

OWNER:	CONCEPTUAL, BASIC and DETAIL DESIGN ENGINEERING OF STYRENE PARK OFFSITE						EPC CONTRACTOR:	
MC:								
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MATERIAL REQUISITION FOR STEEL SHELL AND TUBE HEAT EXCHANGERS

00	18-May-2024	Issued for Inquiry	F.SH	M.O	A.M
Rev.	Date	Description	Prepared	Checked	Approved

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1. Scope

This document covers design, material supply, manufacturing, assembling, Inspection, testing, delivery and all other activities that is required for supply of shell and tube heat exchangers according to ASME section VIII Division 1 to successful startup of the equipment.

This Requisition sets out the minimum requirements and does not relieve the Vendor of his full responsibility for the design and the reliable operation of supplied items. Therefore, the Vendor will be liable for the correct operation of any auxiliary elements involved. In the preparation of his proposal, the Vendor shall fulfill all the provisions of this Requisition even if they differ from vendor standard supply. Whenever the Vendor cannot comply with the present Requisition for technical reasons, he shall state it in detail in the chapter of the deviations.

2. Definitions

2.1 Abbreviations

Abbreviation	Meaning
NDT	None Destructive Test
QA	Quality assurance
WPS/PQR	Welding Procedure Specification/Procedure Qualification Record
CD	Compact Disc
QCP	Quality Control Plan
MOM	Minuets Of Meeting
PMI	Positive Metal Identification

3. References

3.1 General

All documents, codes and standards referenced in this requisition, shall form an integral part of this Requisition and shall be followed where applicable. For project documents, latest revision of the documents up to date of kickoff meeting shall be followed.

For codes and standards, latest revision up to date of order shall be followed. Purchaser reserve the right to request the vendor to use and follow an older revision of a code or standard due to his requirements.

3.2 Code and standards

No.	Code/Standard Number	Code/Standard Title
1	ASME Section VIII, Div.1 Edition 2021	Rules for Construction of Pressure Vessels

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2	ASME Section VIII, Div.2, Edition 2021	Rules for Construction of Pressure Vessels, Alternative Rules
3	ASME Section V, Edition 2021	Nondestructive Examination
4	ASME Section IX, Edition 2021	Welding and Brazing Qualifications
5	ASTM/ASME Section II, Edition 2021	Materials
6	TEMA 10th (2019)	Standards of the Tubular Exchanger Manufacturers Association
7	EJMA Standard, 10th Edition 2015	Standards Of The Expansion Joint Manufacturers Association, Inc.
8	EEMUA Publication No. 143 2th Edition 2017	Recommendations For Tube End Welding: Tubular Heat transfer Equipment
9	API 660 9th (2015), Addendum 1 (2020)	Shell & Tube heat exchangers for General Refinery Services
10	API RP 941 8th Edition (2016), Errata 2 (2018), Addendum 1 (2020)	Steels for Hydrogen Service at Elevated Temperatures and Pressures in Petroleum Refineries and Petrochemical Plants
11	API RP 934-C 2nd Edition (2019)	Materials and Fabrication of 1 1/4Cr-1/2Mo Steel Heavy Wall Pressure Vessels for High-pressure Hydrogen Service Operating at or Below 825 °F (441 °C))
12	BS EN 10204 (3.1)	Metallic Products - Types Of Inspection Documents
13	ASCE 07/10	Minimum Design Loads and Associated Criteria for Buildings and Other Structures
14	WRC 107/297	Local Stresses In Cylindrical Shells Due To External Loading On Nozzles
15	ASME B16.5	Pipe Flanges And Flanged Fittings: Nps 1/2 Through Nps 24 Metric/Inch Standard
16	ASME B16.47 Series B	Large Diameter Steel Flanges Nps 26 Through Nps 60 Metric/Inch Standard
17	ASME B16.9	Factory-Made Wrought Butt welding Fittings
18	ASME B16.20	Metallic Gaskets For Pipe Flanges Ring-Joint, Spiral-Wound, And Jacketed
19	ASME B16.21	Nonmetallic Flat Gaskets For Pipe Flanges
20	ASME B1.1	Unified Inch Screw Threads
21	ASME B18.2.1	Square, Hex, Heavy Hex, And Askew Head Bolts And Hex, Heavy Hex, Hex Flange, Lobed Head, And Lag Screws (Inch Series)
22	ASME B18.2.2	Nuts For General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, And Coupling Nuts (Inch Series)
23	ASME B36.19	Stainless Steel Pipe
24	ASME B36.10	Welded And Seamless Wrought Steel Pipe
25	AISC 15 th Edition (2017)	Steel Construction Manual

