

 <p>شرکت توسعه صنایع لوان Lavan Industry Development Company</p>	<p>LIDCO, Pars SEE Zone, Assaluyeh, Integrated Methanol and Ammonia Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT</p>						
	<p>Vendor Data Book</p>						
<p>Document No. 17735-58</p>		<p>Page</p>					
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**Airpack B.V. - Air Compressor –
Integrated Methanol and Ammonia Plant
17735-COM Vendor Data Book (K020)**

03	29-08-2025	Issued for Information	M.C.	S.K.	J.J.
02	13-06-2025	Issued for Information	M.C.	S.K.	J.J.
01	18-03-2025	Issued for Information	M.C.	S.K.	J.J.
REV.	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

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Vendor Data Book



Document No. 17735-58

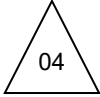
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1. SAMPLE OF COVER FORMAT SHALL BE AS FOLLOWS:





**LIDCO, Pars SEE Zone, Assaluyeh,
Integrated Methanol and Ammonia Plant
3000 MTPD MeOH / 900 MTPD NH3 PROJECT**

Vendor Data Book

VDB Part 1: Purchase order data


MR DESCRIPTION: HIGH PRESSURE AIR COMPRESSOR
 MATERIAL REQUISITION NO: N278-000-ME-MR-1020-001
 ITEM /TAG NUMBER: K-020
 EQUIPMENT NAME: HIGH PRESSURE AIR COMPRESSOR
 VENDORNAME: AIRPACK BV
 PURCHASE ORDER NUMBER: LIDCO-PO-NEC-278-6019
 VOLUME No.: 1 of 3



 NARGAN	LIDCO, Pars SEE Zone, Assaluyeh, Integrated Methanol and Ammonia Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT						
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2. SAMPLE OF SIDE FORMAT SHALL BE AS FOLLOWS:


**LIDCO, Pars SEE Zone, Assaluyeh,
 Integrated Methanol and Ammonia Plant
 3000 MTPD MeOH / 900 MTPD NH3
 PROJECT**

Vendor Data Book

VDB Part 1; Purchase order data

MR DESCRIPTION: HIGH
 PRESSURE AIR COMPRESSOR
 MATERIAL REQUISITION NO:
 N278-000-ME-MR-1020-001
 ITEM /TAG NUMBER: K-020
 EQUIPMENT NAME: HIGH
 PRESSURE AIR COMPRESSOR
 VENDOR NAME: AIRPACK BV
 PURCHASE ORDER NUMBER:
 LIDCO-PO-NEC-278-6019
 VOLUME No.: 1 OF 3



05

NUMBER OF COPIES	
LIDCO	3C + 2 USB
NEC	0C + 1 USB
TOTAL	3C + 3 USB

Integrated Methanol and Ammonia Plant

Book 1; Purchase order data

- A. UNPRICED PO
- B. MATERIAL REQUISITION (N278-000-ME-MR-1020-001) Rev.02
- C. FINAL TECHNICAL CLARIFICATIONS WITH PURCHASER
- D. ENGINEERING QUERIES
- E. CONCESSION REQUEST

	Vendor doc. Number N-278-VD-6019-GN-MNL-0045-01	P.O. NO.: LIDCO-PO-NEC-278-6019
	Vendor: Airpack Nederland B.V.	



Integrated Methanol and Ammonia Plant

VENDOR NAME	: Airpack Nederland B.V
EQUIPMENT DESCRIPTION	High Pressure Air Compressor
EQUIPMENT TAGNUMBER	K-020

SECTION A

UNPRICED PO

	Vendor doc. Number N-278-VD-6019-GN-MNL-0045-01	P.O. NO.: LIDCO-PO-NEC-278-6019
	Vendor: Airpack Nederland B.V.	

 NARGAN	LIDCO, Pars SEE Zone, Assaluyeh, Integrated Methanol and Ammonia Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT	
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P/O NO. LIDCO-PO-NEC-278-6019

PURCHASE ORDER

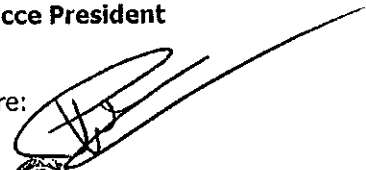

TO: Airpack Nederland B.V. Add.: Groene Weegje 25, 4301RN Zierikzee, The Netherlands Tel: +31 (0) 111 - 415455 Fax: +31 (0) 111 - 413338	PURCHASE ORDER NO.: LIDCO-PO-NEC-278-6019 ISSUE DATE : 14-Nov-2022
INQUIRY NO : N278-000-ME-MR-1020-001-02 P.O. number must be shown on all shipping packages, shipping documents, invoices and correspondence etc. in connection with this order.	

 This order is subject to the conditions and instructions hereon and attachments hereto, if any.

PROJECT: Integrated Methanol and Ammonia Plant

DESCRIPTION: PURCHASE ORDER FOR High Pressure Air Compressor Package.

Purchase Order No. LIDCO-PO-NEC-278-6019 shall be effective when advance payment is done.

Seller's Acceptance : This acceptance must be signed by an official or otherwise authorized representative and registered official seal must be affixed, if applicable.	Buyer/Purchaser: Lavan Industry Development Company (LIDCO)									
Name: Mrs. P.W. Warnar Title: Vice President Signature:  Company:  P.W. Warnar	<table border="0"> <tr> <td>Name:</td> <td>Title:</td> <td>Signature:</td> </tr> <tr> <td>M.B.Faridi</td> <td>Managing Director & Member of the Board</td> <td></td> </tr> <tr> <td>A.A.Hamidi</td> <td>Member of the Board</td> <td></td> </tr> </table>	Name:	Title:	Signature:	M.B.Faridi	Managing Director & Member of the Board		A.A.Hamidi	Member of the Board	
Name:	Title:	Signature:								
M.B.Faridi	Managing Director & Member of the Board									
A.A.Hamidi	Member of the Board									

1. Definition

- 1.1 The word "Purchaser" whenever used in this Purchase Order shall mean "Lavan Industry Development Company".
- 1.2 The word "Vendor" whenever used in this Purchase Order shall mean "Airpack Nederland B.V.".
- 1.3 The word "Owner" or "Purchaser" whenever used in this Purchase Order shall mean "Lavan Industry Development Company".
- 1.4 Capitalized terms used but not defined herein have the meanings ascribed to them in the Purchase Order's General Terms and Conditions (the "GTC").

2. References

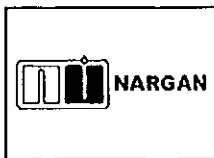
- 2.1 Vendor's Commercial Quotation:
 - 2.1.1 Ref No. 17735-COM-Rev.06 dated 24-May-2022
- 2.2 Vendor's Technical Quotation:
 - 2.2.2 Ref No. 17735-COM Rev.06 dated 24-May-2022 (Including NEC comments in PCIM Reference No: #N278-11930)
- 2.3 All correspondences exchanged prior to this order placement.

3. Attachments

- 3.1 Purchase Order General Terms & Conditions. (N278-000-PQ-JSS-0000-001-04)
- 3.2 Material Requisition No. N278-000-ME-MR-1020-001-Rev.02 and all of its attachments
- 3.3 Letter of Conformity
- 3.4 2-Years Spare Parts List
- 3.5 Letter of Intent
- 3.6 Minutes of Meetings including attached Technical and Commercial Clarifications:
 - 3.6.1 Ref No. Technical Clarification N278-High pressure air Compressor-Airpack-TCL dated 25-Jan-2022.

4. Price

- 4.1 Total [REDACTED] (In word [REDACTED] Only) for 1 set of High Pressure Air Compressor Package, including but not limited to commissioning spare part, 2-Years Spare Parts, Performance test during FAT at Airpack workshop, transportation device, packing, marking, cost of guarantees and all other related costs based on FOB Antwerp (Free on Board, ICC Incoterms 2010) delivery term, based on unit prices mentioned in Clause 12 of this Purchase Order.
- 4.2 All unit prices shown in this purchase order are fixed and firm and shall not be subject to any escalation for the duration of this purchase order up to expiry date of vendor's guarantee. Any additions or deletions will be added or deleted by same unit price or prices, accordingly.
- 4.3 No cost escalation will be allowed as long as design conditions remain unchanged.



LIDCO, Pars SEE Zone, Assaluyeh,
 Integrated Methanol and Ammonia Plant
 3000 MTPD MeOH / 900 MTPD NH3 PROJECT



P/O NO. LIDCO-PO-NEC-278-6019

5. Payment

All Payments shall be made by cash transfer or agreed method to an overseas account introduced by Vendor.

5.1 1st Payment

Following submission of counter-signed purchase order by Vendor, [REDACTED] of the total Order amount shall be paid against presentation of the following documents:

- 5.1.1 Original commercial invoice.
- 5.1.2 Payment bond as corporate guarantee by Vendor for the same amount signed and sealed by notary public and to be valid for one month after final delivery.
- 5.1.3 Performance bond as corporate guarantee by Vendor for [REDACTED] of the total order amount signed and sealed by notary public and to be valid for one month after final delivery.

5.2 2nd Payment

[REDACTED] of the total Order amount shall be paid against presentation of the following documents:

- 5.2.1 Original commercial invoice.
- 5.2.2 Receiving 100% of Major Equipment / Materials at Vendor's shop and submission of ownership of the raw material certificate to owner.
- 5.2.3 Progress payment bond as corporate guarantee by Vendor for the same amount signed and sealed by notary public and to be valid for one month after final delivery.

5.3 3rd Payment

[REDACTED] of total Order amount shall be paid against presentation of the following documents:

- 5.3.1 Original commercial Invoice.
- 5.3.2 Completion of 70% of manufacturing as verified by Purchaser's Inspectors or TPA.
- 5.3.3 Progress payment bond as corporate guarantee by Vendor for the same amount signed and sealed by notary public and to be valid for one month after final delivery.

5.4 4th Payment

[REDACTED] of the total Order amount shall be paid after FOB delivery and against presentation of the following documents:

- 5.4.1 Original commercial Invoice.
- 5.4.2 Shipping documents including signed Packing Lists, Release Note.
- 5.4.3 Warranty bond as corporate guarantee by Vendor for [REDACTED] of the total Order amount signed and sealed by notary public and to be valid for one month after warranty period.

[Handwritten signature and stamp]
 Rev. 24/01/2014
 B.V. Warnar

5.5 Final Payment

[REDACTED] of the total Order amount shall be paid against presentation of the following documents:

- 5.5.1 Original commercial invoice.
- 5.5.2 Approved Final Vendor's data book.

