
APPENDIX E5

PIPE, TUBE, AND FITTING MATERIAL SPECIFICATIONS ACCEPTABLE FOR ASME B31, PRESSURE PIPING CODE, AND ASME BOILER AND PRESSURE VESSEL CODE

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TABLE E5.1 Carbon Steel Pipe, Tube, and Fittings (1), (2)

Mat'l spec	Description	Notes	B31.1	B31.3	B31.4	B31.5	B31.8	B31.9	B31.11	ASME I	ASME III
A53	Seamless pipe	(3)(4)	YES	YES	YES	YES	YES	YES	YES	YES	YES
A106	Seamless pipe	(3)	YES	YES	YES	YES	YES	YES	YES	YES	YES
A333	Seamless pipe	(3)	YES	YES	NO	YES	YES	NO	NO	NO	YES
A369	Seamless pipe	(3)	YES	YES	NO	NO	NO	NO	NO	YES	YES
API-5L	Seamless pipe	(3)	YES	YES	YES	YES	YES	YES	YES	NO	NO
A524	Seamless pipe/tube	—	NO	YES	YES	NO	NO	NO	YES	NO	YES
A179	Seamless tube	—	YES	YES	NO	YES	NO	NO	YES	NO	NO
A192	Seamless tube	—	YES	NO	NO	YES	NO	NO	NO	YES	NO
A210	Seamless tube	(3)	YES	NO	NO	YES	NO	NO	NO	YES	YES
A334	Seamless tube	—	NO	YES	NO	YES	NO	NO	NO	NO	YES
A53	Seamwelded pipe	(4)	YES	YES	YES	YES	NO	YES	YES	YES	YES
A134	Seamwelded pipe	(3)(6)	YES	YES	YES	YES	YES	NO	YES	NO	NO
A135	Seamwelded pipe	—	YES	YES	YES	YES	YES	YES	YES	NO	NO
A139	Seamwelded pipe	(3)(5)	YES	YES	YES	YES	YES	NO	YES	NO	NO
A211	Seamwelded pipe	(3)	YES	YES	NO	YES	YES	YES	YES	NO	NO
A333	Seamwelded pipe	—	YES	YES	NO	YES	YES	NO	NO	NO	YES
A381	Seamwelded pipe	—	NO	YES	YES	NO	YES	NO	YES	NO	NO
A587	Seamwelded pipe	—	YES	YES	NO	YES	NO	NO	NO	NO	YES
A671	Seamwelded pipe	(3)	YES	YES	YES	NO	YES	NO	YES	NO	YES
A672	Seamwelded pipe	(3)	YES	YES	YES	NO	YES	NO	YES	NO	YES
A691	Seamwelded pipe	(3)	YES	YES	NO	NO	NO	NO	YES	NO	YES
API-5L	Seamwelded pipe	(3)	YES	YES	YES	YES	YES	YES	YES	NO	NO
API-5LU	Seamwelded pipe	—	NO	NO	YES	NO	NO	NO	YES	NO	NO
A178	Seamwelded tube	—	YES	NO	NO	YES	NO	NO	NO	YES	YES
A214	Seamwelded tube	—	YES	NO	NO	YES	NO	NO	NO	NO	NO
A226	Seamwelded tube	—	YES	NO	NO	YES	NO	NO	NO	YES	NO
A105	Fittings	(3)	NO	YES	YES	YES	YES	YES	YES	YES	YES
A181	Fittings	(3)	NO	YES	YES	YES	NO	YES	YES	YES	YES
A234	Fittings	(3)	YES	YES	YES	YES	NO	YES	YES	YES	YES
A350	Fittings	(3)	NO	YES	YES	YES	NO	NO	YES	NO	YES
A420	Fittings	(3)	NO	YES	NO	YES	NO	NO	YES	NO	YES
A694	Fittings	(3)	NO	NO	YES	NO	NO	NO	YES	NO	NO

(1) For materials acceptable for use in ASME I and/or ASME III applications, use ASME specifications (e.g., SA 234) in lieu of ASTM specifications (e.g., A 234). The ASME specifications for ferrous materials are prefixed by SA, whereas ASTM specifications are prefixed by A.

