


 NISOC	Development Plan of 28 Reservoirs / BIBI HAKIMEH Oilfield (EPC)								 ماشین سازی اراک MACHINE SAZI ARAK	 ENGINEERING AND WELL SERVICES
	Material Requisition for F&G Devices for Bibi Hakimeh Production Unit No.1								 شرکت مهندسی دریایالا	
Contract No.: 053-073-9189	Project BH	Package 17	Contractor SM	Fac. 000	Disc. IN	Doc. Type MR	Ser. No. 1873	Rev. D01	Page 1 of 38	

Material Requisition for F&G Devices for Bibi Hakimeh Production Unit No.1



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Status:

- IDC: Inter-Discipline Check
- IFC: Issued For Comment
- IFA: Issued For Approval
- IFR: Issued For Review
- AFD: Approved For Design
- AFC: Approved For Construction
- AFP: Approved For Purchase
- IFI: Issued For Information
- AB-R: As-Built for COMPANY Review
- AB-A: As-Built –Approved



ATIRIN RAD MEHR
شماره ثبت: ۴۱۳۵۵۰













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1. INTRODUCTION

National Iranian South Oil Company (NISOC) plans to conduct an integrated project includes several sub-projects to preserve and increase production of Gachsaran oil fields located in south of Iran Khuzestan and Bushehr provinces as follow:

- 1) Revamping of Production and Desalting Units of Bibi Hakimeh 1&2
- 2) Fabrication & Installation a Preheater, Stripping Column and Related Equipment for Nargesi Production Unit

The purposes of first sub-project are equipping and extension of Bibihakime-2 desalting unit to achieve 110,000 SBPD desalted crude oil, and necessary modifications in Bibihakime-2 desalting & production units and Bibihakime-1 production unit so that the new plants will be able to process crude oil with 22% water cut and transfer waste water from Bibihakime-1 production unit to waste water treatment facilities in Bibihakime-1 desalting unit via installation of a none-metal pipe. Therefore, National Iranian South Oil Company (NISOC) has announced this project.

The purpose of second sub-project is crude oil sweetening in Nargesi plant by new design and necessary modifications in existing facilities. National Iranian South Oil Company (NISOC), on behalf of the National Iranian Oil Company (NIOC) is responsible to exploit oil and gas from onshore fields in the south district of Iran. According to management of planning & international affairs of National Iranian Oil Company (NIOC) pronouncement, H₂S content and RVP specification of exported oil shall be in the specified allowable range; Accordingly, NISOC has decided to fulfil a project, investigating and probing required equipment and operational conditions to meet the desired crude oil specifications of sulphur content and RVP for Nargesi production units.





2. SCOPE

This material requisition defines requirements for purchase of F&G Devices for “**Revamping of Production and Desalting Units of Bibi Hakimeh 1&2**” sub-projects.

3. DEFINITIONS

Within the context of this document, the following definitions are applicable

OWNER/CLIENT	: National Iranian South Oil Company (NISOC)
TITLE/PROJECT	: Development Plan of 28 Reservoirs/ BIBI HAKIMEH Oilfield (EPC)
CONTRACTOR	: Mashin Sazi Arak/ Sealand Engineering and Well Services JV
CONSULTANT	: Daryapala Engineering Company

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PURCHASER	: Any firm who buy services, material and/or equipment for execution of the project within a dedicated contract.
SUPPLIER	: Any vendor, manufacturer who supply any Service , Material or Equipment for the project
Will:	: Is normally used in connection with the action by the “OWNER/CLIENT/ PURCHASER” rather than by a contractor, supplier or vendor.
May:	: Is used where a provision is completely discretionary
Should:	: Is used where a provision is advisory only.
Shall:	: Is used where a provision is mandatory.
Sub Vendor:	: Any legal entity entrusted by the VENDOR to provide all or part of the supply in accordance with the terms of a sub-order for goods and/or services.

4. CODES AND STANDARDS





No.	Code/Standard Number	Code/Standard Title
1	E-IN-190	Engineering Standard for Transmission Systems
2	M-IN-250	Materials and Equipment Standard for Process Control System (PCS)
3	G-IN-220	Engineering and Installation Standard for Control Centers
4	G-IN-250	Engineering & Construction Standard for Process Control System (PCS)
5	G-IN-290	Engineering & Construction Standard for Programmable Logic Controllers (PLS)
6	M-IN-220	Material and Equipment Standard for Control Panels and System Cabinets
7	M-IN-290	Material and Equipment Standard for PLC
8	E-EL-110	Hazardous Area

5. REFERENCE DOCUMENTS

No.	Document Number	Document Title	Revision
INSTRUMENT			
1	BH-17-SM-100-IN-SP-0053	General Specification For Instrumentation	D05
2	BH-17-SM-100-IN-SP-0057	Specification for Control System	D04

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No.	Document Number	Document Title	Revision
3	BH-17-SM-100-IN-SP-0060	Specification for Instrument/F&G Cables	D05
4	BH-17-SM-100-IN-SP-0056	Specification for Panels and Cabinets	D04
5	BH-17-SM-100-IN-SP-0059	Specification for Fire & Gas System	D03
6	BH-17-SM-100-IN-SP-0054	Specification for Fire & Gas Sensor and Devices	D03
7	BH-17-SM-100-IN-BD-0274	Control/ESD/F&G System Overall Block Diagram for Bibi Hakimeh Production Unit No.1	D04
8	BH-17-SM-100-IN-DC-0052	Instrument & Control/Safety System Design Criteria	D02
9	BH-17-SM-100-IN-DG-0063	Instrument Earthing Typical Diagram	D04
10	BH-17-SM-100-IN-LI-0288	I/O List for F&G System for Bibi Hakimeh Production Unit No.1	D03
11	BH-17-SM-100-IN-DT-0310	Data Sheet for F&G Devices for Bibi Hakimeh Production Unit No.1	D00
12	BH-17-SM-100-IN-LI-0291	I&C Power and Air Consumption List for Bibi Hakimeh Production Unit No.1	D04
MATERIAL			
13	BH-17-SM-100-MW-SP-0040	Specification For Painting	D05
14	BH-00-SM-000-IP-PR-0736	Non-conformance Procedure	D01
SAFETY			
15	BH-17-SM-100-SA-PY-0538	Fire & Gas Detector Location Layout for Bibi Hakimeh Production Unit No.1 (Building)	D01
16	BH-17-SM-100-SA-PY-0540	Fire & Gas Detector Location Layout for Bibi Hakimeh Production Unit No.1 (Process Area)	D03
17	BH-17-SM-100-SA-DG-0549	Fire & Gas Detection Cause and Effect Diagram for Bibi Hakimeh Production Unit No.1	*
GENERAL			
18	BH-00-SM-000-PM-PR-0001	Coordination Procedure	D01
19	-	Deviation Form Template	-
20	-	Spare Part List Template	-
21	-	Approved SUPPLIER List	-
22	ICE-EID-MI-SP01	دستور العمل بازرسی خرید و ساخت کالا	01