5.6 Invoicing Terms

Invoices shall be entitled to: Lavan Industry Development Company (LIDCO)
 Invoices shall be addressed to: Lavan Industry Development Company (LIDCO)
 Each invoice shall be sent in two originals and three copies with one copy of transport document, if any.

Each Invoice shall contain the following references and data:

- Purchase Order Numbers and Date.
- Reference of the Project.
- Description of the supplied goods/equipment

The ~~first~~ installment number.

and shall contain the sentence "Not Assignable Credit"



In case of an Order Amendment, all related invoices shall comply with the same Invoice scheme defined in this Purchase Order as indicated above, unless otherwise stated in the said Amendment.

6. Delivery

- 6.1 All Equipment/Materials shall be delivered on the basis of FOB Antwerp (Free On Board, ICC Incoterms 2010) not later than 10.5 Months after Purchase Order's effective date.
- 6.2 Partial delivery is allowed by Purchaser written approval.
- 6.3 Upon Purchaser request Vendor shall store the "ready for shipment" Supply or part of it in their premises and provide for its perfect conservation at Vendor's total care and expense for a maximum period of three (3) months.
Storage period may be extended beyond the three (3) months upon agreement between Parties.

7. Inspection and Shipping

- 7.1 VENDOR shall provide official Inspection Notification for any inspection 10 working days for prior to Inspection date.
- 7.2 Shipping mark shall be made in strict accordance with "Packing and Marking Specification" (N278-000-PQ-JSS-0000-003-01), "Logistic Procedure" (N278-000-PQ-PR-0000-003-01) attached to Material Requisition and the GTC.
- 7.3 Shipping Mark shall be as follows:

 NARGAN	LIDCO, Pars SEE Zone, Assaluyeh, Integrated Methanol and Ammonia Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT	
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P/O NO. LIDCO-PO-NEC-278-6019

IRAN LAVAN Industry Development Co. LIDCO, Integrated Methanol and Ammonia Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT
<p>Vendor's Name :</p> <p>P/O No. :</p> <p>Item No:</p> <p>Description of Good :</p> <p>Packing List No :</p> <p>Package Number : of</p> <p>Gross Weight : kgs</p> <p>Net Weight : kgs</p> <p>Dimensions : (L) x (W) x (H) cm</p> <p>Country of Origin :</p> <p>Storage Code :</p>

8. Warranty

The Vendor shall guarantee good performance of its supplies and parts and complete assemblies free from all defects and faults in materials, workmanship and handling for a period of 24 months after FOB delivery date.

9. Bonds

9.1 Advance payment Bond / Progress payment Bond.

As the security of the Advance payment / Progress payment, Vendor shall establish, at his own expenses, the Advance payment bond / Progress payment Bond acceptable to the Purchaser and in favor of the Purchaser. The value of the bond shall be at least one hundred percent (100%) of the Advance payment amount / Progress payment amount. The bond shall be valid until one (1) month after final delivery date.

9.2 Performance Bond.

For the security of Vendor's performance, Vendor shall establish, at his own expenses, a Performance Bond acceptable to the Purchaser and in favor of the Purchaser. The bond shall cover ten percent (10%) of total Order amount, and valid until one (1) month after final delivery date.

9.3 Warranty Bond.

For the security of Vendor's guarantee referred to article 8 / Warranty hereof, Vendor shall establish, at his own expense, an extendable Warranty Bond acceptable to the Purchaser and in favor of the Purchaser. The value of this Warranty Bond shall be at least ten percent (10%) of the total Order amount. The bond shall be valid until one (1) month after warranty period.

10. Liquidated Damages

Late Delivery Penalty will be as follows:

- 10.1 Equipment:
0.5% of the PURCHASE ORDER total value per week, max 5% penalties will be applied.
- 10.2 Documents:
0.2% of the PURCHASE ORDER total value per week, max 2% penalties will be applied on mechanical calculation, assembly and detail drawing, setting plan with foundation loads, manufacturing data report as mentioned in inquiry "SDRS".
- 10.3 The maximum aggregate value of penalties will be 6% of the total price of the purchase order and will be considered as liquidated damages.

11. Options

As an optional case, the following items can be added by Purchaser to the Items and Description of this Purchase Order as mentioned under Clause 12:

11.1 Field Services

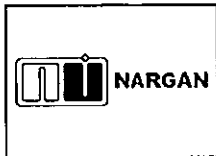
VENDOR undertakes to send qualified and skillful personnel for supervision and assistance during erection, commissioning and test run to the Plant Site at soonest upon our written request at the conditions stated in the "Conditions for Vendor's Field Services" with document no.: **N278-000-PQ-JSS-0000-002** and at the following daily rates:

Qualification of Site Personnel	Standard Man Day Daily Rate (first 10 h, excluding holidays)	Overtime Hour Rate (hour after SMD)	Holidays Hour Rate
Nationality / Currency	EU-other / Euro	EU-other / (Euro/h)	EU-other / (Euro/h)
General Supervisor	██████	██████	██████
Mech. Supervisor	██████	██████	██████
Elec. Supervisor	██████	██████	██████
Instr. Supervisor	██████	██████	██████
Autom. Supervisor	██████	██████	██████

Validity: The above rates shall be valid until the expiry of the warranty period.

12. Items and Descriptions

Without prejudice to the provisions of Clause 13, in case of any technical discrepancy between the price table and the Material Requisition, the Material Requisition along with attachments shall have priority for defining the scope of work.



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Integrated Methanol and Ammonia Plant
3000 MTPD MeOH / 900 MTPD NH3 PROJECT**



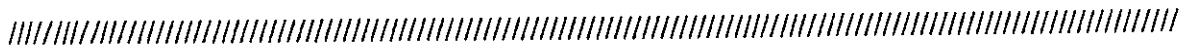
P/O NO. LIDCO-PO-NEC-278-6019

I T E M	DESCRIPTION	Q T Y	Unit	Unit Price (Euro)	TOTAL AMOUNT (Euro)
1	High Pressure Air Compressor Package (K-020)	1	Set	██████	██████
2	Electric Motor			Included	Included
3	Inlet & discharge pulsation damper for each stage			Included	Included
4	Inter & after cooler			Included	Included
5	Local Panel			Included	Included
6	pulsation study (approach 1)			Included	Included
7	Safety Valves			Included	Included
8	Oil Charge for one year of operation			Included	Included
9	Commissioning spare parts based on project requirements	1	Set	██████	██████
10	2-Years Spare Part List	1	Set	██████	██████
11	Performance test during FAT at Airpack workshop			██████	██████
12	Engineering, drawing and documentation in accordance with material requisition (MR) and TCL agreements			Included	Included
13	Inspection and testing in accordance with material requisition (MR), ITP and TCL agreements			Included	Included
14	Packing and Marking			██████	██████
TOTAL FOB (Free On Board, ICC Incoterms 2010) Price Including but not limited to packing and marking.					██████

13. Precedence

In case of any conflict, discrepancy, inconsistency or ambiguity, priority shall be given in the following order:

- 13.1 Purchase Order (LIDCO-PO-NEC-278-6019)
- 13.2 Purchase Order General Terms & Conditions (N278-000-PQ-JSS-0000-001-04)
- 13.3 Material Requisition No. (278-000-ME-MR-1020-001-Rev.02)



P.W. WAGENINGAR
REV. 24

Integrated Methanol and Ammonia Plant

VENDOR NAME	: Airpack Nederland B.V
EQUIPMENT DESCRIPTION	High Pressure Air Compressor
EQUIPMENT TAGNUMBER	K-020

SECTION B

MATERIAL REQUISITION (N278-000-ME-MR-1020-001)
Rev.02

	Vendor doc. Number N-278-VD-6019-GN-MNL-0045-01	P.O. NO.: LIDCO-PO-NEC-278-6019
	Vendor: Airpack Nederland B.V.	



**LIDCO, Pars SEE Zone, Assaluyeh,
Integrated Methanol and Ammonia Plant
3000 MTPD MeOH / 900 MTPD NH3 PROJECT**



Material Requisition for High Pressure Air Compressor Package

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**Material Requisition for
High Pressure Air Compressor Package K-020**

02	04.07.2022	ISSUED FOR PURCHASE	M.V.	M.H.	V.B.
01	29.08.2015	ISSUED FOR BID INQUIRY	E.H/H.CH	M.H	H.F
REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED

Material Requisition for High Pressure Air Compressor Package

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2	X	X				27	X					52						77					
3	X	X				28	X					53						78					
4	X					29	X	X				54						79					
5	X	X				30	X	X				55						80					
6	X					31	X	X				56						81					
7	X					32	X	X				57						82					
8	X	X				33	X	X				58						83					
9	X	X				34	X	X				59						84					
10	X	X				35	X					60						85					
11	X	X				36	X					61						86					
12	X	X				37	X					62						87					
13	X					38	X					63						88					
14	X					39						64						89					
15	X					40						65						90					
16	X	X				41						66						91					
17	X					42						67						92					
18	X					43						68						ATTACHMENT					
19	X					44						69						1					
20	X	X				45						70						2					
21	X	X				46						71						3					
22	X	X				47						72						4					
23	X	X				48						73						5					
24	X	X				49						74						6					
25	X	X				50						75						7					



**LIDCO, Pars SEE Zone, Assaluyeh,
Integrated Methanol and Ammonia Plant
3000 MTPD MeOH / 900 MTPD NH3 PROJECT**



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1 GENERAL

This Specification covers minimum requirements for the material and/or equipment which are to be supplied according to the tender documents, standards, data sheets, specifications, and drawings, attached hereto, and according to conditions, both general and specific, which are stated below, unless any or all of them shall have been modified or cancelled, either as a whole or in part, by Contractor.

Unless it is expressly stated in Bidder's Proposal, that some or other of the conditions, specified therein, differs from the conditions stipulated in this specification, Contractor shall assume that all of the conditions have been fully complied with, by Bidder. However, if Bidder considers any exceptions, deviations, and/or alternatives, regarding this specification, Bidder shall clearly define and list them in his proposal under separate section entitled as "Exception and Deviation List".

