



MANUFACTURER'S CERTIFICATE

(Mill Test Certificate) DIN 50049-3.1-B / EN 10204-3.1

Purchaser	: PROVEEDORA DE MATERIALES AN CER	Certificate No	: 100093
Product	: CARBON STEEL PIPE FITTINGS	Order No	: PO. 243
Specification	: ASTM A-234 WPB - 2006A	Date	: MARCH 1, 2010
	: ASME SA234 WPB	LIC No	: 1878-0056/10

Raw Material Standard	Inspection Standard	Visual Inspection		Dimensional Inspection
PIPE : ASTM A106 B / A53B / API5LB PLATE : ASTM A516 Gr 50 / 60	ANSI B16.9 ANSI B16.28	PASS		PASS
Product & Size (inch)	Heat ID.	Quantity	Heat NO.	Raw Material Maker
1 90 ELBOW LR STD 1 1/4"	293	2000	564293	B.T.L. 41-059900/001/2634
2 90 ELBOW LR STD 3"	377	1600	567377	B.T.L. 65-062308/001/2634
3 90 ELBOW LR STD 6"	138	150	567138	B.T.L. 65-062308/001/2634
4 90 ELBOW LR STD 8"	992	160	85992	S.D.C. 49488
5 90 ELBOW LR STD 10"	558	80	317558	M.N.M. 60404
6 90 ELBOW LR STD 12"	099	63	86099	S.D.C. 49492
7 90 ELBOW LR STD 14"	589	48	84589	S.D.C. 44403
8 90 ELBOW LR STD 16"	225	79	J338225	S.M.I. 1Y035401
9 90 ELBOW LR STD 18"	177	16	J337177	S.M.I. 1Y032551
10 45 ELBOW LR STD 14"	589	10	84589	S.D.C. 44403

Standard	Chemical Composition %												Mechanical Test			Average Hardness	CE Long Formula
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Al	YS	TS	E		
	x 100	x 100	x 100	x 1000	x 1000	x 100	x 100	x 100	x 100	x 100	x 1000	x 1000	psi	psi	%	Hb	x 100
Min.	-	10	29	-	-	-	-	-	-	-	-	-	35,000	60,000	30	-	-
Max.	30	-	106	48	58	40	40	40	15	8	-	50	-	85,000	-	197	42
1	13	16	76	10	1	11	7	8	2	1	-	-	48000	69000	50	157	29
2	14	16	78	9	2	9	7	9	2	1	-	-	49600	66100	38	167	30
3	13	15	77	6	2	7	5	6	1	1	-	-	48100	64500	38	162	28
4	18	22	76	10	5	8	4	2	2	0	-	-	44236	70053	39	147	32
5	14	21	92	14	6	7	3	6	1	<4	-	-	43700	70100	38	141	32
6	17	25	65	12	4	8	4	3	2	0	-	-	42786	68022	38	164	30
7	16	23	77	14	6	8	3	3	1	0	-	-	42800	67600	43	132	30
8	19	17	72	18	9	1	1	3	0	0	-	-	55500	73000	38	140	32
9	20	20	72	22	14	1	2	4	0	0	-	-	55400	72200	38	171	33
10	16	23	77	14	6	8	3	3	1	0	-	-	42800	67600	43	132	30

• We hereby certify that the products described herein have been manufactured, inspected and conforms to standard as specified above.

• Abbreviation : JFE = JFE STEEL CORP BTL = BENTELER, GERMANY SDC = SIDERCA, ARGENTINA
 SMI = SUMITOMO, JAPAN DLM = DALMINE, ITALY MNM=MANNESMANN

• ALL FITTINGS ARE HEAT TREATED TO MEET NACE MR0175-03 STANDARD SPECIFICATION AT 650-680 C x 1.0 HR.

• CE = C + (Mn/8) + (Cr + Mo + V)/5 + (Ni+Cu)/16

• ALL TEES ARE TESTED BY MAGNETIC PARTICLE EXAMINATION (MT)

Chief of Quality Assurance Dept