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No.	Document Number	Document Title	Revision
23	-	دستورالعمل پرتونگاری و سایر آزمایشات غیر مخرب	-
24	ICE-EID-MI-SP02	دستورالعمل سطح بازرسی کالا و تجهیزات	01

(*) Will be issued later.

6. ABBREVIATIONS

Abbreviations	Description
ITP	Inspection And Test Plan
IPS	Iranian Petroleum Standard
MR	Material Requisition
PO	Purchase Order
QA	Quality Assurance
QC	Quality Control
VPIS	Vendor Print Index and Schedule
TPA/TPI	Third Party Agency/Inspection
SPIR	Spare Parts Interchangeability Records
KOM	Kick-off Meeting
NDT	Non-Destructive Test
WPS/PQR	Welding Procedure Specification/Procedure Qualification Record
CD	Compact Disc
MOM	Minuets Of Meeting
PO	Purchase Order
PIM	Pre-Inspection Meeting
PWHT	Post Weld Heat Treatment
FEA	Finite Element Analysis
FAT	Factory Acceptance Test
FOB	Free on Board
FGS	F&G System
SAT	Site Acceptance Test
I/O	Input/output
QCP	Quality Control Plan

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7. INQUIRED ITEMS

No	Description	Unit	Qty.	Notes
1	Fire and gas Detection Equipments	Pcs	According to F&G Detectors datasheet for PU1	
10	Addressable FACP and all accessories (2 loop)	Lot	3	
11	Special and Calibration tools for erection, maintenance	Lot	1	
12	Spare Parts For Installation, Pre-commissioning, Commissioning & Start-Up	Lot	1	
13	Spare Parts For 2 Years Operation	Lot	1	

8. Scope of Supply and Work





The supply shall include, but not be limited to, all the items with all the appurtenances and accessories (internal and external) shown on the attached specifications, drawings, sketches, standards and requested in section 8.1 and/or necessary for testing, shipment, operation and maintenance except items that have been explicitly excluded in this requisition.

The supply shall also include Design, Manufacturing, Testing, Inspection, Spare Parts, Certification, Packing and Marking, Supply of goods, Services and Documentation for the equipment/bulk material fully in accordance with the specifications and other attachments to the requisition.

SUPPLIER shall specifically indicate whether any equipment, spare parts or consumables are likely to have a restricted "shelf life", or require special storage arrangements, which would impact on their ability to comply with the guarantee period outlined in section 14 of this material requisition. The raw material for pressure part should be originated from West Europe, Japan or South Korea otherwise CLIENT/PURCHASER approval is required.

SUPPLIER's proposal shall include, but not be limited to, equipment, materials and works listed in below tables as Scope of Supply and Work.

Items marked with (X) shall be within SUPPLIER's scope of supply. Those marked with (R) shall be within SUPPLIER's scope of supply if SUPPLIER requires them. Meanwhile, those marked with (S) shall be quoted separately by SUPPLIER and shall be of PURCHASER's option. Price breakdown for items marked with * shall be quoted in SUPPLIER's proposal.

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8.1 Scope of Supply

No.	ITEM	REQUIRED BY PURCHASER	PROPOSED BY VENDOR (Note 1)	REMARKS
1	prefabrication, shop assembling, shop inspection and tests, guarantee, painting, packing, transportation,	(X)*	()	
2	Special Tools for Erection & Maintenance (if required)	(X)*	()	
3	Spare parts for erection, pre-commissioning, commissioning and start-up as per spare part procedure and vendor's recommendation)(To Be Quoted Separately)	(X)*	()	
4	Spare parts for two years operation as per spare part procedure and Vendor's recommendation)(To Be Quoted Separately)	(X)*	()	
5	Nameplates made of Stainless Steel on the panels	(X)	()	
6	All Requirements for Easy Installation and Safe Start up and Operation	(X)	()	
7	Material Procurement	(X)	()	
8	All Certificates Requested, Specially Material & Test Certificates	(X)	()	





Note 1: VENDOR shall mark (X) for each item when accepting PURCHASER's requirements.

8.2 Scope of Work

Item	Description	Details
1	IR Gas Detectors	IR gas detectors shall be designed to detect flammable gases using infrared technology. They shall provide continuous monitoring, be certified for hazardous environments, and be equipped with self-calibration features. The detectors should be weatherproof and resistant to corrosive elements.
2	Toxic Gas Detectors	Toxic gas detectors shall monitor gases such as hydrogen sulfide (H2S) and carbon monoxide (CO). They should include real-time diagnostics, self-testing functions, and be calibrated for high accuracy. They shall have weatherproof enclosures suitable for harsh environments.
3	Linear Heat Detector	The linear heat detectors shall provide continuous temperature monitoring over their entire length. They should be fire-