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26	AWS	American National Standard for Welding
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3.3 Project Documents

No.	Document Title	Document Number	Revision	Remarks
A	General Documents :			
1	Site and Design Condition for Offsite Area	EI027-000-ED-PR-SPC-002	02	
2	Painting Procedure		00	
3	Packing, Marking And Shipping Procedure		00	
4	Spare Part Procedure		00	
5	Final Data Book Preparation Instruction		00	
6	Deviation List			
B	Technical Documents:			
B-1	Equipment:			
1	Inspection & Test Plans For Shell And Tube Heat Exchanger		00	
2	Chiller (Evaporator) Outline Drawing	EI027-HSE-VD – ME– DWG– 008- XX	00	

4. Inquired Items

4.1 Item Name and Tag Number

No.	Item Description	Item Tag Number	Number Required	Type
1	RU-0001A-E-02	Chiller (Evaporator)	2	S&T Heat Exchanger

5. Scope of Work and Supply

5.1 Scope of Supply

Vendor proposal shall include, but not be limited to, equipment and materials specified in the following: Items marked with “vendor” in column of " Included in supply scope of:" hereunder shall be within vendor Scope of supply.

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No.	Item Description	Included In Supply Scope of:
1	Equipment Proper	Vendor
2	All Required Materials	Vendor
3	All Welded Internals	Vendor
4	Companion Flanges (Where Specified)	Vendor
5	Baffles, Deflectors, Impingement Plates, Distribution Plate, Ring Chamber Impingement Protection, Weir Plates, Sealing Boxes, Calming Baffles, Perforated Plates, Etc.	Vendor
6	Gasket, Bolts, Nuts and Washers For Nozzles With Companion Flanges, Internal Flanges, Blinded Flanges And Girth Flanges	Vendor
7	Blind Flanges With Gaskets, Bolts And Nuts, Temporary Saddles (If Required) For Hydrotest	Vendor
8	Test Rings And Test Flanges	Vendor
9	All Welded And Removable Internals (Including But Not Limited To Dummy Tubes, Baffles (Longitudinal, Tuning, Support, Etc.), Weir, Impingement Plates, Tie Rods, Spacers, Eye Bolts, Plugs, Jack Bolts, Channel Pass Partition, Sliding Bars/Rods/Rails, Bearing, Sealing Rods, Sealing Strips, Etc.)	Vendor
10	Sacrificial Anodes (Where Required)	Vendor
11	Accessories For Odd Pass Floating Type Heat Exchangers (Such as Gland Packing, Expansion Bellows, etc.)	Vendor
12	Bolts, Nuts And Gaskets of Intermediate Nozzles and Shim Plates for Stacked Items.	Vendor
13	Expansion Joint & Bellows (If Required)	Vendor
14	Clips For Piping Supports, Ladders, Platforms	Vendor
15	Lifting Devices	Vendor
16	Stiffening Ring (if Required)	Vendor
17	Manhole And Hand hole Cover Support Or Hinges	Vendor
18	Fireproofing And Insulation Supports (Where Applicable)	Vendor
19	Hard Wood for Cold Services / Wooden Pillow (If Required)	Vendor
20	Name Plate And Relevant Supports	Vendor
21	External Surface Coating	Vendor
22	Touch-up paint for repair work at site	Vendor
23	Earth Lugs	Vendor
24	All Necessary Devices For Transportation (Including Adequate Saddles, Nozzle Covers, Bolts, Nuts, Temporary Gaskets For Shipping, Cradle, Wooden Belts For Sling The Equipment, Packing Boxes, Fittings, Etc.)	Vendor
25	Lifting Beam And/or Spread Bar (To Be Quoted Separately) (*Option*)	Vendor
26	All Required Material, Tools And Instrument For Preservation	Vendor
27	Cap For Butt Welded Nozzles (To Be Cut At Site)	Vendor
28	Anchor Bolts And Nuts	Others

