



SAN ENG STEEL FORGING CO LTD
 311, Jen Hsin Road, Jen Wu Hsiang
 Kaohsiung Hsien, Taiwan, R.O.C.
 TEL:07-3724249; FAX:07-3712923
 URL: www.saneng.com.tw
 e-mail: saneng@ksts.seed.net.tw

MILL TEST CERTIFICATE

EN10204-3.1.B(DIN50049/3.1.B)
 Customer: ALLIED FITTING L.P.
 Order No.: 92208ST

Certificate No.: SE080442
 Date: 11/21/2008
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PRODUCT		MATERIAL SPECIFICATIONS				DIMENSIONAL SPECIFICATIONS			
FORGED CARBON STEEL FLANGES		ASTM A105-05/ASME SA105-07				ASME B16.5-03			

Item No.	CUSTOMER P/N	DESCRIPTION	QUANTITY		CHEMICAL COMPOSITION (%)											CE(*3)		
			Min	Max	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb		N	
1		150 WNRF S40 20" A105N	44	PCE	0.200	0.100	0.600	-	0.040	0.400	0.300	0.400	0.120	0.080	0.020	-	-	0.426
2		150 WNRF S40 20" A105N	21	PCE	0.200	0.100	0.600	0.035	0.040	0.200	0.090	0.060	0.010	0.010	0.001	0.008	-	0.380
3		150 WNRF S40 20" A105N	22	PCE	0.190	0.260	0.920	0.020	0.009	0.006	0.040	0.020	0.010	0.003	0.002	0.006	-	0.399
4		150 WNRF S40 20" A105N	3	PCE	0.230	0.180	1.070	0.019	0.014	0.009	0.170	0.130	0.010	0.003	0.005	0.007	0.006	0.437

Item No.	Heat No.	T.S>(*1) (MPA)	Y.S>(*1) (MPA)	E.L.(*1) (%)	Hardness (HB)	R.A.(*1) (%)	Impact Test Temp:			Material Supplier
							Minimum	Joule		
		485.0	250.0	22.0	-	30.0	1	2	3	
1	266232	522.7	352.1	38.0	154	69.0				SEAH BESTEEL
2	49482	499.2	279.5	40.0	153	67.7				ACOMINAS
3	67128	517.8	326.6	37.0	152	68.0				RED OCTOBER
4	22025	535.1	359.7	36.0	162	67.7				OEMK

HEAT TREATMENT(*2)
 N
 REMARKS
 880°C X5HRS
 CONFORMS WITH NACE MR01-75/03 AND MR01-03/07/ISO15156.2

*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.
 *2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furance Cooled, W.C=Water Cooled, O.C=Oil Cooled.
 *3: C.E. Value = C + (Mn /6) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15

We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.



PLEASE APPROVE AND SIGN
CONTROL DE CALIDAD
 FECHA 15 Feb 2010
 FIRMA E411
Talique Ruiz