Drill Stem Valves

API SPECIFICATION 7V
FIRST EDITION, APRIL 2024

ADDENDUM 1, JANUARY 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 © 2024 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 to conform to the standard.

Should: As used in a standard, “should” denotes a recommendation or that which is advised but not required 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 2

3 Terms, Definitions, and Abbreviations 2
3.1 Terms and Definitions 2
3.2 Abbreviations 4

4 Drill Pipe Float Valve 4
4.1 General 4
4.2 Design Requirements 5
4.3 Design Requirements 6
4.4 DPFV Validation Testing 8
4.5 Production Testing 11
4.6 Identification 11
4.7 Material Requirements 11

5 Kelly Valves 12
5.1 General 12
5.2 Design Criteria 12
5.3 Validation and Production Testing 15
5.4 Connections 19
5.5 Non-destructive Examination of Connections 20
5.6 Marking 20
5.7 Supplemental Requirements 21

6 Inside Blowout Preventer (IBOP) 22
6.1 General 22
6.2 Design Criteria 22
6.3 Validation and Production Testing 23
6.4 Connections 25
6.5 Non-destructive Examination of Connections 25
6.6 Marking 25
6.7 Supplemental Requirements 25

7 Materials 26
7.1 General 26
7.2 Metals 26
7.3 Non-metals 26
7.4 Traceability 27

8 Quality Control Requirements 27
8.1 General 27
8.2 Personnel Qualification 27
8.3 Calibration Systems 27
8.4 Thread Inspection 28
8.5 Coatings, Overlays, and Surface Treatments 28
8.6 Non-destructive Examination (NDE) Requirements 28

9 Identification, Documentation, and Preparation for Transport 28
9.1 Documentation 28

Contents

Page

9.2 Preparation for Transport 29

Annex A (informative) DPFV Example Test Form 30

Bibliography 31

Figures

1 Drill Stem Assembly General Example 1
2 DPFV Types 5
3 L_{FV} and L_S Definitions 7
A.1 Example Test Form for DPFVs 30

Tables

1 DPFV Groups 5
2 Float Valves Dimensions and Seal Locations 7
3 Hydrostatic Testing Pressures 12
4 Minimum Mechanical Properties for Valve Bodies 13
5 Tensile Testing Specimen Location 13
6 Adjustment Factors for Impact Specimens 14
7 Summary of Service Class Requirements 15
8 IBOP Testing Requirements 23

Introduction

This standard has been developed by users/purchasers and suppliers/manufacturers of drill string valve equipment intended for use in the petroleum and natural gas industry worldwide. It is intended to give requirements and information to both parties in the selection, manufacture, testing, and use of these valves. The standard addresses requirements that set the minimum parameters with which the supplier/manufacturer will need to comply to claim conformity to this standard.

Users of this standard should be aware that further or differing requirements might be needed for individual applications. This standard is not intended to inhibit a supplier/manufacturer from offering, or the user/purchaser from accepting, alternative equipment or engineering solutions. This may be particularly applicable where there is innovative or developing technology.

See Figure 1 for a general example of a drill stem assembly.

Drill Stem Valves

1 Scope

This standard specifies the minimum design requirements for the following drill stem valves: drill pipe float valves, kelly valves, and inside blow out preventers (See Figure 1).

Qualification of items are intended to be independent for any of the components listed above. This standard does not cover maintenance and inspection once the valve has left the manufacturer and is in operation.

Kelly valve requirements, which were formerly covered in API Specification 7-1, are now superseded by the content in this document once published.

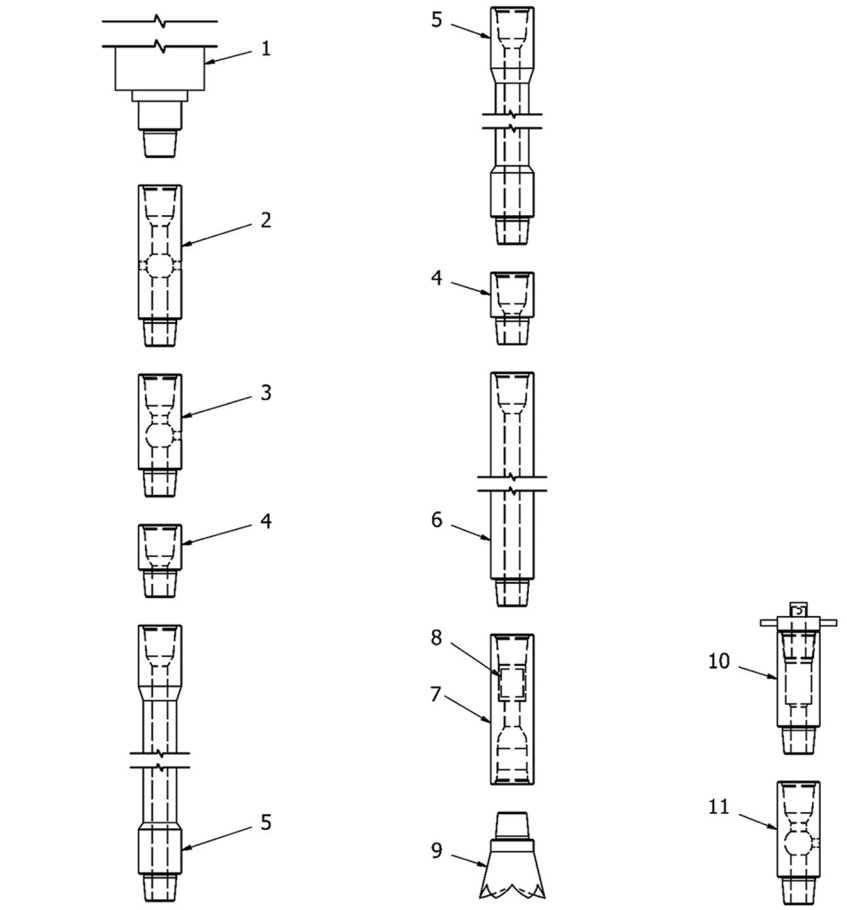


Figure 1—Drill Stem Assembly General Example