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29	Setting Bolts, Nuts and Washers	Vendor
30	Sliding Plates	Others
31	Insulation Material	Others
32	Fireproofing Material	Others
33	Final Data Book	Vendor
34	Temporary bracing and support for transportation	Vendor
35	Ladders, Platforms And Stairways With Relevant Galvanized Gratings / Checker Plate (As per relevant Standard Drawings) Including Bolts, Nuts & Washers (Unit Rate Per kg) (To Be Quoted Separately) (*Option*)	Vendor
36	Spare Parts For Erection, Pre-Commissioning, Commissioning and Start-Up	Vendor
37	Spare Parts For Two Years Operation (To Be Quoted Separately) (*Option*)	Vendor

5.2 Scope of Work

No.	Item Description	Included in Supply Scope of:
1	Mechanical Detail Design	Vendor
2	Local Stress Analysis For Nozzle/ Attachments Per WRC 107/297	Vendor
3	FEA (Finite element analysis) for special cases outside the scope of WRC 107/297, where applicable	Vendor
4	Fatigue analysis based on the relevant specifications and codes (if indicated on relevant Engineering Drawing)	Vendor
5	Suitable Calculation for Supports (e.g. Calculation for Braces of Leg Type Support Based on FEA Preferably via Software's Like SAP 2000 or STAAD Pro)	Vendor
6	Detail Design of Ladders And Platforms (Note 1)	Vendor
7	Material Procurement	Vendor
8	Documentation As Per Para 7.6 Of Requisition In Addition To Documents Requested In The Relevant Job Specification	Vendor
9	Welder Performance Qualification Tests	Vendor
10	Manufacturing (Including But Not Limited To Cutting, Rolling, Forming, Drilling, Machining, Edge Preparation, Welding, etc.)	Vendor
11	Shop fabrication and assembling	Vendor
12	Test And Material Certificate	Vendor

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No.	Item Description	Included in Supply Scope of:
13	Positive Material Identification (PMI) For Non-Carbon Steel Material	Vendor
14	Chemical Analysis of Base Metal Welds	Vendor
15	Inspection And Tests	Vendor
16	Providing Required Facilities For Inspection and Test	Vendor
17	PWHT/ Stress Relieve	Vendor
18	NDT and Hardness Test after PWHT	Vendor
19	Hydraulic / Hydrostatic Test	Vendor
20	Leakage Test / Air Leak Test	Vendor
21	Removing Of Any Scale, Rust, Barb And Any Foreign Material	Vendor
22	Surface Preparation	Vendor
23	Primer Painting	Vendor
24	Intermediate Painting	Vendor
25	Final Painting/ Coating/ Color Approval	Vendor
26	Internal Lining, Cladding or Coating (If Required)	Vendor
27	Chemical Cleaning, Pickling & Passivation For Stainless Steel Parts	Vendor
28	Surface Preparation & Primer / Intermediate / Final Painting of Ladders and Platforms	Vendor
29	Mechanical Guarantee	Vendor
30	Guarantee of the suitability of all used materials (Chemical composition, mechanical properties and origin of material)	Vendor
31	Equipment identification on the shell external surface	Vendor
32	Size of anchor bolts, relevant B.C.D and final loading data including erection, operating and hydro tests, shear and moment due to wind and earthquake shall be provided by Vendor 1 month after purchase order.	Vendor

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No.	Item Description	Included in Supply Scope of:
33	Preservation: N2 Purging with 1.0 barg Pressure	Vendor
34	Inland Shipping Marking / Packing	Vendor
35	All Certificates	Vendor
36	Preparation For Shipment	Vendor
37	All Activities To Meet Requirements Of Process Data Sheet, Engineering Drawing, Specifications, Codes and Standards	Vendor
38	Ex-Work Delivery	Vendor
39	Seaworthy Export Marking / Packing	Vendor
40	CPT Delivery (To Be Quoted Separately) (*Option*)	Vendor
41	Supervision At Site For Erection / Installation (To Be Quoted Separately) (*Option*)	Vendor

Note 1: Ladders And Platforms Layout Will Be Provided To Vendor At Job Stage. Vendor Shall Design Ladders And Platforms In Accordance With Purchaser's Standard Drawings, Provide Fabrication Drawings And Determine Clips Arrangement To Be Incorporated Into Equipment Design. Clips Shall Be Welded To Equipment By Vendor At Shop, Even Ladders And Platforms Will Be Fabricated By Other

6. Design

6.1 General

All of referenced and attached standards or project documents shall be used and followed strictly when applicable including all typical drawing or details.

