



INSPECTION REPORT

Table with 4 columns: To, From, Attn, Report Date. Values include XXXXXXXXXXXX, Troika Inspection Service Co., Ltd, and XXXXXX.

Table with 2 columns: Field Name, Value. Fields include Project No., Vendor Name, Factory Name, Factory Address, Order No. / PO No., Product description, and Inspection Date.

01.0 Scope of Inspection:

(Brief description of details of inspections, tests etc. carried out/witnessed)

Table with 3 columns: Equipment description, I.T.P. line number, Inspection Activity, Results. Results column includes checkboxes for Accepted without deviation, Accepted with deviation, and Reject.

2.0 Reason for visit

The purpose of this visit is to carry out the visual, dimension inspection and test for pipe listed in PO XXXX according to purchaser order and specification.

3.0 Documentation used

Table with 4 columns: DOCUMENT NUMBER, REV. No., TITLE, Approval Status. Rows include QCP, Plan and Purchase Order.



ASME SA 213/A 213M	X	Specification for seamless ferritic and austenitic alloy-steel boiler super-heater, and heat-exchanger tubes	By purchaser
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4.0 Details of inspection performed

4.1. Reference documents:

→ [document PO: YLETC20160909]

During inspection, following items are provided for inspection,

No.	Description	QTY.	
1	Stainless steel seamless 21.3x2.77 5-5.8 ASTM A312 TP304 plain end	24 meters	4pcs
2	Stainless steel seamless 26.7x2.87 5-5.8 ASTM A312 TP304 plain end	24 meters	4pcs
3	Stainless steel seamless 33.4x3.38 5-5.8 ASTM A312 TP304 plain end	500 meters	95pcs
4	Stainless steel seamless 48.3x3.68 5-5.8 ASTM A312 TP304 plain end	25 meters	5pcs
5	Stainless steel seamless 60.3x2.77 5-5.8 ASTM A312 TP304 BW	130 meters	26pcs
6	Stainless steel seamless 73x3.05 5-5.8 ASTM A312 TP304 BW	6 meters	1pc
7	Stainless steel seamless 88.9x3.05 5-5.8 ASTM A312 TP304 BW	430 meters	77pcs
8	Stainless steel seamless 114.3x3.05 5-5.8 ASTM A312 TP304 BW	1100 meters	201pcs
9	Stainless steel seamless 168.3x3.4 5-5.8 ASTM A312 TP304 BW	470 meters	83pcs
10	Stainless steel seamless 88.9x5.49 5-5.8 ASTM A312 TP304 BW	28 meters	5pcs
11	Stainless steel seamless 114.3x6.02 5-5.8 ASTM A312 TP304 BW	29 meters	5pcs
12	Stainless steel seamless 219.1x8.18 5-5.8 ASTM A312 TP304 BW	53 meters	9pcs

4.2 Marking check

4.2.1 Sample size: [100%]

Marking on the pipes

Logo Yinlong SSCO/ETC 100NBxSCH10S 114.3mm O.D x3.05mm W. THK ASTM A312 TP304 SEAMLESS STEEL HEAT NUMBER. 11L336

The marking is varied with size, WT and heat no.

Remark: The result need to subject to buyer's evaluation.

4.3 Visual quality check

4.3.1 Sample size: [100%]

During the inspection,100% of pipes were selected for visual quality check, no obvious defect was found on the pipes, 21.3x2.77 5-5.8, 26.7x2.87 5-5.8, 33.4x3.38 5-5.8, 48.3x3.68 5-5.8 are Plain end, the rest are BW end.

Remark: The results were acceptable



4.4 Dimension check

4.4.1 Sample size: [10% per type]

4.4.2 Reference document: [ASME A312, ANSI B36.19, ASME B16.25]

unit: mm

Item 1 Stainless steel seamless 21.3x2.77 5-5.8 ASTM A312 TP304 plain end 1pc

Required	OD	WT	Length
	21.3(+0.4/-0.8)	2.77(+20%/-12.5%)	5000-5800
Checked	21.3/21.4	2.65/2.66	6050

Item 2 Stainless steel seamless 26.7x2.87 5-5.8 ASTM A312 TP304 plain end 1pc

Required	OD	WT	Length
	26.7(+0.4/-0.8)	2.87(+20%/-12.5%)	5000-5800
Checked	26.6/26.6	2.75/2.93	6040

Item 3 Stainless steel seamless 33.4x3.38 5-5.8 ASTM A312 TP304 plain end 10pcs

Required	OD	WT	Length
	33.4(+0.4/-0.8)	3.38(+20%/-12.5%)	5000-5800
Checked	33.2-33.5	3.2-3.42	5250-5720

Item 4 Stainless steel seamless 48.3x3.68 5-5.8 ASTM A312 TP304 plain end 1pc

Required	OD	WT	Length
	48.3(+0.4/-0.8)	3.68(+20%/-12.5%)	5000-5800
Checked	48.2/48.4	3.45/3.47	6010