(2) For limitations or additional requirements on use of these material specifications, refer to the applicable Code.

Notes: (3) Refer to code for acceptable grades, class, temper, and/or UNS Number. (4) Excluding grade F. (5) For sizes 4" and over. (6) For sizes 16" and over.

TABLE E5.2 Alloy Steel Pipe, Tube, and Fittings (1), (2)

Mat'l spec	Description	Notes	B31.1	B31.3	B31.4	B31.5	B31.8	B31.9	B31.11	ASME I	ASME III
A333	Seamless pipe	(3)	YES	YES	NO	YES	YES	NO	NO	NO	YES
A335	Seamless pipe	(3)	YES	YES	NO	NO	NO	NO	NO	YES	YES
A369	Seamless pipe	(3)	YES	YES	NO	NO	NO	NO	NO	YES	YES
A714	Seamless pipe		YES	NO	NO	NO	NO	NO	NO	NO	NO
A199	Seamless tube	(3)	YES	NO	NO	NO	NO	NO	NO	NO	NO
A213	Seamless tube	(3)	YES	NO	NO	YES	NO	NO	NO	YES	YES
A334	Seamless tube		NO	YES	NO	YES	NO	NO	NO	NO	YES
A333	Seamwelded pipe	(3)	YES	YES	NO	YES	YES	NO	NO	NO	YES
A671	Seamwelded pipe		NO	YES	YES	NO	YES	NO	YES	NO	YES
A672	Seamwelded pipe	(3)	YES	YES	YES	NO	YES	NO	YES	NO	YES
A691	Seamwelded pipe	(3)	YES	YES	NO	NO	NO	NO	YES	NO	YES
A714	Seamwelded pipe		YES	NO	NO	NO	NO	NO	NO	NO	NO
A182	Fittings	(3)	NO	YES	YES	YES	NO	NO	YES	YES	YES
A234	Fittings	(3)	YES	YES	YES	YES	NO	YES	YES	YES	YES
A350	Fittings		NO	YES	YES	YES	NO	NO	YES	NO	YES
A420	Fittings	(3)	NO	YES	NO	YES	NO	NO	YES	NO	YES
A694	Fittings		NO	NO	YES	NO	NO	NO	YES	NO	NO

(1) For materials acceptable for use in ASME I and/or ASME III applications, use ASME specifications (e.g., SA 234) in lieu of ASTM specifications (e.g., A 234). The ASME specifications for ferrous materials are prefixed by SA, whereas ASTM specifications are prefixed by A.

(2) For limitations or additional requirements on use of these material specifications, refer to the applicable Code.

Note: (3) Refer to code for acceptable grades, class, temper, and/or UNS Number.

TABLE E5.3 Stainless Steel Pipe, Tube, and Fittings (1), (2)

Mat'l spec	Description	Notes	B31.1	B31.3	B31.4	B31.5	B31.8	B31.9	B31.11	ASME I	ASME III
A312	Seamless pipe	(3)	YES	YES	NO	YES	NO	YES	NO	YES	YES
A376	Seamless pipe	(3)	YES	YES	NO	YES	NO	NO	NO	YES	YES
A430	Seamless pipe	(3)	YES	YES	NO	NO	NO	NO	NO	YES	YES
A731	Seamless pipe	(3)	YES	NO	NO	NO	NO	NO	NO	NO	NO
A790	Seamless pipe		NO	YES	NO	NO	NO	NO	NO	NO	NO
A213	Seamless tube	(3)	YES	NO	NO	NO	NO	NO	NO	YES	YES
A268	Seamless tube	(3)	YES	YES	NO	NO	NO	NO	NO	YES	YES
A269	Seamless tube		NO	YES	NO	YES	NO	NO	NO	NO	NO
A789	Seamless tube		NO	YES	NO	NO	NO	NO	NO	NO	NO
A312	Seamwelded pipe		YES	YES	NO	YES	NO	NO	NO	YES	YES
A358	Seamwelded pipe	(3)	YES	YES	NO	YES	NO	NO	NO	NO	YES
A409	Seamwelded pipe		NO	YES	NO	YES	NO	NO	NO	NO	YES
A731	Seamwelded pipe		YES	NO	NO	NO	NO	NO	NO	NO	NO
A790	Seamwelded pipe		NO	YES	NO	NO	NO	NO	NO	NO	NO
A249	Seamwelded tube		YES	NO	NO	YES	NO	NO	NO	YES	YES
A268	Seamwelded tube		YES	YES	NO	NO	NO	NO	NO	YES	YES
A269	Seamwelded tube		NO	YES	NO	YES	NO	NO	NO	NO	NO
A789	Seamwelded tube		NO	YES	NO	NO	NO	NO	NO	NO	NO
A182	Fittings	(3)	NO	YES	NO	NO	NO	NO	NO	YES	YES
A403	Fittings	(3)	YES	YES	NO	YES	NO	YES	NO	NO	YES

