

ORIGINAL

MATERIAL TEST & INSPECTION CERTIFICATE



Pusan Fitting Corporation

Purchaser Industrial Valco, INC.  
 Project Name \_\_\_\_\_  
 Project No \_\_\_\_\_  
 Po No ET121RA

According to  
 DIN 50049 3.1 / EN 10204 3.1 / ISO 10474 3.1

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SPEC. FOR MATERIAL	ASTM A234 WPB-19 & ASME SA234 WPB(ASME BPVC.II.A-2019)	HEAT TREATMENT	A : HOT FORMED WITH FINAL(620°C ~ 980°C) SR : STRESS RELIEVING(620°C×0.5hr/in & A/C)	CERTIFICATE NO.	PM221220 - 03
SPEC. FOR INSPECTION	ASME B16.9 (Wrought Butt welding Fittings)-2018			DATE FOR ISSUE	2022.12.20
STARTING MATERIAL	CARBON STEEL SEAMLESS PIPE			VISUAL & DIMENSION	GOOD

No	SEQ/LINE/ITEM NO	ITEM	SCH.	NPS	Qty	HCN	H/T	NDE / PMI	Remark
1		TEE(STR)	STD	4	100	A3357	SR		
2		TEE(STR)	STD	8	70	A3392	SR		
3		TEE(STR)	XH	5	20	A1701	SR		
4		TEE(RED)	STD	8 × 4	6	A3594	SR		
5		TEE(RED)	XH	6 × 3	32	A3429	SR		
6		TEE(RED)	XH	6 × 4	20	A3390	SR		
7		REDUCER(CON)	STD	12 × 8	90	A3063	SR		
8		REDUCER(CON)	STD	24 × 20	2	A3753	SR		
9		REDUCER(CON)	XH	12 × 8	6	A2133	SR		
10		REDUCER(CON)	XH	14 × 12	4	A3106	SR		

No	HCN	CHEMICAL COMPOSITION ( wt. % )											TENSILE TEST					IMPACT TEST(ft-lbf)		Hydro Test		
		SPEC.	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	SPEC.	Y.S	T.S	E.L	R.A	Hardness	Temp.(°C)	Size(2mm-v)	(MPa)	
			×100	×100	×100	×1000	×1000	×100	×100	×100	×100	×100	×100		Mpa	Mpa	%	%	HBW			
		MIN		10	29									MIN	240	415	22.0			Min()	Ave.()	Pressure / result
		MAX	30		106	50	58	40	40	15	40	8	MAX					197	Act.	Ave.		
1	A3357	L	19	23	110	12	6	5	12	1	10	3	L	420	555	31.9		139/142				
2	A3392	L	19	22	93	16	1	13	20	5	19	1	L	355	549	35.5		139/141				
3	A1701	L	21	21	36	12	3	2	5	2	6	0	L	299	458	39.5		139/143				
4	A3594	L	19	20	113	22	7	2	4	0	2	0	L	323	508	38.0		133/137				
5	A3429	L	18	26	98	15	4	2	3	1	1	0	L	323	498	40.0		135/139				
6	A3390	L	19	23	96	10	1	11	13	4	12	1	L	327	541	35.0		133/137				
7	A3063	L	18	24	95	15	2	9	13	4	13	0	L	314	529	36.5		148/151				
8	A3753	L	20	22	95	11	3	10	12	4	13	0	L	341	508	37.5		135/135				
9	A2133	L	21	21	50	12	4	1	2	1	1	0	L	316	464	45.0		140/142				
10	A3106	L	18	33	96	17	2	2	4	1	1	0	L	354	518	41.0		144/145				

Note.  
 1) L : LADLE ANALYSIS , P : PRODUCT ANALYSIS , HCN : Heat Control Number  
 2) Mn : 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 1.65%.  
 - "ASME SA234/SA234M(ASME BPVC.II.A-2019) TABLE 1"  
 3) NACE MR0175/ISO 15156-2 : 2015

WE CERTIFY THIS MATERIAL HAS BEEN MANUFACTURED AND EXAMINED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE SPECIFICATION AND THE RESULTS OF ALL EXAMINATION ARE ACCEPTABLE

REVIEWED BY :

WITNESSED BY :

*S. H. Hwang*  
 MANAGER OF QUALITY