

BS 3059 Part 2-78 STEEL BOILER AND SUPERHEATER TUBES CARBON ALLOY AND AUSTENITIC STAINLESS STEEL TUBES WITH SPECIFIED ELEVATED TEMPERATURE PROPERTIES

PART 2

Carbon, alloy and austenitic stainless steel tubes with specified elevated temperature properties

Requirements for tubes not exceeding 127mm outside diameter and 12.5mm thickness, includes specified room temperature properties. Lists available options and details two categories of tests for tubes.

Grade	Mfg. Process	Chemical Composition (%)								
		C	Si	Mn	P	S	Ni	Cr	Mo	Others
S1 360	S	0.17Max	-	0.30~0.70	0.045Max	0.045Max	-	-	-	-
S2 360										
ERW360	E									
CEW360										
S1440	S	0.12~0.18	0.35Max	0.40~0.80	0.040Max	0.035Max	-	-	-	
S2 440										
ERW440	E									
CEW440										
S1 243	S	0.12~0.20	0.35Max	0.40~0.80	0.040Max	0.040Max	-	0.25~0.35	Al: 0.012Max	
S2 243										
ERW243	E									
CEW243										
S1 620	S	0.10~0.15	0.10~0.35	0.90~1.20	0.040Max	0.040Max	-	0.70~1.10	0.45~0.65	Al: 0.020Max
S2 620										
ERW620	E									
CEW620										
S1 622-440	S	0.08~0.15	0.10~0.35	0.40~0.80	0.040Max	0.040Max	-	2.00~2.50	0.90~1.20	Al: 0.020Max
S2 622-440										
S1 622-490	E									

S2 622-490										
S1 629-470	S									
S2 629-470		0.15Max	0.10~0.35	0.30~0.60	0.030Max	0.030Max	-	8.00~10.00	0.90~1.10	Al: 0.020Max
S1 629-590	E									
S2 629-590										
S1 762	S	0.17~0.23	0.50Max	1.00Max	0.030Max	0.030Max	0.3~0.8	10.00~12.50	0.80~1.20	V: 0.25~0.35 W: 0.70Max
S2 762										
CFS304S59	E	0.04~0.09	0.20~1.00	0.50~2.00	0.040Max	0.030Max	9.0~12.0	17.0~19.0	-	-
CFS316S59		0.04~0.09	0.20~1.00	0.50~2.00	0.040Max	0.030Max	11.0~16.0	16.0~18.0	2.00~2.75	-
CFS321S59 (1010)	S	0.04~0.09	0.20~1.00	0.50~2.00	0.040Max	0.030Max	9.0~13.0	17.9~19.0	-	Ti: 4xC~0.60
CFS321S59 (1105)										
CFS347S59	S	0.04~0.09	0.20~1.00	0.50~2.00	0.040Max	0.030Max	9.0~13.0	17.0~19.0	-	Nb: 8xC~1.00
CFS1250	S	0.06~0.15	0.20~1.00	5.50~7.00	0.040Max	0.030Max	9.0~11.0	14.0~16.0	0.80~1.20	Nb: 0.75~1.25 V: 0.15~1.25 B:0.003~0.009

Grade	Tensile Test MPa or N/mm ²		Remarks (Similar to JIS)
	Min Yield point	Tensile Strength	
S1 360	215	360~500	STB340
S2 360			
ERW360			
CEW360			
S1440	245	440~580	STB340
S2 440			
ERW440			
CEW440			

S1 243			
S2 243	245	455~600	STB410
ERW243			
CEW243			
S1 620			
S2 620	180	460~610	STBA 22
ERW620			
CEW620			
S1 622-440	180	440~590	STBA 24
S2 622-440			
S1 622-490	275	490~640	STBA 24
S2 622-490			
S1 629-470	185	470~620	STBA 26
S2 629-470			
S1 629-590	400	590~740	
S2 629-590			
S1 762	470	720~875	
S2 762			
CFS304S59	235	490~690	SUS304HTB
CFS316S59	245	510~710	SUS316HTB
CFS321S59 (1010)	235	510~710	SUS321HTB
CFS321S59 (1105)	195	490~690	
CFS347S59	245	510~710	SUS347HTB
CFS1250	275	540~740	