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6.2 General Notes

- 6.2.1 All Documents / Drawings Shall Be Written In English.
- 6.2.2 All Changes And Modifications On Vendor Documents Shall Be Clearly Clouded Marked With Revision Mark. Purchaser Will Take No Action On Any Change Without Such Marking.
- 6.2.3 No Fabrication Work Is Allowed Without Approved Fabrication Drawings / Calculation Books. However When Vendor Print Is Marked With “Approved As Noted”; Fabrication Activities Can Be Performed If Purchaser's Comments Incorporated As Indicated.
- 6.2.4 All Fabrication Drawings Shall Be Drawn In Specific Scale.
- 6.2.5 All Vendor Drawings And Documents Should Be Provided In Purchaser Title Block.
- 6.2.6 All E-Files Should Be Provided In Original Format (E.G AutoCAD, Word, Excel, Etc.)

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6.3 Technical Notes

- 6.3.1 Flanges For Nozzles Up To 24 Inches Shall Be As Per ANSI/ASME B16.5, And Flanges For Nozzles Over 24 Inches Shall Be As Per ASME B16.47, Series (B), If Applicable.
- 6.3.2 All Body Flanges Shall Be Integral Type Unless Otherwise Specified on the Engineering Drawing
- 6.3.3 Spare Parts Shall Be Packed Separately From The Equipment.
- 6.3.4 Unless Otherwise Specified on Other Project Specifications, All C.S. Bolts and Nuts Shall Be Coated Properly to Provide Proper Protection Such as Galvanization, etc.
- 6.3.5 Original Gaskets Should Have Been Installed On All Blinded Nozzles Before Transportation, For Other Flanged Nozzles Suitable Covers With Temporary Gaskets For Transportation Purpose Shall Be Provided.
- 6.3.6 Thickness Indicated On Purchaser's Engineering Drawings Are Purchaser's Proposal. Vendor Shall Check And Guarantee That The Thickness Will Provide The Proper Strength Under The Specified Conditions.
- 6.3.7 When Equipment Is Heavier Than 80 Tons During Transportation, Vendor Shall Supply Cradle.
- 6.3.8 Center Of Gravity Shall Be Clearly Marked On The Equipment.
- 6.3.9 Flanges That Are Not Within The Scope Of ASME B16.5 Or B16.47 Series (B) Shall Comply With Sec VIII Of ASME Code.
- 6.3.10 Flange Bolt Holes Shall Be Straddled North/South C.L. (Or Horizontal C.L.).
- 6.3.11 All Nozzles Shall Be Set-In Types Unless Otherwise Specified on the Engineering Drawing
- 6.3.12 Weld Seams of Heads Shall Be Also Shown On As-Built Drawings.
- 6.3.13 Where Nozzle Standard Load Has Not Been Provided, Vendor Shall Specify the Allowable Nozzle Load Based On His Calculation On the Fabrication Drawings.
- 6.3.14 All Forging Material (Except Standard Flanges) Shall Be Ultrasonically Tested.
- 6.3.15 Welding Procedure Shall Be Qualified at M.D.M.T.
- 6.3.16 The Vendor shall order the materials with material characteristics guaranteed after PWHT (concerning in particular Yield strength and impact testing), where applicable.
- 6.3.17 No protection, paint or other filling shall be applied to the contract works before they have been inspected, tested and approved. After approval and before dispatch each part of the contract works shall be thoroughly cleaned and appropriately protected and packed in accordance with the requirements of carriers and shippers and suitably for prolonged storage. All packing cases and materials are included in the proposed price, and shall become the property of the CONTRACTOR.
- 6.3.18 Nozzle attachment welds to shell shall be 100% inspected by ultrasonic examination.