2 DEFINITIONS

Owner / Purchaser	Means LAVAN INDUSTRY DEVELOPMENT COMPANY and includes Owner's authorised representative, e.g. Engineering Contractors.
Project	LIDCO, Pars SEE Zone, Assaluyeh, Integrated Methanol and Ammonia Plant 3000 MTPD MeOH 900 / MTPD NH3 PROJECT
Contractor / Purchaser	Means "NARGAN" and includes all parties who carry out all or part of design, engineering, procurement, commissioning and management of project on behalf of Owner.
Plant	Integrated Methanol and Ammonia Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT
Bidder, Vendor, Supplier, Manufacturer	The party offering his products and services in accordance with the documents, and/or who is willing to enter into a contract with Contractor.
Site / Field	The location where the materials/equipments are to be installed and/or used permanently, which is located in Assaluye, Iran
Tender Documents	All documents, including forms, specifications, data sheets, drawings, notes, etc., that are issued to the successful bidder at the order stage.
Shall	Mandatory
Should	Advisory (Recommendation)

Material Requisition for High Pressure Air Compressor Package

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3 SUBJECT OF MATERIAL REQUISITION

3.1 Subject of this MR is “**High Pressure Air Compressor Package (K-020) with all required accessories and material**” which is specified in related process and mechanical data sheet.

High pressure air compressor package shall be designed, fabricated, erected, tested and inspected according to this MR and all other applicable code and documents. The package will be installed in Assaluyeh, south of Iran.

3.2 Vendor shall submit a proposal to meet the requirements set forth in this MR and its attachments, in accordance with the applicable local Regulations and Codes and Standards indicated in data sheet

3.3 Vendor shall notify Contractor of any apparent conflict between this specification, the related mechanical data sheet, process data sheets, Codes, Standards, and any other specifications herein noted.

3.4 Resolution and / or interpretation precedence shall be obtained from Contractor in writing before proceeding with the design / manufacturing.

3.5 Design of any parts are not covered by the specified codes and standards and project specifications shall be carried out according to Vendor's Standard, Which shall be agreed with Contractor and Owner.

3.6 Vendor shall ensure that equipment being procured conforms to all the requirements of the specified codes and standards.

3.7 Compressor shall be designed for the minimum operating life of 25 years

4 APPLICABLE CODES AND STANDARDS <2>

• Instrumentation	IEC, ISA, certification for hazardous classification from authorities in the country of origin, latest edition.
• ASME B 31.3 (2012 Edition)	ASME code for pressure piping
• ASME Section VIII (2013 Edition)	Rules for construction of pressure vessel
• ASME Section II (2013 Edition)	Materials Specifications

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• ASME Section V (2013 Edition)	Non-Destructive Examination
• ASME Section IX (2013 Edition)	Welding And Brazing Qualification
• ASCE 7 (2010 Edition)	Minimum Design Loads for Buildings and Other Structures
• EN 10204 (2004 Edition)	Metallic Product types of inspection documents
• ASME B 16.5 (2013 Edition)	Pipe Flanges and Flanged Fitting Up to NPS 24
• ASTM Standards (Latest Edition)	Specifications For Materials
• ASME B 16.47 Series B flanges (2011 Edition)	Large Diameter Steel Flanges NPS 26 Through NPS 60
• ASME B 16.20 (2007 Edition)	Metallic Gaskets For Pipe Flanges Ring-Joint, Spiral-Wound And Jacketed
• ASME B 18.2 (1996 Edition)	Bolt And Nuts
• ASME B 1.1 (2003 Edition)	Unified Inch Screw Threads
• AWS	American Welding Society For Joint Specifications And Welding Electrodes

For others applicable code & standard, the attached specifications and documents to this material requisition shall be considered.

5 UTILITIES

The following utilities are available:

- Electrical power: Refer to design basis document No. N278-002-PR-RP-0000-001
- Instrument air: Refer to design basis document No. N278-002-PR-RP-0000-001
- Nitrogen: Refer to design basis document No. N278-002-PR-RP-0000-001
- Plant Air: Refer to design basis document No. N278-002-PR-RP-0000-001
- Cooling Water: Refer to design basis document No. N278-002-PR-RP-0000-001

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6 Documents priority

In the event of a conflict between applicable documents, the following order of precedence shall govern:

- Local laws applicable to the place of installation.
- Latest agreement during bid stage
- The material requisition
- The data sheets
- The project specifications
- The applicable international codes and standards

The Vendor shall advise contractor where a conflict exists between applicable documents.

7 LIMIT OF SUPPLY AND WORK

The vendor shall have unit responsibility for the co-ordination sub-suppliers, and for the proper execution of any accessory, item assembly, testing, delivery and any other service defined herein.

The sub-vendor list shall be provided during the bid stage and will be approved by client.

The Vendor's scope of supply shall consist in the design, supply and production of materials for fabrication and manufacturer of the equipment, provision of drawings and data, assembly, painting and factory testing of the equipment, and required sub- vendor coordination.

The basis of design is included in the data sheets N278-002-PR-DS-4100-020 and N278-002-ME-DS-1020-001 attached to the material requisition.

The supply shall include all the items with all the appurtenances and accessories (internal and external) mentioned in this document, Job specifications and other documents attached to the MR and requested and/or necessary for testing, shipment, operation and maintenance.

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

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7.1 The scope of supply shall include but not limited to following

Item	Description	Required by Purchaser	Proposed by Vendor	Remarks
1.	Compressor:	(X)	()	
	▪ Reciprocating Compressor	(X)	()	
	▪ Fix speed electric motor	(X)	()	
	▪ V-Belt <2>	(X)	()	
	▪ Flywheel	(X)	()	
	▪ Machine Auxiliaries	(X)	()	
	▪ Inlet and discharge pulsation damper for each cylinder	(X)	()	
	▪ Shell & tube after cooler	(X)	()	
	▪ All piping as required in material requestion	(X)	()	
2.	Oil console included <2>	(R)	()	Vendor to advise
	▪ Crank shaft driven main oil pump	(X)	()	
3.	Local equipment control panel(s) and common remote control cubicle for the complete compressors train and auxiliaries including capacity control system	(X)	()	
4.	All necessary local gauge panels.	(X)	()	
5.	All controls and monitoring instrumentation equipment to enable compressor train to Operate unattended in a "fail-safe" way. This shall include all local instrumentation and	(X)	()	
6.	Piping and supports between Various equipment, Oil console and equipment.	(R)	()	if required
7.	Thermal / noise insulation as necessary.	(R)	()	

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Item	Description	Required by Purchaser	Proposed by Vendor	Remarks
8.	All special tools and equipment required for Installation and commissioning of all equipment in scope of supply.	(X)	()	
9.	Compressor train and auxiliary equipment except stainless steel materials shall be painted as per project specification. Vendor shall provide details of his standard painting procedure.	(X)	()	
10.	Commissioning and start-up spare part	(X)	()	
11.	Capital spare part	(R)	()	
12.	Two years spare parts	(S)	()	
13.	Oil charge for 1 (one) year of operation.	(X)	()	
14.	Suction strainer and spool piece	(X)	()	
15.	None return valve <2>	(X)	()	
16.	Wiring of electrical devices to junction boxes	(X)	()	
17.	Utility single connection at the edge of skids	(X)		
18.	Safety Relief Valve:	(X)	()	
	• Inter stage <2>	(R)	()	
	• Final stage	(X)	()	
19.	Set of consumable for site erection	(X)	()	

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Item	Description	Required by Purchaser	Proposed by Vendor	Remarks
20.	Foundation bolts and nut with level screw	(X)	()	
21.	Two earthing bars	(X)	()	
22.	All required material, tools and instrument for preservation	(X)	()	
23.	Name plates	(X)	()	
24.	All requirement for safe and easy start up	(X)	()	

7.2 Scope of work <2>

Items	Description	Required by Purchaser	Proposed by Vendor	Remarks
1.	Engineering and Documentation as per Doc. No.N278-000-ME-LST-0000-002	(X)	()	
2.	Manufacturing And Assembling	(X)	()	
3.	Final Machining Of Coupling Half (Driver End)	(X)	()	
4.	Inspection and testing at shop	(X)	()	As per Data Sheets and ITP
5.	Removing Of Any Scale, Rust, Barb And Any Foreign Material	(X)	()	
6.	Surface Preparation At Shop	(X)	()	

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Items	Description	Required by Purchaser	Proposed by Vendor	Remarks
7.	Wiring And Tubing To Junction Box Within Battery Limit(S)	(X)	()	
8.	Piping Within The Package (Interconnecting Piping)	(X)	()	
9.	Painting <ul style="list-style-type: none"> • Prime Coats At Shop • Finish Coats At Shop 	(X) (X)	() ()	
10.	Packing <ul style="list-style-type: none"> • Export Packing • Rust Prevention For Long Term (12 Month) • Seaworthy Export Marking / Packing 	(X) (X) (X)	() () ()	
11.	Supervision For Installation (Per Diem)	(S)	()	
12.	Supervision For Erection, Commissioning And Start Up (Per Diem)	(S)	()	
13.	Shop And Field Training	(S)	()	
14.	Installation At Site	()	()	
15.	Running test at site	(S)	()	
16.	Pulsation study according to API 618 5 th edition Approach 1 <2> Approach 2 <2>	(X) (S)	() ()	
17.	Review Of Purchaser's Drawings Of Process Flow Diagram, Plot Plan And Foundation Drawing, Logic Diagram	(X)	()	
18.	Submission of information for foundation design	(X)		
19.	All Activities To Meet Requirements Of Specifications, Codes And Standards	(X)	()	

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Items	Description	Required by Purchaser	Proposed by Vendor	Remarks
20.	Export Customs Clearance	(X)	()	
21.	To Obtain Any Export License Or Other Official Authorization For Exportation	(X)	()	
22.	Preparation For Shipment	(X)	()	
23.	Transportation To FOB Port of Export	(X)	()	
24.	Torsional analysis <2>	()	()	
25.	Transportation to CFR Port (BANDAR ASALUYE -IRAN)	(S)	()	
26.	3D Modeling of equipment	(X)	()	
27.	Clips and supports for fireproofing <2>	(X)	()	

7.3 Exclusions

(x) Civil works (Except basic information for civil works design) as:

- Soil survey of unit area
- Soil investigation report
- Piling
- All concrete and civil foundation works
- Paving
- Grout

(x) Field installation

(x) MCC and Power cables from substation to local users

(x) Instrument cables from junction boxes to DCS in control room

(x) Utilities

(x) Supply of fire fighting system components

(x) Lighting system and UPS

(x) Cabling system between control room and field

(x) Lighting panel for lighting and sockets and field

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7.4 Battery limits

The battery limits for scope of engineering works and supply has been described and specified in Process Flow Diagram (PFD) N278-002-PR-PFD-0000-020, piping and instrument diagram N278-002-PR-PID-0000-020, process and mechanical data sheets which are attached to this MR. Moreover it will be discussed and agreed during proposal meeting or clarification letters on relevant P&ID.

