




Pradeep Metals Limited

Manufacturers of Precision Closed Die Forgings

MATERIAL TEST CERTIFICATE ACC. TO EN10204 - 3.1 (LAB/FM/03/01)

AD 2000 Merkblatt Certificate No. : 1448289
PED 97/23/EC Certificate No. : 412/2010/MUC

		Cert.No.		0693									
		Date		28/12/2012									
		Invoice No.		PML/EXP/512/12-13									
		Date		28/12/2012									
		Client Ref.		126510-00									
		Date		18/12/2012									
Material	ASTM A182/ASME SA182 F316/316L/2011a NACE MR0103-2010			Melting Process	ELECTRIC INDUCTION FURNACE WITH AOD ROUTE								
PM No.	Part Name	Article /Part No.	Lot Code	Heat No.	Qty								
G346	FLANGE 2" WNR F 150# S10	2-C-FF2UIAAC	KD17	2469	3								
					Mill								
					Nos.								
					SHREE JAY JAGDAMBA STAINLESS STEEL LTD.								
Chemical Composition (%)													
	C	Mn	Si	P	S	Cr	Ni	Mo	Cu	V	Al	N	C.E
Min	-	-	-	-	-	16.00	10.00	2.00	-	-	-	-	--
Max	0.030	2.00	1.00	0.045	0.030	18.00	15.00	3.00	-	-	-	0.10	--
Actual	0.020	1.68	0.46	0.041	0.019	17.05	10.04	2.03	-	-	-	0.065	--
Mechanical / Metallurgical Properties													
Tensile Testing Done as per A370						Impact Testing Done as per DIN EN ISO V 148-1 ISO "V" Notch size (mm) 10x10x55							
	UTS N/mm ²	YS N/mm ² 0.2%	YS N/mm ² 1.0%	RA %	Elong. %	Impact (T) at (Room Temp) Joules				Impact (L) at () Joule			
Min	515.0	205.0	-	50.0	30.0	1	2	3	Avg	1	2	3	Avg
Max	-	-	-	-	-	-	-	-	-	-	-	-	-
	603.00	303.13		66.82	62.60	230	224	226	226				
Hardness(HRc. HBW10/3000	Min.	-	Max.:	22	237	Actual		Less than 22 Rc 149-156					
Heat Treatment						Microstructure							
SOLUTION ANNEALED AT 1060° C & QUENCHED IN WATER						CARBIDE PRECIPITATION ABSENT							
Technical Requirement	Technical Standards		AD-2000 MERKBLATT W0,NACE MR0103-2010, MR0175-2003 / ISO 15156-Part 3-2003										
	Inspection & Control of Dimension		OK as per B16.5										
	Material Identification		Confirms to NACE MR0103,MR0175/ISO 15156										
	Marking Details		PM 2 WNR F S10 150 B16.5 ASTM A/SA 182 F316/316L KD17 INDIA V										
Remarks :										For Pradeep Metals Ltd.			
<ul style="list-style-type: none"> Manufacturer mark : PM Surface Quality : SATISFACTORY Hardness according to NACE MR0175 Less than 22 Hrc. PMI testing conducted : SATISFACTORY IGC test as per ASTM A262E : SATISFACTORY Material is Radiation free Issued in agreement with TUV SUD dated Feb 2010 QAS in accordance with the PED 97/23/EC Annex I, Paragraph 4.3 													

Certified that the material described herein has been inspected and tested, and conform to the requirements of the contract or purchase order