

Ref No.: 0012-IM-EM-PP

Ngày : 10/02/2026

INTERMEMO

Tới: Nhóm Thương Mại

Fax Số.:

Att: Mr. Nguyễn Ninh Anh Vũ – Quản lý bộ phận thương mại

CC.:

CC.:

Tiêu đề: IC-0002_TRD cho thiết bị đo đếm lưu lượng (Flow Meter)

Đính kèm là Tài liệu Yêu cầu kỹ thuật về gói TRD cho thiết bị đo đếm lưu lượng (Flow Meter). Vui lòng xem xét và xử lý bước tiếp theo. Nếu có bất kỳ thắc mắc nào, vui lòng liên hệ với chúng tôi Ông Nguyễn Văn Nhân (Email: nhannv01@ptsc.com.vn; Điện thoại: 0935525117) để làm rõ.

Lưu ý: Vui lòng xem tập đính kèm sau:

1. H3P04-PTSC-IN-TRD-0002_A_TRD for Flow Meter.

Cảm ơn sự phối hợp của bạn.

Phân loại gói:

Ưu tiên hàng đầu

Khẩn

Bình thường

Chuẩn bị bởi:



Nguyễn Văn Nhân
Kỹ sư thiết kế Điều khiển

Kiểm tra bởi:



Trần Đình Hùng
Chủ nhiệm Thiết kế

Chấp thuận bởi:



Nguyễn Khắc Dũng
Phó Trưởng Ban dự án



**TỔNG CÔNG TY PHÂN BÓN VÀ
HÓA CHẤT DẦU KHÍ - CTCP**

DỰ ÁN	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XƯỞNG NPK
CHỦ ĐẦU TƯ	TỔNG CÔNG TY PHÂN BÓN VÀ HÓA CHẤT DẦU KHÍ – CTCP (PVFCCo)
ĐẠI DIỆN CHỦ ĐẦU TƯ	CHI NHÁNH QUẢN LÝ VÀ PHÁT TRIỂN DỰ ÁN (CN QLPTDA)
NHÀ THẦU	TỔNG CÔNG TY CỔ PHẦN DỊCH VỤ KỸ THUẬT DẦU KHÍ VIỆT NAM (PTSC)
GIAI ĐOẠN	THIẾT KẾ, CUNG CẤP VẬT TƯ THIẾT BỊ VÀ THI CÔNG XÂY DỰNG CÔNG TRÌNH (EPC) BỒN ACID H₃PO₄ TẠI XƯỞNG NPK

**TRD CHO
THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG
(FLOW METTER)**

**ĐẠI DIỆN
CHỦ ĐẦU TƯ**

PTSC

A	10/02/26	Ban hành cho xem xét	BTPhong	NVNhan	TDHùng	NKDũng
LXB	Ngày XB	Mô tả	Thực hiện	Chủ trì Bộ môn	Chủ nhiệm Thiết kế	Giám đốc Dự án

**TỔNG CÔNG TY CỔ PHẦN DỊCH VỤ
KỸ THUẬT DẦU KHÍ VIỆT NAM (PTSC)**

Số Tài Liệu:

H3PO4-PTSC-IN-TRD-0002

Số trang: 10

(Bao gồm cả trang này)



ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỞNG NPK



TÀI LIỆU:

**TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG
(FLOW METTER)**

H3PO4-PTSC-IN-TRD-0002

LXB: A

CONTENTS

1. PURPOSE OF DOCUMENT 4

2. DEFINITIONS AND ABBREVIATIONS..... 4

2.1. Definitions..... 4

2.2. Abbreviations 4

3. LANGUAGE AND UNITS 5

3.1. Language..... 5

3.2. Units of Measurement 5

4. ITEMS AND QUANTITIES..... 6

5. SCOPE OF WORK AND SUPPLY 6

5.1. Scope of Supply 6

5.2. Out of Scope 7

6. CONFLICTING REQUIREMENT 7

7. DEVIATION LIST 7

8. GENERAL REQUIREMENT 7

8.1. General..... 7

8.2. Design Life, Availability and Reliability..... 8

8.3. Preparation for Shipment 8

8.4. Guarantee and Warranty..... 8

8.5. Spare Parts 9

8.5.1. Start-up and Commissioning Spares..... 9

8.5.2. Two Year Spares..... 9

9. INSPECTION AND TEST 9



10. COORDINATION MEETING..... 9

11. APPLICABLE DOCUMENT 9

12. VENDOR DATA REQUIREMENT 10

13. DOCUMENT REQUIREMENTS..... 10

14. ATTACHMENTS 10

	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỐNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐÉM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002
		LXB: A

1. PURPOSE OF DOCUMENT

This document is to specify minimum requirements for the Flow Meter Package which shall be applied for H₃PO₄ acid storage tank at NPK Plant.

