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MILL TEST CERTIFICATE

EN10204-3.1 B(DIN50049/3.1 B)
W/F F FITTINGS & FLANGES (CANADA)
Customer: LTD.
Order No.: D000535

Certificate No.: SE000535
Date: 01/21/2015
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PRODUCT		MATERIAL SPECIFICATIONS										DIMENSIONAL SPECIFICATIONS												
FORGED CARBON STEEL FLANGES					ASTM A105-14/ASME SA-105-14										ASME B16-5-13 CSA Z245.12									
Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)																CE(*)				
				C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N									
1		1500 THRF 2" A105N	100 PCE	Min Max	- 0.350	0.100 0.350	0.600 1.050	- 0.035	- 0.040	- 0.400	- 0.300	- 0.400	- 0.400	- 0.120	- 0.080	- 0.020	- -							
2		1500 SWRF XS 1" A105N	150 PCE	0.200	0.220	1.130	0.022	0.003	0.006	0.030	0.010	0.010	0.003	0.004	0.001	0.007			0.397					
3		1500 WNRF XS 2" A105N	300 PCE	0.200	0.190	1.140	0.024	0.011	0.010	0.030	0.010	0.010	0.019	0.004	0.002	0.006			0.400					
4		1500 WNRF S160 2" A105N	200 PCE	0.190	0.200	1.020	0.015	0.005	0.190	0.100	0.080	0.019	0.002	0.001	0.008				0.402					
5		900 WNRF XS 3" A105N	60 PCE	0.190	0.200	1.020	0.014	0.005	0.120	0.070	0.050	0.016	0.002	0.001	0.006				0.389					
6		900 WNRF S160 3" A105N	100 PCE	0.190	0.200	1.020	0.014	0.005	0.120	0.070	0.050	0.016	0.002	0.001	0.006				0.389					
7		900 WNRF S160 4" A105N	50 PCE	0.180	0.190	1.030	0.015	0.006	0.160	0.070	0.060	0.013	0.002	0.001	0.009				0.383					
8		900 WNRF S120 6" A105N	50 PCE	0.210	0.210	1.050	0.018	0.008	0.110	0.110	0.040	0.020	0.002	0.001	0.007				0.421					
9		900 WNRF S120 8" A105N	30 PCE	0.200	0.190	1.020	0.018	0.004	0.180	0.110	0.110	0.090	0.020	0.005	0.002	0.007			0.415					
10		900 WNRF S120 20" A105N	4 PCE	0.200	0.220	1.150	0.019	0.008	0.010	0.010	0.010	0.010	0.001	0.004	0.001	0.008			0.396					
Item No.	Heat No.	T.S.(*) (MPA)	Y.S.(*) (MPA)	E.L.(*) (%)	Hardness (HB)	R.A.(*) (%)	Impact Test			Material Supplier	REMARKS	HEAT TREATMENT(*)												
							Temp. Minimum:	Joule					N											
1	4723476	524.0	348.0	35.6	153/151	70.4	1	2	3	ACOMINAS	880°C X4HRS													
2	4803122	512.0	337.0	33.4	152/150	69.5				ACOMINAS	CONFORMS WITH NACE MRO103-12 AND NACE													
3	102644	518.0	370.0	37.8	150/151	71.3				WEI CHIH STEEL	MRO175/ISO15156-2-09 CLAUSE 7.2.1.4 REGION 3													
4	102644	518.0	370.0	37.8	150/151	71.3				WEI CHIH STEEL	AND ANNEX A													
5	100733	508.0	343.0	35.8	151/149	70.4				WEI CHIH STEEL	CONFORMS WITH Z245.12 CAT I GR248 SOUR													
6	100733	508.0	343.0	35.8	151/149	70.4				WEI CHIH STEEL	SERVICE-09(FOR USE AS WELDING NECK AND													
7	98083	510.0	339.0	36.8	152/150	69.5				WEI CHIH STEEL	BLIND FLANGES ONLY)													
8	Y302511	525.0	376.0	35.4	153/151	70.4				KOTOBUKI	MN TO C RATIO IS GREATER THAN 3.0"													
9	753691	512.0	378.0	32.8	152/150	70.4				GODO STEEL														
10	4888473	520.0	381.0	38.0	153/151	67.7				ACOMINAS														
*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=Furnace 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 Dept												

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