(x) Piping

- For process piping, generally to be at flange connection, otherwise agreed during bid evaluation. All piping tie-in point shall be considered at package edge.
- For utility flange at skid edge.

(x) Drain connection

- edge of skid

(x) Electrical

- Electrical motor terminal box (cable gland included)

(x) Instrumentation

- Local Junction boxes

8 SPECIFICATION REQUIREMENTS

8.1 Mechanical Design

8.1.1. General

This section of the specification specifically covers the minimum design requirements for parts of the High Pressure Air Compressor package, which is not, covered elsewhere in this specification or in other project specifications, standards and codes as listed in the requisition.

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- 1- Although this compressor will operate intermittently in service but all equipment furnished under these specifications shall be suitable for uninterrupted 8400 hours per year operation and for 5 years between major overhauls.
- 2- All equipment of High Pressure Air Compressor package shall be suitable for outdoor installation in plant atmosphere. Vendor shall select suitable construction material which will meet the requirements for the process as well as climatic conditions.
- 3- The allowable load and moments which impose to all nozzles in High Pressure Air Compressor package battery limit, shall be submitted by vendor during the bid stage for approval.
- 4- The requirement is to maintain the mechanical integrity of the machines during an earthquake and to avoid any leak to atmosphere. Whilst compressor operation will be resumed in case of unusual seismic activity, complete equipment safe shutdown is required.
- 5- The loads by wind and seismic shall be according to ASCE 7 (Edition 2010) as per following parameters:

Wind speed: 125 Km/hr
Occupancy Category, Type III (I=1.25)
SITE Class= C
Sds=1.32
Sd1=0.46
Ss=1.98
S1=0.53

8.1.2. Package arrangement

The arrangement of the package components shall be jointly developed between contractor and vendor, and shall provide reasonable access for operation and maintenance.

8.1.3. Base-frame and base- plates

Base-frame and base- plates shall have sufficient strength for transportation lifting without any permanent base-frame deformation, and to transmit equipment generated forces and moments to the purchaser's foundation

Base plate support shall be supplied with the necessary sub- plates, shims and levelling jack to allow satisfactory levelling.

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8.1.4. Insulation, weather proofing

The vendor shall furnish recommendations for all lagging and cladding and insulation necessary for personnel protection or any other required insulation, and to satisfy requirements imposed by the area electrical classification.

Asbestos insulating materials are prohibited.

All exposed surfaces liable to human contact from operating floors, platforms and ladders during normal operation or maintenance whilst the machine is in operation shall be insulated to maintain a surface temperature not exceeding 65°C.

8.1.5. High Pressure Air Compressor

The complete compressor train will operate intermittently at operating conditions specified in the data sheets. Design of inter stage equipment including separators and coolers is the responsibility of the vendor. The equipment must be checked against all operating points. Water coolers should have cooling water on the tube side.

8.1.6. Piping requirements

All requirements as stated in this paragraph shall apply to all equipment and accessories within the prime and sub-vendor's scope of supply. This paragraph supplements relevant section of applicable API standards.

All equipment piping systems shall have valved high point vents, and low point drains.

All drains and vents which are interfaces between the vendor and purchaser shall be routed to edge of base- frame/ base- plate, and shall be valved, terminated by a flange and blinded as required by contractor during detail engineering.

The vendor will review Contractor's drawings for implementation of Vendor's requirements.

All piping inside the package is in Vendor scope of supply.

The Vendor shall be responsible for the production and / or assistance to Contractor in the production of detailed isometrics and bill of materials as well as for the supply of all interconnecting piping based on a routing agreed with Contractor.

All piping material (inside package) shall be selected based on project PMS and any deviation shall be submitted by vendor.

All tie-ins load and displacement shall be submitted by vendor.

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8.1.7. Noise

The maximum sound pressure level applicable to the machines is limited to 85 dBA at 1m.

The vendor shall recommend any measure necessary to reach this limit.

The calculated sound pressure level shall not exceed the stated limit (of 85 dBA) .

Acoustic hood, if required to meet the sound pressure level limit shall be supplied by the vendor.

Completed noise data- sheets with noise spectrum and guaranteed sound pressure levels shall be provided by the vendor as part of vendor’s documentation to be submitted after order.

8.2 Installation

The High Pressure Air Compressor package shall be installed in the open air, in a marine, desert and industrial environment.

We prefer to have the complete train in the form of self contained packaged unit (s), ready for bolting down on prepared foundations with a minimum of field construction and field purchased equipment.

Type of OGF grout shall be specified from N278-000-ST-JSC-1700-002.

8.3 Instrumentation and controls <2>

Type “B” has been considered for control of High Pressure Air Compressor package. Type “B” state that Packaged unit fully remotely controlled (monitoring and control functions) through hardwired signals by the DCS, ESD and F&G systems. There is no supplied control cabinet for these packages. more detail please refer to job specification for control and instrumentation of package document No. N278-000-CI-JSD-1500-004

a) Field instruments

The vendor has to provide the respective field instrumentation that is required to ensure a safe and highly reliable operation of the unit. All instruments, located inside package and loose items, shall be wired until package junction boxes.

8.4 Electrical requirements

All electrical components and installations shall be suitable for the specified area classification and grouping to be prepared separately and shall comply with the requirements of Project specification.

High Pressure Air Compressor Package has been located in safe area.

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9 SPARE PARTS AND SPECIAL TOOLS

9.1 Spare parts

The vendor shall supply the capital spare parts and spare for pre-commissioning and commissioning as part of the main scope of supply.

All spare parts shall have protective coatings applied and shall be uniquely packed and tagged.

The vendor shall be fully responsible for all claims attributable to unsuitable or unsatisfactory packing/protection. Spare parts shall be separately crated and shipped.

9.1.1. Commissioning and start up spare parts

Vendor shall supply spare parts for erection, commissioning and start up based on his experience.

9.1.2. Two year operational spare parts

Vendor shall provide list of two years spare parts based on his best practice for whole package and quote as optional during bid stage.

9.2 Special tools

The vendor shall supply all special tools required for installation, commissioning and maintenance of the High Pressure Air Compressor Package. The vendor shall supplement this list with comprehensive identification and "application" sketches.

10 GUARANTEE

Vendor shall guarantee all materials and equipments are in his scope of work/ supply. Performance of package shall be guaranteed by vendor as per following guaranteed parameters. Vendor shall unconditionally guarantee the materials and workmanship on all material and/or services. If, within the guarantee period any defects occur which are due to faulty material and or all services included in his scope (design, manufacturing, inspection, testing, supply & etc.), the Vendor at his expense, shall repair or adjust the condition, or replace the material and/or services to the complete satisfaction of the client's representative. These repairs, replacement or adjustments shall be made only at such time as will be least detrimental to the operation of the client's business.



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Integrated Methanol and Ammonia Plant
3000 MTPD MeOH / 900 MTPD NH3 PROJECT**



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The guarantee period shall be twelve (12) months from start-up; maximum Eighteen (18) months from delivery date.

11 INSPECTION AND TEST PLAN

11.1 DEFINITION OF PURCHASER' S INVOLVEMENT

The nature of Purchaser's involvement is indicated against each fabrication and / or repair, control and testing activity by means of the letters H, W, R and M, the meaning of which is the following:

H : (Hold) Point

The Supplier shall not carry out:

Any fabrication and/or repair work, or any shipment without having received Purchaser's comments,
Any controls and tests without Purchaser's attendance,

Purchaser's attendance is mandatory. The Supplier must notify Purchaser by email, of the inspection activity involved at least fifteen (15) days in advance.

The Supplier shall not depart from this rule, unless specifically approved by Purchaser in writing.

W: (Witness)

Purchaser's witnessing is not mandatory, but optional. The Supplier must notify Purchaser of the dedicated inspection activity at least fifteen (15) days in advance.

If Purchaser does not elect to be present, the Supplier may proceed with his own inspection, provided controls and tests records are made available to Purchaser for review.

R: (Review) - Review of Documents

The supplier has either to submit to Purchaser for comments the documents required prior to the performance of the dedicated activity or to transmit or make available for the review of Purchaser the results of the controls and tests conducted, as the case may be.

M: (MONITORING)

Purchaser's witnessing is not mandatory, but optional. No notification is required. Purchaser may witness the activity during monitoring or quality control management visits.

If Purchaser do not elect to be present, the Supplier may proceed with his own inspection, provided controls and tests records are made available to Purchaser for review.

11.2 SUPPLIER'S QUALITY CONTROL PLAN (SQCP) *

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The Supplier must issue a Detail Quality Control Plan for each equipment.

The Supplier's Quality Control Plan is a document which defines in a chronological manner the list of the operations of fabrication, controls and tests in accordance with his own "know-how" and with the requirements specified in Purchaser's requisition.

Following information shall be clearly specified against each operation:

- Reference documents (drawings, procedures, etc...)
- Acceptance criteria (code, etc ...)
- Recording documents for controls and tests
- Involvement of the Quality Control Department of the Supplier and/or his sub-supplier.

This SQCP will have to include all Purchaser inspection activities defined in Purchaser inspection plan as well as all inspection activities scheduled by the Independent Inspection Authority and/or the client.

The Supplier SQCP will have to be submitted compulsorily to Purchaser for comments before the pre-inspection meeting is held.