Item 5 Stainless steel seamless 60.3x2.77 5-5.8 ASTM A312 TP304 BW 3pcs

Required	OD	WT	Length
	60.3(+0.8/-0.8)	2.77(+20%/-12.5%)	5000-5800
Checked	60.2-60.4	2.6-2.79	5230-5620

Item 6 Stainless steel seamless 73x3.05 5-5.8 ASTM A312 TP304 BW 1pc

Required	OD	WT	Length
	73(+0.8/-0.8)	3.05(+20%/-12.5%)	5000-5800
Checked	72.8/73.2	2.84/3.27	6004

Item 7 Stainless steel seamless 88.9x3.05 5-5.8 ASTM A312 TP304 BW 8pcs

Required	OD	WT	Length
	88.9(+0.8/-0.8)	3.05(+15%/-12.5%)	5000-5800
Checked	88.7-89.4	2.94-3.26	5515-5670

Item 8 Stainless steel seamless 114.3x3.05 5-5.8 ASTM A312 TP304 BW 20pcs

Required	OD	WT	Length
	114.3(+0.8/-0.8)	3.05(+22.5%/-12.5%)	5000-5800
Checked	113.5-114.6	2.71-3.25	5120-5785

Item 9 Stainless steel seamless 168.3x3.4 5-5.8 ASTM A312 TP304 BW 9pcs

Required	OD	WT	Length
	168.3(+1.6/-0.8)	3.4(+22.5%/-12.5%)	5000-5800
Checked	167.8-168.6	3.22-3.6	5315-5800



Item 10 Stainless steel seamless 88.9x5.49 5-5.8 ASTM A312 TP304 BW 1pc

Required	OD	WT	Length
	88.9(+0.8/-0.8)	5.49(+15%/-12.5%)	5000-5800
Checked	88.8/89.2	5.12/5.41	5911

Item 11 Stainless steel seamless 114.3x6.02 5-5.8 ASTM A312 TP304 BW 1pc

Required	OD	WT	Length
	114.3(+0.8/-0.8)	6.02(+22.5%/-12.5%)	5000-5800
Checked	114.2/114.3	6.03/5.95	6014

Item 12 Stainless steel seamless 219.1x8.18 5-5.8 ASTM A312 TP304 BW 1pc

Required	OD	WT	Length
	219.1(+1.6/-0.8)	8.18(+22.5%/-12.5%)	5000-5800
Checked	219/219.1	7.88/8.02	6021

Remark: The result need to Subject to buyer's evaluation

4.5 Witness testing

[witness PMI test]

4.5.1 Sample size: [5% per type ]

4.5.2 Reference document: [ASTM A312]

Item 1. ASME A312 TP304 Heat No. 11L333							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	1.25	/	/	18.76	8.05
Item 2. ASME A312 TP304 Heat No. 11L333							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	1.24	/	/	18.72	8.01
Item 3. ASME A312 TP304 Heat No. 11L333							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	1.2-1.3	/	/	18.51-18.74	8.02-8.06
Item 4. ASME A312 TP304 Heat No. 11L333							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	1.08	/	/	18.59	8.04
Item 5. ASME A312 TP304 Heat No. 11L333							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11



Result	/	/	1.07/1.08	/	/	18.51/18.67	8.17/8.18
Item 6. ASME A312 TP304 Heat No. 11L333							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	1.2	/	/	18.62	8.02
Item 7. ASME A312 TP304 Heat No. 11L333							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	0.95-1.14	/	/	18.41-18.93	8.01-8.93
Item 8. ASME A312 TP304 Heat No. 11L336							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	0.95-1.12	/	/	18.57-18.85	8.02-8.88
Item 9. ASME A312 TP304 Heat No. 11L336							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	0.96-1.11	/	/	18.48-18.8	8.01-8.13
Item 10. ASME A312 TP304 Heat No. 11L333							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	1.18	/	/	18.55	8.02
Item 11. ASME A312 TP304 Heat No. 11L336							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	1.21	/	/	18.6	8.03
Item 12. ASME A312 TP304 Heat No. 11L336							
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	1.39	/	/	18.43	8.25

Remark: the results were acceptable.

[witness mechanical test]

**4.5.3 Sample size: [1pc each type]**

**4.5.4 Reference document: [ASTM A312, ASTM A370]**

Item 1. ASME A312 TP304 Heat No. 11L333					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	78/81/81.5	701	351	65	Acceptable



Item 2. ASME A312 TP304 Heat No. 11L333					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	78/78/79	682	341	66	Acceptable
Item 3. ASME A312 TP304 Heat No. 11L333					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	78.5/74.5/76.5	665	333	62	Acceptable
Item 4. ASME A312 TP304 Heat No. 11L333					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	78.5/79/79	674	344	58	Acceptable
Item 5. ASME A312 TP304 Heat No. 11L333					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	79.5/80/77.5	713	357	54	Acceptable
Item 6. ASME A312 TP304 Heat No. 11L333					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	79/78.5/79	655	328	56	Acceptable
Item 7. ASME A312 TP304 Heat No. 11L333					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	75/78/79	696	348	52	Acceptable
Item 8. ASME A312 TP304 Heat No. 11L336					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	75/77/79	713	357	56	Acceptable
Item 9. ASME A312 TP304 Heat No. 11L336					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	74/80/80	703	390	58	Acceptable
Item 10. ASME A312 TP304 Heat No. 11L333					



	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	75/77/79	649	325	60	Acceptable
Item 11. ASME A312 TP304 Heat No. 11L336					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	75/77/79	649	325	60	Acceptable
Item 12. ASME A312 TP304 Heat No. 11L336					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	78/78.5/79.5	576	288	64	Acceptable

Remark: the results were acceptable.