	STBA13	Mo	A209	T1-A	Mo														
			A250	T1-a	Mo														
			A629	-	Mo														
	STBA20	CrMo	A213	T2	CrMo														
	STBA22	CrMo	A213	T12	CrMo	3059	S1 620	CrMo	17175	13CrMo44	CrMo								
						"	S2 620	CrMo											
						3059	ERW620	CrMo											
						"	CEW620	CrMo											
						3604	HFS620-460	CrMo											
						"	CFS620-460	CrMo											
						"	ERW620-460	CrMo											
						"	CEW620-460	CrMo											
						"	HFS620-440	CrMo											
						"	CFS620-440	CrMo											
						"	ERW620-440	CrMo											
						"	CEW620-440	CrMo											
						3606	ERW620	CrMo											
						"	CEW620	CrMo											
						"	CFW620	CrMo											
	STBA23	CrMo	A199	T11	CrMo	3604	HF621	CrMo				A49-213	TU10CD	CrMo					
			A213	T11	CrMo	"	CFS621	CrMo				A49-215	TU10CD5.05	CrMo					
						"	ERW621	CrMo											
						"	CEW621	CrMo											
						3606	ERW621	CrMo											
						"	CEW621	CrMo											
						"	CFS621	CrMo											
	STBA24	CrMo	A199	T22	CrMo	3059	S1-622-440	CrMo	17175	10CrMo910	CrMo	A49-213	Tu10CD9.10	CrMo					

			A213	T22	CrMo	"	S2-622-440	CrMo					A49-215	Tu10CD9.10	CrMo				
						"	S1-622-490	CrMo											
						"	S2-622-490	CrMo											
	STBA25	CrMo	A199	T5	CrMo	3604	HFS625	CrMo								260 4/2	TS37	CrMo	
			A213	T5	CrMo	"	CFS625	CrMo											
						3606	CFS625	CrMo											
	STBA26	CrMo	A199	T9	CrMo	3059	S1-629-470	CrMo				A49-213	TUZ10CD9	CrMo					
			A213	T9	CrMo	"	S2-629-470	CrMo				A49-215	TUZ10CD9	CrMo					
						"	S1-629-470S2-629-590	CrMo											
						"	S2-629-590	CrMo											
						3604	HFS629-470	CrMo											

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	
G3463			A213	TP304	SUS	3605	304s18	SUS	2462	X5CrNi189	SUS	A49-230	TUZ6CN 18.09	SUS	2604/2	TS48	SUS	C012
	SUS		A249	TP304	SUS	"	304S25	SUS	2463	X5CrNi189	SUS							
	304TB	SUS	A269	TP304	SUS	3606	LWHT304S22	SUS										
			A623	TP304	SUS	3606	LWCF304S22	SUS										
			A688	TP304	SUS	"	LWBC304S25	SUS										
	SUS		A213	TP304H	SUS	3059	CFS304S59	SUS							2604/2	TS48	SUS	
	304HTB	SUS	A249	TP304H	SUS	3606	304S59	SUS										
	SUS		A213	TP304L	SUS	3605	304S14	SUS	2462	X2CrNi189	SUS	A49-207	TSZ2CN 18.10	SUS	2604/2	TS46	SUS	
	304LTB	SUS	A249	TP304L	SUS	"	304S22	SUS	2463	X2CrNi189	SUS	"	TSZ2CN 18.10	SUS				

					"	LWCF316S30	SUS												
					"	LWBC316S30	SUS												
					"	CFS316S30	SUS												
	SUS		A213	TP316H	SUS	3059	CFS316S59	SUS	17455	X5CrNiMo 17122					2604/2	TS52	SUS		
	316HTB	SUS	A249	TP316H	SUS				17456						"	TS61	SUS		
	SUS		A213	TP316L	SUS	3605	316S14	SUS	2462	X2CrNiMo 1810	SUS				2604/2	TS57	SUS		
	316LTB	SUS	A249	TP316L	SUS	"	316S22	SUS		X2CrNiMo 1812	SUS				"	TS58	SUS		
			A269	TP316L	SUS	3606	LWHT316S24	SUS	2463	X2CrNiMo 1810	SUS								
			A632	TP316L	SUS	"	LWCF316S24	SUS		X2CrNiMo 1812	SUS								
			A688	TP316L	SUS	"	LWBC316S24	SUS	17457	X5CrNi 17122									
						"	CFS346S24	SUS	17458										
						"	LWHT316S29	SUS											
						"	LWCF316S29	SUS											
						"	LWBC316S29	SUS											
						"	CFS316S29	SUS											
	SUS		A249	TP317	SUS														
	317TB	SUS	A632	TP317	SUS														
	SUS		A249	TP317	SUS														
	317LTB	SUS																	
			A213	TP321	SUS	3605	321S18	SUS	2462	X10CrNi Ti89	SUS	A49-230	TUZ6CNT 18.10	SUS	2604/2	TS53	SUS		
	321TB	SUS	A249	TP321	SUS	"	321S22	SUS	2463	X10CrNi	SUS								