2. DEFINITIONS AND ABBREVIATIONS

2.1. Definitions

This document uses the following definitions and abbreviations:

PROJECT	Investment Axit Phosphoric storage tank at NPK Plant
OWNER	Petrovietnam Fertilizer and Chemicals Corporation (PVFCCo)
COMPANY/OWNER'S REPRESENTATIVE	Petrovietnam Fertilizer and Chemicals Corporation (PVFCCo)- Project Management and Development Branch
CONTRACTOR	Petrovietnam Technical Service Corporation (PTSC)
SUB-CONTRACTOR	Other entities hired by the CONTRACTOR to perform a portion of the PROJECT work
VENDOR	Party responsible for manufacturing and/or packaging of equipment
SUB-VENDOR	Other entities hired by the VENDOR to perform work and/or provide equipment

2.2. Abbreviations

PVFCCo	Petrovietnam Fertilizer and Chemicals Corporation
PTSC	Petrovietnam Technical Service Corporation
ISO	International Organization for Standardization
MTO	Material Take Off



ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỐNG NPK



TÀI LIỆU:

TRD CHO THIẾT BỊ ĐO ĐÉM LƯU LƯỢNG
(FLOW METTER)

H3PO4-PTSC-IN-TRD-0002

LXB: A

PO	Purchase Order
TPI	Third Party Inspector
TRD	Technical Requisition Document
FIT	Flow Indicator Transmitter
QA/QC	Quality Assurance / Quality Control



3. LANGUAGE AND UNITS

3.1. Language

All documents and drawings to be submitted shall be lettered in English language.

3.2. Units of Measurement

Glossary	Units
Temperature	°C (Degree)
Pressure	kPa (psi for flange rating) mH ₂ O/ Barg
Flow Rate	Kg/Hr, MT/Hr, Nm ³ /Hr, m ³ /Hr (bbl/d), MMSCMD
Velocity	m/sec
Length	mm (inch for nominal pipe size)
Weight	Kg, Ton (metric ton)
Power	W (KW)
Density	Kg/m ³
Electrical Voltage	V
Electrical Current	A
Revolution	RPM
Energy	KJ, MJ
Frequency	Hz

	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỐNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A

4. ITEMS AND QUANTITIES



Refer to Appendix No. 4: Material Take Off (MTO).

5. SCOPE OF WORK AND SUPPLY

5.1. Scope of Supply

This document shall be read in conjunction with applicable MTO, Datasheets and Specifications.

No.	Q'Ty	Description
1.	1 Set	Magnetic Flow meter
2.	1 Lot	Engineering / Sizing Calculation
3.	1 Lot	Surface Preparation and Painting up to the final coat
4.	1 Lot	Inspection, Certification compliance and Testing
5.	1 Lot	Material certificates follow EN10204 Type 3.1
6.	1 Lot	Spare parts for Installation, Commissioning and Start-up
7.	1 Lot	Recommended spare parts for 2 years of normal operation (if required)
8.	1 Lot	Export Packing, Preservation for Long Term Storage and Preparation for Shipment
9.	1 Lot	Import permits and licenses to Vietnam
10.	1 Lot	Factory Acceptance Tests (FAT)
11.	1 Lot	NDE/NDT Hydro test / Seat Leakage Test Fire Test to API-RP-6FA and API-RP-607 Function test, etc
12.	1 Lot	Documentation as per VENDOR Document Requirement List (VDRL) (Refer to Appendix 1)
13.	1 Lot	Packing, marking, transportation, and other related cost to transport the Goods to Phu My.

