Standard for Repair and Remanufacture of Drill-through Equipment

API STANDARD 16AR
FIRST EDITION, APRIL 2017

ERRATA 1, AUGUST 2017

REAFFIRMED, MAY 2023

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.

API is not undertaking to meet the duties of employers, manufacturers, remanufacturers, or suppliers to warn and properly train and equip their employees, and others exposed, concerning health and safety risks and precautions, nor undertaking their obligations under local, state, or federal laws.

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 utilized. The formulation and publication of API publications is not intended in any way to inhibit anyone from using any other practices.

Classified areas may vary depending on the location, conditions, equipment, and substances involved in any given situation. Users of this standard should consult with the appropriate authorities having jurisdiction.

Users of this standard should not rely exclusively on the information contained in this document. Sound business, scientific, engineering, and safety judgment should be used in employing the information contained herein.

Examples used in this standard are merely examples for illustration purposes only. [Each company should develop its own approach.] They are not to be considered exclusive or exhaustive in nature. API makes no warranties, express or implied for reliance on or any omissions from the information contained in this document.

Where applicable, authorities having jurisdiction should be consulted.

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.

Foreword

This standard shall become effective on the date printed on the cover but may be used voluntarily from the date of distribution.

Standards and specifications referenced herein may be replaced by other international or national standards or specifications that can be shown to meet or exceed the requirements of the referenced standard or specification. Manufacturers or remanufacturers electing to use another standards or specifications in lieu of a referenced standard or specification are responsible for documenting equivalency.

This standard is under the jurisdiction of the API Subcommittee on Drilling Well Control Systems.

This standard replaces the repair and remanufacture requirements from API 16A.

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.

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, 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, Washington, DC 20001.

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

Contents

Contents

Figures

Contents

Standard for Repair and Remanufacture of Drill-through Equipment

1 Scope

This standard specifies requirements for repair and remanufacture of drill-through equipment built under API 16A. This standard also applies to repair and remanufacture of drill-through equipment manufactured to API 6A requirements and produced prior to the existence of API 16A.

This standard also covers the testing, inspection, welding, marking, certification, handling, storing, and shipping of equipment repaired or remanufactured per this standard.

Repair and remanufacture under this standard includes all remanufacture and all repairs.

This standard is applicable to and establishes requirements for the repair and remanufacture of the following specific equipment:

1) ram blowout preventers (BOPs);

2) ram blocks, operators, packers, and top seals;

3) annular BOPs;

4) annular packing units;

5) hydraulic connectors;

6) drilling spools;

7) adapters;

8) loose connections;

9) clamps;

10) API 6A flanges;

11) other end connections (OECs).

Dimensional interchangeability is limited to end and outlet connections. Simplified examples of surface and subsea equipment defined by this standard are shown in Figures 1 and 2.

Maintenance activities are not governed by this document, but the documentation of those activities is included in the scope.

This standard defines various repair/remanufacture specification levels (RSLs) for the equipment identified below as well as the mandatory equipment traceability that is required to prove conformance.

Requirements for failure reporting are outlined in Annex D.