# Installation, Maintenance, and Repair of Safety Valves (SSV, USV, and BSDV)

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This standard shall become effective on the date printed on the cover.

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.

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## Introduction

The safety valve is a valve assembly that closes on loss of power supply. System architecture and power/control systems for safety valves are addressed in safety system documents such as API 14C.

The surface safety valve (SSV) or underwater safety valve (USV) is typically the second valve in the flow stream of the wellhead and tree. For an offshore surface facility, the boarding shutdown valve (BSDV) is typically the second valve in the flow stream, between an underwater production system and surface facility.

This edition of API 6AV2 contains the following major changes from prior editions:

— Changed the title of the standard to include boarding shutdown valves, which is a new type of safety valve in API 6A, 21st Edition.

— The term “safety valve” replaced “SSV” and “USV” throughout the document. This term now includes SSV, USV, and BSDV.

— The requirements for off-site repair of safety valves now refer to API 6AR.

— Test and possible repair of the safety valve is addressed. Complete system operation to meet operator and possible regulatory requirements is not specified.

— Requirements for establishment of product definition by service providers were added.

— The term “original product definition” and associated requirements were removed.

# Installation, Maintenance, and Repair of Safety Valves (SSV, USV and BSDV)

## 1 Scope

This standard provides requirements for installing and maintaining safety valves. Included are requirements for receiving inspection, installation, and maintenance, field and off-site repair, testing procedures with acceptance criteria, failure reporting, and documentation. Power and control systems for safety valves are not included.

NOTE 1 "Safety valve" as used in this standard denotes a surface safety valve (SSV), an underwater safety valve (USV) or a boarding shutdown valve (BSDV).

NOTE 2 Testing the safety shutdown system and test frequency are outside the scope of this Standard.

## 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.

API Specification 6A, *Specification for Wellhead and Tree Equipment*

API Standard 6AR, *Repair and Remanufacture of Wellhead and Tree Equipment*

API Standard 18LCM (2017), *Product Life Cycle Management System Requirements for the Petroleum and Natural Gas Industries.*

## 3 Terms, Definitions, Acronyms, and Abbreviations

### 3.1 Terms and Definitions

For the purposes of this standard, the terms and definitions given in API 6A and the following shall apply.

**3.1.1**
**choked flow**
Flow condition in which the fluid velocity and mass-flow rate are insensitive to the pressure drop across the flow restriction and no phase change occurs.

NOTE Choked flow occurs when the ratio of downstream pressure to upstream pressure is lower than the critical pressure ratio.

**3.1.2**
**critical pressure ratio**
Ratio of pressure downstream of the flow restriction to pressure upstream of the flow restriction below which choked flow occurs.

**3.1.3**
**direct measurement device**
Instrument/equipment whose output is the measurement of flow rate (leakage) across the pressure-controlling components of the safety valves.

**3.1.4**
**indirect measurement method**
Use of equipment whose output is the measurement of one or more thermodynamic properties of the fluid moving across the safety valves, and the methodology used to convert the measured quantities into the equivalent flow rate (leakage) across the pressure-controlling components of the safety valves.