	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỐNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A

5.2. Out of Scope

The following are excluded from VENDOR's scope of work:

- Power supply

6. CONFLICTING REQUIREMENT

VENDOR shall notify PURCHASER of any conflicts between this TRD, specifications, the related data sheets, the Codes and Standards and any other specifications noted herein. Resolutions and/or interpretation precedence shall be obtained from PURCHASER in writing before proceeding with the design/manufacture.

7. DEVIATION LIST

Vendor's quotation shall be in full conformity with Purchaser's requirements. Unless exceptions, deviations or alternatives are clearly defined and listed on the attached Purchaser's form "Deviation List" and submitted with Vendor's quotation, the requirements and conditions of this Requisition shall be deemed to be accepted by the Vendor.

8. GENERAL REQUIREMENT



8.1. General

The material supply shall be strictly in accordance with data sheets, drawings, specifications, codes, and standards specified.

All VENDOR offered pumps shall be of proven hydraulic design and mechanical construction with at least two (2) units having completed a minimum of two (2) years of satisfactory operating experience in similar operating and site conditions at Vietnam.

Compliance by VENDOR with the provision of this requisition does not relieve him of his responsibility to furnish material and accessories of a proper design to meet the specified duty and / or local codes governing health and safety.

All applicable documents mentioned below are attached to the request for inquiry. However, if the VENDOR is not in possession of any of the listed or referenced PURCHASER documents, it shall be VENDOR's sole responsibility to obtain them from the PURCHASER. Otherwise, it shall be assumed that the VENDOR has received, read and understood the total contents of the documents.

	ĐẦU TƯ BÓN ACID H₃PO₄ TẠI XUỐNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐÉM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A

All materials and parts shall be new, unused and free from defects and imperfections that would adversely affect the life or performance of the facility.

VENDOR data shall include detailed design drawings (if any) and updated data sheets of each material and appurtenances.

No production would commence until PURCHASER has approved related Vendor Data.

PURCHASER's approval on Vendor Data does not relieve VENDOR of compliance with applicable codes, specifications, safety design, or meeting the requirements of governmental agencies.

Any work and documentation related to facilitating design appraisal approvals and inspection from Purchaser appointed Certification Authority (CA) and QA/QC Inspector (TPI) shall also be included in Vendor 's scope of supply.

8.2. Design Life, Availability and Reliability

The design life of the facility and all associated material and components is minimum 20 years.

8.3. Preparation for Shipment

Material shall be prepared for export shipment and shall be provided with maximum protection during shipment and extended outdoor storage.



The VENDOR shall submit loading instructions and diagrams for PURCHASER or its authorized representative, approval for all pipes shipped by rail, truck or vessel. However, approval of these documents shall not relieve the VENDOR of its responsibility for damage during shipment.

8.4. Guarantee and Warranty

The VENDOR shall have final and total responsibility for the design and performance of all material supplied under this requisition.

The VENDOR shall replace and install without cost to the PURCHASER any materials and supplies which fail due to defects in material or workmanship if the defect is observed and/or such failure occurs within the guarantee/warranty period. Acceptance of this order will signify acceptance of all conditions of this guarantee.

The guarantee period starts from delivery of the Goods and ending after the first twenty-five (25) months of in-service use of the Goods (such a period not to exceed 36 (thirty-six) months from the date of delivery of the Goods to Buyer)

	ĐẦU TƯ BÓN ACID H₃PO₄ TẠI XUỐNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐÉM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A

8.5. Spare Parts

8.5.1. Start-up and Commissioning Spares

The Vendor shall include, as part of his bid, a detailed, price list of start-up and commissioning spares which shall be supplied as part of the original purchase package.

8.5.2. Two Year Spares

The Vendor shall include, as part of his bid, a detailed, list of recommended spare parts for two years continuous operation. These spares shall be costed for separate purchases.

9. INSPECTION AND TEST

Inspection and tests shall be made by the VENDOR in accordance with:

Test & Inspection should be carried out according to the applicable project documents and applicable codes and standards

Manufacturer's standard plan & procedure as approved by PURCHASER

Local regulation, if any

The COMPANY and/or PURCHASER inspector shall hold a right to be present at any manufacturing stage of materials.

The VENDOR shall state the inspection method, acceptance criteria and the inspection items with "Witness" or "Not witness" in his inspection and test procedure.

