

INSPECTION CERTIFICATE



SUMITOMO METAL INDUSTRIES, LTD.  
WAKAYAMA STEEL WORKS (KAINAN)  
260-100, FUNOO, KAINAN, JAPAN

CERTIFICATE NO. : BYYP1434 PAGE: 1 DATE: 2007-01-18

CUSTOMER : BABCOCK AND WILCOX  
ORDER NO. : BAX062311/180D/180DA0000TMF ITEM NO. 163  
SHIPPER : SUMITOMO CORPORATION 057 KEP 20092/E 6PIXSI57301  
COMMODITY : SEAMLESS ALLOY STEEL BOILER TUBES

STANDARD : ASME 2004 (A05) SA-213 GR. T91  
SPECIFICATION : C030000, 2E4-1708.018 REV. 3, D031247

MILL WORK NO. : BYYP1434 O. D. : 2inch W. T. : 0.47inch LENGTH: 25feet 0inch QUANTITY: 19pcs. MASS: 1796kg

HEAT NO. PRODUCTS PCS. HEAT NO. PRODUCTS PCS.  
F619153 4 F61A153 15

HEAT TREATMENT: NORMALIZED & TEMPERED (1922°F X 10min. A.C. & 1436°F X 60min. A.C.)

CHEMICAL COMPOSITION (%)

	#1	C	Si	Mn	P	S	Cr	Ni	Mo	V	N	Cb	Al	N/A1	#2	#1 L: LADLE ANALYSIS P: PRODUCT ANALYSIS
SPEC. MIN.	L	8	20	30	-	-	800	-	85	18	30	6	-	-	2	*2: X1 *3: X1000 OTHER: X100
MAX.	L	12	50	60	20	10	950	40	105	25	70	10	4	-		
MIN.	P	7	20	30	-	-	800	-	85	18	30	6	-	2		
MAX.	P	14	50	60	20	10	950	40	105	25	70	10	4	-		
HEAT NO.																
F619153	L	9	25	43	17	0	810	17	88	20	41	6	1	4		
	P	8	25	43	15	1	818	15	90	20	44	6	1	4		
F61A153	L	9	26	46	14	0	826	13	89	20	44	7	1	4		
	P	9	26	46	15	1	824	13	88	20	44	6	1	4		

TENSILE TEST HARDNESS TEST

	#1	#2	YS	TS	EL	HB	TYPE OF SPECIMEN FULL SECTION
SPEC. MIN.	L	B	P 60.0	P 85.0	20	C -	GAUGE LENGTH 2.0"
MAX.	L	B	P -	P -	-	C 250	
HEAT NO.							KIND OF YS 0.2% OFFSET #1 DIRECTION L: LONGITUDINAL #2 SAMPLING POSITION B: BASE METAL #3 UNIT P: ksi  HB: HBW  #4 LOCATION C: CROSS SECTION
F619153	L	B	P 69.5	P 94.7	44	C 204	
						C 202	
F61A153	L	B	P 73.5	P 95.4	46	C 207	
						C 207	

FLATTENING TEST: ACCEPTABLE  
FLARING TEST: ACCEPTABLE  
VISUAL & DIMENSIONS: ACCEPTABLE  
HYDROSTATIC TEST 2500psi: GUARANTEE (EDDY CURRENT EXAMINATION ACCEPTABLE)

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED HAS BEEN MANUFACTURED, SAMPLED, TESTED, AND INSPECTED IN ACCORDANCE WITH ABOVE STANDARD AND SPECIFICATION AND SATISFIES THE REQUIREMENTS.

*Y. Komoto*

MANAGER, QUALITY ASSURANCE SECTION

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WE, HERE CERTIFY THAT THIS MATERIAL IS MIN. WT.  
ITEM#/COA#/P/N  
163/AS4900/6262943

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