PROCESS INDUSTRY PRACTICES

TECHNICAL REVISION
July 2022

Process Control

PIP PCECV001
Guideline for Application of Control Valves

PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determinations concerning fitness for purpose and particular matters or application of the Practice to particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by the Practice.

This Practice is subject to revision at any time.

PUBLISHING HISTORY

March 1998	*Issued*	*May 2010*	*Complete Revision*
June 2002	*Complete Revision*	*March 2016*	*Complete Revision*
January 2005	*Complete Revision*	*July 2022*	*Technical Revision*

Not printed with State funds

PIP PCECV001
Guideline for Application of Control Valves

Table of Contents

1. Scope

This Practice describes the guidelines and background information for the application of pneumatically actuated control valves. Issues addressed include valve selection, valve and actuator sizing, material selection, flow characteristic evaluation, valve accessories, and consideration of the effects of flashing, cavitation, and noise.

2. References

Applicable parts of the following PIP Practices, industry codes and standards, and other references shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

2.1 Process Industry Practices (PIP)

- PIP PCCGN002 - *General Instrument Installation Criteria*
- PIP PCSCV001 - *Specification of Control Valves*
- PIP PNSC0001 - *Fabrication and Examination Specification for ASME B31.3 Metallic Piping*

2.2 Industry Codes and Standards

Applicable requirements in the latest edition (or the edition indicated) of the following standards shall be considered an integral part of this Practice:

- American Petroleum Institute (API)
  - API 609 - *Butterfly Valves: Double Flanged, Lug- and Wafer-Type*
- American Society for Mechanical Engineers (ASME)
  - ASME B31.3 - *Process Piping*
- American Society for Testing and Materials (ASTM)
  - ASTM A193 - *Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service*
  - ASTM A194 - *Standard Specification for Carbon and Alloy Steel Nuts for High- Pressure or High-Temperature Service, or Both*
  - ASTM A216 - *Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service*
  - ASTM A217 - *Standard Specification for Steel Castings, Martensitic Stainless and Alloy, for Pressure-Containing Parts, Suitable for High-Temperature Service*
  - ASTM A320 - *Standard Specification for Alloy/Steel Bolting Materials for Low-Temperature Service*
  - ASTM A351 - *Standard Specification for Castings, Austenitic, Austenitic-Ferric (Duplex), for Pressure-Containing Parts*
  - ASTM A352 - *Standard Specification for Steel Castings, Ferritic and Martensitic for Pressure-Containing Parts, Suitable for Low-Temperature Service*