




CERTIFICATE - EN 10204 3.1

CUSTOMER :
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INDUSTRIEWEG 26, 4153 BW BEESD
THE NETHERLANDS

MANUFACTURER'S SYMBOL



MTR NO. 916205 - 17
DATE 06/09/2010
MATERIAL SPECIFICATION ASTM A182/A182M - 09
 ASME SA 182 /SA 182M - 09
GRADE F316/316L
DIMENSIONAL SPECIFICATION ASME B16.5 - 2009
MATERIAL CONFORMS TO NACE MRD 175 - 2003

ORDER NO.: 926062 **I/C.:** NLNL1NL10M1012339 DT:2010-07-21

STAINLESS STEEL FLANGES

SL NO	ITEM DESCRIPTION	HEAT NO	QTY	SC	SN	SI	SS	SP	SD	SM	SMn	NI	PPM
1	1/2" BLRF 150#	83609	200	0.016	1.74	0.47	0.019	0.041	16.58	10.05	2.04	800	
2	1" BLRF 150#	83609	50	0.016	1.74	0.47	0.019	0.041	16.58	10.05	2.04	800	
3	1-1/2" BLRF 300#	83999	45	0.022	1.74	0.50	0.015	0.043	16.62	10.04	2.01	700	
4	1-1/2" BLRF 300#	83999	5	0.022	1.74	0.50	0.015	0.043	16.62	10.04	2.01	700	
5	1-1/2" BLRF 150#	82415	40	0.020	1.74	0.45	0.006	0.039	16.75	10.09	2.03	715	
6	2" BLRF 300#	83999	20	0.022	1.74	0.50	0.015	0.043	16.62	10.04	2.01	700	
7	3" BLRF 150#	83973	47	0.023	1.73	0.47	0.016	0.041	16.84	10.04	2.03	715	
8	3" BLRF 150#	83973	3	0.023	1.73	0.47	0.016	0.041	16.84	10.04	2.03	715	

HEAT NO	ITEM DESCRIPTION	TENSILE STRENGTH (MPa)	YIELD STRENGTH (MPa)	ELONGATION % (L=4D)	REDUCTION OF AREA %	IMPACT TEST (CHARPY V-NOTCH AT 20 °C (Joules))				HARDNESS (BHN)
						1	2	3	AVG	
83609	1/2" BLRF 150#	585.46	292.90	61.40	72.55	-	-	-	-	155
83609	1" BLRF 150#	585.46	292.90	61.40	72.55	-	-	-	-	155
83999	1-1/2" BLRF 300#	570.66	257.69	59.20	72.20	-	-	-	-	153
83999	1-1/2" BLRF 300#	570.66	257.69	59.20	72.20	-	-	-	-	153
82415	1-1/2" BLRF 150#	595.98	294.55	40.20	70.38	-	-	-	-	158
83999	2" BLRF 300#	570.66	257.69	59.20	72.20	-	-	-	-	153
83973	3" BLRF 150#	604.66	294.63	55.20	72.72	-	-	-	-	156
83973	3" BLRF 150#	604.66	294.63	55.20	72.72	-	-	-	-	156

MELTING PROCESS: INDUCTION / AOD (IRIS) / CONCAST
HEAT TREATMENT: SOLUTION ANNEALED AT 1050°C AND WATER QUENCHED
DIMENSIONAL INSPECTION: CONFORM WITH THE SPECIFICATION (100% INSPECTED)
SURFACE INSPECTION: SATISFACTORY
FLANGE FACE FINISH: 3.2 TO 6.3
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 GRAM BOUNDARIES
RADIOACTIVITY TEST: ALL THE ABOVE MATERIAL IS TESTED FOR RADIOACTIVITY AND FOUND WITH IN THE LIMIT OF BACKGROUND RADIATION

*** CARACTERISTIQUES GARANTIES ***
 La Société Viraj Forgings Ltd. garantit que les produits objet de présent certificat respectent en leur totalité les prescriptions de l'Article 15 de l'Arrêté Ministériel du 24 mars 1978 modifié.
 C<=0.25%, P<=0.035%, S<=0.03%
 Rm<=800 N/mm2, E<=0.9JRT, AS(L=5.65VSc)min.15% en long. R(A-T)<=10500
 WE CERTIFY THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE ORDER/CONTRACT AND IS OF INDIAN ORIGIN



Viraj Forgings
 VIRAJ FORGINGS
 Quality Assurance

VIRAJ KUMAR PILLAI
 MANAGER Q.A

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