Actuators and Mounting Kits for Valves

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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

Changes from the 2nd Edition to the 3rd Edition

This standard is the result of updating the requirements from API Standard 6DX, 2nd Edition, including Addendum 1. The revision of API 6DX, 3rd Edition, was developed based on input from the API 6DX task group global technical experts. Technical revisions have been made to accommodate the needs of the industry and address interpretations to move this standard to a higher level of service to the petroleum and natural gas industry. Highlights of some of the significant changes between the Second Edition and Third Edition include:

— Annex A, Sizing of Actuators, is normative.

— Valve data requirements have been moved to Annex A.

— The standard addresses third-party suppliers of actuators (e.g. valve manufacturer, distributor/stockist, value-add-center, integrator) and defines requirements for these organizations to follow.

— Provide new definitions for manufacturer, module and secondary gearbox.

— Provide new figures (Figures 1–5) for different types of actuators.

— Revised Figure 1 (now Figure 6) for clarity.

— Added requirements for the assembly of modules by the supplier.

— Added requirements for testing of actuators by the supplier.

— Added requirements for functional test of valve and actuator assembly.

— Units of measurement.

— In this specification, data are expressed in both U.S. customary (USC) and metric (SI) units.

Rounding

Except as otherwise required by this specification, to determine conformance with the specified requirements, observed or calculated values are rounded to the nearest unit in the last right-hand place of figures used in expressing the limiting value, in accordance with the rounding method of ASTM E29 or ISO 80000-1, Annex B, Rule A.

Actuators and Mounting Kits for Valves

1 Scope

This standard specifies the requirements for design, mechanical integrity, and sizing for all types of electric, pneumatic and hydraulic actuators and related components, including mounting kits, used on valves that conform to API Specification 6D. Actuators are designed to be assembled fully as a single unit or assembled from modules.

This standard is not applicable to actuators installed on control valves, or valves used for regulation. This standard does not apply to actuators for valves in subsea service (see API 6DSSX). Also excluded are requirements for handheld powered devices, instrument tubing and fittings.

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 6D,[1] *Specification for Valves*

ASME Boiler and Pressure Vessel Code,[2] Section VIII, Division 1, Rules for Construction of Pressure Vessels

ASME Boiler and Pressure Vessel Code, Section VIII, Division 2, Alternative Rules, Rules for Construction of Pressure Vessels

ASME Boiler and Pressure Vessel Code, Section IX, Welding and Brazing Qualifications

ASNT SNT-TC-1A,[3] *Non-Destructive Testing*

ASTM A370,[4] *Standard Test Methods and Definitions for Mechanical Testing of Steel Products*

ASTM B733, *Standard Specification for Autocatalytic (Electroless) Nickel-Phosphorus Coatings on Metal*

AWS D1.1/D1.1M,[5] *Structural Welding Code — Steel*

AWS QC1, *Standard for AWS Certification of Welding Inspectors*

EN 10204,[6] *Metallic products—Types of inspection documents*

ISA 7.0.01,[7] *Quality Standard for Instrument Air*

ISO 148-1,[8] *Metallic materials—Charpy pendulum impact test — Part 1: Test method*

ISO 4406:1999, *Hydraulic fluid power—Method for coding the level of contamination by solid particles*

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1 American Petroleum Institute, 200 Massachusetts Ave, NW, Washington, DC 20001, USA.
2 American Society of Mechanical Engineers International, 345 East 47th Street, New York, NY 10017-2392, USA.
3 American Society for Nondestructive Testing, 4153 Arlingate Plaza, Columbus, OH 43228-0518, www.asnt.org.
4 American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohoken, PA 19428-2959, USA.
5 American Welding Society, 8669 NW 36 Street, #130, Miami, Florida 33166-6672, www.aws.org.
6 CENCEN, European Committee for Standardization, Central Secretariat, Rue de Stassart 36, B-1050 Brussels, Belgium.
7 International Society of Automation, 3252 S. Miami Blvd. #102, Durham, NC 27703, https://www.isa.org/.
8 International Organization for Standardization, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland,www.iso.org.