11.3 INSPECTION RELEASE CERTIFICATE

This document issued by Purchaser / Owner inspector, permits the Vendor to proceed with the packing and to notify the shipment

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11.4 INSPECTION TEST PLAN (ITP)

RECIPROCATING COMPRESSORS <2>				
Inspection Stages		Applicable documents	PURCH	CLIENT
Before Manufacturing	Supplier's Detail Quality Control Plan	MR	R	R
	Pre-Inspection Meeting (PIM)	Applicable specification and data sheets	H	H
	Material Certificates for pressure retaining parts	EN10204 3.1, relevant material standards	R	R
	Packing and marking procedure	Project specification	R	R
	Surface preparation and Painting Procedure	Project specification	R	R
	Welding Procedures and qualification record (WPS/PQR)	Project Specification and Applicable Code	R	R
	Welder Qualifications	Applicable Code	R	R
	NDT / welding map	Applicable Code and Drawings	R	R
	NDT Procedures	Applicable Code	R	R
	Casting repair procedure (Minor defects)	Approved procedure	R	R
	Review of Sub-orders	MR	R	R
	Non-Destructive Testing Personnel Qualifications	Approved procedure	R	R
	Inspection and Test Procedures	Project Specification and data sheets	R	R
During Manufacturing	Materials inspection (casing, impellers, rotor, discharge scroll, bolts and nuts)	Applicable Code	W	W
	Impact test	Applicable Code	M	R
	Marking / Traceability		R	R
	Repair procedure for major defects	Approved procedure	R	R
	Execution of Major Repairs	Approved procedure	H	H
	Heat Treatment Execution	Approved procedure	W	M
	Hydrostatic Test of cylinder	Approved procedure	W	W
	Pneumatic Test of cylinder	Approved procedure	W	W
	Manufacture Standard Shop test	Approved procedure	M	M
	Lube oil system functional test as part of complete package FAT	Approved procedure	W	W
Electric motors inspection and tests	Refer to ITP for electric motors			
Electric motors (performance test certificates)	MR	R	R	

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RECIPROCATING COMPRESSORS <2>

Inspection Stages		Applicable documents	PURCH	CLIENT
	Instruments and control inspection and tests	Refer to ITP for Instruments and control		
	Visual and dimensional inspection at assembled condition	Approved procedure and drawings	W	W
	Surface preparation prior to painting , lining	Approved procedure and drawings	W	M
	Cleanliness Prior to Assembly	MR	W	M
	Sub Suppliers Surveillance (when deemed necessary)	MR	R	R
Controls and Final Tests	Mechanical Running tests	Approved procedure	H	W
	Performance Test	data sheet and approved procedure	H	W
	Sound Level Test	data sheet	W	W
	Aux. Items check (lube oil unit, seal; spare parts, glands, cables, piping, special tools, etc)	Approved drawings	W	W
	Painting Check	Approved procedure and drawings	W	M
	Name Plate, Tagging, Marking	Approved drawings	W	W
	Final Visual and dimensional Inspection	Approved procedure and drawings	W	W
	Packing and marking check	Approved procedure and drawings	H	H
	Conformity of Complete Unit	MR and approved drawings	H	H
	Documentation review prior to release	Project specifications	R	R
Documents	Manufacturing Data Book	As per MR & other relevant code and standard	R	R
	Non conformity / repairs	As per MR & other relevant code and standard	H	H
	Deviation / concession request	As per MR & other relevant code and standard	H	H
	Inspection release Note		-	H



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ELECTRIC MOTOR <2>

	Inspection Stages	Applicable documents	PURCH	CLIENT
Controls and Final Tests	MANUFACTURER TYPE AND ROUTINE TEST	I.E.C.	R	R

ELECTRIC MOTOR

	Inspection Stages	Applicable documents	PURCH	CLIENT
Documents	Manufacturing Data Book		R	W

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SHELL & TUBE HEAT EXCHANGERS <2>

Inspection Stages		Applicable Documents	PURCH	CLIENT
Before Manufacturing	Supplier's Quality Control Plan	MR	R	R
	Pre-Inspection Meeting (PIM)	Applicable specification and data sheets	H	H
	Material Certificates for pressure retaining parts	EN10204 3.1, relevant material standards	R	R
	Check that the materials conform to P.O. spec. and drawing, including: Type, Thickness, Schedule, Rating and Finish, Etc...	Specifications and Drawings	W	W
	Verification of Mill Certificates for pressure retaining parts	MR and Drawings	R	R
	Pressure Test Procedure	Project Specification and Applicable Code	R	R
	Painting Procedure	Project specification	R	R
	Heat treatment procedure including PFHT	Project Specification and Applicable Code	R	R
	Welding Procedures and Qualification Record WPS/PQR	Project Specification and Applicable Code	R	R
	NDT / welding map	Applicable Code and Drawings	R	R
	Welder Qualifications	Applicable Code	R	R
	NDT Procedures	Project Specification and Applicable Code	R	R
	Review of Sub-orders	MR	R	R
	Non-Destructive Testing Personal Qualifications	Applicable Code	R	R
During Manufacturing	Inspection on raw materials	Applicable Code and Drawings	R	R
	Marking / Traceability		R	R
	Confirmation of mark transfer before welding	Approved Drawings	R	R
	Fit-up and alignment check before welding	Approved Drawings and WPS	R	R
	Forming, rolling, tacking, fit up shell to shell/ heads/Girth flanges/Tube sheets	Approved procedure and Drawings	R	R
	Nozzles marking on shells, channels	Approved Drawings	R	R
	Cutting, markup, and welding of nozzles	Approved Drawings	R	R
	First of a kind welding activities (FOAK) ⁽¹⁾	Approved Drawings, WPS & PQR	R	R
	Welding monitoring (WPS variable)	Approved procedure	R	R
	Visual and dimensional check of tube/tube sheets/baffles/tie rods/girth flanges	Approved Drawings	R	R
	Visual and dimensional check of tube hole grooves	Approved Drawings	R	R
Welding or expanding of tubes to tube sheet	Approved Drawings	R	R	

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SHELL & TUBE HEAT EXCHANGERS <2>

Inspection Stages		Applicable Documents	PURCH	CLIENT
	Visual and dimensional control of tube bundle before insertion into the shell	Approved Drawings	R	R
	Insertion of tube bundle	Approved Drawings	R	R
	Execution of Major Repairs	Approved procedure	R	R
	Production test plates / welding / removal and tests	Approved Drawings / applicable code	R	R
	First of a kind NDT (FOAK) ⁽¹⁾	Approved procedure	R	R
	NDT as per NDT map	Approved procedure and NDT Map	R	R
	Visual and dimensional inspection of all external attachments	Approved drawings	R	R
	Post weld heat treatment (PWHT)	Approved procedure	R	R
Controls and Final Tests	Final visual and Dimensional check (internal and external)	approved drawings	W	W
	Hydrostatic Test (both shell and tube sides)	Approved procedure	R	R
	Check of cleanliness after pressure test	Approved procedure	R	R
	Surface preparation prior to painting	Approved procedure	R	R
	Painting Check	Approved procedure	W	W
	Name Plate, Tagging, Marking	Approved drawings	W	W
	Packing and marking check	Approved procedure and drawings	H	H
	Conformity of Complete Unit	MR and approved drawings	H	H
	Documentation review prior to release	Project specifications	R	R
Documents	Manufacturing Data Book	As per MR & other relevant code and standard	R	R
	Non conformity / repairs	As per MR & other relevant code and standard	H	H
	Deviation / concession request	As per MR & other relevant code and standard	H	H
	Inspection release Note		-	H

Note-1: First of a kind activity means the first activity in NDT, Welding ... requiring inspection.

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Pressure Vessels <2>

Inspection Stages		Applicable Documents	PURCH	CLIENT
Before Manufacturing	Supplier's Quality Control Plan	MR	R	R
	Pre-Inspection Meeting (PIM)	Applicable specification and data sheets	H	H
	Material Certificates for pressure retaining parts	EN10204 3.1, relevant material standards	R	R
	Check that the materials conform to P.O. spec. and drawing, including: Type, Thickness, Schedule, Rating and Finish, Etc...	Specifications and Drawings	W	W
	Verification of Mill Certificates for pressure retaining parts	MR and Drawings	R	R
	Pressure Test Procedure	Project Specification and Applicable Code	R	R
	Painting Procedure	Project specification	R	R
	Heat treatment procedure including PFHT	Project Specification and Applicable Code	R	R
	Welding Procedures and Qualification Record WPS/PQR	Project Specification and Applicable Code	R	R
	NDT / welding map	Applicable Code and Drawings	R	R
	Welder Qualifications	Applicable Code	R	R
	NDT Procedures	Project Specification and Applicable Code	R	R
	Review of Sub-orders	MR	R	R
	Non-Destructive Testing Personal Qualifications	Applicable Code	R	R
During Manufacturing	Inspection on raw materials	Applicable Code and Drawings	R	R
	Marking / Traceability		R	R
	Confirmation of mark transfer before welding	Approved Drawings	R	R
	Fit-up and alignment check before welding	Approved Drawings and WPS	R	R
	Forming, rolling, tacking, fit up shell to shell/ heads/Girth flanges/Tube sheets	Approved procedure and Drawings	R	R
	Nozzles marking on shells, channels	Approved Drawings	R	R
	Cutting, markup, and welding of nozzles	Approved Drawings	R	R
	First of a kind welding activities (FOAK) ⁽¹⁾	Approved Drawings, WPS & PQR	R	R
	Welding monitoring (WPS variable)	Approved procedure	R	R
	Execution of Major Repairs	Approved procedure	R	R
	NDT as per NDT map	Approved procedure and NDT Map	R	R
Visual and dimensional inspection of all external attachments	Approved drawings	R	R	

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Pressure Vessels <2>				
Inspection Stages		Applicable Documents	PURCH	CLIENT
	Post weld heat treatment (PWHT)	Approved procedure	R	R
Controls and Final Tests	Final visual and Dimensional check (internal and external)	approved drawings	W	W
	Hydrostatic Test (both shell and tube sides)	Approved procedure	R	R
	Check of cleanliness after pressure test	Approved procedure	R	R
	Surface preparation prior to painting	Approved procedure	R	R
	Painting Check	Approved procedure	W	W
	Name Plate, Tagging, Marking	Approved drawings	W	W
	Packing and marking check	Approved procedure and drawings	H	H
	Conformity of Complete Unit	MR and approved drawings	H	H
	Documentation review prior to release	Project specifications	R	R
Documents	Manufacturing Data Book	As per MR & other relevant code and standard	R	R
	Non conformity / repairs	As per MR & other relevant code and standard	H	H
	Deviation / concession request	As per MR & other relevant code and standard	H	H
	Inspection release Note		-	H

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LOCAL AND CONTROL PANEL, INSTRUMENT				
Inspection Stages		Applicable documents	PURCH	CLIENT
Before Manufacturing				
During Manufacturing				
Controls and Final Tests	<u>AFTER ASSEMBLY ON THE PACKAGE</u>			
	Conformity and visual inspection	As per owner requirement+(2)	W	W
	Dimensional examination	DWGs approved by Owner +(2)	W	W
	Calibrations	Supplier's procedures+(1)	R	R
	Accessories checks	As per owner requirement+(2)	W	W
Documents	Manufacturing Data Book		H	R

- (1) Owner Requisition Requirements and Listed Applicable Documents.
- (2) Completed by applicable Codes and Standards.



