

**ASTM A161/ASME SA161 SEAMLESS LOW CARBON AND CARBON MOLYBDENUM STEEL TUBES FOR REFINERY SERVICE**

The standard is issued under the fixed designation A 161; 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.

1.Scope

1.1 This specification covers minimum-wall-thickness, seamless, hot-finished and cold-finished, low-carbon and carbon-molybdenum steel still tubes, for use in carrying fluids at elevated temperatures and pressures in various types of heaters, in which the tubes may be subjected to furnace temperature higher than that of the contained fluid.

1.2 This specification covers tubes 2 to 9 in. (50.8 to 228.6 mm), inclusive in outside diameter and over 0.220 in. (5.59 mm) in minimum wall thickness.

1.3 Where butt welding is used to obtain lengths longer than single lengths normally produced in the mill, Specification A 422 shall cover the requirements for butt welds.

1.4 The values stated in inch-pound units are to be regarded as the standard. The values in parentheses are for information 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 161 Seamless Low-C and C-Mo Steel Tubes for Refinery Service	K01504	STF 410 / STF 410	D3587 / G3467	(31)	St 35.8	17175	1.0305		3056	HFS 320	(31)	D 37.1	629	(3b)	C 10 d		(3a)	C 14	5462	(3b)
	K11522	SFTA12 / STFA12	D3578 / G3467	(34)	16 Mo 5		1.5423	(3a)			(3)	16 Mo 5	629	(3b)	15 D 5		(3a)	16 Mo 5	5462	(3b)
Grade T1																				

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	Gr C	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				