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		resistant and installed in critical areas such as cable trays. These detectors shall be capable of interfacing with the F&G system and should be rated for both indoor and outdoor use.
4	UV/IR Flame Detector	UV/IR flame detectors shall detect fires using both ultraviolet and infrared sensors for enhanced accuracy. They should be resistant to false alarms from sources like sunlight and welding. The devices shall be weatherproof and suitable for use in hazardous areas with explosion-proof ratings.
5	Manual Call Point (Weatherproof Type)	The manual call points shall be of the break-glass or push-button type, weatherproof, and designed for easy activation in case of emergencies. They should be rugged enough to withstand outdoor conditions and shall interface seamlessly with the fire alarm system.
6	Audible Alarm Sounder (Weatherproof)	Audible sounders shall provide clear, high-decibel warnings in case of fire or gas alarms. They should be weatherproof and designed for reliable operation in outdoor and harsh environments. The sounders shall be compatible with the control panel for synchronized alarms.
7	Fire Flashing Beacon (BLUE)	Blue flashing beacons shall be used for fire alarms and provide a clear visual indication. These devices should be weatherproof and suitable for outdoor installations, ensuring high visibility in emergency situations.
8	Fire Flashing Beacon (RED)	Red flashing beacons shall indicate fire emergencies and should be weatherproof, designed for both indoor and outdoor environments. They shall provide high visibility and should be synchronized with audible alarms to ensure consistent signaling.
9	Flammable Gas Flashing Beacon (Yellow)	Yellow flashing beacons shall be used to signal the presence of flammable gas. They should be weatherproof and rugged, designed for hazardous environments. The beacons shall be highly visible and integrated with the gas detection system.
10	Addressable Fire Alarm Control Panel (FACP) and Accessories	The FACP shall be addressable and capable of managing all connected fire and gas detection devices. It should include necessary communication interfaces, power supply units, and real-time monitoring software. The panel shall allow for easy system diagnostics and remote access.
11	Special and Calibration Tools for Erection and Maintenance	Special calibration tools shall be provided for installation and maintenance of gas and flame detectors. These tools should be portable and easy to use, allowing for accurate calibration and troubleshooting in the field.
12	Spare Parts for Installation, Pre-commissioning, Commissioning & Start-Up	A complete set of spare parts shall be supplied for installation, commissioning, and start-up phases. These parts should include replacement sensors, connectors, cables, and mounting accessories to ensure the system can be fully tested and operational from the start.

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13	Spare Parts for 2 Years Operation	The system shall be supplied with spare parts for two years of continuous operation. These should include critical components such as sensors, filters, and power supplies, ensuring minimal downtime during scheduled maintenance or unforeseen repairs.
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Notes :

- 1- This list refers to the main components of the system. All accessories, such as special wiring, boards, connectors, resistances, accessories, etc., necessary to assemble the devices shall be included in the supply even if they are not listed in this requisition

8.3 Exclusions

The following items are excluded from SUPPLIER scope of supply/work:

- Civil work, concrete foundations, foundation design and grouting
- Site facilities





8.4 Coordination Meeting

- After order is awarded, SUPPLIER shall, upon receipt of PURCHASER's notice, send a sufficient number of qualified personnel to CLIENT/ PURCHASER's office at SUPPLIER's cost to hold the kick-off meeting: minimum (1) day, within (2) weeks of Purchase Order and other Technical Meeting at PURCHASER office (whenever required). It is necessary to participating of Client representative in Kick-off meeting; so date of meeting shall be coordinated with CLIENT/ PURCHASER.
- Before minimum 2 weeks of fabrication commencement, Pre-Inspection Meeting (PIM) shall be held at SUPPLIER's shop, provided that SUPPLIER receives CLIENT, PURCHASER and "CONSULTANT"'s approval on its QCP/ITP.
- Technical Meetings shall be held at CONSULTANT's office.
- SUPPLIER's staffs for attending to kick-off meeting, PIM and other technical meeting will be in SUPPLIER's cost.
- Inspection visit during manufacturing will be done by CLIENT/PURCHASER or "CONSULTANT"; as per approved ITP and technical specification.

9. Design

9.1 General Notes





- All documents /drawings shall be written in English.

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- All SUPPLIER drawings and documents should be provided in CLIENT title block with adding his logo. Also, all Sub-Vendors' drawings and documents shall be thoroughly reviewed by SUPPLIER prior to official submission. It is assumed; the PURCHASER instruction are fully implemented by SUPPLIER and Sub-Vendors; otherwise the documents will be rejected by CLIENT/PURCHASER or "CONSULTANT".
- CLIENT/ PURCHASER or CONSULTANT's approval shall in no way be construed as relieving SUPPLIER of any of his obligation, responsibilities under the contract and/or applicable codes and standards.
- Project site environmental condition shall be noted in all stages of job from early design to start-up and maintenance for site environmental condition refer to:

BH-17-SM-100-PR-DB-0158	Process Design Basis for Bibi Hakimeh No.1
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- All inquired items shall be designed for 20 years' service life based on normal maintenance specified by bidder.
- All of referenced and attached standards or project documents shall be used and followed strictly when applicable including all typical drawing or details.
- All changes and modifications on SUPPLIER and Sub-Vendors documents shall be clearly clouded marked with revision mark. CLIENT/PURCHASER will take no action on any change without such marking.
- No fabrication work is allowed without approved fabrication drawings/ calculation books. However, when SUPPLIER print is marked with "approved as noted"; fabrication activities can be performed if PURCHASER's comments incorporated as indicated.
- All fabrication drawings shall be drawn in specific scale.
- All e-files should be submitted in *.pdf format along with original file (e.g. AutoCAD, Word, Excel, etc.)
- The SUPPLIER shall grant free access to her organization to PURCHASER and CLIENT representative for expediting, inspection and auditing activities.
- Original file of calculation should be provided along with the result of calculation.
- SUPPLIER shall submit the following SUPPLIER documents within 1 month after receiving the letter of intent from PURCHASER:

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- Final Master Schedule showing design, procurement, fabrication, test, painting, packing & etc.
- SUPPLIER Print Index and Schedule (2 weeks after order)
- General arrangement drawing showing all of dimension and support location detail Setting information with loading data
- Complete unit weight dimensions' drawings with support location including nozzles
- Bidders may supplements their basic quotation with alternative design of significant advantages improving performance, delivery date and etc.
- Attached drawings and data sheets listed in MR are reference only. Therefore, SUPPLIER shall carefully verify all descriptions specified on drawings such as detail specification of material, dimension and size, based on the relevant drawings and specification individually. SUPPLIER shall prepare and submit a summary sheet of detail specification, size and thickness of materials which have been clarified and proposed in his quotation as well.
- When equipment or package is heavier than 80 tons during transportation, SUPPLIER shall supply the required facilities (e.g. fixtures units, Cradle, etc.) to avoid of any damages during shipment and installation.
- All activities shall be performed with the coordination and supervision of the CLIENT.
- Any changes in material requisition, scope and level of inspection, methods and procedures, level of acceptance of results, etc. shall be approved in writing by CLIENT/PURCHASER.