[witness intergranular corrosion]

4.5.5 Sample size: [1pc each type]

4.5.6 Reference document: [ASTM A262 method E]

During the inspection, 12 pieces of specimens were performed the intergranular corrosion test, after 16h test duration in the CuSO4 + H2SO4 solution, no cracks were observed on bent area at 20X magnification, the Microscopic structure to be observed from 250 X magnification could not be witnessed due to the limited of test equipment.

Remark: the results were subjected to buyer's evaluation.

5.0. Result of Inspection

- Accepted without deviation
- Accepted with deviation (See Punch list)
- Reject (See the deviation for Rejection)

6.0. Quality Records reviewed and attached:

Intergranular corrosion report in Chinese  
 Mechanical test report  
 PMI report  
 MTC (delivery condition: annealed pickled & Passivated),  
 The results of documents review were subject to buyer's evaluation.

7.0 Progress Status

After the inspection the pipes were held and waiting for client's instruction before to next step;

8.0 Next Forecasted Inspection Date:

TBA

9.0 Attendees

- Mr. XXX supplier inspector
- Mr. XXX Vendor Inspector
- Mr. XXX TIS inspector on behalf of XXX





Any deviation & PUNCH attached : Yes <input checked="" type="checkbox"/> No, <input type="checkbox"/>	Punch No.: XXXX
IRN attached : Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	IRN No.:

10. Photo Report



Fig.1 pipes in the workshop

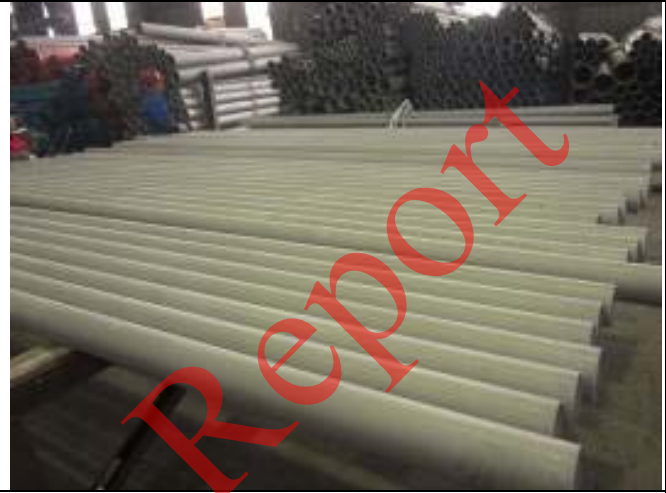


Fig.2 pipes in the workshop

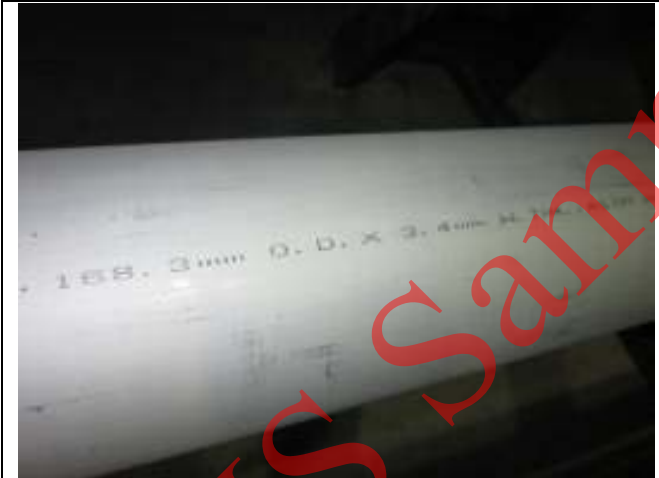


Fig.3 marking check



Fig.4 marking check





Fig.5 dimension check



Fig.6 dimension check



Fig.7 Dimension check



Fig.8 Dimension check



Fig.9 witness PMI



元素	%	wt	数量范围
Mn	0.99	0.052	0.00 - 2.00
Ni	8.03	0.064	8.00 - 10.00
Cr	0.20	0.023	
C	18.86	0.078	18.00 - 20.00
Co	0.29	0.012	
Fe	71.41	0.183	65.00 - 76.00
Mo	0.13	0.004	0.00 - 0.60
V	0.07	0.021	

Fig.10 witness PMI



**Fig.11 Tensile test**



**Fig.12 tensile test**



**Fig.13 hardness test**



**Fig.14 intergranular corrosion**



**Fig.15 stamped on the samples**



**Fig.16 stamped on the samples**



Prepared by : xxxx	Reviewed by : xxxxx
Signed: xxx	
Date: xxxxx	

TIS Sample Report