

14G 00043

2" 90 DEG WPB ELBOW S80

P.O. 137174

Purchaser: CCTF CORPORATION

INSPECTION CERTIFICATE

TO EN10204 3.1/ISO 10474 3.1B



Thai Benkan Co., Ltd.
58 Soi Watkrumai, Bangkru, Prapadaeng,
Samutprakarn, 10130 Thailand.

E-No. Purchase Order No. Job No.
MD-447 4895131-00

D M Y Certificate No.
30/08/2014 T- 2014200823

No.	MFG. No.	Specification for Material		Specification for Inspection		Visual Examination	Dimensional Inspection
		Made from Seamless Pipe		ASME B16.9-2012, B16.25-2012		Good	Good
		ASTM A234-13/ASME SA234-13 GR. WPB CSA Z46 11-13 GR. 241 CAT 1 S5 NACE MR0175/ISO 15156-2:2009 MR0103-12					
		Product & Size (T*1)		Quantity	Heat Treatment (Note 1)	Hardness Actual Data	Item No.
1	14G00043	90 EL WPB 2 S80 367.2		982/3,700	A	HB : 130 - 180	7510900
2	14E00038	90 EL WPB 3 S80 367.3		253/800	A	HB : 120 - 150	7510942
3	14D00019	90 EL WPB 6 S80 367.5		7/220	A	HB : 120 - 150	7511035
4	14F00010	90 EL WPB 6 S80 367.5		155/220	A	HB : 120 - 150	7511036
5	13K00072	90 ES WPB 1 1/2 S80		25	A	HB : 120 - 150	7511329

Specification		Chemical Composition %												Tension Test *2			HARDNESS MAX
		C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E	
Min.		x 100	x 100	x 100	x 1000	x 1000	x 100	x 100	x 100	x 100	x 1000	x 1000	x 100	MPa.		%	197 HBW : GOOD
Max.			10	29										240	415	30	
Base Material Heat No.		30		108	50	58	40	40	40	15	80	20			666		
1	2-08189	19	24	82	15	3	<1	1	2	<1	<1	<1	33	329	483	53	
2	32082	17	24	85	12	1	7	3	5	2	2	1	34	320	476	35	
3	113389	16	21	87	10	4	14	7	11	3	1	4	32	245	489	42	
4	J3LA187	19	19	88	15	7	2	2	4	1	0	0	35	298	477	44	
5	J3K4437	19	19	80	12	5	3	2	4	2	0	0	34	325	489	50	

(Note 1) A : Hot formed with final temperature between 620 °C-980°C, Air Cooling N : Normalizing 910°Cx0.5 HR. Air Cooling

The fittings were manufactured, sampled, tested and inspected in accordance with the specification, and was found to meet the requirements.

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

Note for WPB: 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%

[Signature]
Rungnapha Kamphrasan

Quality Assurance Manager
Thai Benkan Co., Ltd.