

4603012

3" 600# WNRF STD FLANGE

P.O. 134729



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MILL TEST CERTIFICATE

EN10204-3.1.B(DIN50049/3.1.B)

Customer: SEYBOLD INTERNATIONAL CORP.

Order No.: 7007687(3)-CEF/NOV

Certificate No.: SE7687C2

Date: 12/02/2013

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PRODUCT				MATERIAL SPECIFICATIONS										DIMENSIONAL SPECIFICATIONS											
FORGED CARBON STEEL FLANGES				ASTM A-350 LF2-13 CL.1/ASME SA-350 LF2-13 CL.1										ASME B16.5-13 CSA Z245.12											
Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)																		CE(*3)			
				Min	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N									
11	1076921	1500 BLRTJ 3" LF2		Max	0.300	0.150	0.600																		
12	1076921	1500 BLRTJ 3" LF2	75 PCE		0.190	0.210	1.110	0.012	0.005	0.120	0.130	0.110	0.020	0.005	0.001	0.008									0.421
13	1076921	1500 BLRTJ 3" LF2	24 PCE		0.190	0.220	1.050	0.018	0.005	0.090	0.110	0.030	0.020	0.001	0.001	0.007									0.399
14	1766462	2500 BLRTJ 2" LF2	1 PCE		0.190	0.210	1.140	0.016	0.004	0.110	0.090	0.060	0.020	0.010	0.002	0.008									0.415
15	1751691	2500 BLRTJ 3" LF2	60 PCE		0.230	0.200	1.150	0.015	0.008	0.006	0.020	0.010	0.005	0.005	0.001	0.007									0.429
16	1076058	300 WNRF STD.2" LF2	40 PCE		0.205	0.280	1.090	0.010	0.018	0.008	0.064	0.052	0.005	0.033	0.005	0.003									0.411
17	1076197	300 WNRF STD 12" LF2	300 PCE		0.220	0.220	1.180	0.016	0.006	0.007	0.020	0.020	0.005	0.005	0.001	0.007									0.424
18	1076023	600 WNRF STD 3" LF2	10 PCE		0.190	0.210	1.110	0.012	0.005	0.120	0.130	0.110	0.020	0.005	0.001	0.008									0.421
19	1076023	600 WNRF STD 3" LF2	403 PCE		0.220	0.220	1.180	0.016	0.006	0.007	0.020	0.020	0.005	0.005	0.001	0.007									0.424
20	1076681	600 WNRF STD 4" LF2	47 PCE		0.200	0.200	1.170	0.021	0.007	0.006	0.040	0.010	0.002	0.005	0.001	0.007									0.405
			96 PCE		0.190	0.200	1.020	0.012	0.006	0.120	0.100	0.060	0.010	0.010	0.001	0.007									0.396

Item No.	Heat No.	T.S.(*1) (MPA)	Y.S.(*1) (MPA)	E.L.(*1) (%)	Hardness (HB)	R.A.(*1) (%)	Impact Test Temp: -46°C Minimum: 20.0 Joule			Material Supplier	HEAT TREATMENT(*2) ☒ N		REMARKS
							1	2	3				
11	450528	503.1	363.8	34.8	150/148	73.8	158.0	139.0	151.0	GODO STEEL			890°CX4HRS CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A. CONFORMS WITH Z245.12 CAT II GR248 SOUR SERVICE-09 (FOR USE AS WELDING NECK AND BLIND FLANGES ONLY) TEST SPECIMEN SIZE: 10X10 TEST SPECIMEN ORIENTATION: TRANSVERSE IMPACT TEST TEMP.: -46°C MN TO C RATIO IS GREATER THAN 3.0"
12	Y300289	518.0	376.0	36.8	152/150	72.1	106.0	123.0	111.0	KOTOBUKI			
13	292443	529.6	385.4	34.4	154/152	71.3	90.0	105.0	113.0	SEAH BESTEEL			
14	4510829	541.3	395.2	33.2	155/153	68.6	86.0	54.0	70.0	ACOMINAS			
15	25496	517.8	352.1	36.8	151/148	69.5	36.0	45.0	46.0	NTMK			
16	4603012	529.0	356.0	35.0	153/151	71.3	90.0	51.0	84.0	ACOMINAS			
17	450528	503.1	363.8	34.8	150/148	73.8	158.0	139.0	151.0	GODO STEEL			
18	4603012	529.0	356.0	35.0	153/151	71.3	90.0	51.0	84.0	ACOMINAS			
19	4625140	527.0	376.0	33.6	153/151	69.5	106.0	69.0	110.0	ACOMINAS			
20	C10746	512.0	368.0	38.0	152/150	70.4	90.0	105.0	91.0	SEAH BESTEEL			

*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.

Manager of Quality Assurance Dep't

SAI KUN STEEL FORGING CO., LTD.
* S.K.F.C. *
QUALITY ASSURANCE DEPT.

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