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- 6.3.19 All NDE including radiographic, ultrasonic, magnetic particle or liquid penetrate examinations shall be performed before and after Post Weld Heat Treatment of the vessel. This will be performed according to code and specification.
- 6.3.20 Full radiographic examination shall be performed for Repair weld in base metal having a depth over 10 mm.
- 6.3.21 Ultrasonic radiographic examination shall be performed for Head plates before hot forming (100% scanning).
- 6.3.22 Slips on flanges are not acceptable.
- 6.3.23 Contractor's approval shall in no way be construed as relieving Vendor of any of his obligation, responsibilities under the contract and/or applicable codes and standards.
- 6.3.24 Should Contractor fail to comment, or only partially comment, upon Vendor's document, this shall not be construed as an acceptance of the content of such document unless expressly provided otherwise.
- 6.3.25 Test ring shall be provided one set for same equipment.
- 6.3.26 Tube to tubesheet weld shall be tested with dye penetrant and leak test before tube expansion.

6.4 Sub items procurements

List of approved vendors is attached to this material requisition. Vendor shall select all of his sub vendors from this list. If not, vendor shall follow purchaser instruction for selection of qualified sub vendors. Vendor shall not use any sub item from sub vendors that does not listed in approved vendor list or does not approved by purchaser.

7. Documentation

7.1 General

Vendor shall provide the Copy of current certification of ISO 9001/2 or 3. When vendor does not hold ISO certification, vendor shall provide the following documents to purchaser for review During Equipment/ Material/ Service Procurement/ Subcontracting Stage and, in anyway, before Purchase Order:

- Vendor Management commitment letter to Quality.
- Detailed Organization Chart of Vendor and Job Ticket scope of work and responsibilities of every position of that chart.
- Name and CV of Personnel for the position shown on the Chart with indication if on pay roll or from subsidiary or contracted personnel.
- List of working procedure to be issued for the Job at Order / Contractor Stage in order to be as close as possible to ISO 9001/2 or 3 and covering all item of the application Norm.
- Issue of Vendor Management Audit Program

During Equipment / Material Service Purchase Order implementation stage:

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- Issue of the Job QA plan
- Issue of working procedures for purchaser review within one month after order.
- Implementation of the working procedure during order execution
- Performance of vendor Management Audit Program
- Vendor shall provide the Copy of vendor quality manual / quality plan. Quality Plan shall be subject to presentation, discuss and clarification with purchaser, and Company as necessary, prior to incorporation into contract.

7.2 Conflict in purchaser documents

In case of conflict between purchaser documents, Vendor shall inform the Purchaser about the conflict. For important conflicts, vendor shall wait for purchaser clarification before proceeding. For other events, documents priority order as specified hereinafter should be used. When conflict is not clarified between purchaser and vendor before order, the purchaser has the right to select the most stringent requirements without accepting any cost or time impact.

7.3 Order of priority of purchaser documents

The order of priority of purchaser documents (project documents) is as listed below:

1. First priority : Purchase Order
2. Second priority : Engineering Drawing
3. Third priority : This requisition
4. Fourth priority : Other Referenced Specifications
5. Fifth priority : Code & Standard

Priority of valid clarification forms or minutes of meetings could be higher than all above when approved by purchaser.

7.4 Language of documentation

All documents shall be written in the English. Persian may be used for local letters and minutes of meeting if approved by purchaser. All documents in other languages shall be translated to English before submittal.

7.5 Unit of measurement

SI units shall be used as far as possible except for followings:

- Pipe and flange nominal diameter should be represented in inch.

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7.6 Documents shall be submitted by vendor

LIST OF DOCUMENTS REQUIRED FROM VENDOR							
NO.	DESCRIPTION	AT THE TIME OF BID Q/TYPE	AFTER ORDERING				AT THE FINAL INSP. (Note 4)
			DRAWINGS AND DOCUMENTS (NOTE 10)				
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)	FINAL ISSUE (Note 1)	
A	General:						
1	Manufacturing Schedule Per Equipment (Including Design, Procurement, Fabrication, Test And Packing, Delivery)	4/C	4/C+1/CD	Monthly	R	-	-
2	Sub-Vendor/Sub-Supplier List (Note 6)	4/C	-	-	R	-	-
3	Vendor Print Index And Schedule (VPIS) (Note 7)	-	4/C+1/CD	2 W+ Monthly	R	-	-
4	Country of Origins of Material	4/C	4/C+1/CD	With Material Certificate	I	-	-
5	Vendor's Procurement Status	-	4/C	Monthly	I	-	-
6	Vendor's Progress Report	-	4/C	Monthly	R	-	-
7	Material Certificates / Certificate of Origin	-	4/C+1/CD	3 W Before Fabrication Start	I	10/C+2/CD	X
8	Vendor Quality Control Plan	-	4/C+1/CD	4 W	R	10/C+2/CD	
9	Inspection and Test Plan	-	4/C+1/CD	4 W	R	10/C+2/CD	
10	Copy Of Un-priced Sub-Vendor/Sub-Supplier Orders	-	4/C+1/CD	1 W After Sub-Order Placement	-	-	-