10. COORDINATION MEETING



After the purchase order is placed, VENDOR shall, upon receipt of PURCHASER's notice, send a sufficient number of qualified personnel at VENDOR's cost to hold the meetings according to the following schedule:

<input checked="" type="checkbox"/> Kick-off meeting	Two (2) week(s) after the order	<input type="checkbox"/> Vendor office	<input checked="" type="checkbox"/> Purchaser's office
<input checked="" type="checkbox"/> Coordination meeting	Note 1 month(s) after the order	<input type="checkbox"/> Vendor office	<input checked="" type="checkbox"/> Purchaser's office
<input type="checkbox"/> Design review meeting	month(s) after the order	<input type="checkbox"/> Vendor office	<input type="checkbox"/> Purchaser's office
<input checked="" type="checkbox"/> Pre-inspection meeting	01 month(s) before Fab. start	<input checked="" type="checkbox"/> Vendor office	<input type="checkbox"/> Purchaser's office

* Note 1: The time period for the same to be agreed at kick-off meeting

11. APPLICABLE DOCUMENT

Documents listed below shall make an integral part of this material requisition:

	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỐNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐÉM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A

Document No.	Rev.	Document Title	Remark
H3PO4-PTSC-IN-SPC-0001	A	Đặc tính kỹ thuật thiết bị điều khiển và báo cháy	
H3PO4-PTSC-PR-PID-0001~0004	0	P&ID for acid H ₃ PO ₄ tank	
H3PO4-PTSC-IN-DAS-0002	0	Thông số kỹ thuật thiết bị đo lường và điều khiển(Datasheet for Field Instrument)	

12. VENDOR DATA REQUIREMENT

The VENDOR shall submit the completed documents and drawings, in accordance with the “Vendor Data Requirement List” Appendix No. 1.

13. DOCUMENT REQUIREMENTS

- All documents and technical data shall be in the English language. The submission shall be made under cover of a transmittal, marked for the attention of Supplier/ Vendor Data control and referencing the Company Purchase Order.
- Documents shall be full size A1, A2, A3 and A4. A0 size is not acceptable. Legible drawings at A3 size are preferred for review. Full size drawings (A1 or A2) should be submitted as final copies.
- Drawing prints larger than A4 shall be folded to A4 size, with the title block visible at the bottom right hand corner. Originals and transparencies shall be supplied rolled up and adequately protected. Documents larger than A3 to be included in manuals shall be inserted in pre-punched plastic sleeves.
- Photocopy quality ensures that legibility and clarity of documents is maintained.
- Manuals shall be supplied in loose-leaf hard cover binders.



14. ATTACHMENTS

Appendix No. 1: Vendor Data Requirement List

Appendix No. 2: Purchaser format

Appendix No. 3: Typical Inspection and Test Plan

Appendix No. 4: Material Take Off (MTO)

	ĐẦU TƯ BÓN ACID H₃PO₄ TẠI XUỞNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A

APPENDIX No. 1
VENDOR DATA REQUIREMENT LIST
(07 pages, including this page)



ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỐNG NPK



TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐÉM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002
		LXB: A

VENDOR DATA REQUIREMENT LIST

Legend:

- | | |
|---------------------------------|--|
| 1* : E | *2 : 1OR + 6C + E + 2CD |
| E : Electronic file | OR : Original |
| C : Copy | CD : CD-ROM/ USB Thumb Drive |
| PO + XXD: XX days after PO date | DE – YYD: YY days before delivery date |
| IFI: Issued for Information | IFA: Issued for Approval |
| | IFC: Issued for Construction |

