



MAHARASHTRA SEAMLESS LIMITED
WORKS (MILL) TEST CERTIFICATE
 DIN:50049:3.1. B/EN:10204:3.1

QCF.20A

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Tc No MSL-14/QC/ 0165/2017 Customer : TOYOTA TSUSHO AMERICA, INC.
 Date 28-APR-17
 Specification ASTM/ASME A/SA 333 GR.6 (2015) , CSA Z245.1
 GR.290 CAT-II M45C(2014) *Inv. 055 Part*
 Process/Product: HOT FINISH SEAMLESS Carbon Steel Pipes P.O. No : CI-17-189 08-FEB-17
 W.O. No : 6160268

DESCRIPTION								Hydro Test Pressure at 10 Sec	Bend Test	Flattening Test	Flaring Test	Drift Test	Crush Test
Sl No	Material/Item Code	SIZE (Inch)	Length Range (Feet/Mtr)	Heat No.	No Of PCS	Length (Feet/Mtr)	End Finish						
1		12.750 X .406	38-39	A6832			BEVEL	2280 PSI	NA	OK	NA	NA	NA
2		12.750 X .406	38-39	A6968			BEVEL	2280 PSI	NA	OK	NA	NA	NA

PHYSICAL PROPERTIES							CHEMICAL COMPOSITION (%)																
Sl No	Heat No	YST (PSI)	UTS (PSI)	EL (%)	Hardness HRB	Impact Test Charpy v-notch Joule	LA/PA	C	Mn	Si	P	S	Cr	Mo	Ni	V	Cu	Al	Ti	Nb	CE		
G.L. = 2", D.W. 1 1/2" - L at room temp							T10X7.5X55 at -48 Deg.C																
Required (Max)					99	27		.26	1.06		.025	.01	.3	.12	.4	.08	.4		.11	.02	.4		
Required (Min)		42100	60200	30				.29		.1													
1	A6832	47955	73858	41.00	76 - 77	70,65,43 Av. 59.3	LA PA	.130 .142	1.260 1.258	.280 .267	.015 .012	.002 .005	.060 .026	.006 .005	.013 .015	.002 .002	.016 .018	.028 .026	.003 .002	.002 .000	.002 .000	.356 .360	
		48552	74005	42.00	76 - 77		PA	.139	1.270	.284	.013	.005	.031	.004	.015	.002	.019	.027	.003	.000	.000	.360	
2	A6968	49395	73702	41.00	76 - 77	192,253,145 Av. 196.6	LA PA	.140 .150	1.270 1.259	.300 .257	.016 .010	.004 .006	.010 .026	.001 .002	.007 .056	.002 .002	.007 .005	.033 .023	.003 .001	.001 .000	.001 .000	.355 .370	
		50022	74136	40.00	76 - 77		PA	.147	1.256	.259	.010	.006	.032	.002	.054	.002	.005	.023	.001	.000	.000	.367	

Dimensions : Outside diameter, thickness, weight, length conforms to above specification.
 Coating : All Pipes are coated with rust preventive from outside surface only.
 N.D.T. : Not Applicable
 Heat Treatment : Normalized
 Raw material : Fully killed
 Marking/Stenciling : N/A MSL M/Y ASTM A 333 GR.6 , ASME SA 333 GR.6, CSA Z245.1 GR 290 CAT-II M45C-2014 SS NPS 12 X WT 0.406 INCH X LENGTH (IN FEET) HPS HEAT NO. ... 2280 PSI NORM + LT - 45 DEG.C + WEIGHT= 53.57 PPF + MADE IN INDIA + PO# CI-17-189 + PIPE NO...

Remarks : Material Conforms to NACE MR-0175/ISO15156, NACE MR-0103. Pipes are according to ANSI B36.10. Material is free from mercury contamination. Mfg. Process BOP/BAF ; Fine Grained & Vacuum Degassed. Material comply with A999/A999M Spec. For A6832 Ca value= 0.0025% & B=0.0003% & For A6968 Ca value= 0.0016% & B=0.0002%, Shear area: 68% to 90%, Normalized done at Temp. 920-940 Deg. C & cycle time 25-35 minutes. For each reduction of 0.01% Carbon below 0.30%, an increase of 0.05% Manganese above 1.06% would be permitted to a Maximum of 1.35% Mn.

CERTIFY THAT THE MATERIAL CONFORMS TO ABOVE SPECIFICATION. FOR MAHARASHTRA SEAMLESS LIMITED
 L.R. CHOPRA - Dy. MANAGER

Warning/Modification : Any modification of this certification is strictly prohibited. Violation calls for criminal prosecution. For authenticity verification, you can contact us at www.maharashtraseamless.com
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