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			DRAWINGS AND DOCUMENTS (NOTE 10)				FINAL ISSUE (Note 1)	
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)			
11	Spare Parts List For Erection, Pre Commissioning, Commissioning And Start- Up	4/C	4/C+1/CD	10 W	R	10/C+2/CD	X	
12	Spare Parts List For 2 Year Operation	4/C	4/C+1/CD	10 W	R	10/C+2/CD	X	
13	Welding Procedure Specifications And Procedure Qualification Records (WPS & PQR) Including General Arrangement Drawings And Related Weld Or Welding Map For All Welding	-	4/C+1/CD	6 W Before Welding	-	10/C+2/CD	X	
14	Welders Qualification Certificates	-	4/C+1/CD	3 W Before Welding	-	10/C+2/CD	X	
15	Testing / NDT Procedures	-	4/C+1/CD	6 W Before Test	R	10/C+2/CD	X	
16	Heat Treatment Procedures (If Applicable)	-	4/C+1/CD	6 W Before Treat	I	10/C+2/CD	X	
17	Hardness Test Procedures (If Applicable)	-	4/C+1/CD	6 W Before Treat	I	10/C+2/CD	X	
18	Painting Procedure	-	4/C+1/CD	6 W Before Painting	R	10/C+2/CD	X	
19	Pickling And Passivation Procedure (If Applicable)	-	4/C+1/CD	6 W Before Pickling	R	10/C+2/CD	X	

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LIST OF DOCUMENTS REQUIRED FROM VENDOR								
NO.	DESCRIPTION	AT THE TIME OF BID Q/TYPE	AFTER ORDERING					AT THE FINAL INSP. (Note 4)
			DRAWINGS AND DOCUMENTS (NOTE 10)				FINAL ISSUE (Note 1)	
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)			
20	NDT Personal Qualification Certificate	-	4/C+1/CD	6 W Before Test	R	10/C+2/CD	X	
21	NDT Map	-	4/C+1/CD	6 W Before Test	R	10/C+2/CD	X	
22	Testing / NDT Records	-	4/C+1/CD	2 W After Test	R	10/C+2/CD	X	
23	Heat Treatment Records (If Any)	-	4/C+1/CD	2 W After Treat	R	10/C+2/CD	X	
24	Internal Lining/Coating/Painting Procedures (If Applicable)	-	4/C+1/CD	6 W Before Lining	R	10/C+2/CD	X	
25	PMI Procedure (If Applicable)	-	4/C+1/CD	6 W Before Test	R	10/C+2/CD	X	
26	PMI Record (If Applicable)	-	4/C+1/CD	2 W After Test	R	10/C+2/CD	X	
27	Hydrotest Procedure	-	4/C+1/CD	6 W Before Test	R	10/C+2/CD	X	
28	Hydrotest Certificates	-	4/C+1/CD	2 W After Treat	R	10/C+2/CD	X	
29	Other Shop Test Reports	-	4/C+1/CD	2 W Before Test	R	10/C+2/CD	X	

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			DRAWINGS AND DOCUMENTS (NOTE 10)				FINAL ISSUE (Note 1)	
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)			
30	Installation, Operation, Maintenance Manuals	-	4/C+1/CD	1 M Before Delivery	R	10/C+2/CD	X	
31	Special Tools For Erection & Maintenance	4/C	4/C+1/CD	16W	R	10/C+2/CD	X	
32	Draft Of Packing Lists	-	4/C+1/CD	3 W Before Shipment	R	-	-	
33	Packing Lists and Packing Sketch	-	4/C+1/CD	Upon Shipment	R	10/C+2/CD	X	
34	Instruction for Packing, Marking, Shipping and Delivery	-	4/C+1/CD	Upon Shipment	R	10/C+2/CD	X	
35	Material + Mill Certificates And Acceptance Certificates	-	10/C+2/CD	1 W Before Delivery	R	10/C+2/CD	X	
36	Equipment Inspection Release Certificates	-	10/C+2/CD	2 W After Delivery	R	10/C+2/CD	X	
37	Transportation Instructions (On Purchaser's Request i.e. Heavy Lifts, Special Packages, etc.)	-	4/C+1/CD	6 W Before Shipping	R	10/C+2/CD	X	
38	Installation Manual With Assembling Procedure Including Lifting Procedure At Site	-	4/C+1/CD	2(TWO) M/ BEFORE DELIVERY	R	10/C+2/CD	X	
39	Special Precautions For Handling & Storage Prior / During Erection (If Applicable)	-	4/C+1/CD	6 W Before Shipping	R	10/C+2/CD	X	

