

BS 3603-77 STEEL PIPES AND TUBES FOR PRESSURE PURPOSES CARBON AND ALLOY STEEL WITH SPECIFIED LOW TEMPERATURE PROPERTIES

Specifications for carbon and alloy steel pipes and tubes with specified low temperature properties for pressure purposes.

Requirements plain and seamless electric resistance welded, including induction welded pipe and tubes.

Grade	Mfg. Process	Chemical Composition (%)								
		C	Si	Mn	P	S	Ni	Cr	Mo	Others
HFS410LT50	S	0.20Max	0.35Max	0.60-1.20	0.045Max	0.045Max	-	-	-	Al 0.015Min
CFS410LT50										
ERW410LT50	E	0.20Max	0.35Max	0.60-1.20	0.045Max	0.045Max	-	-	-	Al 0.015Min
CEW410LT50										
HFS503LT100	S	0.15Max	0.15-0.35	0.30-0.80	0.025Max	0.020Max	3.25-3.75	-	-	-
CFS503LT100										
HFS509LT196	S	0.10Max	0.15-0.30	0.30-0.80	0.025Max	0.040Max	8.50-9.50	-	-	-
CFS509LT196										

Grade	Tensile Test MPa or N/mm ²		Remarks (Similar to JIS)
	Min Yield point	Tensile Strength	
HFS410LT50	235	410-530	2mmV, -50°C, 27J (STPL39, STBL39)
CFS410LT50			
ERW410LT50			
CEW410LT50			
HFS503LT100	245	440-590	2mmV, -50°C, 55J 2mmV, -100°C, 47J (STPL46, STBL46)
CFS503LT100			
HFS509LT196	510	690-845	2mmV, -100°C, 55J 2mmV, -150°C, 47J 2mmV, -196°C, 39J (STPL70, STBL70)
CFS509LT196			

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 333 Seamless and Welded Pipe for Low Temperature Service																	
Grade 1	K03008	SPLT 39 / STPL 380	D3569 / G 3460	(16)	TT St 41N		1.0437	WBL-680(3b)			(3)	TU 42 BT	A49-230		C 15	5949	(6)Seamless Only
Grade 3	K31918	SPLT 46 / STPL 450	D3569 / G 3460	(16)	10 Ni 14		1.5637	WBL-680(3b)	3603	HFS 503 LT 100	CAT.2	TU 16 N 14	A49-230 (3c)		18 Ni 14	5949	Seamless Only
Grade 6	K03006			(3)	TT St 45 N		1.0456	WBL-680(3b)	3603	HFS 410 LT 50	CAT.2	TU 42 BT	A49-230		C 20	5949	Seamless Only
Grade 8	K81340	SPLT 70 / STPL 690	D3569 / G 3460	(16)	X8 Ni 9		1.5662	WBL-680(3b)	3603	HFS 590 LT 196	CAT.2	TU Z 11 N 9	A49-230 (6)		12 X Ni 09	5949	Seamless Only

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

ASTM Standard	UNS NO.	KOREA/JAPANES			GERMAN				BRITISH			BELGIAN			FRENCH			ITALIAN		
		KS/JIS Symbol	KS/JIS Number	Remarks	DIN Type	DIN Number	Material Number	Remarks	B.S Number	B.S Grade	Remarks	NBN Type	NBN Grade	Remarks	AFNOR Type	NF Number	Remarks	UNI Type	UNI Number	Remarks
A 334 Seamless and Welded Carbon and Alloy Steel Tubes for Low Temperature Service																				
Grade 1	K03008	STLT 39 / STbL 380	D3571 / G 3464		TT St 41N		1.0437	WBL-680(3b)			(3)				TU 42 BT	A49-230 (32)		C 15	5949	(6)Seamless Only
Grade 3	K31918	STLT 46 / STBL 450	D3571 / G 3464		10 Ni 14		1.5637	WBL-680(3b)	3603	HFS 503 LT 100	CAT.2				TU 16 N 14	A49-230 (3c)		18 Ni 14	5949	Seamless Only

Grade 6	K03006			(3)	TT St 45 N		1.0456	WBL-680(3b)	3603	HFS 410 LT 50	CAT.2				TU A 42 BT	A49-230	(29)	C 20	5949	Seamless Only
Grade 8	K31340	STLT 70 / STBL 690	D3571 / G 3464		X8 Ni 9		1.5662	WBL-680(3b)	3603	HFS 590 LT 196	CAT.2				TU Z 11 N 9	A49-230	(6)	12 X Ni 09	5949	Seamless Only

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 333 Seamless and Welded Pipe for Low Temperature Service																				
Grade 1	K03008	SPLT 39 / STPL 380	D3569 / G 3460	(16)	TT St 41N		1.0437	WBL-680(3b)				(3)	TU 42 BT	A49-230		C 15	5949	(6)	Seamless Only	
Grade 3	K31918	SPLT 46 / STPL 450	D3569 / G 3460	(16)	10 Ni 14		1.5637	WBL-680(3b)	3603	HFS 503 LT 100	CAT.2		TU 16 N 14	A49-230	(3c)	18 Ni 14	5949		Seamless Only	
Grade 6	K03006			(3)	TT St 45 N		1.0456	WBL-680(3b)	3603	HFS 410 LT 50	CAT.2		TU 42 BT	A49-230		C 20	5949		Seamless Only	
Grade 8	K81340	SPLT 70 / STPL 690	D3569 / G 3460	(16)	X8 Ni 9		1.5662	WBL-680(3b)	3603	HFS 590 LT 196	CAT.2		TU Z 11 N 9	A49-230	(6)	12 X Ni 09	5949		Seamless Only	

JIS Number and Corresponding Foreign Standards

JIS			ASTM			BS			NF			ISO			Index Number
Standard Number	Grade	Type	Standard Number	Grade	Type	Standard Number	Grade	Type	Standard Number	Grade	Type	Standard Number	Grade	Type	
G3460	STPL380	C	A333	Gr1	C	3608	HFS410LT50	C				2604/2	TS6	C	C007
	(STPL39)					"	CFS410LT50	C				2604/3	TW6	C	

						"	ERW410LT50	C									
						"	CEW410LT50	C									
	STPL440 (STPL450)	Ni	A333	Gr3	Ni	3603	HFS503	Ni	A49-230	TU10N14	Ni	2604/2	TS43	Ni			
						"	LT100										
							"	CFS503	Ni								
	STPL690 (STPL70)	Ni	A333	Gr8	Ni	3605	HFS503	Ni	A49-230	TU26N9	Ni	2604/2	TS45	Ni			
						"	LT196										
							"	CFS503	Ni								
						"	LT196										

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	
G3464	STBL380	C	A334	Gr1	C	3603	HFS410LT50	C	17173	FONi14	Ni				2604/2	TS6	C	C014
	(STBL39)					"	CFS410LT50	C	17174	X8Ni9	Ni							
						"	ERW410LT50	C										
						"	CEW410LT50	C										
	STBL450	Ni	A334	Gr3	Ni	3603	HFS03LT100	Ni				A49-230	TU10N14	Ni	2604/2	TS43	Ni	
	(STBL46)					"	CF503LT100	Ni				A49-213	TU10N14	Ni				
	STBL690	Ni	A334	Gr8	Ni	3603	HFS509LT196	Ni				A49-230	TUZ6N9	Ni	2604/2	TS45	Ni	
	(STBL70)					"	CFS509LT196	Ni				A49-215	TUZ6N9	Ni				