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för borr och källunderhåll (ISO 14693:2003)**

**Petroleum and natural gas industries – Drilling
and well-servicing equipment (ISO 14693:2003)**

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Industries du pétrole et du gaz naturel - Equipement de forage et d'entretien des puits (ISO 14693:2003)

Erdöl- und Erdgasindustrie - Ausrüstungen für Bohr- und Bohrlocharbeiten (ISO 14693:2003)

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents	Page
Foreword	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms, definitions and abbreviated terms	8
3.1 Terms and definitions	8
3.2 Abbreviated terms	10
4 Design	10
4.1 Design conditions	10
4.2 Strength analysis	10
4.3 Size class designation	12
4.4 Rating	12
4.5 Load rating basis	12
4.6 Design safety factor	12
4.7 Shear strength	13
4.8 Specific equipment	13
4.9 Design documentation	13
5 Design verification	13
5.1 General	13
5.2 Design verification function test	14
5.3 Design verification pressure test	14
5.4 Design verification load test	15
5.5 Determination of rated load	16
5.6 Alternative design verification test procedure and rating	16
5.7 Design verification load-testing apparatus	17
5.8 Design changes	17
5.9 Records	17
6 Materials requirements	17
6.1 General	17
6.2 Written specifications	17
6.3 Mechanical properties	17
6.4 Material qualification	18
6.5 Manufacture	18
6.6 Chemical composition	19
7 Welding requirements	21
7.1 General	21
7.2 Welding qualification	21
7.3 Written documentation	21
7.4 Control of consumables	22
7.5 Weld properties	22
7.6 Post-weld heat treatment	22
7.7 Quality control requirements	22
7.8 Specific requirements — Fabrication welds	22
7.9 Specific requirements — Repair welds	22
8 Quality control	23
8.1 General	23
8.2 Quality control personnel qualifications	23
8.3 Measuring and test equipment	23

8.4	Quality control for specific equipment and components.....	24
8.5	Dimensional verification	28
8.6	Proof load testing	28
8.7	Hydrostatic testing	29
8.8	Functional testing.....	29
9	Equipment	29
9.1	General	29
9.2	Rotary tables	30
9.3	Rotary bushings	31
9.4	Rotary slips	32
9.5	Spiders not capable of use as elevators.....	32
9.6	Safety clamps not used as a hoisting device	38
9.7	Manual tongs	38
9.8	Power tongs	39
9.9	Drawworks components	40
9.10	Rotary hose.....	41
9.11	Piston mud-pump components	42
9.12	Antifriction bearings	67
10	Marking	67
10.1	Product marking	67
10.2	Marking method.....	67
11	Documentation	68
11.1	Record retention.....	68
11.2	Documentation to be kept by the manufacturer	68
11.3	Documentation to be delivered with the equipment.....	68
Annex A	(normative) Supplementary requirements.....	70
A.1	Introduction.....	70
A.2	SR1 — Proof load testing	70
A.3	SR2 — Low-temperature testing.....	70
A.4	SR2A — Additional low-temperature testing.....	70
A.5	SR3 — Data book.....	71
A.6	SR4 — Additional volumetric examination of castings.....	71
A.7	SR5 — Volumetric examination of wrought material.....	71
Annex B	(informative) Guidance for qualification of heat-treatment equipment	72
B.1	Temperature tolerance.....	72
B.2	Furnace calibration	72
B.3	Instruments	73
Annex C	(informative) Drilling machinery component dimensions expressed in US customary units	74
Annex D	(informative) Recommended piston mud-pump nomenclature and maintenance	80
D.1	Piston mud-pump nomenclature	80
D.2	Old designs	80
D.3	Types	80
D.4	Designation	80
Bibliography	86

Foreword

This document (EN ISO 14693:2003) has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum and natural gas industries" in collaboration with Technical Committee CEN/TC 12 "Materials, equipment and offshore structures for petroleum and natural gas industries", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

NOTE FROM CMC The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZA for the references to international publications with their relevant European publications will be circulated with the German version.

Endorsement notice

The text of ISO 14693:2003 has been approved by CEN as EN ISO 14693:2003 without any modifications.

Introduction

International Standard ISO 14693 is based upon API Specification 7K (3rd edition).

Users of this International Standard should be aware that further or differing requirements may be needed for individual applications. This International Standard is not intended to inhibit a vendor from offering, or the purchaser from accepting, alternative equipment or engineering solutions for the individual application. This may be particularly applicable where there is innovative or developing technology. Where an alternative is offered, the vendor should identify any variations from this International Standard and provide details.

Petroleum and natural gas industries — Drilling and well-servicing equipment

1 Scope

This International Standard provides general principles and specifies requirements for design, manufacture and testing of new drilling and well-servicing equipment and of replacement primary load-carrying components manufactured subsequent to the publication of this International Standard.

This International Standard is applicable to the following equipment:

- a) rotary tables;
- b) rotary bushings;
- c) rotary slips;
- d) rotary hoses;
- e) piston mud-pump components;
- f) drawworks components;
- g) spiders not capable of use as elevators;
- h) manual tongs;
- i) safety clamps not used as hoisting devices;
- j) power tongs, including spinning wrenches.