9.2 Sub items procurements

- List of approved suppliers is attached to this material requisition. SUPPLIER shall select all of his Sub-Vendors from this list. If not, SUPPLIER shall follow PURCHASER instruction for selection of qualified Sub-Vendors. SUPPLIER shall not use any sub item from Sub-Vendors that does not listed in approved supplier list or does not approved by PURCHASER

9.3 Emission/pollution control

SUPPLIER shall inform PURCHASER about all hazardous materials that is used in his product and their disposal requires special attention including:

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- Highly ignitable or self-ignitable materials such potassium etc.
- Corrosive materials including acids, Alkaline, caustics etc.
- Radioactive materials
- Toxic materials
- Safe method of disposal shall be issued by SUPPLIER for PURCHASER approval and use.

Local limitations for emission rates in all forms to air, water bodies and soils shall be satisfied by supplied equipment and packages. IPS-E-SF-860 shall be used as a base for Emission, pollution control and environmental protections as applicable.

9.4 Safety and health protection

Requirements of “Specification for Fire & Gas Detection; BH-17-SM-100-SA-SP-0059 shall be followed where applicable including safety signs and marks.

Requirements of “Regulations and Instructions for Implementing HSE; NIOC-HSE-TR-RU-042-00 “shall be followed for shop and site activities where applicable.





10. Documentation

10.1 General

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

- SUPPLIER Management commitment letter to Quality.
- Detailed Organization Chart of SUPPLIER 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 / Contract Stage in order to be as close as possible to ISO 9001 and covering all item of the application Norm.
- Issue of SUPPLIER 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 SUPPLIER Management Audit Program
- SUPPLIER shall provide the Copy of SUPPLIER quality manual / quality plan. Quality Plan shall be subject to presentation, discuss and clarification with PURCHASER, and CLIENT as necessary, prior to incorporation into contract.

10.2 Conflict in PURCHASER documents

In case of conflict between PURCHASER documents, SUPPLIER shall inform the PURCHASER about the conflict. For important conflicts, SUPPLIER 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 SUPPLIER before order, the PURCHASER has the right to select the most stringent requirements without accepting any cost or time impact.

10.3 Order of priority of PURCHASER documents





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

First priority	:	Purchase Order
Second priority	:	This requisition
Third priority	:	Data sheet / Engineering Drawing
Fourth priority	:	PROJECT or technical specification
Fifth priority	:	Code & Standard
Sixth priority	:	Manufacturer standard

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

10.4 Format and numbering of documentation

SUPPLIER shall follow requirements of "Vendor Document Handling Procedure" in all stage of his job from proposal to end of SUPPLIER guarantee period.

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10.5 Method of document submittal

Method of SUPPLIER document submittal is included in “Vendor Document Handling Procedure” and shall be followed strictly. Template for transmittal is included in this document.

10.6 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.

10.7 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.
- Pressure: barg


10.8 Documents shall be submitted by SUPPLIER





The documents listed in hereunder table shall fulfill following descriptions:

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				
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)	FINAL ISSUE (Note 1)	
A	General Documents:						
1.	Organization Chart	4/C+3/CD	4/C+3/CD	4W	A	-	-
2.	VENDOR Print Index and Schedule (Note 5,7)	-	4/C+3/CD	2W	I	5/C+4/CD	X
3.	Monthly Progress Report including: Update Vendor Print Index and Schedule Sub Order Status Report	-	4/C+3/CD	Every Month	A	-	-
4.	Engineering, Fabrication & Delivery Schedule	4/C+3/CD	4/C+3/CD	4W	I	-	-
5.	Deviation List to Applicable Codes and Standards/ PROJECT Specifications	4/C+3/CD	-	-	-	-	-





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			DRAWINGS AND DOCUMENTS				
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)	FINAL ISSUE (Note 1)	
6.	Quality Control Plan (QCP)/Inspection & Test Plan (TTP)	=	4/C+3/CD	4W	A	5/C+4/CD	-
7.	-Non-conformance Control and Corrective action Procedure	4/C+3/CD	4/C+3/CD	6W	A	5/C+4/CD	-
8.	-Nonconformity Reports (NCR)	4/C+3/CD	4/C+3/CD	6W	A	5/C+4/CD	-
9.	Nameplate details (for main equipment & auxiliaries)	4/C+3/CD	4/C+3/CD	4W	A	5/C+4/CD	X
10.	Spare Parts List for Erection, Pre-Commissioning, Commissioning & Start-up	4/C+3/CD	4/C+3/CD	14W	A	-	-
11.	Spare Parts List for 2 years of Operation	4/C+3/CD	4/C+3/CD	14W	A	-	-
12.	Special Tools List, If any	4/C+3/CD	4/C+3/CD	18W	I	-	-
13.	Reference(Experience) list	4/C+3/CD	-	-	-	-	-
14.	Template drawing	-	4/C+3/CD	2W	A	-	-
15.	Catalogue or Product Specification	4/C+3/CD	4/C+3/CD	12W	I	5/C+4/CD	X
16.	Procedure for Special and Optional Tests include: - Mechanical test procedure - Performance test procedure - Hydrostatic Test Procedure for Pressure Containing Parts	-	4/C+3/CD	2W Before Tests	A	5/C+4/CD	X






