



OFFSHORE STANDARD
DNV-OS-E302

OFFSHORE MOORING CHAIN

OCTOBER 2008

*This booklet has since the main revision (October 2008) been amended, most recently in October 2009.
See the reference to "Amendments and Corrections" on the next page.*

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FOREWORD

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- H) Marine Operations
- J) Wind Turbines
- O) Subsea Systems

Amendments and Corrections

Whenever amendments and corrections to the document are necessary, the electronic file will be updated and a new Adobe PDF file will be generated and made available from the Webshop (<http://webshop.dnv.com/global/>).

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CHANGES

• General

Being class related, this document is published electronically only (as of October 2008) and a printed version is no longer available. The update scheme for this category of documents is different compared to the one relevant for other offshore documents (for which printed versions are available).

For an overview of all types of DNV offshore documents and their update status, see the “Amendments and Corrections” document located at: <http://webshop.dnv.com/global/>, under category “Offshore Codes”.

• Main changes as of October 2008:

This standard replaces Certification Note 2.6 (August 1995) - “Certification of Offshore Mooring Chain”.

The following is amended:

- specification for stud less chain is no longer tentative
- requirements to grade R4S and to R5 included
- mechanical tests of test coupons taken from full scale accessories
- scope of survey for chain and accessories
- “approval of manufacturer” programme has been removed. See DNV Standard. for Certification No.2.9.

• Main changes as of October 2009

Since the previous edition (October 2008), this document has been amended, latest in October 2009. All changes have been incorporated. The changes are considered to be of editorial nature, thus no detailed description has been given.

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CHAPTER 1

INTRODUCTION

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SECTION 1 INTRODUCTION

A. General

A 100 Introduction

101 This offshore standard contains criteria, technical requirements and guidance on materials, design, manufacture and testing of offshore mooring chain and accessories.

102 The standard has been written for general world-wide application. Governmental regulations may include requirements in excess of the provisions by this standard depending on the size, type, location and intended service of the offshore unit or installation.

103 The objectives of this standard are to:

- provide an internationally acceptable standard of safety by defining minimum requirements for offshore mooring chain and accessories
- serve as a contractual reference document between manufacturers and purchasers
- serve as a guideline for designers, suppliers, purchasers and regulators
- specify procedures and requirements for offshore mooring chain and accessories subject to DNV certification and classification.

104 This standard is divided into three main chapters:

- *Chapter 1:* Section 1 with general information, scope, definitions and references
- *Chapter 2:* Sections 1 and 2 with technical provisions for materials and chain cables
- *Chapter 3:* Section 1, Appendix A and B giving specific procedures and requirements applicable for certification and classification of materials and chain cables in accordance with this standard. Also, requirements to design verification are given.

A 200 Scope and application

201 The mooring chain and accessories specified herein are intended for position mooring applications such as: mooring of mobile offshore units, mooring of floating production units, mooring of offshore loading systems, and mooring of gravity base structures during fabrication.

202 Mooring chain links covered are common stud links and common stud less links, connecting common links (splice links), enlarged links and end links.

203 Mooring chain accessories covered are detachable connecting links (shackles), connecting plates (triplates etc), end (anchor) shackles, swivels and swivel shackles.

B. Normative References

B 100 General

101 The standards in Table B1 include provisions which, through reference in this text, constitute provisions of this offshore standard. Latest issue of the standards shall be used unless otherwise agreed.

102 Other recognised standards may be used provided it can be demonstrated that these meet or exceed the requirements of the standards in Table B1.

103 Any deviations, exceptions and modifications to the design codes and standards shall be documented and agreed between the supplier, purchaser and verifier, as applicable.

B 200 Reference documents

201 Applicable reference documents are given in Table B1.

Table B1 Normative references	
No.	Title
ASTM E112	Test Methods for Determining Average Grain Size
ASTM E381	Method of Macro-etch Testing Steel Bars, Billets, Blooms and Forgings
ISO 4967	Steel – Determination of content of non-metallic inclusions – Micrographic method using standard diagrams
ASTM A255	Standard Test Methods for Determining Hardenability of Steel
DNV-OS-B101	Metallic materials
ISO 9712	Non-destructive testing Qualification and certification of personnel
EN 473	Non destructive testing - Qualification and certification of NDT personnel - General principles
SNT-TC-1A (ASNT)	Personnel Qualification and Certification in Non-destructive Testing
EN 10228-1/3	Non-destructive testing of steel forgings
ASTM A275	Standard Practice for Magnetic Particle Examination of Steel Forgings
ASTM A388	Standard Practice for Ultrasonic Examination of Heavy Steel Forgings
ASTM E709	Standard Guide for Magnetic Particle Examination
ASTM A609	Standard Practice for Castings, Carbon, Low-Alloy and Martensitic Stainless Steel, Ultrasonic Examination Thereof
ISO 1704	Ships and marine technology – Stud-link anchor chains
API Spec 2F	Specification for mooring chain
ASTM E587	Practice for Ultrasonic Angle-Beam Examination by the Contact Method
ASME IX	Welding and Brazing Qualifications
EN 287	Approval testing of welders - Fusion welding
EN 288	Specification and approval of welding procedures for metallic materials
ISO 9606	Approval testing of welders - Fusion welding
ASTM A488	Practice for Steel Castings, Welding, Qualifications of Procedures and Personnel

C. Definitions

C 100 Verbal forms

101 *Shall:* Indicates requirements strictly to be followed in order to conform to this standard and from which no deviation is permitted.

102 *Should:* Indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required. Other possibilities may be applied subject to agreement.

103 *May:* Verbal form used to indicate a course of action permissible within the limits of the standard.

104 *Agreement, agreed or by agreement:* Unless otherwise indicated, agreed in writing between manufacturer and purchaser.

C 200 Terms

201 Purchaser: The owner or another party acting on his behalf, who is responsible for procuring materials, components or services intended for the design, fabrication or modification of a unit or installation.

202 Manufacturer: The party who is contracted to be responsible for planning, execution and documentation of manufacturing.



CHAPTER 2

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