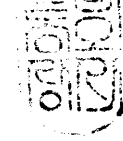


CERTIFICATE OF INSPECTION & TEST



ORIGINAL



ST&H CORPORATION
 411-3 Shinwol-ri, Jinryemyun, Gimhae-si Gyungnam, Korea
 Tel:82.51.744-4680(5 line) Fax:82.51.744-4670
 E-mail : stcorp@kornet.net

(EN 10204 3.1)

Certified to ISO9001:2008, PED97/23/EC by LRQA
 Report No : MYM6330 Date: MAY.02.2011

Customer : BROWNSVILLE STEEL CITY, LLC										Contract No. : BSC2011-231			Heat Treatment	
Spec. For Material : ASTM/ASME A/SA105-05(NACE MR-0175)														
Chemical Composition (%)		C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	AS FORGED	
Heat No.	MAX	0.350	0.350	1.050	0.035	0.040	0.400	0.300	0.120	0.400	0.080			
	MIN		0.100	0.600										
11469		0.207	0.255	0.880	0.017	0.004	0.014	0.005	0.002	0.008	0.001		Dimensional Inspection	
Tension Test						Charpy Impact Test (10x10 mm Specimen Size)				Hardness Test (HB)	Bending Test 90:120(180°)			
Size of Specimen(mm)		Yield Strength MPa	Tensile Strength MPa	Elongation %	Red of Area %	Individual		Average				Notch Type		
Dia	Gage Length					min	min							
12.5	50	MAX				Test Result				Temp	187	GOOD		
		MIN	250.000	485.000	22.000	30.000	①	②	③		Average		137	
12.5	50		343.000	562.000	34.000	66.000						142-151	ANSI B16.5-2003	
ITEM / SIZE			Q'TY	ITEM / SIZE				Q'TY	ITEM / SIZE			Q'TY	N/A	
150LBS SORF 2"			1	BLANK					BLANK				Magnetic Particle Examination	
BLANK													N/A	
													Remarks :	
													**CE = 0.36 (LONG FORMULAR)	

NOTE :
 1MPa = 145.037 psi
 1MPa = 0.145037 ksi
 1psi = 0.006895 MPa
 1ksi = 6.89476 MPa

W.C:Water Cool O.C.Oil Cool
 A.C:Air Cool N.A:Non Action
 N:Normalized A:Annealed
 Q.T:Quenched and Tempered
 N.T:Normalized and Tempered

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by/ K. S. KIM Manage of Q.A Dept/ Y. M. CHOI