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			DRAWINGS AND DOCUMENTS				
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)	FINAL ISSUE (Note 1)	
B	Inspection Documents:						
17.	Equipment compliance certificate	-	4/C+3/CD	2W	A	5/C+4/CD	-
18.	Certificate of origin	-	4/C+3/CD	2W	A	5/C+4/CD	-
19.	Copy of Quality System Certificate (Certification for ISO 9001)	4/C+3/CD	-	-	-	-	-
20.	FAT/SAT procedure	-	4/C+3/CD	4W	A	5/C+4/CD	X
21.	Welding Procedures	-	4/C+3/CD	2W Before 1 st Weld	A	5/C+4/CD	X
22.	Welders Qualification Certificates	-	4/C+3/CD	2W Before 1 st Weld	R	-	X
23.	Fabrication Reports	-	4/C+3/CD	2W After FAB	I	-	-
24.	WPS/PQR with welding map / qualified welder list & records	-	4/C+3/CD	4W	A	5/C+4/CD	X
25.	Inspection & Testing Procedure with Plan	-	4/C+3/CD	8W Before Tests	A	-	-
26.	Certificates of conformity for electrical apparatus for use in hazardous area(If applicable)	-	4/C+3/CD	2W	A	5/C+4/CD	X
27.	Certificates of conformity for instruments for use in hazardous area	-	4/C+3/CD	2W	A	5/C+4/CD	X
28.	Inspection & Test Reports Includes of: <ul style="list-style-type: none">• Certified material test reports with material list• N.D.E Report• Performance test report	-	4/C+3/CD	2W After Test	A	5/C+4/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				
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)	FINAL ISSUE (Note 1)	
	<ul style="list-style-type: none">• Inspection & Test tool calibration certificate• Authorized certificates of explosion proof type equipment• Rust prevention / painting inspection report• Factory acceptance test report						
29.	NDT Procedures	-	4/C+3/CD	2W Before 1st NDT	A	5/C+4/CD	-
30.	NDT Record Certificates	-	4/C+3/CD	2W After Test	R	-	-
31.	Hydraulic and other Tests Reports	-	4/C+3/CD	2W After Test	R	-	X
32.	Post Weld Heat Treatment Record Certificates	-	4/C+3/CD	2W After Test	R	-	-
C	Technical Documents:						
33.	Completed Data Sheet(Note 9)	4/C+3/CD	4/C+3/CD	2W	A	5/C+4/CD	X
34.	All auxiliary equipment data sheet (if any)	4/C+3/CD	4/C+3/CD	2W	A	5/C+4/CD	X
35.	Equipment/Instrument List		4/C+3/CD	18W	A	5/C+4/CD	
36.	Dimensional Outline drawing including: (Note 5) -Size, rating and location of all customer connections -Overall loading and handling weights -Overall dimensions and maintenance and dismantling clearances	4/C+3/CD	4/C+3/CD	2W	A	5/C+4/CD	X


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List of Documents Required From VENDOR							
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			DRAWINGS AND DOCUMENTS				
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)	FINAL ISSUE (Note 1)	
37.	Equipment/Instrument cross section drawings and BOM	4/C+3/CD	4/C+3/CD	2W	A	5/C+4/CD	X
38.	As built drawing	4/C+3/CD	4/C+3/CD	3W	A	5/C+4/CD	X
39.	Engineering detail drawing of equipment/instrument including bill of material, external & internal attachment, welding detail, dimension, thickness etc.	4/C+3/CD	4/C+3/CD	6W	A	5/C+4/CD	X
40.	Piping & instrumentation diagram(if any)	4/C+3/CD	4/C+3/CD	2W	A	5/C+4/CD	X
41.	Operating manual	-	4/C+3/CD	2W	I	5/C+4/CD	X
42.	Process description & control philosophy (if any)	-	4/C+3/CD	2W	I	5/C+4/CD	X
43.	General arrangement piping drawing including overall dimension, size and location(if required)	-	4/C+3/CD	2W	I	5/C+4/CD	X
44.	Location and size of electrical connection(If applicable)	-	4/C+3/CD	2W	I	5/C+4/CD	X
45.	Terminal box arrangement drawing and terminal details (If applicable)	-	4/C+3/CD	2W	I	5/C+4/CD	X
46.	All required calculation sheets (valves, actuators, safety devices, flow measuring devices) (If applicable)	-	4/C+3/CD	2W	I	5/C+4/CD	X
47.	List of calibration and test equipment to be required	-	4/C+3/CD	2W	I	5/C+4/CD	X





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			DRAWINGS AND DOCUMENTS				
			Q/TYPE (Note 1)	DEL. TIME (Note 2)	PURPOSE (Note 3)	FINAL ISSUE (Note 1)	
48.	Bill of Materials(BOM) for insulation & steam trace (if any)	-	4/C+3/CD	4W	A	5/C+4/CD	X
D	Others:						
49.	Sub-Vendors List (Including Country of Origin, Model No.)	4/C+3/CD	4/C+3/CD	2W	A	5/C+4/CD	X
50.	Rust prevention & packing plan	-	4/C+3/CD	4W Before Delivery	A	-	X
51.	Packing List	-	4/C+3/CD	4W Before Delivery	A	-	X
52.	Export packing specification and procedure	-	4/C+3/CD	4W Before Delivery	A	-	X
53.	Transport Authorization	-	4/C+3/CD	With Delivery	I	-	X
54.	Lining / Coating procedure	-	4/C+3/CD	2W	I	5/C+4/CD	X
55.	Operation and Maintenance Manual	-	4/C+3/CD	2W	I	5/C+4/CD	X
56.	Storage and Preservation at site Procedure	-	-	-	I	5/C+4/CD	X
57.	Start-up and commissioning manual	-	4/C+3/CD	2W	I	5/C+4/CD	X
58.	Installation Manual	-	4/C+3/CD	2W	I	5/C+4/CD	X
59.	Instruction for handling, transportation and long term preservation	-	-	-	I	5/C+4/CD	X
60.	Instruction and drawings for erection including lifting procedure	-	-	-	I	5/C+4/CD	X
61.	Painting procedure/schedule	-	4/C+3/CD	2W	I	5/C+4/CD	X

NOTES:



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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, A=For Approval
4. X=Documents To Be Submitted At The Final Inspection / Data Book
5. First payment of the job could not be released before submittal of document marked with Note 5.
6. PURCHASER has the right to reject SUB VENDORS 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.

10.9 Content Of Document; Shall Be Submitted By SUPPLIER

Minimum content of major document (not limited to) that shall be submitted by SUPPLIER are as below:





10.9.1 SUPPLIER Document List (VPIS)

This list shall contain titles, PURCHASER's reference numbers (document codes) and the schedule for submittal of all drawings that SUPPLIER shall furnish. It shall also include documents from Sub-Vendors. For main equipment Sub-Vendors separate lists may be submitted. The SUPPLIER document list shall be submitted every time the SUPPLIER makes an update.

10.9.2 General Arrangement Drawings

General arrangement drawings and component dimensional drawings shall include:

- Identification, size, rating and location of every terminal connection to which PURCHASER shall connect. These connections include piping, instrumentation and electrical.
- Overall dimensions and centerline height(s).
- Dimensions of base plates complete with diameter, number, and location of bolt holes.
- Locating or tie-in dimensions of the equipment relative to the base plate or skid.
- Driver, gear (if applicable) and auxiliaries.
- Make, type, rated power and speed of driver(s).
- Direction of rotation for drivers and driven equipment.





