33
9.4 Lifting Set Identification Requirements 36

Contents

Page

9.5 Removal Criteria for Wire Rope Lifting Sets 37
9.6 Removal Criteria for Bolt-type Shackles 37
9.7 Repairs to Wire Rope Lifting Sets 37
9.8 Lifting Set Certificates 37

10 CCU Marking Requirements 38
10.1 Safety Marking 38
10.2 CCU Identification Markings 38
10.3 Manufacturer's Data Plate Marking 38
10.4 Cargo Carrying Unit Inspection Plate 39

11 Documentation 40
11.1 Certificate of Conformance 40

12 Periodic Testing, Inspection, and Maintenance 40
12.1 Cargo Carrying Unit Inspections 40
12.2 Lifting Set Inspection 41
12.3 Maintenance 44
12.4 Failure of In-service CCUs 45

Annex A (normative) Assessment Criteria for Existing Cargo Carrying Units 46

Bibliography 48

Figures

1 Pad Eye and Shackle Dimensions 17
2 Material Impact Energy for Wrought Steel 21

Tables

1 Primary Structure Design Load 8
2 Enhancement Factors for PSL 1 Equipment 10
3 Enhancement Factors for PSL 2 Equipment 11
4 Recommended Forklift Pocket Distances and Operational Limitations 15
5 Minimum Material Thickness for Steel Sheet 20
6 Impact Test Temperature 22
7 Adjustment Factors for Sub-size Impact Specimens 22
8 NDE of Structural Welds 25
9 Standards for NDE Methods 25
10 Weld Acceptance Criteria 25
11 Total Test Load for All-point Lifting Test 27
12 Document Retention for Load Testing 29
13 PSL 1 Lifting Set Enhancement Factors (3-meter Wave Height) 31
14 PSL 2 Lifting Set Enhancement Factors (6-meter Wave Height) 32
15 Working Load Limit for Sling Legs and Shackles 33

Contents

Page

16 Forerunner Lengths 36
17 Authorized COC Signatures 40
18 Periodic Inspection Cycle and Tests for Cargo Carrying Units 41
19 Inspection Cycle and Tests for Lifting Sets 42
20 Document Retention Periods for Inspection Records 44

Offshore Cargo Carrying Units

1 Scope

This standard applies to cargo carrying units (CCUs) specifically designed for repetitive use in the transport of goods and equipment to, from, or between offshore installations, vessels, and/or shore-based operations, and takes into account the dynamic lifting and impact forces that can occur when handling such equipment in open seas.

This standard defines the design, material, manufacture, inspection, testing, repair, maintenance, and marking requirements for offshore cargo carrying units (CCU) and lifting sets, to include dry-goods boxes, baskets, and other skids designed to move equipment and goods offshore with maximum gross weight up to 70,000 kg (154,323 lb).

Annex A outlines the assessment criteria and parameters for in-service CCU equipment for continued fit-for-purpose applications by users of CCU equipment in conjunction with equipment built to this standard.

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. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any addenda) applies.

API Recommended Practice 2D, *Operation and Maintenance of Offshore Cranes*

API Recommended Practice 2X, *Ultrasonic and Magnetic Examination of Offshore Structural Fabrication and Guidelines for Qualification of Technicians*

API Specification 9A, *Wire Rope*

API Specification Q1, *Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry*

AISC[1] , *Steel Construction Manual*

ASME[2] , Boiler and Pressure Vessel Code (BPVC), *Section IX, Welding, Brazing, and Fusing Qualifications*

ASME B30.9, *Slings*

ASME B30.26, *Rigging Hardware*

ASNT[3] TC-1A, *Personnel Qualification and Certification in Non-destructive Testing*

ASTM[4] A153/A153M, *Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware*

ASTM A193/A193M, *Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications*

ASTM A194/A194M, *Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both*

---

1 The American Institute of Steel Construction, 130 East Randolph, Suite 2000, Chicago, IL, 60601, USA; www.aisc.org.

2 The American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990, USA; www.asme.org.

3 The American Society of Non-destructive Testing, 1711 Arlingate Lane, Columbus, OH 43228-0518, USA; www.asnt.org.

4 ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, USA; www.astm.org.