



MANUFACTURER'S CERTIFICATE

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

Purchaser	: PROVEEDORA DE MATERIALES ANGER SA DE CV	Certificate No	: 100587
Product	: CARBON STEEL PIPE FITTINGS	Order No	: PO. 249
Specification	: ASTM A-234 WPB - 2006A	Date	: OCTOBER 18, 2010
	: ASME SA234 WPB	L/C No	: Y000398

Raw Material Standard	Inspection Standard	Visual Inspection	Dimensional Inspection
PIPE : ASTM A106 B / A53B / API5L B 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 45 ELBOW LR STD 12"	099	5	86099	S.D.C. 49492
2 TEE STD 18"	738	16	996738	D.L.M. 00/05468
3 CON RED STD 3"x2"	081	200	J829081	S.M.I. BYYJ8127
4 CON RED STD 8"x6"	682	300	86682	S.D.C. 49491
5 90 ELBOW LR XH 5"	949	40	563949	B.T.L. 65-040166/001/2637
6 90 ELBOW LR XH 10"	162	5	941162	D.L.M. 94/04908
7 45 ELBOW LR XH 20"	065	1	J338065	S.M.I. 1Y032381
8 45 ELBOW LR XH 24"	921	1	996921	D.L.M. 04/08500
9 TEE XH 4"	948	100	563948	B.T.L. 65-040166/001/2637
10 TEE XH 5"	445	50	J336445	S.M.I. BYYF7913

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	x	x	x	x	x	x	x	x	x	x	x	x	psi	psi	%	
Min.	100	100	100	1000	1000	100	100	100	100	100	1000	1000	35,000	60,000	30	-	-
Max.	30	-	106	48	58	40	40	40	15	8	-	50	-	85,000	-	197	42
1	17	25	65	12	4	8	4	3	2	0	-	-	42786	69022	38	164	30
2	11	34	84	11	2	12	9	10	0	3	-	-	46300	60200	40	171	35
3	20	20	54	17	7	1	3	4	0	0	-	-	48900	73000	36	137	30
4	16	24	76	11	4	14	6	6	0	0	-	-	43076	69183	43	152	32
5	12	20	84	8	4	13	7	5	2	<1	-	-	48600	65700	40	142	30
6	18	28	78	17	11	21	14	19	5	5	-	-	46700	68800	40	152	39
7	20	20	55	18	13	1	2	3	0	0	-	-	51700	71400	38	166	30
8	15	24	87	9	3	12	8	12	4	4	-	-	48700	72100	37	160	35
9	13	21	84	11	2	13	6	5	1	<1	-	-	42700	66300	44	138	29
10	21	16	59	19	9	1	2	5	0	0	-	-	42000	69600	39	154	32

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 650-660 C x 1.0 HR.
 CE = C + (Mn/5) + (Cr + Mo + V)/5 + (Ni + Cu)/15
 ALL TEES ARE TESTED BY MAGNETIC PARTICLE EXAMINATION (MT)


 Chief of Quality Assurance Dept