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- Magnitude and direction of thermal expansion movement of all equipment and piping.
- Location of all instrument panels, gage boards and junction boxes.
- Location of platforms, ladders, clips and pipe supports.
- Location of standouts of hand wheels on large valves where stems and wheels could block access ways.
- Connection symbol.
- Size, rating, facing, and flange thickness.
- Location of center of gravity in three (3) directions of each major component.
- Approximate overall and handling weights.
- Each equipment and instrument item shall be identified with the PURCHASER's tag number.
- All horizontal and vertical clearances necessary for maintenance purposes, including lifting lug locations.
- Grounding lug location.
- Allowable nozzle loading data - allowable forces and moments for all equipment process connections (for customer connections only).
- General arrangement drawings shall also be provided for ancillary/auxiliary equipment. This covers equipment whether mounted on the main base plate or not.

9.9.3 Component and/or Cross Sectional Drawing(s)

On all components and/or cross sectional drawings the parts shall be clearly identified with SUPPLIER's part numbers referring to the "Bill of Materials (B.O.M)". The B.O.M. shall include:

- SUPPLIER's part numbers and shop numbers
- Part descriptions
- Make size and type for parts supplied by Sub-Vendors
- Material for part manufactured by the SUPPLIER
- Number of parts installed
- Reference drawings

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9.9.4 Shop Detail Drawings/Catalogues

All fabrication details for process side components construction and attachment details, non-destructive examinations and testing requirement details, heat treatment procedures and all other applicable fabrication details.

9.9.5 Surface Preparation and Painting Procedures

Specified paint procedures shall be confirmed. If not specified, provide the proposed paint procedures including:

- Instructions for cleaning of surfaces and for blasting
- Materials used with names of paint manufacturers
- Number of coats, color and dry film thickness of each coat
- Required nuts/Steel pin for Fireproofing shall be done for shown elements at shop according to fireproofing standard drawing. Nut painting and touch up is also in SUPPLIER scope of work. For fire proofed elements, two layers of Zinc free paints shall be applied with 100 micron thickness.





9.9.6 Welding Procedures (WPS) / PQR's

- Welding procedure qualification shall be qualified in accordance with ASME code section IX.
- The SUPPLIER shall provide Welding Procedure Specification (WPS) and Procedure Qualification Records (PQR) including welding maps.

9.9.7 Test Procedures / QA Manuals

Procedures shall include the following information for each test method as far as applicable, but not necessarily limited to:

- Test stand set-up, including location of inline test instruments
- Measures to prevent damage of materials/equipment
- Calibration of test equipment
- Test description
- Features required by codes and specifications

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9.9.8 Completed Equipment Data Sheets

A complete data sheet for each piece of equipment. Where PURCHASER's or standard data sheets are not available, original equipment manufacturer (OEM) data sheets shall be completed with all equipment manufacturer and Sub-Vendors information.

Ultimately these data sheets shall reflect the as-built equipment.

9.9.9 Completed Aux. Equipment Data Sheet (If Applicable)

A completed Aux. equipment datasheet is required, including oil system, shaft seal system, etc.

Data sheet shall also include PURCHASER's tag number, PURCHASER's purchase order number,

PROJECT name, plant location, and all other pertinent information.

9.9.10 Completed Instrument (ISA) Data Sheets

An ISA data sheet is required for every instrument in the scope of supply.

9.9.11 Electrical & Instrument Wiring(If Applicable)

Signal, power supply and grounding diagrams including instrument, junction box and cabinet terminations and wiring.

Relay ladder diagrams are also included in this category.

9.9.12 Instrument / Electrical Installation Drawings

Typical hook ups showing supporting and mounting of the instruments, junction boxes and accessories with associated identifying tags.





9.9.13 Performance Curves

The performance curves shall be in accordance with the applicable standards as specified (or as described in the general notes).

9.9.14 Bills of Material / Parts List

The parts list (bill of materials) requirements are:

- All system components shall be listed and fully described.

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- PURCHASER's tag numbers shall be used.
- When component specification sheets or separate lists (instrumentation index) are provided a simple cross reference in lieu of a full description may be used.

9.9.15 Spare Parts List and Special Tools List

Recommended spare parts list and special tools are required for each piece of equipment. Each list shall indicate the PROJECT name and location, equipment tag numbers, part manufacturer, part name and number and quantity (recommended by SUPPLIER and required by PURCHASER individually).

9.9.16 Utility Requirements





All utility consumption (steam, water, nitrogen, plant & instrument air, electricity, etc.), Including quantities, required supply and return pressures and temperatures and allowable minimum and maximum conditions for the main equipment and drivers and Auxiliary Equipment.

Lubrication recommendations: a listing shall be provided, showing types, brand name, specifications, initial fill, frequencies of lubricants and quantities per batch/piece of equipment which are needed to operate subject equipment and auxiliaries. The above is required also if the lubricants are specified in the purchase order/contract documents.

9.9.17 Installation / Commissioning / Operation and Maintenance Manuals

Combined manuals shall be supplied for the complete package, including main equipment, auxiliaries and driver; however for large drivers separate manuals may be supplied. The content of the manuals shall be as per applicable standards, but shall include as a minimum the following:

- Installation instructions
- Manufacturer's recommended operating and maintenance instructions for all equipment including electrical sequence of operation for all major electrical equipment, where applicable
- Disassembly and re-assembly instructions
- Performance and test curve data and curves
- Vibration data





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- As-built mechanical, electrical and instrument (ISA) data sheets
- As-built outline, arrangement and detail drawings
- Mechanical seal drawings and parts list
- Coupling drawings and parts list
- Complete bill of materials listing material specifications, stock number, and drawing number for all parts, with all necessary cross-sectional drawings for parts identification purposes and recommended spare part lists including mill test certificate, code calculations, and inspection reports
- List of recommended spare parts for two (2) years operation
- Oil and lubrication schedule
- Instructions for storage and preventive maintenance during storage
- Specify per major piece of equipment how the equipment is protected during the shipment from SUPPLIER and Sub-Vendors's shop to start-up at the plant SITE, including pickling and passivation information for stainless steel materials

9.9.18 Material Test / NDT Certificates

Heat treatment and non-destructive testing procedures are only required for review in case:

