CHAPTER 5
PROCESS COMPONENTS FOR MULTIUSE

PART DT
DIMENSIONS AND TOLERANCES FOR PROCESS COMPONENTS

DT-1 PURPOSE AND SCOPE

The purpose of this Part is to provide requirements that ensure process component fit-up and compatibility.

This Part specifies dimensions, tolerances, and all supplementary conditions for process components.

DT-2 PRESSURE RATING

Table DT-2-1 shows the maximum allowable working pressure and temperature ratings for metallic fittings manufactured per DT-4.1 and manufactured from materials listed in Tables MM-2.1-1 through MM-2.1-3, with the exception of automatic tube weld caps listed in Table DT-4.1.5-1.

Metallic fittings manufactured to pressure and temperature ratings that exceed those in Table DT-2-1 must be justified by methods accepted by ASME B31.3.

Metallic fittings listed in Table DT-4.1.5-1 (automatic tube weld cap) shall meet or exceed the pressure and temperature ratings shown in Table DT-2-1.

Special angle branch connections per DT-4.3 shall be rated per the manufacturer's pressure and temperature ratings.

Valves manufactured to this Part shall be rated per the manufacturer's marked pressure and temperature recommendations.

DT-3 WALL THICKNESS

The nominal wall thickness of the fittings and process components at the point of joining shall be the same as the tube to which they are welded. The thickness of the weld ends shall conform with the tolerances listed in Tables DT-3-1 and DT-3-2.

After fabrication and surface treatment, the wall thickness in any formed part of the fitting or process component, excluding tube, beyond the control portion as defined in DT-7, shall be a minimum of 65% of the nominal wall thickness. For guidelines regarding welds, refer to Part Mj. All welds shall meet the provisions of Mj-8 and Figure Mj-8.4-1.

DT-4 DIMENSIONS

Fittings and process components are designed for use with nominal outside diameter (O.D.) tubing for the sizes listed in Table DT-4-1. The dimensions are accompanied with soft metric conversions from the U.S. Customary units and are listed for reference only (see GR-6). For nominal metric size tubing and fittings, refer to the appropriate international standards.

DT-4.1 Fitting Dimensions

Dimensions for fittings that are governed by this Standard are grouped and categorized into tables.

All sizes shown in these tables are nominal O.D. tube sizes.

All automatic weld end fittings shall have minimum tangential lengths per Table DT-4.1-1. The tangential length, \( T_L \), is defined as the straight length measured from the welding end.

The categorized groups in DT-4.1.1 through DT-4.1.5 designate specific fitting dimensions.

DT-4.1.1 Elbows/Bends. Refer to Tables DT-4.1.1-1 through DT-4.1.1-10.

DT-4.1.2 Tees/Crosses. Refer to Tables DT-4.1.2-1 through DT-4.1.2-13. The branch shall not intersect the longitudinal weld of the run.

DT-4.1.3 Reducers. Refer to Tables DT-4.1.3-1 through DT-4.1.3-3.

DT-4.1.4 Ferrules. Refer to Table DT-4.1.4-1. Metallic hygienic clamp ferrule dimensions are specified in Table DT-4.1.4-1. Polymeric hygienic clamp ferrule dimensions are specified in Table DT-7.1-2.

DT-4.1.5 Caps. Refer to Tables DT-4.1.5-1 and DT-4.1.5-2.

DT-4.2 Nonstandard Fitting Dimensions

Fittings not specifically described in Tables DT-4.1.1-1 through DT-4.1.5-2 may be constructed using combinations of centerline-to-end dimensions from the tables.
**DT-11 MARKING**

**DT-11.1 Fittings, Valves, and Instrumentation Marking Information**

Except as specified in DT-11.1.1, each process component shall be permanently marked to maintain traceability by any suitable method not injurious to the process contact surface to show the following:

(a) a number or unique identifier that provides traceability to the applicable MTR (material test report), surface test report, or other certifications. This number may be a heat number/manufacturer’s code or serial number, marked on each process contact component.

(b) material type.

(c) valve pressure rating.

(d) manufacturer’s name, logo, or trademark.

(e) reference to this Standard (ASME BPE).

(1) ASME BPE Certificate of Authorization holders shall mark the reference to this Standard by applying their ASME Mark with BPE Designator. Refer to Figure CR-1-1.

(2) Non-ASME BPE Certificate of Authorization holders shall only mark "BPE."

(f) process contact surface designation for the appropriate BPE specification [only one surface finish (SF) designation allowed].

NOTE: All marking of a process component should be made outside of the control portion to optimize welding fit-up and identification.

**DT-11.1 Exceptions**

(a) Where the available marking area does not permit complete marking, the process component shall be marked, at a minimum, with the items identified in Table DT-11.1.1-1.

(b) Where the markings have been removed due to fabrication into another component or system, the heat number or manufacturer’s code and material type shall be re-marked on the fitting or process component.

(c) Polymeric fittings do not require marking per this section (see PM-2,2.2).

**DT-12 PACKAGING**

All end connections of fittings or process components shall be protected with end caps. Additionally, fittings shall be sealed in transparent bags or shrink wrapped. Additional packaging for process components, other than fittings, shall be as agreed to by the purchaser and manufacturer.

**Table DT-2-1**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>&lt;3 in.</th>
<th>3 in.</th>
<th>4 in.</th>
<th>6 in.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>170</td>
<td>1173</td>
<td>170</td>
</tr>
</tbody>
</table>

**GENERAL NOTES:**

(a) These pressure ratings apply to metallic fittings, including butt welded or hygienic clamped connections.

(b) For installation practices of hygienic clamp connections, refer to Figure DT-9.1.1.

(c) Manufacturers may publish higher pressure ratings; see DT-2.

(a) Manufacturer may publish higher pressure ratings; see paragraph DT-2.

(b) Hygienic clamp connections shall meet criteria in DT-9.