

Ord# 621428-1; PO# 62; H# BZ605; 36 STD LR 90 WPB  
46099

EDTK Corporation

# INSPECTION CERTIFICATE

(EN10204:2004 3.1 / ISO 10474:1991 3.18)

1489-1, SONG JUNG-DONG,  
GANGSEO-GU BUSAN, KOREA  
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Customer	Forgings, Flanges & Fitting, Inc.		Certificate No.	20120803383	Date	2012/08/21
P.O No.	173185		Project Name	HOUSTON		
Job No.			POR/Req'n No.			
Specification for Material	ASTM/ASME A/SA234 WPBW(2010 Ed.) NACE MR0175-03/NACE MR0103-07		Starting Material	STEEL PLATE		
Specification for Inspection	ASME B16.9-2007		Dimension and Visual Inspection	GOOD		
Heat Code No [HCN]	No.	Descriptions	Q'ty (Pcs)	Heat Treatment	N.D.E (GOOD)	
BZ356	0021	90° ELBOW LONG STD B.W 30"	1	HOT FORMED 845°C-845°C	RT	
BY690	0021	90° ELBOW LONG STD B.W 30"	1	HOT FORMED 845°C-845°C	RT	
BZ605	0022	90° ELBOW LONG STD B.W 36"	32	HOT FORMED 845°C-845°C	RT	
BZ303	0023	90° ELBOW LONG X-S B.W 36"	2	HOT FORMED 845°C-845°C	RT	

## CHEMICAL COMPOSITION (%)

Heat Code No [HCN]	Spec.	C	Si	Mn	P	S	NI	Cr	Mo	Cu	V	Raw Heat No
		Max.	0.30	-	1.06	0.050	0.058	0.40	0.40	0.15	0.40	* 0.06
	Min.	-	0.10	0.29	-	-	-	-	-	-	-	
BZ356	L	0.1477	0.247	1.056	0.0099	0.0037	0.01	0.02	0.00	0.009	0.000	SF16333
BY690	L	0.1479	0.252	*1.131	0.0159	0.0026	0.01	0.03	0.00	0.008	0.000	SF14953
BZ605	L	0.1425	0.271	*1.097	0.0155	0.0031	0.01	0.02	0.00	0.010	0.001	SF17001
BZ303	L	0.1531	0.263	*1.078	0.0112	0.0024	0.01	0.02	0.00	0.014	0.001	SB98139

## MECHANICAL PROPERTIES

Heat Code No [HCN]	Spec.	Y.S		E.L (%)	Hardness Test	
		Ksi			HB	
	Max.	-	95	-	197	
	Min.	35	60	17	-	
BZ356	B	47.3	69.5	28.6	140	142
	W	-	-	-	146	148
	H	-	-	-	143	146
BY690	B	47.2	72.3	29.6	143	145
	W	-	-	-	148	151
	H	-	-	-	146	149
BZ605	B	46.3	69.5	30.4	142	144
	W	-	-	-	149	150
	H	-	-	-	145	147
BZ303	B	47.2	70.3	28.3	141	143
	W	-	-	-	147	148
	H	-	-	-	144	147

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.

Remark :

Legend:  
 HB: Brinell  
 ST: Solution Treatment  
 SR: Stress Relieving  
 N: Normalized  
 T: Tempered  
 A: Annealed  
 Q: Quenched  
 (G): Hot-Dip Galvanized Coating  
 Y.S : 0.2% Offset Method  
 AC: Air Cool  
 OC: Oil Cool  
 WC: Water Quenched  
 WC: Water Cool  
 L: Ladle  
 P: Product

\* For each reduction of 0.01% below the specified carbon maximum, an increase of 0.06% manganese above the specified maximum will be permitted, up to a maximum of 1.35%.

Reviewed by :

Witnessed by :

Approved by :

*[Signature]*

Head of Quality Control Dept