- Specified by the PURCHASER
- The materials used are not covered by any relevant standard (ASME, DIN, API, etc.)
- Where deviations from relevant standards are specified
- NDT procedures shall include the following information for each test method as far as applicable, but not necessarily limited to:
 - Scope, extent and material to be examined
 - Application codes and specifications for examination and evaluation
 - Personnel qualifications and Sub-Vendors performing NDT
 - Equipment and test media used, including type and brand (for high alloy steels and non-ferrous metals, maximum chloride and sulfur content of test medium)
 - Calibration of sensitivity specification
 - Time of examination (prior or after heat treatment)
 - Technique details
 - Surface conditions and cleaning methods

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- Contents of examination reports
- Features required by codes and specifications
- Repair procedures
- The repair procedure shall as far as possible include the same information as the welding specification procedure
- Major repair procedure to be agreed by PURCHASER

9.9.19 Hydro / Mechanical / Performance Test Certificates

All test certificates submitted shall be certified and reflect test requirements specified in the purchase order.

9.9.20 Vendor Data Book Index (VDBI)





Before submitting the Vendor data book (VDB); related Table of Content (Index) shall be submitted by SUPPLIER same as other SUPPLIER document listed in his VPIS. Final approval of CLIENT/PUCHASER throughout VDBI is prerequisite of submitting the "Vendor Data Book"; otherwise the VDB will be rejected.

VDBI Shall be prepared based on "Vendor Document Handling Procedure".





9.9.21 Vendor Final Data Book (VFDB)

Combined manufacturing data books shall be provided for the complete package, including main equipment, auxiliaries and driver, however for large drivers separate manufacturing data books may be provided. This book shall include, but is not limited to the following:

- Index
- As-built data sheet
- As-built general arrangement drawing, with indications of out of tolerance dimensions
- As-built Detail drawings, with indications of out of tolerance dimensions
- Calculation books
- Cross-sectional drawings
- General arrangement drawing, assembly drawing, part drawing for structure.
- 3D modeling of Inquired items (Only for Process package items).

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- In-service and pre-service analyses report for structural members & connections & skid and etc.
- Welding procedure specifications and procedure qualifications for pressure containing parts
- Reports of all material testing and material certificates
- Reports of major repairs performed (castings)
- Heat-treatment charts and certificates
- Electrical test and calibration reports
- Hydrostatic test report
- Leakage test report
- Mechanical running test report
- Performance test report
- Vibration test report
- Noise test report.
- Photocopy or rubbing of name plate
- QCP/ITP
- Material Traceability Records
- Changes (including repairs), NCRs
- Inspection Release Note
- 3D modeling of Inquired items (Only for Process package items).
- In-service and pre-service analyses report for structural members & connections & skid and etc.
- Manufacturer Procedures
- Welder Qualification Test(WQT)
- Technical Query
- Spare Part List
- Sub Vendor List
- Inspection notifications
- MOMS
- NDT Personnel Certificates

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- MR
- Unpriced PO (Purchase Order)
- MPS
- Shipping Release Note
- Inspection certificate
- Packing List

11. SUPPLIER PROPOSAL

11.1 Deviation to PURCHASER documents/applicable codes and standards

SUPPLIER proposal shall be in strict conformity with PURCHASER requirements, codes and standard without exception. Any deviation or alternatives shall be clearly identified and separately listed in SUPPLIER proposal in SUPPLIER deviation form. No deviation list submittal in proposal means that SUPPLIER accepted all CLIENT/PURCHASER requirements. CLIENT/PURCHASER has no responsibility to discover any deviations or alternatives entered in SUPPLIER proposal and are not listed in deviation list. SUPPLIER deviation form template is represented in “Vendor Document Handling Procedure”.

Deviations, if any, shall be submitted during bid stage. No deviations will be accepted after order. Exceptions, deviations and alternatives will be valid only if approved in writing by CLIENT/PURCHASER.





Deviation items in any stage such as Bid-Stage, Purchase Order stage, Construction stage, Inspection & Test stage to be approved by CLIENT/PURCHASER.

11.2 Information that shall be available in proposal

Each proposal shall include the following information:

- Requisition number
- Firm price(s) by item
- Earliest delivery date(s)
- Origin of material being quoted (country, place, and name of manufacturer)
- Approximate shipping weight and dimension

Un-priced proposals should be prepared to be able to meet technical evaluation only.

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If PURCHASER datasheets contain fields that marked by "by SUPPLIER", SUPPLIER shall fill this fields and shall include filled datasheet (s) to his proposal. PURCHASER reserve the right to reject or discard proposals that does not includes of completed datasheets.

11.3 Pricing

A template for pricing form will be submitted to SUPPLIER for use in his proposal. SUPPLIER shall submit his comments on this form in technical section of his proposal. Finalized price form will be forwarded to SUPPLIERS for use in commercial proposal. PURCHASER reserve the right to reject proposals that does not follows pricing sequence and method.

12. AFTER ORDER

All documents and drawings shall be submitted, in accordance with "Vendor Documentation Procedure" attached in this Requisition. The calculation Shall include an outline of the method used, input data, formula used and result all clearly set out which can be readily understood and reviewed by the PURCHASER. Computer results may also be presented.

SUPPLIER shall submit the following SUPPLIER Documents within 1.5 months after receiving the Letter of Intent from PURCHASER:





- Master Schedule shown design, procurement, fabrication, test, painting, packing & etc. (2 weeks after order)
- SUPPLIER Print Index and Schedule (2 weeks after order)
- General arrangement drawing showing all of dimension and support location detail
- Setting information with loading data
- Complete unit weight dimensions' drawings with support location including nozzles

13. INSPECTION AND TEST

13.1. General

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

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

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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.

The following tests and inspections, but not limited to, shall be carried out in accordance with the procedures approved by CLIENT/PURCHASER.

- Inspection of Materials
- Inspection of Workmanship
- Inspection of Dimension
- Inspection of Surface Preparation
- Inspection of Painting & Coating
- Inspection of Marking

13.2. Quality Assurance Plan

SUPPLIER 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.

13.3. 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

13.4. NDT Qualification

All personnel performing NDE functions shall be adequately qualified. The NDE operators qualifications shall form part of all SUPPLIER quality plans and therefore be approved by the CLIENT/PURCHASER before manufacture works by the inspector. The foregoing shall also apply to all Sub-Vendors.

