

Specification for Fire Test for Check Valves

API SPECIFICATION 6FD
FIRST EDITION, FEBRUARY 1995

REAFFIRMED, OCTOBER 2013



AMERICAN PETROLEUM INSTITUTE



Documents

Document Sharing Hub



Specification for Fire Test for Check Valves

Upstream Segment

API SPECIFICATION 6FD
FIRST EDITION, FEBRUARY 1995

REAFFIRMED, OCTOBER 2013



AMERICAN PETROLEUM INSTITUTE

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, 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.

Information concerning safety and health risks and proper precautions with respect to particular materials and conditions should be obtained from the employer, the manufacturer or supplier of that material, or the material safety data sheet.

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.

Generally, API standards are reviewed and revised, reaffirmed, or withdrawn at least every five years. Sometimes a one-time extension of up to two years will be added to this review cycle. This publication will no longer be in effect five years after its publication date as an operative API standard or, where an extension has been granted, upon republication. Status of the publication can be ascertained from the API Authoring Department [telephone (214) 953-1101]. A catalog of API publications and materials is published annually and updated quarterly by API, 1220 L Street, N.W., Washington, D.C. 20005.

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 standard or comments and questions concerning the procedures under which this standard was developed should be directed in writing to the director of the Exploration and Production Department, American Petroleum Institute, 700 North Pearl, Suite 1840, Dallas, Texas 75201. Requests for permission to reproduce or translate all or any part of the material published herein should also be addressed to the director.

API publications may be used by anyone desiring to do so. Every effort has been made by the Institute to assure 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 federal, state, or municipal regulation with which this publication may conflict.

API standards are published to facilitate the broad availability of proven, sound engineering and operating practices. These standards are not intended to obviate the need for applying sound engineering judgment regarding when and where these standards should be utilized. The formulation and publication of API standards 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.

CONTENTS

	Page
1 SCOPE	1
2 DESCRIPTION OF FIRE TEST	1
3 TEST PROCEDURE	1
4 PERFORMANCE REQUIREMENTS	6
4.1 Through Leakage—During Burn Period (High Test Pressure)	6
4.2 External Leakage—During Burn and Cool-Down Period (High Test Pressure, Valve in Closed Position)	6
4.3 Through Leakage—After Cooldown (Low Test Pressure)	6
4.4 External Leakage—After Cooldown (Low Test Pressure)	6
4.5 Operation of Valve After Fire Test.....	6
4.6 External Leakage—Open Position (High Test Pressure).....	6
4.7 Tests Required.....	6
5 CERTIFICATION.....	7
6 SAFETY CONSIDERATIONS	7
7 EQUIPMENT MARKING	7
APPENDIX A—CONVERSIONS OF ENGLISH UNITS TO SI METRIC UNITS....	9
 Figures	
1—Location of Thermocouples and Calorimeters— Smaller Flanged Check Valves	1
2—Location of Thermocouples and Calorimeters— Larger Flanged Check Valves	2
3—Location of Thermocouples and Calorimeters— Smaller Wafer Type Check Valves	2
4—Location of Thermocouples and Calorimeters— Larger Wafer Type Check Valves	3
5—Calorimeter Cube Design	4
6—Schematic of Suggested Systems for Fire Test for Check Valves	5
 Tables	
1—Test Pressure During Fire Test	4
2—Qualification of Other Size Valves	7
3—Qualification of Other Pressure Rating Valves.....	8

FOREWORD

This Specification is under the jurisdiction of the API Committee on Standardization of Valves and Wellhead Equipment. This edition of Spec 6FD is the first edition and was approved by letter ballot in September 1994.

Other standards under the jurisdiction of this committee include:

API

- Spec 6A Specification for Wellhead and Christmas Tree Equipment.
- Spec 6D Specification for Pipeline Valves (Gate, Plug, Ball, and Check Valves).
- Spec 6FB Specification for Fire Test for End Connections
- Spec 6FC Specification for Fire Test for Valves with Automatic Backseats.
- Bul 6AF Bulletin on Capabilities of API Flanges Under Combinations of Load.
- Bul 6AF1 Bulletin on Temperature Derating of API Flanges Under Combination of Loading.
- Bul 6F1 Performance of API and ANSI End Connections in a Fire Test According to API Spec 6FA.
- Bul 6F2 Fire Resistance Improvements for API Flanges.

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

IMPORTANT INFORMATION CONCERNING USE OF ASBESTOS OR ALTERNATIVE MATERIALS

Asbestos is specified or referenced for certain components of the equipment described in some API standards. It has been of great usefulness in minimizing fire hazards associated with petroleum processing. It has also been a universal sealing material, compatible with most petroleum fluid services.

Certain serious adverse health effects are associated with asbestos, among them the serious and often fatal diseases of lung cancer, asbestosis, and mesothelioma (a cancer of the chest and abdominal linings). The degree of exposure to asbestos varies with the product and the work practices involved.

Consult the most recent edition of the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) Health Standard for Asbestos, 29 *Code of Federal Regulations* Section 1910.1001; the U.S. Environmental Protection Agency's National Emission Standard for Hazardous Air Pollutants concerning Asbestos, 40, *Code of Federal Regulations* Section 61.140 through 61.156; and the U.S. Environmental Protection Agency (EPA) labeling requirements and phased banning of asbestos products, published at 54 *Federal Register* 29460-29513 (July 12, 1989) 40CFR763.160-179.

There are currently in use and under development a number of substitute materials to replace asbestos in certain applications. Manufacturers and users are encouraged to develop and use effective substitute materials which can meet the specifications for, and operating requirements of, the equipment to which they would apply.

Safety and health information with respect to particular products or materials can be obtained from the employer, the manufacturer or supplier of that product or material, or the material safety data sheet.