(1) For materials acceptable for use in ASME I and/or ASME III applications, use ASME specifications (e.g., SA 182) in lieu of ASTM specifications (e.g., A 182). The ASME specifications for ferrous materials are prefixed by SA, whereas ASTM specifications are prefixed by A.

(2) For limitations or additional requirements on use of these material specifications, refer to the applicable Code.

Note: (3) Refer to code for acceptable grades, class, temper, and/or UNS Number.

TABLE E5.4 Nickel and Nickel Alloy Pipe, Tube, and Fittings (1), (2)

Mat'l spec	Description	Notes	B31.1	B31.3	B31.4	B31.5	B31.8	B31.9	B31.11	ASME I	ASME III
B165	Seamless pipe/tube	(3)	YES	YES	NO	YES	NO	NO	NO	NO	NO
B167	Seamless pipe/tube	(3)	YES	YES	NO	NO	NO	NO	NO	NO	NO
B407	Seamless pipe/tube	(3)	YES	YES	NO	NO	NO	NO	NO	NO	NO
B423	Seamless pipe/tube	(3)	YES	NO	NO	NO	NO	NO	NO	NO	NO
B444	Seamless pipe/tube		NO	YES	NO	NO	NO	NO	NO	NO	NO
B622	Seamless pipe/tube		NO	YES	NO	NO	NO	NO	NO	NO	NO
B690	Seamless pipe/tube	(3)	YES	YES	NO	NO	NO	NO	NO	NO	NO
B729	Seamless pipe/tube	(3)	YES	YES	NO	NO	NO	NO	NO	NO	NO
B161	Seamless tube	(3)	YES	YES	NO	NO	NO	NO	NO	NO	NO
B163	Seamless tube	(3)	YES	NO	NO	NO	NO	NO	NO	NO	NO
B464	Seamwelded pipe	(3)	YES	YES	NO	NO	NO	NO	NO	NO	NO
B514	Seamwelded pipe		NO	YES	NO	NO	NO	NO	NO	NO	NO
B517	Seamwelded pipe		NO	YES	NO	NO	NO	NO	NO	NO	NO
B619	Seamwelded pipe		NO	YES	NO	NO	NO	NO	NO	NO	NO
B675	Seamwelded pipe	(3)	YES	YES	NO	NO	NO	NO	NO	NO	NO
B705	Seamwelded pipe		NO	YES	NO	NO	NO	NO	NO	NO	NO
B804	Seamwelded pipe	(3)	YES	YES	NO	NO	NO	NO	NO	NO	NO
B468	Seamwelded tube	(3)	YES	NO	NO	NO	NO	NO	NO	NO	NO
B676	Seamwelded tube	(3)	YES	NO	NO	NO	NO	NO	NO	NO	NO
B160	Fittings	(3)	NO	YES	NO	NO	NO	NO	NO	NO	YES
B164	Fittings	(3)	NO	YES	NO	NO	NO	NO	NO	NO	YES
B166	Fittings	(3)	NO	YES	NO	NO	NO	NO	NO	NO	YES
B366	Fittings	(3)	YES	YES	NO	NO	NO	NO	NO	NO	NO
B462	Fittings	(3)	YES	YES	NO	NO	NO	NO	NO	NO	YES
B564	Fittings	(3)	NO	YES	NO	NO	NO	NO	NO	NO	YES

(1) For materials acceptable for use in ASME I and/or ASME III applications, use ASME specifications (e.g., SB 160) in lieu of ASTM specifications (e.g., B 160). The ASME specifications for nonferrous materials are prefixed by SB, whereas ASTM specifications are prefixed by B.

