ASTM A178 / ASME SA178 ELETRIC RESISTANCE WELDED CARBON STEEL BOILER TUBES

This standard is issued under the fixed designation A 178/A 178M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (2) indicates an editorial change since the last revision or reapproval.

This specification has been approved for use by agencies of the Department of Defense. Consult the DoD Index of Specifications and Standards for specific year of issue which has been adopted by the Department of Defense.

1.Scope

1.1 This specification covers minimum-wall-thickness, electric-resistance-welded tubes made of carbon steel and carbon-manganese steel intended for use as boiler tubes, boiler flues, superheater flues, and safe ends.

NOTE 1 A Type C and D tubes are not suitable for safe-ending for forge welding.

1.2 The tubing sizes and thickness usually furnished to this specification are 1/2 to 5 in. [12.7 to 127 mm] in outside diameter and 0.035 to 0.320 in. [0.9 to 8.1 mm], inclusive, in minimum wall thickness. Tubing having other dimensions may be furnished, provided such tubes comply with all other requirements of this specification.

1.3 Mechanical property requirements do not apply to tubing smaller than 1/8 in. [3.2 mm] in inside diameter or 0.015 in. [0.4 mm] in thickness.

1.4 When these products are to be used in applications conforming to ISO Recommendations for Boiler Construction the requirements of this Specification A 520 shall supplement and supersede the requirements of this specification.

1.5 The values stated in either inch-pound units or SI units are to be regarded separately as standard. W within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must b used independently of the other. Combining values from the two systems may result in nonconformance with the specification. The inch-pound units shall apply unless the "M" designation of this specified in the order.

Material Comparison Tables (ASTM, KS, JIS, DIN, BS, NF, UNI)

ASTM Standard	UNS NO.	KOREA/JAPANES			GERMAN				BRITISH			FRENCH			ITALIAN		
		KS/JIS Symbol	KS/JIS Number	Remarks	DIN Type	DIN Number	Material Number	Remarks	B.S Number	B.S Grade	Remarks	AFNOR Type	NF Number	Remarks	UNI Type	UNI Number	Remarks
A 178 C-Steel Electric Resistance Welded Boiler Tubes																	
Grade A	K01200	STBH 340 / STB 35	D3563 / G3461	St 37.8	17177	1.0315	(7)	3059	ERW 320					(3)			(3)
Grade C	K03503	SHBH 410 / STB 42	D3563 / G3461	St 42.8	17177	1.0498	(7)							(3)			(3)

JIS Number and Corresponding Foreign Standards

JIS			ASTM			BS			DIN			NF			ISO			Index Number
Standard Number	Grade	Type	Standard Number	Grade	Type	Standard Number	Grade	Type	Standard Number	Grade	Type	Standard Number	Grade	Type	Standard Number	Grade	Type	
G3461	STB340	C	A161	LC	C	3059	HFS320	C				A49-245	TS34e	C				C010
	(STB35)		A192	-	C	"	CFS320	C				"	TS34c	C				
			A226	-	C	"	ERW320	C										
			A556	GrA2	C	"	CEW320	C										
			A557	GrA2	C	"	S1 360	C										
						"	S2 360	C										
						"	ERW 360	C										
						"	CEW360	C										
						3606	ERW320	C										
						"	CEW320	C										
						"	CFS320	C										
	STB410	C	A179	GrC	C	3059	S1 440	C	17175	St45.8	C	A49-213	TU42c	C	2604/2	TS9H	C	
	(STB42)		A210	GrA1	C	"	S2 440	C	17177	St42.8	C	A49-215	TU42c	C	"	TW9H	C	
			A556	GrB2	C	"	ERW 440	C				A49-243	TS42c					
			A557	GrB2	C	"	CEW 440	C				A49-245	TS42c					
						3602	HFS 410	C				"	TS42c					
						"	CFS 410	C										
						"	ERW 410	C										
						"	CEW 410	C										
						3606	ERW 440	C										
						"	CEW 440	C										
						"	CFS 440	C										
STB510	C							C	17175	19Mn5	C	A49-213	TU52C	C	2604/2	TS18	C	
(STB52)								C				A49-248	TU52C	C				