PROCESS INDUSTRY PRACTICES

COMPLETE REVISION
September 2022

Process Control

PIP PCSIP001
Instrument Tubing Material Specification

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

July 1998	*Issued*	*October 2015*	*Complete Revision*
October 2002	*Reaffirmation*	*September 2022*	*Complete Revision*
December 2007	*Complete Revision*		

Not printed with State funds

PIP PCSIP001
Instrument Tubing Material Specification

Table of Contents

1. Scope

This Practice provides component material specifications for instrument tubing systems. This Practice describes tubing system materials for the following services:

a. Instrument air supply

b. Impulse line purge

c. Pneumatic signal transmission installations

d. Connecting instruments to process piping and equipment

2. References

Applicable parts of the following Practices and industry codes and standards 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 ELSHT01 - *Self-Regulated Electric Heat Trace System Specification*
- PIP PNSC0035 - *Steam Tracing Specification*

2.2 Industry Codes and Standards

- American Society for Testing and Materials (ASTM)
  - ASTM A182/A182M - *Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service*
  - ASTM A269 - *Seamless and Welded Austenitic Stainless Steel Tubing for General Service*
  - ASTM A276 - *Stainless Steel Bars and Shapes*
  - ASTM B75 - *Seamless Copper Tube*
  - ASTM B165 - *Nickel-Copper Alloy (UNS N04400) Seamless Pipe and Tube*
  - ASTM B167 - *Nickel-Chromium-Iron Alloys, Nickel-Chromium-Cobalt-Molybdenum Alloy, and Nickel-Iron-Chromium-Tungsten Alloy Seamless Pipe and Tube*
  - ASTM B338 - *Seamless and Welded Titanium and Titanium Alloy Tubes for Condensers and Heat Exchangers*
  - ASTM B453/B453M - *Copper-Zinc-Lead Alloy (Leaded-Brass) Rod, Bar and Shapes*
  - ASTM B622 - *Seamless Nickel and Nickel-Cobalt Alloy Pipe and Tube*
  - ASTM B626 - *Welded Nickel and Nickel-Cobalt Alloy Tube*
  - ASTM B729 - *Seamless Nickel-Alloy Pipe and Tube*
- The International Society of Automation (ISA)
  - ISA RP 42.00.01 - *Nomenclature for Instrument Tube Fittings*
- American Society of Mechanical Engineers (ASME)
  - ASME B1.20.1 - *Pipe Threads, General Purpose*