Item no.	VP Code	Description	With Bid (Y/N)	First Issue			Final Issue	
				Issue Date	Purp.	Quantity / Type	Purp.	Quantity / Type
	1	COMMERCIAL/CONTRACTUAL						
1	C01	VENDOR Data Index & Schedule	E	PO+14D	IFA	1*	IFC	*2
2	C02	Engineering, Procurement, Manufacturing and Test Schedule		PO+14D	IFI	1*	IFI	*2
3	C03	Sub Contract Work Proposal						
4	C04	Delivery, Handling and Packing Proposals		DE-42D	IFI	1*	IFI	*2
5	C05	Exception and Non-Conformity Form						
6	C06	VENDOR's Sub-Orders (Un-Priced copy)						
7	C07	Warranty/Guarantee Confirmation		DE-14D	IFI		IFI	*2
8	C08	VENDOR/SUB-VENDOR List		PO+14D	IFA	1*	IFC	*2
9	C09	Project Management Organisation						
10	C10	Progress Reports (Weekly and Monthly)		Weekly	IFI	1*	IFI	*2
11	C11	Proven Design and Manufacturing Experience List	E	PO+14D	IFI	1*	IFI	*2
12	C12	Schedule of Pricing						
	2	PROCESS/ MECHANICAL /PIPING/ STRUCTURAL						
13	M01	Foundation Load and Anchor Bolt Location						
14	M02	Drive Assembly Details						
15	M03	Equipment Design Calculations including Transportation						
16	M04	Structural Design Calculations						
17	M05	Pipe Stress Calculations						
18	M06	Process Flow Diagrams including Heat and Mass Balance						
19	M07	Piping and Instrument Diagrams						
20	M08	Process / Torque Sizing Calculations		PO+14D	IFA	1*	IFC	*2
21	M09	Exchanger Thermal Rating Calculations						
22	M10	Hydraulic Calculations						
23	M11	Thermal Growth Calculations						
24	M12	Utility Calculations						
25	M13	Flare/Relief System Calculations						
26	M14	Flare Dispersion Calculations						

**ĐẦU TƯ BÓN ACID H₃PO₄ TẠI XUỐNG NPK****TÀI LIỆU:****TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG
(FLOW METTER)**

H3PO4-PTSC-IN-TRD-0002

LXB: A

Item no.	VP Code	Description	With Bid (Y/N)	First Issue			Final Issue	
				Issue Date	Purp.	Quantity / Type	Purp.	Quantity / Type
27	M15	Reliability/Availability Data and Calculations		PO+14D	IFA	1*	IFC	*2
28	M16	Lube and Seal Oil System Sizing Calculations						
29	M17	Anti Surge Valve Sizing Calculations						
30	M18	Line List						
31	M19	Equipment Data Sheet including specialty items		PO+14D	IFA	1*	IFC	*2
32	M20	Prime Mover Data Sheets (Motor/ Diesel engine/ Gas Engine/ Turbine)						
33	M21	Weight Datasheet		PO+56D	IFI	1*	IFI	*2
34	M22	Noise Level Data Sheets						
35	M23	General Arrangement Drawings	E	PO+28D	IFA	1*	IFC	*2
36	M24	Detail / Assembly / Fabrication Drawings	E	PO+42D	IFA	1*	IFC	*2
37	M25	Cross Section Drawing / Exploded View Drawings		PO+56D	IFA	1*	IFC	*2
38	M26	Internals Drawings / Miscellaneous Drawings						
39	M27	Mechanical Seal Drawings						
40	M28	Shaft Alignment Drawings						
41	M29	Bill of Material	E	PO+28D	IFA	1*	IFC	*2
42	M30	Centre of Gravity Sketch						
43	M31	Installation & Dismantling Drawings / Procedures (As Applicable)	E	PO+56D	IFA	1*	IFC	*2
44	M32	Lifting / Transportation Drawings	E	PO+56D	IFI	1*	IFI	*2
45	M33	Name Plate Drawings		PO+14D	IFA	1*	IFC	*2
46	M34	HVAC Schematic and Flow Diagrams						
47	M35	Skid/Module GA and Detail Drawings						
48	M36	Lifting Lug Details/ Calculations	E	PO+84D	IFA	1*	IFC	*2
49	M37	Allowable Nozzle Load Calculations						
50	M38	Weight and Centre of Gravity Calculations						
51	M39	Lifting Equipment Calculations						
52	M40	Lateral Critical Speed Calculations						
53	M41	Torsional Critical Speed Calculations						
54	M42	Bearing Life Calculations						
55	M43	Thrust Bearing sizing Calculations						
56	M44	Pulsation Dampener Design Calculations						
57	M45	Rotor/Shaft system Unbalanced Response Analysis						
58	M46	Coupling Selection Calculations						
59	M47	Dynamic Characteristics: Lateral & Torsional Analysis						
60	M48	Foundation Load Calculations						
61	M49	HVAC Calculations						
62	M50	Vibration Calculations						
63	M51	Miscellaneous Calculations						
64	M52	Skid Piping GA Drawings						
65	M53	Pipe Work Support Details						
66	M54	Valve List						
67	M55	Piping Isometrics						



ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỐNG NPK



TÀI LIỆU:

**TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG
(FLOW METTER)**

H3PO4-PTSC-IN-TRD-0002

LXB: A

Item no.	VP Code	Description	With Bid (Y/N)	First Issue			Final Issue	
				Issue Date	Purp.	Quantity / Type	Purp.	Quantity / Type
68	M56	Non-Actuated Valve Torque Calculations						
69	M57	Tie-in Schedule						
70	M58	Pulsation Analysis						
71	M59	Relief Valves Calculations and Sizing						
72	M60	Lifting Lug / Trunnion Calculations		PO+14D	IFA	1*	IFC	*2
73	M61	Structural Skid / Support Calculations						
74	M62	Tank Tress Calculation						
	3	INSTRUMENT/ELECTRICAL						
75	J01	Package Electrical Termination Drawings						
76	J02	Panel Layout and Details		PO+42D	IFA	1*	IFC	*2
77	J03	JB/Panel Wiring Diagrams						
78	J04	Instrument / Fire and Gas Location Plans / Cable Layouts						
79	J05	Instrument / Fire and Gas Installation Details / Hook-ups		PO+42D	IFA	1*	IFC	*2
80	J06	Loop Diagrams						
81	J07	Cause & Effect Charts						
82	J08	Alarm / Trip Set Point List						
83	J09	Electrical Wiring Diagrams		PO+42D	IFA	1*	IFC	*2
84	J10	Electrical Schematic Diagrams		PO+42D	IFA	1*	IFC	*2
85	J11	Electrical Single Line Diagrams						
86	J12	Sequence and Logic Diagrams, Cause and Effect Diagrams						
87	J13	Instrument/Electrical [ISA] Data Sheets		PO+28D	IFA	1*	IFC	*2
88	J14	Instrument schematics and control diagram						
89	J15	Functional Design Specifications						
90	J16	Cable block diagram, SR Data link Address & Screen Graphics						
91	J17	Instrument Calculations including Safety Valves, Control Valves, Instrument Calculations including Safety Valves, Control Valves,		PO+28D	IFA	1*	IFC	*2
92	J18	Instrument Index		PO+28D	IFA	1*	IFC	*2
93	J19	I/O Schedules						
94	J20	VDU Screen Display Graphics						
95	J21	Control and Shutdown Philosophy						
96	J22	Cable schedule						
97	J23	Junction Box - Specification and Drawings						
98	J24	Electronic Cable detail						
99	J25	Panel Test Procedure						
100	J26	Type Test Procedure						
101	J27	Tie-in Schedule						
102	J28	Shutdown and Control Function Charts, Safe Charts, logic diagrams						
103	J29	Instrument/Fire & Gas/ Electrical Data Sheets						
104	J30	Control system architecture						
105	J31	Serial Link Mapping List						
106	J32	Earthing Diagram						



ĐẦU TƯ BÓN ACID H₃PO₄ TẠI XUỐNG NPK



TÀI LIỆU:

**TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG
(FLOW METTER)**

H3PO4-PTSC-IN-TRD-0002

LXB: A

Item no.	VP Code	Description	With Bid (Y/N)	First Issue			Final Issue	
				Issue Date	Purp.	Quantity / Type	Purp.	Quantity / Type
107	J33	Load Calculation						
108	J34	Junction box schedule						
109	J35	Reliability & Availability Data						
	4	GENERAL						
110	G01	Descriptive Literature and Catalogue Information	E	PO+14D	IFI	1*	IFI	*2
111	G02	Sub Vendor Data Sheets / Manuals	E	PO+28D	IFI	1*	IFI	*2
112	G03	Recommended Spare Parts For 2 Year Operation, Priced	E	PO+56D	IFA	1*	IFC	*2
113	G04	Recommended Spare parts for Start-up & Commissioning, Priced	E	PO+56D	IFA	1*	IFC	*2
114	G05	List of Special Tools, where applicable		PO+56D	IFA	1*	IFC	*2
115	G06	Utility Requirements – Power / Air / Water / Other		PO+14D	IFA	1*	IFC	*2
116	G07	Consumables list including lubrication						
117	G08	Loading, Transport and Unloading Details		DE-42D	IFA	1*	IFC	*2
118	G09	Preservation and Storage Procedure		DE-56D	IFA	1*	IFC	*2
119	G10	Hazardous Area Dossier		PO+56D	IFA	1*	IFC	*2
120	G11	Hardware Standard Software Documentation						
121	G12	Material Safety Data Sheet						
122	G13	Packing List		DE-14D	IFI	1*	IFI	*2
123	G14	Not used						
124	G15	Preparation for Shipment Procedure		DE-14D	IFI	1*	IFI	*2
	5	PERFORMANCE						
125	P01	Performance and Test Procedure		PO+56D	IFA	1*	IFC	*2
126	P02	Performance Curves and Data (Pump, Compressor, Gas Turbine, Motor, Engine, Fan, Vessel Internals, etc.)						
127	P03	Speed/Torque Curves, Gas Turbine/Gear/Generator vs. Starting Motor						
128	P04	Trial Assembly Report		PO+86D	IFA	1*	IFC	*2
129	P05	Performance Test Reports		PO+86D	IFA	1*	IFC	*2
130	P06	Noise Reports		PO+86D	IFA	1*	IFC	*2
131	P07	FAT Reports		PO+86D	IFA	1*	IFC	*2
132	P08	Commissioning and Site Acceptance Test Results						
133	P09	Vibration Reports						
134	P10	Acoustic Analysis						
135	P11	Crane Failure Mode Analysis						
136	P12	Heat Emission Calculations						
137	P13	Battery Charge/Discharge Curves						
138	P14	Electrical Relay Characteristics						
139	P15	Pulsation Study						
	6	QA/CERTIFICATION/REPORT						
140	Q01	QA Accreditation Certification		PO+56D	IFA	1*	IFC	*2
141	Q02	Contract Quality Plan/ Project Quality Plan		PO+56D	IFA	1*	IFC	*2



ĐẦU TƯ BÓN ACID H₃PO₄ TẠI XUỐNG NPK





TÀI LIỆU:

**TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG
(FLOW METTER)**

H3PO4-PTSC-IN-TRD-0002

LXB: A

Item no.	VP Code	Description	With Bid (Y/N)	First Issue			Final Issue	
				Issue Date	Purp.	Quantity / Type	Purp.	Quantity / Type
142	Q03	Welding Procedures & Qualification Test Reports						
143	Q04	Inspection and Test Plan		PO+56D	IFA	1*	IFC	*2
144	Q05	Inspection and Test Reports (Cable continuity & Resistance Test Report, ...)		PO+56D	IFA	1*	IFC	*2
145	Q06	Calibration Procedures & Results						
146	Q07	Hydro Test/Pneumatic Test Procedures		PO+14D	IFA	1*	IFC	*2
147	Q08	Hydro Test/Pneumatic Test Reports		PO+56D	IFA	1*	IFC	*2
148	Q09	Material Mil Test Certification						
149	Q10	Electrical Type Test Certificates						
150	Q11	Approval cert. of Relevant Authorities (for Flame Retardant cable and Fire-Resistant cable)		PO+56D	IFA	1*	IFC	*2
151	Q12	Statement of Code Compliance	E	PO+56D	IFA	1*	IFC	*2
152	Q13	Hazardous Area Certification, IP Certification		PO+56D	IFA	1*	IFC	*2
153	Q14	Heat Treatment Records, where applicable						
154	Q15	Charpy Impact Tests, where applicable						
155	Q16	Vendor Concession (Deviation) Request						
156	Q17	Surface Preparation and Paint Procedure and Report		PO+56D	IFA	1*	IFC	*2
157	Q18	NDE Procedure & NDE Location Plan		PO+56D	IFA	1*	IFC	*2
158	Q19	Manufacturing Procedures including Heat Treatment						
159	Q20	Pre-Commissioning/ Commissioning/Site Acceptance Test Procedure and Report		PO+56D	IFA	1*	IFC	*2
160	Q21	Factory Acceptance Test Procedure and Report		PO+56D	IFA	1*	IFC	*2
161	Q22	Weighing Procedure						
162	Q23	Post Weld Heat Treatment Procedures						
163	Q24	Non-Conformance Report (NCR) Procedure						
164	Q25	Erection & Installation Procedure						
165	Q26	Weld Location Plans						
166	Q27	Repair Procedures						
167	Q28	Weight Certificate (equipment > 50 kg)						
168	Q29	Lifting Equipment Certification						
169	Q30	Dimensional Control Report						
170	Q31	Welder Performance Qualification Records/Certificates						
171	Q32	NDE Operator Qualifications & Certificates						
172	Q33	Production Test Results (Including welding)						
173	Q34	NDE/NDT Reports		PO+56D	IFR	1*	IFA	*2
174	Q35	Material Traceability Records (Location Drawing)						
175	Q36	Certificate of Compliance	E	DE-14D	IFA	1*	IFC	2*
176	Q37	Painting/Insulation Inspection Reports						
177	Q38	Inspection Release Certificate	E	DE-14D	IFA	1*	IFC	2*