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			DRAWINGS AND DOCUMENTS (NOTE 10)				FINAL ISSUE (Note 1)	
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)			
40	As-Built Drawings	-	10/C+2/ CD	2 W Before Delivery	R	10/C+2/CD	X	
41	List of Documents to Be Included in Vendor Data Book	-	4/C+1/CD	2 M Before Delivery	R	-	X	
42	Vendor Data Book	-	-	2 W After Delivery	R	10/C+4/CD	X	

Notes:

- (1) Q=QUANTITY, C=COPY, T=TRANSPARENT, P=POLYESTER, CD=COMPACT DISC, E=E-FILE
- (2) W=WEEK AFTER ORDER PLACEMENT, M=MONTH AFTER ORDER PLACEMENT
- (3) R=FOR REVIEW, I=FOR INFORMATION
- (4) X=DOCUMENTS TO BE SUBMITTED AT THE FINAL INSPECTION / DATA BOOK
- (5) PRICED COPY + UNPRICED COPY
- (6) PURCHASER HAS THE RIGHT TO REJECT SUB-VENDORS/SUB-SUPPLIERS IF HIS CAPABILITY IS JUDGED POOR OR NOT PROVEN.
- (7) NO DRAWING / DOCUMENT COULD BE REVIEWED BEFORE RECEIVING VPIS.
- (8) ALL DRAWINGS SHOULD INCLUDE WEIGHTED PART LIST.
- (9) ORIGINAL E_FILE SHOULD BE PROVIDED FOR FEA
- (10) ORIGINAL E_FILE SHOULD BE PROVIDED.
- (11) SEPARATE SHEET SHALL BE CONSIDERED FOR EACH DETAIL DRAWING (e.g. GA, BODY, BUNDLE, NOZZLE, EXTERNAL ATTACHMENT, NAME PLATE,...)

8. Inspection and Tests

8.1 General

Inspection and tests shall be made by Vendor in accordance with requirements specified in this Requisition and/or any Engineering Specification, code or standard referenced in this requisition.

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Shop witness test shall be carried out in accordance with the documents approved by Purchaser. Any witness/testing/inspection without the approved document shall be invalid.

No protection, paint or other filling shall be applied to the contract works before they have been inspected, tested and approved.

Manufacturing Data Record for Equipment shall be prepared in accordance with applicable specification and shall be completed at the final stage of inspection/test for Purchaser's inspector's review prior to shipment of items.

8.2 Quality Assurance Plan

Vendor shall submit a quality assurance plan describing his quality system and its application to the scope of supply. This plan shall be in accordance with the applicable project specifications.

8.3 Traceability Levels

The following levels shall apply to the traceability of certification:

Level 1 – EN 10204-3.2 Critical items

Level 2 – EN 10204-3.1 Normal level of assurance

Level 3 – EN 10204-2.2 Non- critical items

8.4 NDE Qualification

All personnel performing NDE functions must be adequately qualified. The NDE operators qualifications shall form part of all Vendor quality plans and therefore be approved by the purchaser before manufacture works by the inspector. The foregoing shall also apply to all sub- manufacturers.

9. Guarantee

Vendor shall guarantee the operation of the equipment to the specified design conditions. Vendor shall warrant the engineering, materials and workmanship of the equipment for a period of 12 months after successful start-up or eighteen (18) months from the date of certificate of mechanical completion. below items shall be considered by vendor. Under this warranty, Vendor shall replace all materials, parts, and assemblies found to be defective during the guarantee period. Vendor shall also, if required, supply the services of an experienced engineer to supervise the necessary repairs and replacements.