14. SPARE PARTS LIST AND SPECIAL TOOLS

Requirements of “Recommend Spare Part List for Commissioning and 2 Years Operating for Mechanical Equipment” shall be followed by VENDOR.

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SUPPLIER shall submit list of recommended spare parts for commissioning, pre commissioning and startup and list of two years operation spare part respecting above mentioned document. This list shall be priced item by item and forwarded to the PURCHASER in bid stage for review and approval. Price of spare parts shall be valid from date of proposal delivery by PURCHASER for 30 month or end of VENDOR guarantee period, each appears earlier. SUPPLIER is responsible to supply each of spare parts at PURCHASER request.

A template form for spare parts list is attached to this requisition. SUPPLIER shall use this template for pre-commissioning, commissioning and startup and also for two years spare parts.

- Minimum spare parts for pre-commissioning, commissioning and start up shall be as follows:
 - Bolts, nuts, washers for manholes and blind connections: 10% (min. 2 sets)
 - Gaskets for manholes and blind connections: 200%
 - Internal bolts and nuts with washers: 10% (min. 2 sets)
 - Another required spare parts for pre-commissioning, commissioning and start up as per Vendor's recommendation subjected to the Purchaser's approval. (Vendor is responsible for lack of any spare part during start-up and commissioning).
- Minimum spare parts for 2 years operation shall be as follows:
 - Bolts, nuts, washers for manholes and blind connections: 10% (min. 2 sets)
 - Gaskets for manholes and blind connections: 200%
 - Internal bolts and nuts with washers: 10% (min. 2 sets)





15. PACKING AND SHIPPING

After PURCHASER's approval for tests and inspections 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 shall be included in the proposed price, and shall become the property of the PURCHASER.

At Preparation for Shipment, Equipment shall be emptied, dried, painted and, where necessary preserved for shipment and long term 12 months outdoor storage at project site.

Adequate temporary bracing for equipment and accessories shipped, shall be provided to avoid overstressing or damage during shipping, transportation and erection, as required. All equipment shall be packed and weather protected for export. Loose parts shall be boxed and shipped along with an itemized packing list with the main assembly.

Generally; delivery will be done EX-Work in supplier factory but other option as CIP condition (to project site location) shall be quoted separately by supplier in technical/commercial proposals. SUPPLIER shall provide the following documents with delivery of equipment:

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Three (3) hard copies plus six (6) electronic copies of following documents shall be provided inside the packing of the equipment, supplement from documents, which is specified in the SUPPLIER Documents Requirements attached in this Requisition:

- Complete package of final drawings
- Copy of all certificates
- Inspection release certificate (IRC)
- Approved packing list (Including each spare list)
- Calibrated loading data (the mentioned calibrated loading data should be required at lifting stage for heavy equipment. And then, this document shall have an endorsement by PURCHASER inspector or an appointed third party inspector)

“Instruction for Packing, Marking, Shipping and Delivery” shall be followed strictly by SUPPLIER where applicable.

16. SUPERVISING AND TRAINING

16.1 General

The SUPPLIER supervisor(s), who is assigned to the PROJECT site for the installation, start-up, inspection, repair and maintenance of the equipment supplied by the SUPPLIER, shall perform his duty for all equipment including those supplied by the SUPPLIER subcontractors.





16.2 Supervisor(s) qualification

The Supervisor(s) shall be sufficiently qualified to perform his duty. The SUPPLIER shall provide the resume of the expected personnel for PURCHASER approval. PURCHASER has a right to reject the supervisor proposed by the SUPPLIER and to appoint alternative personnel.

16.3 Supervisor(s) Duty

The duty of the supervisor shall be, but not limited to, as follows:

- Witness the inspection of undoing the packing
- Check the dimension of the foundation
- Supervising and direction for the assembling and installation
- Supervising and direction for, and check the leveling and alignment
- Supervising and direction for, and check the connection of the main piping
- Check the performance, and adjustment of the safety device and instruments
- Supervising the preparation of the startup

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- Supervising and direction for the start-up operation
- Execution of and/or supervising and direction for the assembling, disassembling, inspection and repair
- Preparation of the inspection record and the miscellaneous report
- Advice of the control for the time schedule
- Technical supervising and direction for the maintenance

16.4 Supervisor(s) Responsibility

The SUPPLIER shall be responsible to indemnify for damages to property or for personal injuries which result from the gross negligence of the supervisor(s) while performing his duty.

16.5 Training

SUPPLIER shall provide formal training both on site and at the VENDOR(S) / Supplier's facility for nominated personnel. Training shall be provided with authorized person at vendor place with real system and adequate system training and text for the scheduled participant. The course structure and syllabus shall be submitted to the EMPLOYER/PURCHASER for review and approval. The course pre-requisite experience and technical expertise shall be advised to the CLIENT/PURCHASER prior to the start of the course. Location of Training course shall be in Ahwaz City.

17. GUARANTEE & WARRANTEE





SUPPLIER shall guarantee both "Performance" and "Mechanical" of the inquired items, with required Piping, Structure, Electrical, Instrumentation & Control components are specified in the document attached to this MR. Following sections describe the condition of Mechanical and Performance guarantees too: (but not limited to)

17.1 Mechanical

Unless exception is recorded by the SUPPLIER in his proposal, it shall be understood that the SUPPLIER agrees to the following guarantees and warranties:

SUPPLIER shall guarantee the engineering, materials and workmanship of the equipment for a period of 12 months after successful start-up or 36 months after shipping whichever comes earlier. Under this guarantee, all materials, parts, and assemblies found to be defective during the guarantee period shall be replaced by SUPPLIER.

In particular, the SUPPLIER shall reimburse any transportation and other charges incurred by the PURCHASER in effecting such replacement or repair at the point of use.

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17.2 Spare Parts

The SUPPLIER shall warrantee the provision of spare parts to the CLIENT/ PURCHASER for a minimum period of 10 years from the date of start-up. In the event the SUPPLIER cannot supply the required spares (whether of his own manufacturer or other's) within the period of time, the costs of complete replacement units will be borne by the SUPPLIER.

18. Attachments

Row	Title	Remarks
1	General	General Formats and documents
2	Instrument	Specifications, I/O lists and ...
3	Material	Specification for painting and Non-conformance Procedure
4	Safety	Location layouts etc.