	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỐNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO Đếm LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A



APPENDIX No. 2
PURCHASER FORMAT
(09 pages, including this page)

Deviation from Purchaser's Specification	Project	ĐẦU TƯ BÓN ACID H₃PO₄ TẠI XƯỜNG NPK	Vendor	
	PTSC Project No.		Vendor Project No.	
	Item No.		Contract No.	
	Service			



Spec. No.	Paragraph No.	Deviation	Reason for Deviation	Conclusion	Remarks	Cost Effect When Deviation is Applied

SPECIAL TOOL LIST	Project	ĐẦU TƯ BÓN ACID H₃PO₄ TẠI XƯỜNG NPK	Vendor	
	PTSC Project No.		Vendor Project No.	
	Item No.		Contract No.	
	Service			

No.	Tool name	Q'ty	Sketch	Unit price	Total price



	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XƯỞNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A

APPENDIX No. 3
TYPICAL INSEPECTION AND TEST PLAN
(03 pages, including this page)

	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỐNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A



TYPICAL INSPECTION AND TEST PLAN

No.	Inspection Item	Inspection Involvement		
		PURCHASER	COMPANY	3 rd Party Inspection
1	Visual Check	R	R	R
2	Dimensional Check	R	R	R
3	Material certificates	R	R	R
4	Material identification	R	R	R
5	Chemical analysis	R	R	R
6	NDT/ NDE (100%)	R	R	R
7	Pressure test			
8	Hydro test / Seat Leakage Test			
9	Fire Test to API-RP-6FA and API-RP-607			
10	Function test			
11	Actuator cycling & fail condition tests			
12	Factory Acceptance Tests (FAT)	R	R	R
13	Sustained Performance Test			
14	Surface Preparation and Paint	R	R	R
15	Final Inspection & Inspection Release Certificates	R	R	R
16	Final Documentation as per VDRL and Specifications	R	R	R
17	Shipping Inspection & Shipping Release Notice	R	R	R



	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XƯỞNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO Đếm LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002
		LXB: A

Note:

1. R: Review Documents; RI: Random Inspection; W: Witness; M: Monitoring; H: Hold Point; D: Document provided; V: Verify
2. The inspection points specified in this Inspection and Testing Requirements (ITR) shall be the minimum required. The PURCHASER has the right to request additional inspection points where it is deemed required.

	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XUỐNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO Đếm LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A

APPENDIX No. 4
MATERIAL TAKE OF (MTO)
(2 pages, including this page)

	ĐẦU TƯ BỒN ACID H₃PO₄ TẠI XƯỞNG NPK	
TÀI LIỆU:	TRD CHO THIẾT BỊ ĐO ĐẾM LƯU LƯỢNG (FLOW METTER)	H3PO4-PTSC-IN-TRD-0002 LXB: A

No	Work Item	Specification	UNIT	Q'Ty	Remark
1	Flow Meter	Magnetic Flowmeter 6" 150# RF, SS316, Ex d, IP 65 min., tubing, fitting, and accessories.	Lot	1	