

071745

Ord# 209802-2; PO# 096-2010; H# 929210-1; 1-1/2 40 316/316L SR-90

MATERIAL TEST & INSPECTION CERTIFICATE



SUNGKWANG BEND CO., LTD.(SKB)

1720, Songjeong-Dong, Gangseo-Ku, Busan, Korea

TEL : 82-051-3300-450

FAX : 82-051-3300-335

http://www.skbend.com

CUSTOMER: SHAW APP
PROJECT NAME: N/A

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

PURCHASE ORDER NO.	35478	SPEC. FOR MATERIAL	ASTM/ASME AISA403WP316/316L-W 07/07ED	CERTIFICATE NO.	QCLP2010051669
PJT NO.	N/A	SPEC. FOR INSPECTION	ASME B16.9	DATE OF ISSUE	2010.05.12
STARTING MATERIAL	E F W PIPE	SKB NO.	2010020303	VISUAL & DIMENSION	SATISFACTORY

NO.	SEQ./LINE/ITEM NO	DESCRIPTION					QTY	HEAT NO.	MFG ID NO.	MILL MAKER	FOR/CODE/TAG NO
127		90D ELBOW SHORT	S40S	1 1/2"	B.W WELDED	SUS	25	929210-1	929210-1	DS STEEL	
128		90D ELBOW SHORT	S40S	2"	B.W WELDED	SUS	20	00802452	00802452	SUNGWON PIPE	

CHEMICAL COMPOSITION(%) (L : LADLE, P : PRODUCT)																				TENSILE TEST					
HEAT NO.	STD.	SPEC.	C	SI	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	N	Al	B	W	Sn	Ti	C.E	SPEC.	Y.S	T.S	EL	RA
																						MIN	MAX	MIN	MAX
929210-1	L	0.022	0.65	0.68	0.024	0.001	12.07	17.74	2.06													415	765	420	
	P																								
00802452	L	0.017	0.57	1.03	0.024	0.001	12.51	16.82	2.03													43.2	85.4	55.0	
	P																								

HEAT NO.	TEST TEMP.	SIZE OF SPECIMEN(mm)	ABSORBED ENERGY		LATERAL EXPANSION		PERCENT SHEAR		HARDNESS HRC		HEAT TREATMENT	SOLUTION TREATED 1060°C 20Min Water		
			STD. I	AVE.	STD. I	AVE.	STD. I	AVE.	MIN	MAX		N.D.E	FIN	N/A
			VALUE	AVE.	VALUE	AVE.	VALUE	AVE.	MAX	220		N/A	N/A	N/A
929210-1		B/M								HB	149	FLATTENING TEST	N/A	MEMO
		H.A.Z										BENDING TEST	N/A	
		W/M										HYDROSTATIC TEST	N/A	
00802452		B/M								HB	149	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 & 0103.

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 : _____

[Signature]
QN DIV. SENIOR MANAGING DIRECTOR