(2) For limitations or additional requirements on use of these material specifications, refer to the applicable Code.

Note: (3) Refer to code for acceptable grades, class, temper, and/or UNS Number.

TABLE E5.5 Copper and Copper Alloy Pipe, Tube, and Fittings (1), (2)

Mat'l spec	Description	Notes	B31.1	B31.3	B31.4	B31.5	B31.8	B31.9	B31.11	ASME I	ASME III
B42	Seamless pipe	(3)	YES	YES	NO	YES	YES	YES	NO	NO	NO
B43	Seamless pipe		YES	YES	NO	YES	YES	YES	NO	NO	NO
B302	Seamless pipe	(3)	YES	NO	NO	YES	NO	YES	NO	NO	NO
B315	Seamless pipe/tube	(3)	YES	NO	NO	YES	NO	NO	NO	NO	NO
B466	Seamless pipe/tube	(3)	YES	YES	NO	YES	NO	NO	NO	NO	NO
B68	Seamless tube	(3)	YES	YES	NO	YES	YES	YES	NO	NO	NO
B75	Seamless tube	(3)	YES	YES	NO	YES	YES	YES	NO	NO	NO
B88	Seamless tube	(3)	YES	YES	NO	YES	YES	YES	NO	NO	NO
B111	Seamless tube	(3)	YES	NO	NO	YES	NO	NO	NO	NO	NO
B135	Seamless tube		NO	NO	NO	NO	NO	YES	NO	NO	NO
B280	Seamless tube		NO	YES	NO	YES	NO	YES	NO	NO	NO
B467	Seamwelded pipe	(3)	YES	YES	NO	YES	NO	NO	NO	NO	NO
B608	Seamwelded pipe	(3)	YES	NO	NO	NO	NO	NO	NO	NO	NO
B21	Fittings		NO	YES	NO	YES	NO	NO	NO	NO	NO
B98	Fittings	(3)	NO	YES	NO	YES	NO	NO	NO	NO	YES
B133	Fittings		NO	YES	NO	NO	NO	NO	NO	NO	YES
B150	Fittings	(3)	YES	YES	NO	NO	NO	NO	NO	NO	YES

(1) For materials acceptable for use in ASME I and/or ASME III applications, use ASME specifications (e.g., SB 98) in lieu of ASTM specifications (e.g., B 98). The ASME specifications for nonferrous materials are prefixed by SB, whereas ASTM specifications are prefixed by B.

(2) For limitations or additional requirements on use of these material specifications, refer to the applicable Code.

Note: (3) Refer to code for acceptable grades, class, temper, and/or UNS Number.

TABLE E5.6 Aluminum and Aluminum Alloy Pipe, Tube, and Fittings (1), (2)

Mat'l spec	Description	Notes	B31.1	B31.3	B31.4	B31.5	B31.8	B31.9	B31.11	ASME I	ASME III
B210	Seamless tube		YES	YES	NO	YES	NO	YES	NO	NO	NO
B234	Seamless tube		NO	NO	NO	YES	NO	NO	NO	NO	NO
B241	Seamless tube	(3)	YES	YES	NO	YES	NO	YES	NO	NO	NO
B345	Seamless pipe/tube		NO	YES	NO	YES	NO	NO	NO	NO	NO
B247	Fittings	(3)	NO	YES	NO	YES	NO	YES	NO	NO	YES
B361	Fittings		NO	YES	NO	YES	NO	YES	NO	NO	NO

(1) For materials acceptable for use in ASME I and/or ASME III applications, use ASME specifications (e.g., SB 247) in lieu of ASTM specifications (e.g., B 247). The ASME specifications for nonferrous materials are prefixed by SB, whereas ASTM specifications are prefixed by B.

(2) For limitations or additional requirements on use of these material specifications, refer to the applicable Code.

Note: (3) Refer to code for acceptable grades, class, temper, and/or UNS Number.