




TUVNORD

INSPECTION CERTIFICATE & MILL TEST REPORT - EN 10204 3.1

CUSTOMER : 	MANUFACTURER'S SYMBOL	MTR NO.	FRG / 27743 - H
		DATE	27.06.2009
		MATERIAL SPECIFICATION	ASTM A182/A182M - 07
		GRADE	ASME SA182/SA182M - 07
		DIMENSIONAL SPECIFICATION	ASME B16.5 2003
ORDER NO. : - L25979/CHI		MATERIAL CONFORMS TO NACE MR 0175 - 2003 & NACE MR 0103 - 2005	
STAINLESS STEEL FORGED FLANGES			

CHEMICAL ANALYSIS

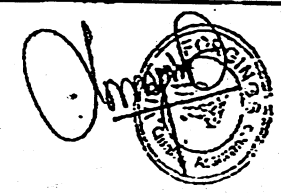
SL NO	ITEM DESCRIPTION	HEAT NO	QTY	%C	%Mn	%Si	%S	%P	%Cr	%Ni	%Mo	NO PPM
1	1" SORF	150# 80153	100	0.023	1.74	0.49	0.015	0.038	16.66	10.06	2.03	760
2	10" SORF	300# 79759	5	0.020	1.81	0.42	0.014	0.036	16.55	10.50	2.03	700
3	1-1/2" SORF	150# 80046	50	0.025	1.77	0.42	0.006	0.039	16.85	10.09	2.03	750
4	1-1/4" SORF	150# 79997	10	0.025	1.74	0.41	0.024	0.039	16.78	10.08	2.04	620
5	2" SORF	300# 79706	20	0.022	1.81	0.45	0.014	0.039	16.90	10.08	2.02	760
6	2-1/2" SORF	150# 17027	50	0.021	1.77	0.40	0.008	0.038	16.67	10.08	2.02	710
7	3" SORF	300# 17035	20	0.028	1.81	0.41	0.018	0.039	16.59	10.04	2.03	720
8	3" SORF	150# 79844	250	0.022	1.76	0.58	0.008	0.038	16.68	10.05	2.05	790

MECHANICAL PROPERTIES

HEAT NO	ITEM DESCRIPTION	TENSILE STRENGTH (Mpa)	YIELD STRENGTH (Mpa)	ELONGATION % L₀₋₄₀	REDUCTION OF AREA %	IMPACT TEST				HARDNESS (Bhn)
						CHARPY V-NOTCH AT RT (Joules)				
						1	2	3	AVG	
80153	1" SORF	150# 841.33	259.71	59.20	71.02	-	-	-	-	151
79759	10" SORF	300# 562.10	260.49	57.80	74.32	-	-	-	-	151
80046	1-1/2" SORF	150# 566.65	265.22	53.60	67.20	-	-	-	-	154
79997	1-1/4" SORF	150# 548.95	255.07	62.20	71.66	-	-	-	-	163
79706	2" SORF	300# 554.96	262.46	67.80	71.66	-	-	-	-	153
17027	2-1/2" SORF	150# 521.83	255.87	58.60	73.35	-	-	-	-	156
17035	3" SORF	300# 519.51	234.38	65.00	72.11	-	-	-	-	142
79844	3" SORF	150# 560.00	262.86	52.20	69.02	-	-	-	-	143

MELTING PROCESS : INDUCTION / AOD (IRS) / CONCAST
 HEAT TREATMENT : SOLUTION ANNEALED AT 1050°C AND WATER QUENCHED
 DIMENSIONAL INSPECTION : CONFORM WITH THE SPECIFICATION (100% INSPECTED)
 SURFACE INSPECTION : SATISFACTORY
 INTER GRANULAR CORROSION TEST : PASSED IGC TEST IN ACCORDANCE WITH ASTM G32 PRACTICE E
 PHE : NO OBJECTION (NOT TESTED WITH MOBILE SPECTRO)
 MICRO OBSERVATION : NO CARBIDE PRECIPITATION OBSERVED ON GRAIN BOUNDARIES
 RADIOACTIVITY TEST : ALL THE ABOVE MATERIALS TESTED FOR RADIOACTIVITY AND FOUND WITH IN THE LIMIT OF BACKGROUND RADIATION

CONTROL DE CALIDAD
 FECHA 26 Feb 2010
00000190
 FIRMA Enrique Ruiz



WORKS INSPECTOR