

Inv# 232899; PO# 66; H# 1280641; 10 X 8 S80 CONC WPB

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: FORGINGS FLANGES & FITTINGS INC.
 PROJECT NAME: N/A

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

45095

PURCHASE ORDER NO.	172720	SPEC. FOR MATERIAL	ASTM/ASME A/SA234WPB-S 07/07ED	CERTIFICATE NO.	QCLA2012060616
PJT NO.	N/A	SPEC. FOR INSPECTION	ASME B16.9	DATE OF ISSUE	2012.06.19
STARTING MATERIAL	SEAMLESS PIPE	SKB NO.	2011103101	VISUAL & DIMENSION	SATISFACTORY

NO.	SEQ/LINE/ITEM NO	DESCRIPTION					QTY	HEAT NO.	MFG ID NO.	POR/CODE/TAG NO
90		CON REDUCER	S80*S80	10**8"	B.W SMLS Black	25	1280641	1280641		
91		ECC REDUCER	S80*S80	10**8"	B.W SMLS Black	40	1280641	1280641		

CHEMICAL COMPOSITION(%) (L : LADLE, P : PRODUCT)																				TENSILE TEST(Gauge Length :5D)						
HEAT NO.	STD.	SPEC.	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	N	Al	B	Zr	Fe	Ti	C.E	SPEC.	Y.S 0.2% offset	T.S	EL.	R.A	
																						KSI	KSI	%	%	
1280641		MIN		0.10	0.29																	MIN	35.0	60.0	30.0	
		MAX	0.30		1.06	0.050	0.058	0.40	0.40	0.15	0.40	0.08										MAX		85.0		
	L		0.20	0.25	0.59	0.010	0.010	0.06	0.06	0.01	0.06	0.006											41.7	71.9	39.0	
	P																									

IMPACT TEST	HEAT NO.	TEST TEMP.	SIZE OF SPECIMEN(mm)	ABSORBED ENERGY STD. /		LATERAL EXPANSION STD. /		PERCENT SHEAR STD. /		HARDNESS HB		HEAT TREATMENT	NORMALIZED: 900°C, 40Min., "Air"		
				VALUE	AVE.	VALUE	AVE.	VALUE	AVE.	MIN	197		PMI	N/A	N.D.E
1280641			B/M								HB 140	FLATTENING TEST	N/A	**MEMO	
				H.A.Z									BENDING TEST		N/A
				WM									HYDROSTATIC TEST		N/A
				B/M									CORROSION TEST		N/A
				H.A.Z									GRAIN SIZE TEST		N/A
				WM									HIC TEST		N/A

MATERIAL MEETS THE REQUIREMENTS OF NACE MR0175 & 0103.
 PED(97/23/EC)

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]

QM DIV. SENIOR MANAGING DIRECTOR