**LIDCO, Pars SEE Zone, Assaluyeh,
Integrated Methanol and Ammonia Plant
3000 MTPD MeOH / 900 MTPD NH3 PROJECT**



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12 DOCUMENT LIST

Document in accordance with requirement in project specification and document no. N278-000-ME-LST-0000-002 attached to this material requisition

Vendor shall supply the required documents in the number of copies (hard copies + electronic file) and within the time schedule as per Supplier Documentation Requirement Schedule for Rotary & Package Equipment No. N278-000-ME-LST-0000-002 and documents attached to material requisition

All Natives and PDF files including design calculation shall be delivered to Contractor whenever requested

At bid stage, Vendor is requested to carefully review the "Document list" content (documents, their delivery terms, etc.) and to promptly identify any conflicts with its requirements for immediate resolution with Contractor.

Failure to supply documents - even partial - shall cause the purchase order to be considered unfulfilled. All documents shall be certified by Vendor and shall show purchase order number as well as equipment marking and the number of the MR.

Contractor shall return drawings sent for review within the time defined in order. Contractor's comments do not relieve, in any case, Vendor from their responsibilities.

Revised parts of documents should be identified by vendor by highlighting the revised area with cloud mark for drawings or by written in Italic character and in light grey background for text documents. If the reviewed part is a cancelled item, it should be identified by a proper way as well.

Vendor will be responsible for all buyer/contractor mistakes due to wrong investigation in case of vendor deviation from this manner.

All information on drawing and all documents shall be in English.

Electronic files must to have the same name and version of paper .copy; the name of file is Contractor identification code. Electronic file with different name (for example Manufacturer identification or other) will be rejected.

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13 ATTACHMENTS

All documents listed in the below table are enclosed to this specification and they shall be intended as integral part of it:

LIST OF DOCUMENTS SUPPLIED & PRESENTED BY PURCHASER

NO.	DESCRIPTION	DOCUMENT NO.	REV.	REMARKS
I. SPECIFICATION				
A)Process				
	Design basis for off-site area	N278-002-PR-RP-0000-001	02	
B)Mechanic <2>				
1.	specification for equipment lubricant requirements	N278-000-ME-JSS-1000-002	02	
2.	supplier documentation requirement schedule for rotary & package equipment	N278-000-ME-LST-0000-002	02 <2>	
3.	utility consumption	N278-000-ME-CLN-0000-001	02	
4.	Noise data sheet	N278-000-ME-DS-6200-001	02	
5.	Allowable Nozzles Loads & Moments	N278-000-ME-JSD-0000-001	01 <2>	
C)Instrumentation				
1.	General specification for instrumentation	S-02822 J61021	1	
2.	General specification for instrument erection materials	S-02822 J61025	0	

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3.	Job Specification for control and instrumentation of packages	N278-000-CI-JSD-1500-004	04 <2>	
4.	Job Specification for Supply Instrument Cables	N278-000-CI-JSD-1500-005	02 <2>	
5.	Typical Installation & mounting Details	N278-000-CI-DWG-1500-007	03 <2>	
6.	Typical Hook-up Drawings for Instrumentation in Petrochemical Plants	S-02822 J61024	0	
7.	General specification for distributed control system	S-02822 J61127	0	
8.	General specification for emergency shutdown system	S-02822 J61181	0	
9.	Supply Specification for Control Valve	N278-000-CI-JSS-1541-001	02 <2>	
10.	Supply Specification for On-Off valve	N278-000-CI-JSS-1543-002	02 <2>	
11.	Supply Specification for Pressure Safety Relief valves	N278-000-CI-JSS-1545-004	02 <2>	
12.	Supply specification for cabinets and panels <2>	N278-000-CI-JSS-1520-001	02	
13.	Job Specification for Instrumentation Identification and Numbering <2>	N278-000-CI-JSD-1500-001	02	
14.	Supply Specification for Pressure Gauge <2>	N278-000-CI-JSS-1553-033	02	
15.	Supply Specification for Thermometer, Bimetal <2>	N278-000-CI-JSS-1554-038	02	
16.	Supply Specification for Temperature Transmitter with Thermocouple <2>	N278-000-CI-JSS-1554-036	02	
17.	Supply Specification for Pressure Transmitter <2>	N278-000-CI-JSS-1553-032	02	

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18.	Supply Specification for Level Gauge-Magnetic follower<2>	N278-000-CI-JSS-1552-031	02	
19.	Supply Specification for Level Gauge Glass-Transparent<2>	N278-000-CI-JSS-1552-030	02	
20.	Supply Specification for Diff. Press. Transmitter<2>	N278-000-CI-JSS-1553-034	02	
21.	Supply Specification for Level Transmitter, d/P<2>	N278-000-CI-JSS-1553-028	02	
22.	Supply Specification for Level Transmitter, Displacer Type<2>	N278-000-CI-JSS-1552-026	02	
23.	Supply Specification for Regulator<2>	N278-000-CI-JSS-1542-003	02	
24.	Supply Specification for Rotameter<2>	N278-000-CI-JSS-1547-022	02	
25.	Supply Specification for Restriction Orifice <2>	N278-000-CI-JSS-1546-019	02	

D)Electrical

1.	Electrical Design Criteria	N278-000-EL-JSD-1600-001	02	
2.	Job Specification for Design Electrical Installation In Packages	N278-000-EL-JSD-1600-004	02	
3.	Job Specification for Supply Electro motors	N278-000-EL-JSS-1691-001	02	
4.	Typical Installation Detail Drawing- Electrical Heat Tracing System	N278-000-EL-STD-1682-001	03 <2>	
5.	Typical LV Motor Data Sheet <2>	N278-000-EL-DS-1691-001	02	

E)Safety

1.	job specification for general equipment noise	N278-000-HS-JSD-6200-002	02 <2>	
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2.	job specification for design fire protection-personnel protection	N278-000-HS-JSD-1900-001	01	
3.	Job Specification For Design Hazardous Area Classification	N278-000-HS-JSD-1900-002	01	
4.	Job specification for design environment	N278-000-HS-JSD-6200-001	02 <2>	
5.	JOB SPECIFICATION FOR PASSIVE FIRE PROTECTION <2>	N278-000-HS-JSD-1740-001	01	

F)Civil and Structure

1.	General Design Criteria For Foundations And Structures	N278-000-ST-JSD-1700-001	02	
2.	Job And Material Specification For Supply And Construction Grouting	N278-000-ST-JSC-1700-002	02	

G)Piping

1.	piping material specification(PMS)	N278-000-PI-JSD-1300-001	02 <2>	
2.	specification for piping stress analysis	N278-000-PI-JSD-1300-003	02	
3.	specification for pipe support	N278-000-PI-JSD-1300-004	02	
4.	specification for painting	N278-000-PI-JSD-2300-005	05 <2>	
5.	specification for insulation	N278-000-PI-JSD-2200-006	05 <2>	
6.	specification for piping system pressure testing	N278-000-PI-JSS-1300-008	02	
7.	specification for welding & NDE of piping system	N278-000-PI-JSS-1300-009	02	

II. Process Flow Diagram (PFD)

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1.	PFD for instrument air system	N278-002-PR-PFD-0000-020	01	
III. Piping and instrument diagrams (PID)				
1.	Symbology and Legend <2>	N278-000-PR-PID-0000-001	03	
2.	Symbology and Legend <2>	N278-000-PR-PID-0000-002	03	
3.	Symbology and Legend Identification <2>	N278-000-PR-PID-0000-003	03	
4.	Symbology and Legend <2>	N278-000-PR-PID-0000-004	03	
5.	Symbology and Legend <2>	N278-000-PR-PID-0000-005	03	
6.	PID for instrument air system	N278-002-PR-PID-0000-020	06 <2>	
IV. DATA SHEETS				
1.	Process Specification for HIGH PRESSURE AIR COMPRESSOR PACKAGE K 020	N278-002-PR-DS-4100-020	02	
2.	Mechanical Data Sheet for High Pressure Air Compressor package K-020	N278-002-ME-DS-1020-001	02 <2>	
V. DRAWINGS				
1.	Plot plan	N278-000-PI-DWG-1300-001	05 <2>	
VI. STANDARD DRAWINGS				
1.	construction standard for anchor bolts	N278-000-ST-JSC-1700-003	03 <2>	
2.	Steel Construction Standard	N278-000-ST-JSC-1800-002	05 <2>	

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3.	Name Plate Standard Drawings	N278-000-ME-STC-0000-001	01	
4.	Lifting/Tailing Lugs Standard Drawings	N278-000-ME-STC-0000-002	01	

VII. INSPECTION DOCUMENTS

1	Packing and Marking Procedure	N278-000-PQ-JSS-0000-003	01	
2	Logistics procedure	N278-000-PQ-PR-0000-003	01	
3	Filling of SPLIR form Procedure	N278-000-PQ-PR-0000-001	01	
4	Material and equipment Inspection Procedure <2>	N278-000-PQ-PR-0000-002	04	



Integrated Methanol and Ammonia Plant

VENDOR NAME	: Airpack Nederland B.V
EQUIPMENT DESCRIPTION	High Pressure Air Compressor
EQUIPMENT TAGNUMBER	K-020

SECTION C

FINAL TECHNICAL CLARIFICATIONS WITH PURCHASER

	Vendor doc. Number N-278-VD-6019-GN-MNL-0045-01	P.O. NO.: LIDCO-PO-NEC-278-6019
	Vendor: Airpack Nederland B.V.	

	LIDCO, Pars SEE Zone, Assaluyeh, Integrated Methanol and Ammonia Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT						
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The supply shall include all the items with all the appurtenances and accessories (internal and external) mentioned in this document, Job specifications and other documents attached to the MR and requested and/or necessary for testing, shipment, operation and maintenance.

