

MATERIAL TEST & INSPECTION CERTIFICATE

SUNGKWANG BEND CO., LTD.(SKB)

CUSTOMER: SOUTHWEST STAINLESS, INC.
PROJECT NAME: N/A

According to
DIN 50049 3.1 / EN 10204 3.1 / ISO 10474 3.1

1720, Songjeong-Dong, Gangseo-Ku, Busan, Korea
TEL : 82-051-3300-450
FAX : 82-051-3300-335
http://www.skbend.com

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PURCHASE ORDER NO.		203799		SPEC. FOR MATERIAL		ASTM/ASME A/SA403WP316/316L-W 07/07ED		CERTIFICATE NO.		QCLP2010090844		
PJT NO.		N/A		SPEC. FOR INSPECTION		ASME B16.9		DATE OF ISSUE		2010.08.24		
STARTING MATERIAL		E.F.W PIPE		SKB NO.		2010031703		VISUAL & DIMENSION		SATISFACTORY		
NO.	SEQ/LINE/ITEM NO		DESCRIPTION				QTY	HEAT NO.		MFG ID NO.		POR/CODE/TAG NO
197			90D ELBOW LONG	S40S	10"	B.W WELDED	SUS	11	D0804851	D0804851		
199			90D ELBOW LONG	S40S	2"	B.W WELDED	SUS	735	D0408952	D0408952		

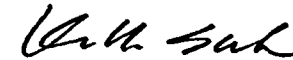
HEAT NO.		CHEMICAL COMPOSITION(%) (L : LADLE, P : PRODUCT)																			TENSILE TEST						
		STD.	SPEC.	C	SI	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	N	Al	B	W	Sn	Ti	C.E	SPEC.	Y.S 0.2% offset	T.S	EL	R.A	
		MIN							19.00	16.00	2.00												MIN	KSI	KSI	%	%
		MAX	0.030	1.00	2.00	0.045	0.030	14.00	18.00	3.00													MAX	30.0	75.0	28.0	
D0408952		L	0.024	0.56	1.04	0.027	0.001	10.46	16.58	2.04													44.5	89.6	56.0		
		P																									
D0804851		L	0.019	0.49	1.40	0.033	0.001	10.10	17.01	2.04													42.9	89.6	58.0		
		P																									
IMPACT TEST																											

HEAT NO.	TEST TEMP.	SIZE OF SPECIMEN(mm)	ABSORBED ENERGY		LATERAL EXPANSION		PERCENT SHEAR		HARDNESS		HEAT TREATMENT	SOLUTION TREATED 1060°C, 20Min., "Water"		
			STD. /		STD. /		STD. /		MIN	HRC				
			VALUE	AVE.	VALUE	AVE.	VALUE	AVE.	MAX	22.0		N.O.E	N/A	P.MI
D0408952		B/M							HB	150		FLATTENING TEST	N/A	**MEMO
		H.A.Z										BENDING TEST	N/A	
		W/M										HYDROSTATIC TEST	N/A	
D0804851		B/M							HB	158		CORROSION TEST	N/A	
		H.A.Z										GRAIN SIZE TEST	N/A	
		W/M										HIC TEST	N/A	

MATERIAL MEETS THE REQUIREMENTS OF NACE MR0175.

WE CERTIFY THIS MATERIAL HAS BEEN MANUFACTURED AND EXAMINED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE SPECIFICATION AND THE RESULTS OF ALL EXAMINATION ARE ACCEPTABLE.

□ REVIEWED BY :
□ WITNESSED BY :


QM DIV. SENIOR MANAGING DIRECTOR