

## Inspection and Test Plan for Fin Tube Heat Exchanger

No.	Inspection and Test Plan	Reference Document	Acceptance Criteria	Verifying Document	Activity By			Remark
					Manuf.	TPI	Client	
1	Pre-Inspection Meeting	Spec.	Spec.	MOM	H	H	H	-
<b>Before Manufacturing</b>								
2	DWG, Design, Calculation Document	ASME, API 661, Spec	API 661, ASME, Spec	DWG, Calculation book	H	R	A	-
3	WPS & PQR	ASME	ASME IX, API 661	Welding Book	H	R	A	-
4	Welder Qualification Certificates	ASME	ASME IX	Certificates	H	R	-	-
5	NDT procedure	ASME	ASME V,VIII, IX	Procedures	H	R	A	-
6	NDE Personnel Certificates	ASME	ASME V	Certificates	H	R	-	-
7	PWHT Procedure	ASME	API 661, ASME VIII	Procedure	H	R	A	-
8	Hydro Static Test Procedure	ASME	API 661, ASME VIII	Procedure	H	R	A	-
9	Painting Procedure	Spec.	Spec., API 661	Procedure	H	R	A	-
<b>Materials</b>								
10	Material Certificates	ASME	ASME II	Original Material Certificates	H	R	-	-
11	Storage of raw material and Welding	ASME	ASME	-	H	W	-	-
12	Visual, Dimension and Marking Control	ASME VIII	ASME VIII	Report	H	W	-	-
<b>During Manufacturing</b>								
13	Transferring of marking Material	ASME VIII	ASME VIII	Report	H	SW	-	-

17	Check of Welding plan with WPS	DWG/WPS	WPS/DWG	-	H	SW	-	-
14	Cutting & Edge Preparation	DWG	DWG	-	H	SW	-	-
15	Plug, Bonnet or Cover-Plate Headers Fit-Up and Welding	DWG	DWG, ASME VIII, API 661	Report	H	W	-	-
17	Pass Partision Plate Fit-Up and Welding	DWG	DWG, ASME VIII, API 661	-	H	SW		
18	Side Frame Fit-Up and Welding	DWG	DWG, ASME VIII, API 661	-	H	SW	-	-
19	Tube to tubesheet welding, rolling, expanding	DWG	DWG, ASME VIII, API 661	Report	H	W		
20	Tubesheet Tube Holes Dimentional Check	DWG	DWG, ASME VIII, API 661	-	H	SW		
21	Fit-Up, Welding of pipe to flange	ASME/DWG	ASME/DWG	-	H	SW	-	-
22	Marking ,Opening Nozzles	DWG	DWG	-	H	W	-	-
23	Fit-Up, Welding (Nozzle to Header Box)	WPS/DWG	WPS/DWG	-	H	SW	-	-
24	PT,MT, RT and UT	NDT map/NDT Procedure	API 661, ASME VIII	Report	H	SW		
25	Inspection for Fit-Up & Welding saddle & Lug	WPS/DWG	WPS/DWG	-	H	SW	-	-
26	Visual & Dimensional Check	DWG/Spec.	DWG	API 661, ASME VIII, Spec	H	W	-	-

27	PWHT	Procedure	API 661, ASME VIII, Spec	PWHT Online graph	H	H		
28	Hardness measurement	API 661, Spec.	API 661, Spec.	Report	H	W		
29	Machining of Gasket Contact Surface Check	Spec.	API 661	-	H	SW		
30	Hydrostatic Test	Procedure	ASME VIII, API 661	Report	H	H	W	-
31	Balancing of fan	Procedure	API 661	Report	H	SW		
32	Shop Run-in Test of Driver, Driver Assembly and Fan	Procedure	API 661	Report	H	H		
33	Setting, calibration of instruments and controls	Procedure	API 661	Report	H	W		
34	Steel Structure and Ladder and platform Visual and Dimensional Check	DWG	DWG	-	H	SW		
<b>Final Inspection</b>								
35	Final Visual & Dimensional Check	DWG/Spec.	DWG	Report	H	H	-	-
36	Surface Preparation and Painting	Procedure	API 661, SSSP, Spec.	Report	H	W	-	-
37	Check of Name Plate	DWG	DWG	-	H	SW	-	-
38	Check of Final Book	-	Spec.	DWG/ P.O	H	R		Submitted by Vendor
<b>Documentation</b>								
39	Inspection Reports	-	Spec./DWG	Report	H	R	-	-
40	NCR	-	Spec./DWG	Report	H	R		
41	Review Final Data Report	-	Spec./DWG	-	H	R		

Packing								
42	Marking Control & Release Note	-	Spec.	MOM	H	H	-	-
43	Loading Inspection	-	Spec.	-	H	H	-	-
44	Shipping Document Control	Procedure	Spec.	Packing List	H	R	-	-

Abbreviations:

**H:** Hold Point = Hold on the production till TPI Inspector performs inspection and supervise the required test

**W:** Witness Point = Manufacture shall notify client and TPI Inspector but there is no hold on the production; Client can waive this inspection based on his discretion and informs TPI Inspector accordingly.

**R:** Document Review = Review means Review document, which includes of material test certificates, WPS, PQR, NDT Procedures and etc.

**A:** Approval

**SW:** Spot Witness = for items with spot witness manufacture shall notify TPI inspector as fulfilling the monitoring; For example one random visit for whole UT tests or one or two visits for whole surface preparation works for painting.

**MOM:** Minute of Meeting

**P.O:** Purchase Order

For more information review follwing articles:

<http://www.inspection-for-industry.com/fin-tube-heat-exchanger-inspection.html>

<http://www.inspection-for-industry.com/third-party-inspection-for-fin-tube-heat-exchanger.html>

<http://www.inspection-for-industry.com/inspection-and-test-plan-for-fin-tube-heat-exchanger.html>