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

7.1 The scope of supply shall include but not limited to following

Item	Description	Required by Purchaser	Proposed by Vendor	Remarks
1.	Compressor: <ul style="list-style-type: none"> ▪ Reciprocating Compressor ▪ Fix speed electric motor ▪ Coupling & Guard ▪ Flywheel ▪ Machine Auxiliaries ▪ Inlet and discharge pulsation damper for each cylinder ▪ Shell & tube after cooler ▪ All piping as required in material requestion 	(X)	<input checked="" type="checkbox"/>	
		(X)	<input checked="" type="checkbox"/>	
		(X)	<input checked="" type="checkbox"/>	
		(X)	<input checked="" type="checkbox"/>	belt drive as per offer
		(X)	<input checked="" type="checkbox"/>	
		(X)	<input checked="" type="checkbox"/>	
		(X)	<input checked="" type="checkbox"/>	
		(X)	<input checked="" type="checkbox"/>	Please refer to TCL.
2.	Oil console included <ul style="list-style-type: none"> ▪ Crank shaft driven main oil pump ▪ Stand-By oil pump ▪ Stand-By oil pump motor ▪ Dual oil filter with transfer valve ▪ Oil cooler 	(R)	()	Vendor to advise
		(R)	<input checked="" type="checkbox"/>	
		(R)	()	not possible
		(R)	()	not applicable
		(R)	()	not applicable



LIDCO, Pars SEE Zone, Assaluyeh,
Integrated Methanol and Ammonia Plant
3000 MTPD MeOH / 900 MTPD NH3 PROJECT



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With regard to PLC, please refer to E, 15 of TCL.
Airpack: Noted and confirmed
Nargan: Closed.

Item	Description	Re P		
	control panel(s) and control cubicle for the compressors train and load capacity control	(X)	X	
	pressure gauge	(X)	X	
	monitoring equipment to enable operator to Operate unattended continuously. This shall include all	(X)	X	
	local instrumentation and			
6.	Piping and supports between Various equipment, Oil console and equipment.	(R)	X	included within skid limits
7.	Thermal / noise insulation as necessary.	(R)	()	not required
8.	Special tools and equipment required for installation and commissioning of all equipment in scope of supply.	(X)	()	no special tools required
	compressor train and auxiliary equipment except stainless steel materials shall be painted as per project specification. Vendor shall provide details of his standard painting procedure.	(X)	X	with exception as per deviation list
10.	Commissioning and start-up spare part	(X)	X	
11.	Capital spare part	(R)	()	capital spares not recommended
12.	Two years spare parts	(S)	S	
13.	Oil charge for 1 (one) year of operation.	(X)	()	initial fill included

Please clarify about requirement of thermal insulation. After first stage, temperature is high. Please recheck the matter.
Airpack: Insulation is not required for process. We will add protective guard/mesh for personnel protection.
Nargan: Noted.

in case of any noise attenuation measures in vendor scope.,

Please consider this item as per MR.
Airpack: Noted, will be added in revised offer.
Nargan: Closed.

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Item	Description	Required by Purchaser	Proposed by Vendor	Remarks
14.	Suction strainer and spool piece	(X)	<input checked="" type="checkbox"/>	
15.	None return valve	()	<input checked="" type="checkbox"/>	
16.	Wiring of electrical devices to junction boxes	(X)	<input checked="" type="checkbox"/>	
17.	Utility single connection at the edge of skids		<input checked="" type="checkbox"/>	
18.	Safety Relief Valve:	(X)	<input checked="" type="checkbox"/>	
	• Inter stage	()	<input checked="" type="checkbox"/>	
	• Final stage	(X)	<input checked="" type="checkbox"/>	
19.	Set of consumable for site erection	(X)	<input checked="" type="checkbox"/>	
20.	Foundation bolts and nut with level screw	(X)	<input checked="" type="checkbox"/>	
21.	Two earthing bars	(X)	<input checked="" type="checkbox"/>	
22.	All required material, tools and instrument for preservation	(X)	<input checked="" type="checkbox"/>	
23.	Name plates	(X)	<input checked="" type="checkbox"/>	
24.	All requirement for safe and easy start up	(X)	<input checked="" type="checkbox"/>	

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7.2 Scope of work

Items	Description	Required by Purchaser	Proposed by Vendor	Remarks
1.	Engineering and Documentation as per Doc. No.N278-000-ME-LST-0000-002	(X)	<input checked="" type="checkbox"/>	with exceptions as per deviation list
2.	Manufacturing And Assembling	(X)	<input checked="" type="checkbox"/>	
3.	Final Machining Of Coupling Half (Driver End)	(X)	<input checked="" type="checkbox"/>	
4.	Inspection and testing at shop	(X)	<input checked="" type="checkbox"/>	As per Data Sheets and ITP
5.	Positive Material Identification (PMI) For high Alloy Steel Material	(X)	()	
6.	Removing Of Any Scale, Rust, Barb And Any Foreign Material	(X)	<input checked="" type="checkbox"/>	
7.	Surface Preparation At Shop	(X)	<input checked="" type="checkbox"/>	
8.	Wiring And Tubing To Junction Box Within Battery Limit(S)	(X)	<input checked="" type="checkbox"/>	
9.	Piping Within The Package (Interconnecting Piping)	(X)	<input checked="" type="checkbox"/>	
10.	Painting <ul style="list-style-type: none"> Prime Coats At Shop Finish Coats At Shop 	(X) (X)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	
11.	Packing <ul style="list-style-type: none"> Export Packing Rust Prevention For Long Term (12 Month) Seaworthy Export Marking / Packing 	(X) (X) (X)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> () <input checked="" type="checkbox"/>	
12.	Supervision For Installation (Per Diem)	(S)	<input checked="" type="checkbox"/>	
13.	Supervision For Erection, Commissioning And Start Up (Per Diem)	(S)	<input checked="" type="checkbox"/>	
14.	Shop And Field Training	(S)	<input checked="" type="checkbox"/>	



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Items		Required by Purchaser	Proposed by Vendor	Remarks
15.	Installation	()	()	
16.	Running test	(S)	(S)	
17.	Pulsation edition	(X)	()	not applicable
18.	Review Of Process Flow Diagram, Plot Plan And Foundation Drawing, Logic Diagram	(X)	(X)	
19.	Submission of information for foundation design	(X)	(X)	
20.	All Activities To Meet Requirements Of Specifications, Codes And Standards	(X)	(X)	
21.	Export Customs Clearance	(X)	(X)	
22.	To Obtain Any Export License Or Other Official Authorization For Exportation	(X)	(X)	
23.	Preparation For Shipment	(X)	(X)	
24.	Transportation To FOB Port of Export	(X)	(X)	
25.	Torsional analysis	(X)	()	refer deviation list
26.	Transportation to CFR Port (BANDAR ASALUYE -IRAN)	(S)	()	by others
27.	3D Modeling of equipment	(X)	(X)	

approach 1 in base offer.
approach 2 as an option.
Noted, will be reflected in revised offer.
Nargan:Noted.

7.3 Exclusions

(x) Civil works (Except basic information for civil works design) as:

- Soil survey of unit area
- Soil investigation report

to be added here:
Clips and supports for fireproofing

civil foundation works

- Grout

Please discuss the matter with procurement team in commercial offer.
Airpack: Noted
Nargan:closed.

Integrated Methanol and Ammonia Plant

VENDOR NAME	: Airpack Nederland B.V
EQUIPMENT DESCRIPTION	High Pressure Air Compressor
EQUIPMENT TAGNUMBER	K-020

SECTION D

ENGINEERING QUERIES N.A.

	Vendor doc. Number N-278-VD-6019-GN-MNL-0045-01	P.O. NO.: LIDCO-PO-NEC-278-6019
	Vendor: Airpack Nederland B.V.	

Integrated Methanol and Ammonia Plant

VENDOR NAME	: Airpack Nederland B.V
EQUIPMENT DESCRIPTION	High Pressure Air Compressor
EQUIPMENT TAGNUMBER	K-020

SECTION E

CONCESSION REQUEST

	Vendor doc. Number N-278-VD-6019-GN-MNL-0045-01	P.O. NO.: LIDCO-PO-NEC-278-6019
	Vendor: Airpack Nederland B.V.	

1-does compressor have crosshead? Please clarify. Please provide compressor with crosshead.

Please clearly give your deviation from API 618 & 614 .

Airpack 1-Jul-2021: Crosshead is included. API 618 is not applicable for single acting vertical piston design and can therefore not be followed. Lube oil system is integral part of compressor block, there is no separate system, lines or coolers and hence API 614 is not applicable in this case.

Nargan reply: As per 6.8.1.2 and 6.8.1.4 of API 618, single acting vertical pistons can also be API type. We assume that compressor considered by vendor is non-API type.

With regard to lube oil system, Please provide P&ID for further clarification.

Airpack 23-Aug-2021: Preliminary P&ID will be attached with revised offer. Oil system consist of oil pump (crankshaft driven and integral part of crankcase). Filters or coolers are not applicable as per OEM design.

Nargan: Noted.

Allowable nozzle loads shall be specified by vendor in technical offer. Airpack 1-Jul-2021: Confirmed, will be provided.

Nargan reply: Not received. to be provided in next revision

Airpack 23-Aug-2021: revised offer (incl. this information) will be shared once TCL items are closed.



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Please give your deviation from API 618 and API 614.

on requirement

Deviat

ards

These standards are not applicable for offered equipment due to following reasons:

Noted.

- a) API 618 is not applicable for single acting vertical piston compressors
- b) API 614 is not applicable for the same reason. Oil system is fully integrated inside compressor block.
- c) API 682 is not applicable, no centrifugal / rotary pump.
- d) API 671 is not applicable, compressor is V-belt driven.

Noted.

to advise)

Separate oil console not included. Lube oil system is integral part of compressor block as per OEM proprietary design.

Torsional analysis is not included. Normally not required for small utility air compressors (also consider the very low power rating).

Inspection and Testing of off preliminary ITP. Limited add request.

ITP shall be revised based on ITP section of MR and inspection section in datasheet. If vendor has deviation from mentioned items, Please mark the related ITP.

Documentation will be provided as requested. MR requirement shall be followed.

MR requirement shall be followed.

Listed documents are received and considered with exception of the following standards which were not received;

- N278-000-ME-JSD-0000-001
- N278-000-CI-DWG-1500-007

Cross-references to other documents not listed in this paragraph have not been received and/or considered.

Please include torsional analysis

Airpack 1-Jul-2021: Not recommended considering very small size/rating of offered configuration. It is technically possible but will have a high price impact while not adding any benefit. Please reconsider.

Nargan reply: Since considered compressor is belt drive, torsional analysis is not required.

Airpack 23-Aug-2021: Noted

Systems

Not applicable for

Please refer to item 1.

e.

Supplier Documentation Requirement Schedule (SDRS)

Refer attached c

Please refer to the commented file. Airpack 1-Jul-2021: Refer counter response in attached SDRS. Nargan: Please refer to attached replied SDRS

ables.

mitters head-mounted type.

Temperature transmitters will be remote mounted type due to space constraints on the compressor and easy maintenance access.

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Please clarify this deviation is related to which document. Please mention the document.

