

BOTH-WELL STEEL FITTINGS CO., LTD.

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An ISO 9001 : 2008 Registered Manufacturer

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 3.1

CUSTOMER : SERVICE METAL
 CERT NO. : 172727
 ORDER NO. : 68519

INVOICE NO. : 5200010257
 L/C NO. :

PAGE : 56
 DATE : 09/19/2017
 ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES.
43	357974 CA0665	46 PCS	90D ELBOW A105 3" 3000# S/W 389S03.0 C:0.18 Si:0.19 Mn:0.83 P:0.021 S:0.013 Cu:0.09 Cr:0.11 Ni:0.05 Mo:0.02 V:0.006 Nb:0.002 N:0 Ti:0.001 CE:0.35 TS(KSI):75.5 YS(KSI):51.9 EL(%):32.7 R.A.(%):65.1 HARDNESS 1(HBW):141 HARDNESS 2(HBW):143

REMARK :

THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N -14, ASME SA105N-2015ED
 THE FITTING SUPPLIED IDENTIFIED AS ASME B16.11 - 2016
 THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH SPECIFICATION(SURFACE & DIM) : GOOD
 STANDARD : CHEMICAL COMPOSITION(%) & MECHANICAL PROPERTIES.

	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)
MIN	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS(KSI)	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(HBW)
MIN	-	-	-	-	-	70	36	-	22	30	-
MAX	-	-	-	-	0.43	-	-	-	-	-	187

HEAT TREATMENT : NORMALIZED: 900°C (1652°F) A.C.
 STEEL MAKING PROCESS : ELECTRIC FURNACE
 CONFORMS TO NACE MR0175-15/ISO 15156-15/MRO103-15
 FULLY KILLED AND FINE GRAIN PRACTICE
 FREE FROM RADIATION CONTAMINATION
 PED 97/23/EC CERTIFIED BY TUV
 MATERIAL MERCURY FREE AND DETECTED FREE FROM RADIOACTIVE CONTAMINATION.

WE CERTIFY THE ABOVE MENTIONED FITTINGS HAVE BEEN MANUFACTURED,
 SAMPLED, TESTED, AND INSPECTED IN ACCORDANCE WITH THE
 SPECIFICATIONS SHOWN

C.C. Huang
 Q.C. MANAGER

C.L. Ko
 INSPECTOR

Test Certificate EN 10204 3.1

Customer: ALLIED FITTING, LP	Certificate No.: 7640
P.O. No: P036060	Certificate Date: 08/06/2022
P.O. Date: 02/10/2022	Inspection By: AFL
Material Spec.: ASTM A234 Gr. WPB ED.2019 ASME SA234Gr.WPB ED.2021	Dimensional Standard: ASME B16.9 ED.2018 Invoice No.: RPP/E017/22-23

Sr. No	Size (inch)	Item	Sch.	Qty.	ID No.	HT	Hardness (BHN)	Part Code
1	3	90° LR ELBOW	XH	1080	R360	HF	148-154	F9LX3
2	6	90° LR ELBOW	STD	800	R353	HF	152-158	F9LS6
3	4 X 2	REDUCING TEE	XH	362	R354	CF	154-160	FRTX4X2

ID NO.	Chemical Composition (%)													Physical Properties G.L=50 MM				
	C	Mn	P	S	SI	Cu	NI	Cr	Mo	Ti	Nb	V	C.E	UTS Mpa	0.2% Proof Stress Mpa	EL %	FINAL GAUGE LENGTH (MM)	
R360	HA	0.180	0.821	0.024	0.005	0.271	0.017	0.080	0.019	0.008	-	-	0.005	0.29	489.50	284.50	27.00	63.50
	PA	0.184	0.707	0.020	0.006	0.192	0.003	0.010	0.011	<0.010	-	-	0.002	0.31				
R353	HA	0.135	0.690	0.011	0.005	0.240	0.004	0.004	0.011	0.001	-	-	0.004	0.25	508.00	273.90	38.00	69.00
	PA	0.155	0.901	0.013	0.003	0.267	0.004	<0.010	0.010	<0.010	-	-	0.002	0.31				
R354	HA	0.140	1.270	0.016	0.004	0.280	0.008	0.010	0.030	0.003	-	-	0.008	0.38	523.20	284.50	29.00	64.50
	PA	0.150	1.239	0.008	0.001	0.254	0.005	0.010	0.028	<0.010	-	-	0.003	0.38				

Heat Treatment	
Heat Treatment Code	Heat Treatment Particulars
HF	Hot formed at 620°C to 980°C and subsequently cooled in still air.
CF	Cold formed fittings normalizing at 910°C and subsequently cooled in still air.

REMARKS:

- (1) Material was manufactured, sample tested and inspected in accordance with indicated specifications and was found to meet the requirements.
- (2) Test Specimens :- Transverse.
- (3) Starting Material: - Carbon Steel Seamless Pipe ASTM A106 Gr. B ED.2018
- (4) 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.
- (5) All material supplied is certified to be free of mercury contamination & no mercury bearing equipment was used during manufacturing.
- (6) No weld repair was performed.
- (7) Material conforms to NACE MR0175- ED-2015 ADD. 2017 / NACE MR103- ED-2015 ADD. 2017 Only For Hardness.
- (8) Complies PED 2014/58/EU Annex 1 Para 4.3

MARKING DETAILS: COMPANY LOGO, SIZE, SCH, MATERIAL SPECIFICATION, I.D. NO, MT (Only for Tee)

We hereby certify that the products enlisted above have been manufactured by us in accordance with the purchaser's requirement and the test results mentioned above are correct.



QC/P02/F05, REV.00