Annex A gives a number of standardized supplementary requirements which apply only when specified.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 148, *Steel — Charpy impact test (V-notch)*

ISO 6892, *Metallic materials — Tensile testing at ambient temperature*

ISO 7500-1, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system*

API Spec 5B, *Specification for threading, gaging and thread inspection of casing, tubing, and line pipe threads*

- ANSI/AGMA¹⁾ 2004-B89, *Gear Materials and Heat Treatment Manual*
- ANSI²⁾/ASME³⁾ B1.1, *Unified Inch Screw Threads (UN and UNR Thread Form)*
- ANSI/ASME B1.2, *Gages and Gaging for Unified Inch Screw Threads*
- ANSI/AWS⁴⁾ D1.1, *Structural Welding Code — Steel*
- ASME Boiler and Pressure Vessel Code Section V, *Nondestructive Examination*
- ASME Boiler and Pressure Vessel Code Section VIII, *Alternative Rules for Construction of High Pressure Vessels*
- ASME Boiler and Pressure Vessel Code Section IX, *Welding and Brazing Qualifications*
- ASNT⁵⁾ TC-1A, *Recommended Practice for Personnel Qualification and Certification in Nondestructive Testing*
- ASTM⁶⁾ A 370, *Standard Test Methods and Definitions for Mechanical Testing of Steel Products*
- ASTM A 388, *Standard Practice for Ultrasonic Examination of Heavy Steel Forgings*
- ASTM A 751, *Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products*
- ASTM A 770, *Standard Specification for Through-Thickness Tension Testing of Steel Plates for Special Applications*
- ASTM E 4, *Standard Practices for Force Verification of Testing Machines*
- ASTM E 125, *Standard Reference Photographs for Magnetic Particle Indications on Ferrous Castings*
- ASTM E 165, *Standard Test Method for Liquid Penetrant Examination*
- ANSI/ASTM E 186, *Standard Reference Radiographs for Heavy-Walled (2 to 4 1/2-in. (51 to 114-mm)) Steel Castings*
- ANSI/ASTM E 280, *Standard Reference Radiographs for Heavy-Walled (4 1/2 to 12-in. (114 to 305-mm)) Steel Castings*
- ASTM E 428, *Standard Practice for Fabrication and Control of Steel Reference Blocks Used in Ultrasonic Examination*
- ANSI/ASTM E 446, *Standard Reference Radiographs for Steel Castings Up to 2 in. (51 mm) in Thickness*
- ASTM E 709, *Standard Guide for Magnetic Particle Examination*
- AWS QC1, *Certification of Welding Inspectors*
- EN 287 (all parts), *Approval testing of welders — Fusion welding*

1) American Gear Manufacturers Association, 1500 King Street, Suite 201, Alexandria, VA 22314, USA.

2) American National Standards Institute, 1430 Broadway, New York, NY 10018, USA

3) American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017, USA.

4) American Welding Society, 550 N.W. LeJeune Road, Box 351040, Miami, FL 33135, USA.

5) American Society for Nondestructive Testing, 4153 Arlingate Plaza, Box 28518, Columbus, OH 43228, USA.

6) American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428, USA.

MSS⁷⁾ SP-53, *Quality Standard for Steel Castings and Forgings for Valves, Flanges and Fittings and other Piping Components — Magnetic Particle Examination Method*

MSS SP-55, *Quality Standard for Steel Castings for Valves, Flanges and Fittings and other Piping Components- Visual Method for Evaluation of Surface Irregularities*

3 Terms, definitions and abbreviated terms

For the purposes of this document, the following terms, definitions and abbreviated terms apply.

3.1 Terms and definitions

3.1.1

critical area

highly stressed regions on a primary load-carrying component

3.1.2

design load

sum of the static and dynamic loads that would induce the maximum allowable stress in the equipment

3.1.3

design safety factor

factor to account for a certain safety margin between the maximum allowable stress and the minimum specified yield strength of the material

3.1.4

design verification test

test undertaken to validate the integrity of the design calculations used

3.1.5

dynamic load

load applied to the equipment due to acceleration effects

3.1.6

equivalent round

ER

standard for comparing variously shaped sections to round bars, used in determining the response to hardening characteristics when heat-treating low-alloy and martensitic corrosion-resistant steels

3.1.7

identical design concept

property of a family of units whereby all units of the family have similar geometry in the primary load-carrying areas

3.1.8

linear indication

indication, revealed by non-destructive examination, having a length at least three times its width

3.1.9

maximum allowable stress

specified minimum yield strength divided by the design safety factor

7) Manufacturers Standardization Society of the Valve and Fittings Industry; 127 Park Street NE; Vienna, VA 22180; USA.

3.1.10

primary load

load that arises within the equipment when the equipment is performing its primary design function

3.1.11

primary load-carrying component

component of the equipment through which the primary load is carried

3.1.12

proof load test

production load test undertaken to validate the structural soundness of the equipment

3.1.13

rated load

maximum operating load, both static and dynamic, to be applied to the equipment

NOTE The rated load is numerically equivalent to the design load.

3.1.14

rated speed

rate of rotation, motion or velocity as specified by the manufacturer

3.1.15

repair

removal of defects from, and refurbishment of, a component or assembly by welding during the manufacturing process

NOTE The term "repair", as referred to in this International Standard, applies only to the repair of defects in materials during the manufacture of new equipment.

3.1.16

rounded indication

indication, revealed by nondestructive examination, with a circular or elliptical shape and having a length less than three times its width

3.1.17

safe working load

design load reduced by the dynamic load

3.1.18

size class

designation of the dimensional interchangeability of equipment specified herein

3.1.19

size range

range of tubular diameters to which an assembly is applicable

3.1.20

special process

operation that may change or affect the mechanical properties, including toughness, of the materials used in the equipment

3.1.21

test unit

prototype unit upon which a design verification test is conducted