

210711



VIRAJ Forgings

(A Division of Viraj Profiles Ltd.)

CERTIFICATE - EN 10204 3.1

CUSTOMER : M/S. VAN LEEUWEN STAINLESS B.V. INDUSTRIESWEG 28 4153 BW BEESD	MANUFACTURER'S SYMBOL	MTR. NO.	FRG/27091 - C
		DATE	23.12.2008
MATERIAL SPECIFICATION		ASTM A182/A182M - 07	
		ASME SA 182 /SA 182M - 07	
		GRADE	F316/316L
		DIMENSIONAL SPECIFICATION	ASME B16.5 2003
		MATERIAL CONFORMS TO NACE MR0 175 - 2003	
		STAINLESS STEEL FLANGES	

ORDER NO.: 810020 LIC.NO.: NILNL1NL08M049098 DT 2008-10-31


CHEMICAL ANALYSIS													
SL NO	ITEM DESCRIPTION	HEAT NO	QTY	%C	%Mn	%Si	%S	%P	%Cr	%Ni	%Mo	N2 ppm	
1	2" BLRF 600#	78852	35	0.022	1.70	0.49	0.015	0.019	16.76	10.00	2.05	750	
2	4" BLRF 300#	18504	8	0.020	1.75	0.49	0.012	0.041	16.65	10.08	2.02	710	
3	4" SORF 150#	16730	375	0.020	1.49	0.41	0.021	0.035	16.19	10.05	2.03	630	
4	1-1/2" WNRF 80S SX 600#	77949	12	0.029	1.66	0.48	0.017	0.038	16.51	10.00	2.04	620	
5	2" WNRF 40S STD 150#	16276	475	0.020	1.77	0.42	0.019	0.034	16.54	10.06	2.03	780	
6	2-1/2" WNRF S40S 150#	78919	12	0.021	1.60	0.48	0.029	0.033	16.51	10.52	2.01	860	

MECHANICAL PROPERTIES								IMPACT TEST			
HEAT NO	ITEM DESCRIPTION	TENSILE STRENGTH (Mpa)	YIELD STRENGTH (Mpa)	ELONGATION % (L0=40)	REDUCTION OF AREA %	CHARPY V-NOTCH AT RT (Joules)				HARDNESS (HRC)	
						1	2	3	AVG		
78852	2" BLRF 600#	562.81	268.82	65.20	73.37	-	-	-	-	163	
18504	4" BLRF 300#	593.09	290.93	80.20	70.04	-	-	-	-	163	
16730	4" SORF 150#	523.13	251.82	59.40	73.35	-	-	-	-	155	
77949	1-1/2" WNRF 80S SX 600#	534.91	269.00	60.70	69.05	-	-	-	-	163	
16276	2" WNRF 40S STD 150#	519.82	232.80	48.20	70.15	-	-	-	-	151	
78919	2-1/2" WNRF S40S 150#	575.37	268.19	61.50	66.90	-	-	-	-	161	

MELTING PROCESS : INDUCTION (AOD) (RS) / COMCAST
 HEAT TREATMENT : SOLUTION ANNEALED AT 1050°C AND WATER QUENCHED
 DIMENSIONAL INSPECTION : CONFORM WITH THE SPECIFICATION (100% INSPECTED)
 SURFACE INSPECTION : SATISFACTORY
 PMI : NO OBJECTION; 100% TESTED WITH MOBILE SPECTRO
 INTER GRANULAR CORROSION TEST : PASSED IGC TEST IN ACCORDANCE WITH ASTM A 262 PRACTICE E
 MICRO OBSERVATION : NO CARBIDE PRECIPITATION OBSERVED ON GRAIN BOUNDARIES
 RADIOACTIVITY TEST : ALL THE ABOVE MATERIAL IS TESTED FOR RADIOACTIVITY AND FOUND WITH IN THE LIMIT OF BACKGROUND RADIATION

CARACTERISTIQUES GARANTIES
 La Societe Viraj Forgings Ltd. garantit que les produits objet du present certificat respectent en leur totalite les prescriptions de l'Article 15 de l'Arrete Ministeriel du 24 mars 1978 modifie.
 C<=0.25%, P<=0.05%, S<=0.05%
 Ra<=800 N/mm2, E<=0.3xRS, A<=(L0-5.65V30)/min,16% en long, RA-27-10500

WE CERTIFY THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLES WITH THE ORDER/CONTRACT AND IS OF INDIAN ORIGIN


 VIRAJ KUMAR
 MANAGER Q.A.
POS: 1

TRUE COPY valid for Yokogawa Europe B.V. order #3500031835, our order 21305 - 0