Airpack 1-Jul-2021: Instrument specification. Reference no. will be added in revised deviation list.

Nargan: Closed.

Clarification / Exception / Deviation List



Airpack reference: **17735-COM**

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Item	Clause	Specification requirement	Clarification / Exception / Deviation
10.	General	General specification for distributed control system (DCS) / General specification for emergency shutdown system (ESD)	DCS and ESD systems are not part of Airpack scope of supply, hence this specification is not considered
N278-000		For seismic and wind load Please follow section 8 of MR. Airpack 1-Jul-2021: Package is very small size and hence these loads are negligible. Will therefore not be considered.	
11.		Nargan reply:Please refer to 8.1.1 of MR which seismic and wind loads are specified. Regarding seismic/wind loads responsibility of package integrity and requirement of any calculations is by vendor. Airpack 23-Aug-2021: Considering the very small size of offered package, these loads are negligible and will therefore not be considered. We confirm package design is suitable to withstand such load cases.	of Airpack scope. Skid design will be as per compliant with AWS D1.1.
N278-000		Nargan:Noted.	
12.	General	JOB AND MATERIAL SPECIFICATION FOR SUPPLY AND CONSTRUCTION GROUTING	Grout considered Grouting is not in airpack scope. However, grout shall be selected based on this spec. Airpack 1-Jul-2021: Confirmed, Airpack will advise the type of grout to be used. Nargan reply:Closed.
		With considering this area(K-020) has been considered as fire potential zone all fireproofing requirement shall be considered for equipment support, structures, according to JOB SPECIFICATION FOR PASSIVE FIRE PROTECTION [N-278-000-HS-JSD-1740-00. Fireproofing of valves actuators, junction boxes and associated cable trays shall be in vendor scope.(the valve body shall be fire safe) Airpack 1-Jul-2021: Fire proofing/protection is not part of Airpack scope. To be arranged locally at site (by others). Nargan reply:Please refer to G.3 of TCL. Airpack 23-Aug-2021: Refer TCL response. Nargan reply:item G3 Reviewed and condirmed, but inaddition to that "Fireproofing of valves actuators, junction boxes and associated cable trays shall be in vendor scope.(the valve body shall be fire safe)" Airpack 30-Sep-2021: Refer TCL response. Nargan reply:Please refer to G.3 of TCL.vendor shall clarify.	Fire safe design is not included. This is not required for the small (<1") valves included in offered package, considering the service is Instrument Air only.
			Please refer to TCL piping section and mention this item I6 of piping. Airpack 1-Jul-2021: Refer TCL response.
			3. Pipe stress analysis diameter (<1") and short (less than 100mm)
			Noted. However, when in pulsation study purchaser isometric reviewed by vendor, this spec shall be followed for supports on purchaser piping. In case of any special support required by vendor, detail drawing shall be submitted Airpack 1-Jul-2021: Not applicable for pipe supports within offered package. Will be considered for Purchaser pipe supports. Nargan reply:Our comment was related to purchaser piping. So it is assumed that vendor has agreed that in pulsation study, isometric drawing of purchaser piping will be reviewed by vendor and vendor puts comment on iso. drawing of purchaser and this spec will be followed for supports on purchaser piping. In case of any special support required by vendor, detail drawing will be submitted by vendor.
			back standard
			Please refer to comment in piping section of TCL.
			ent.
N278-000-PI-JSS-1300-009-Rev02			
17.	General	Welding of pipe	Approach 2 is requested in purchaser datasheet. Vendor shall put comments on Isometric drawings of purchaser. In case of any special support required by vendor, detail drawing shall be submitted Airpack 1-Jul-2021: Approach 2 analysis/calculation is to be outsourced and will have a very high price impact. Considering the very small package size/flowrate and low operating pressure, we highly recommend to perform Approach 1 for pulsation damper sizing. Kindly reconsider. Nargan reply: Please consider approach 1 in base offer and approach 2 as an option. (we require approach 2 as an optional choice) Airpack 23-Aug-2021: External piping is not considered in pulsation study. Also refer item 18 below. Nargan:In approach 2 option, it shall be considered. (along with all items mentioned above) Airpack: Confirmed, will be considered in optional price for approach 2. Nargan:Closed.
N278-002-ME-DS-1020-001-Rev1			ures. These Noted.
18.	Sheet 6, row 18	ACOUSTICAL	very small. sufficient for piping spools are

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Clarification / Exception / Deviation List

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Item	Clause	Specification requirement		
19.	Sheet 7, row 23	Barring device and Hydraulic tensioning tools.		Not available due to space constraints. Can be manually turned by hand.
20.	General	Instrumentation requirements	& inter-cooler	Instrumentation included, cooler will be shown in PID.
21.	Sheet 20	ASME VIII DIV. 1 , TEMA-C for aftercooler		Design code will be shown in PID.
Approved Vendor Lists				
22.	General	Approved Vendor Lists received with MR.		Which code will be considered for strength calculation?

Please provide manual barring device.
 Airpack 1-Jul-2021: Technically not possible. Compressor block is too small and there is no provision available as per OEM proprietary design.
 Nargan reply: The matter is same for all bidders and in order to equalize the quotations, Airpack shall also consider this item.
 Airpack 23-Aug-2021: Offered compressor model is extremely small and flywheel can be easily turned manually. There is no provision for installing a barring device due to space constraint.
 Nargan:Noted.

Please provide vibration sensor on crankcase connected to compressor PLC.
 Airpack 1-Jul-2021: Single vibration sensor can be installed on compressor block. Will be added in revised offer. This sensor will be connected to package PLC.
 Nargan reply: Please display in P&ID.
 Airpack 23-Aug-2021: Confirmed, will be shown in PID
 Nargan:Noted.

AsME sec VIII. div.1 shall be followed. since shell and tube exchanger is considered, please follow TEMA C. (TEMA C type with deviation regarding to the size can be acceptable. So please specify the deviations)
 Airpack 1-Jul-2021: Size is <6" and is excluded from ASME VIII div.1 code requirements (refer ASME VIII div.1 selection criteria). We confirm that design will be based on TEMA C.
 Nargan reply:
 Please specify the design code. (It means we want to know by which code thickness & ... will be calculated)
 In other words, which code will be considered for strength calculation?
 Airpack 23-Aug-2021: We confirm that ASME VIII div.1 will used for design basis, however other code requirements will not be applied because of its very small size.
 Nargan:Noted.

AVL of the project shall be followed and please note sub-vendor list is subject to client approval.
 Airpack 1-Jul-2021: Considering the very small sizes and quantities of components used in offered package it is not feasible to source all from project AVL. Airpack sub-vendor list will be followed. Exception can be made for electric motor, PLC or Instrumentation (transmitters/gauges). Please review Airpack sub-vendor list and make specific comments on these items, if required, for our consideration.
 Nargan reply: Please be informed that sub-vendors from China, Mexico, Korea, Taiwan and India are **Not acceptable**. **Please specify country of origin in sub-vendor list and re-submit. After that we will submit sub-vendor list to client for their comment. Subvendor list is subject to client approval.**
 Airpack 23-Aug-2021: Sub-vendor list with country of origin will be attached with revised offer.
 Nargan:Pending to receive revised offer.

Clarification / Exception / Deviation List



Airpack reference: **17735-COM**

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Item	Clause	Specification requirement	Clarification / Exception / Deviation
N278-000-ME-MR-1020-001-01			
1.	4	Applicable codes and standards <ul style="list-style-type: none"> - API 618 - API 614 - API 682 - API 671 	<p style="color: red; font-weight: bold;">Please refer to the attached. All agreed items on deviation list before will still remain valid.</p>
2.	7.1.2	Oil console included (vendor to advise)	
3.	7.2.25	Torsional analysis	
4.	11.4	Inspection and Test Plan (ITP)	
5.	12	All Natives and PDF files including design calculation shall be delivered to Contractor whenever requested.	
6.	13	List of Documents Supplied & Presented by Purchaser.	
N278-000-ME-JSS-1061-001-02			
7.	General	Job Specification For Lube And Control Oil Systems (Amendment on API 614)	
N278-000-ME-LST-0000-002-01			
8.	3	Supplier Documentation Requirement Schedule (SDRS)	
9.	6	Temperature transmitters head-mounted type.	

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S-02822 J61127-Rev. 0 & S-02822 J61181-Rev. 0			
10.	General	General specification for distributed control system (DCS) / General specification for emergency shutdown system (ESD)	DCS a specif
N278-000-ST-JSD-1700-001-rev02			
11.	General	GENERAL DESIGN CRITERIA FOR FOUNDATIONS AND STRUCTURES	Found Airpac
N278-000-ST-JSC-1700-002-rev02			
12.	General	JOB AND MATERIAL SPECIFICATION FOR SUPPLY AND CONSTRUCTION GROUTING	Grouti consic
N278-000-PI-JSD-1300-001-Rev01			
13.	Class B24/D24	Fire safe design for valves.	Fire sa includ
N278-000-PI-JSD-1300-003-Rev02			
14.	General	Specification for piping stress analysis.	Piping is not length
N278-000-PI-JSD-1300-004-Rev02			
15.	General	Specification For Pipe Supports	Pipe s prover
N278-000-PI-JSD-2300-005			
16.	General	Specification For Painting.	Paintir in acc Final c
N278-000-PI-JSS-1300-009-Rev02			
17.	General	Welding of piping.	Weldir proced Sec. I)

Please refer to the attached. All agreed items on deviation list before will still remain valid.

Clarification / Exception / Deviation List



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N278-002-ME-DS-1020-001-Rev1			
18.	Sheet 6, row 18	ACOUSTICAL SIMUL. STUDY: Approach 2	F p v
19.	Sheet 7, row 23	Barring device and Hydraulic tensioning tools.	N t
20.	General	Instrumentation requirements	In ir ir
21.	Sheet 20	ASME VIII DIV. 1 , TEMA-C for aftercooler	D C
Approved Vendor Lists			
22.	General	Approved Vendor Lists received with MR.	A c H
N278-000-CI-JSD-1500-004-04			
23.	6.2.8	Area classification for instruments and junction boxes	Instruments and panels/junction boxes on offered equipment will be suitable for non-hazardous area in line with package area classification. Same is already discussed and agreed in TCL sheet.
N278-000-PI-JSD-2200-006			
24.	General	SPECIFICATION FOR INSULATION	Insulation is not required for offered equipment and therefore not included.

Please refer to the attached. All agreed items on deviation list before will still remain valid.