

NF A49-215-81 STEEL TUBES SEAMLESS TUBES FOR FERRITIC NON ALLOY AND ALLOY HEAT EXCHANGERS

Grade	Mfg. ProceTUZ6N9ss	Chemical Composition (%)									
		C	Si	Mn	P	S	Ni	Cr	Mo	Others	
TU37C	S	0.18Max	0.05~0.27	0.30~0.80	0.045Max	0.045Max	-	-	-	Cu 0.25Max Sn 0.03Max	
TU42C	S	0.22Max	0.07~0.40	0.40~1.05	0.045Max	0.045Max	-	-	-	Cu 0.25Max Sn 0.03Max	
TU48C	S	0.24Max	0.09~0.40	0.60~1.30	0.045Max	0.045Max	-	-	-	Cu 0.25Max Sn 0.03Max	
TU15D3	S	0.18~0.22	0.10~0.40	0.40~0.90	0.045Max	0.045Max	0.30Max	0.40Max	0.21~0.39	Cu 0.25Max Sn 0.03Max	
TU15CD2-05	S	0.08~0.20	0.05~0.40	0.40~1.00	0.035Max	0.035Max	0.30Max	0.30~0.75	0.41~0.64	Cu 0.25Max Sn 0.03Max	
TU10CD5-05	S	0.17Max	0.45~1.05	0.20~0.70	0.035Max	0.035Max	0.30Max	0.90~1.60	0.41~0.69	Cu 0.25Max	a
										Sn 0.03Max	b
TU10CD9-10	S	0.17Max	0.05~0.55	0.20~0.70	0.035Max	0.035Max	0.30Max	1.90~2.60	0.85~1.15	Cu 0.25Max	a
										Sn 0.03Max	b
TUZ10CD5-05	S	0.17Max	0.10~0.55	0.30~0.65	0.035Max	0.035Max	-	3.90~6.10	0.40~0.65	-	
TUZ10CD9	S	0.17Max	0.20~1.05	0.20~0.70	0.035Max	0.035Max	0.30Max	7.90~10.15	0.85~1.15	Cu 0.25Max Sn 0.03Max	
TU42BT	S	0.22Max	0.40Max	1.15Max	0.04Max	0.04Max	-	-	-	Cu 0.30Max	
TU17N2	S	0.23Max	0.40Max	1.60Max	0.045Max	0.045Max	0.6~0.8	0.20Max	0.10Max	Cu 0.30Max V 0.05Max	
TU10N9	S	0.17Max	0.35Max	1.10Max	0.035Max	0.035Max	2.0~2.6	0.20Max	0.10Max	Cu 0.30Max V 0.05Max	
TU10N14	S	0.17Max	0.40Max	0.75Max	0.035Max	0.035Max	3.2~3.8	0.20Max	0.10Max	Cu 0.30Max V 0.05Max	
TUZ6N9	S	0.12Max	0.35Max	1.00Max	0.035Max	0.035Max	8.5~9.6	0.20Max	0.10Max	Cu 0.30Max V 0.05Max	

Grade	Tensile Test MPa or N/mm ²		Remarks (Similar to JIS)
	Min Yield point	Tensile Strength	
TU37C	210	360~450	-
TU42C	230	410~510	(STB42)
TU48C	270	470~570	-
TU15D3	260	430~530	-
TU15CD2-05	270	430~570	-
TU10CD5-05	220	440~570	(STBA23)
	320	490~640	-
TU10CD9-10	220	410~560	(STBA24)
	320	490~640	-
TUZ10CD5-05	390	590~710	-
TUZ10CD9	200	440~590	(STBA26)
TU42BT	230	410~510	Impact test(°C, J/cm ²)
			-46, 35
TU17N2	320	490Min	-60, 50
TU10N9	240	450Min	-80, 50
TU10N14	240	450Min	(STBL46)
			-100, 50
TUZ6N9	530	650Min	(STBL70)
			-196, 60

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

ASTM Standard	UNS NO.	KOREA/JAPANESE			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 179 Seamless Cold Drawn Low Carbon Steel Heat Exchanger and Condenser	K01200	STBH 340 / STB 35	D3563 / G3461		St35.4	1629	1.0309		3606	CFS 320		D 37-2	629	(3b)	TU 37 C	A49-215	(3a)	C 14	5462	

JIS Number and Corresponding Foreign Standards

[illegible]

						"	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				