


35435

# MATERIAL TEST & INSPECTION CERTIFICATE

 SUNGKWANG BEND CO., LTD.(SKB)

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

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

PURCHASE ORDER NO.	172239	SPEC. FOR MATERIAL	ASTM/ASME A/SA420WPL6-S 07/07ED	CERTIFICATE NO.	QCLP2011050338
PJT NO.	N/A	SPEC. FOR INSPECTION	ASME B16.9	DATE OF ISSUE	2011.05.03
STARTING MATERIAL	STEEL PLATE	SKB NO.	2011022803	VISUAL & DIMENSION	SATISFACTORY

NO.	SEQ/LINE/ITEM NO	DESCRIPTION				QTY	HEAT NO.	MFG ID NO.	POR/CODE/TAG NO
24		CAP	STD	5"	B.W SMLS	Black	60	SA12645	SA12645

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	Zr	Fe	Ti	C.E	SPEC.	Y.S 0.2% offset		T.S	EL.	RA
																						KSI	MPa	MPa	%	%
SA12645		MIN		0.15	0.50																	MIN	35.0	50.0	30.0	
		MAX	0.35	0.40	1.35	0.035	0.040	0.40	0.30	0.12	0.40	0.08	0.02									MAX		85.0		
		L	0.11	0.26	0.90	0.013	0.003	0.01	0.02	0.01	0.02	0.001	0.001										42.7	69.1	44.0	
		P																								

IMPACT TEST HEAT NO.	TEST TEMP.	SIZE OF SPECIMEN(mm)	ABSORBED ENERGY STD. /S/7R15l. Min/Ave.				LATERAL EXPANSION STD. /				PERCENT SHEAR STD. /				HARDNESS HRC		HEAT TREATMENT	NORMALIZED. 900°C, 30Min. "Air"																	
			VALUE		AVE.		VALUE		AVE.		VALUE		AVE.		MIN	MAX		PMI	N/A	N.D.E	N/A														
			B/W	H.A.Z	W/M									HB	148	FLATTENING TEST			N/A	**MEMO															
SA12645	-45°C	10x5.0	B/W	40.90	38.70	39.80	39.80																												
			H.A.Z																																
			W/M																																
			B/W																																
			H.A.Z																																
			W/M																																

- 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 :



QM DIV. SENIOR MANAGING DIRECTOR

PO#: 274 Pack#: 134454 Order#: 857460 Lot#: skb.sa12645 Desc: 5 STD SMLS CAP A/SA420 WPL6 SKB