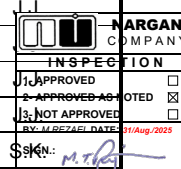


|                                                                                   |                                                                                                                             |             |                                                                                     |            |               |           |          |
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|   | <b>LIDCO, Pars SEE Zone, Assaluyeh,<br/>Integrated Methanol and Ammonia<br/>Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT</b> |             |  |            |               |           |          |
|                                                                                   | <b>Hydrotest procedure</b>                                                                                                  |             |                                                                                     |            |               |           |          |
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|                                                                                   | N278                                                                                                                        | VD          | 6019                                                                                | GN         | PRC           | 0018      | 06       |

**Airpack B.V. - Air Compressor –  
Integrated Methanol and Ammonia Plant  
17735-COM Hydrotest procedure (K020)**

|      |            |                     |       |         |          |
|------|------------|---------------------|-------|---------|----------|
| 06   | 20-08-2025 | Issued for Approval | S.K.  | K.P.    | J.J.     |
| 05   | 18-04-2024 | Issued for Approval | S.K.  | K.P.    |          |
| 04   | 18-12-2023 | Issued for Approval | S.K.  | K.P.    |          |
| 03   | 11-12-2023 | Issued for Approval | S.K.  | K.P.    |          |
| 02   | 06-11-2023 | Issued for Approval | S.K.  | K.P.    |          |
| 01   | 14-09-2023 | Issued for Approval | S.K.  | J.J.    |          |
| REV. | DATE       | DESCRIPTION         | DRAWN | CHECKED | APPROVED |



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|                                                                                   |                                                                                                                                                   |             |          |            |               |           |                                                                                     |                                   |
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|   | <p align="center"><b>LIDCO, Pars SEE Zone, Assaluyeh,<br/>Integrated Methanol and Ammonia<br/>Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT</b></p> |             |          |            |               |           |  |                                   |
|                                                                                   | <p align="center"><b>Hydrotest procedure</b></p>                                                                                                  |             |          |            |               |           |                                                                                     |                                   |
|                                                                                   | <p>Document No. 17735-17</p>                                                                                                                      |             |          |            |               |           |                                                                                     | <p align="center">Page</p>        |
|  | Project No.                                                                                                                                       | Vendor Doc. | P.O. No. | Department | Document Type | Serial No | Revision                                                                            | <p align="center">Page 2 of 6</p> |
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|--------------|----|----|----|----|----|--------------|----|----|----|----|----|--------------|----|----|----|----|----|--------------|----|----|----|----|----|
| 1            | X  | X  | X  | X  | X  | 26           |    |    |    |    |    | 51           |    |    |    |    |    | 76           |    |    |    |    |    |
| 2            | X  | X  | X  | X  | X  | 27           |    |    |    |    |    | 52           |    |    |    |    |    | 77           |    |    |    |    |    |
| 3            | X  | X  | X  | X  | X  | 28           |    |    |    |    |    | 53           |    |    |    |    |    | 78           |    |    |    |    |    |
| 4            | X  | X  | X  | X  | X  | 29           |    |    |    |    |    | 54           |    |    |    |    |    | 79           |    |    |    |    |    |
| 5            | X  | X  | X  | X  | X  | 30           |    |    |    |    |    | 55           |    |    |    |    |    | 80           |    |    |    |    |    |
| 6            | X  | X  | X  | X  | X  | 31           |    |    |    |    |    | 56           |    |    |    |    |    | 81           |    |    |    |    |    |
| 7            |    |    |    |    |    | 32           |    |    |    |    |    | 57           |    |    |    |    |    | 82           |    |    |    |    |    |
| 8            |    |    |    |    |    | 33           |    |    |    |    |    | 58           |    |    |    |    |    | 83           |    |    |    |    |    |
| 9            |    |    |    |    |    | 34           |    |    |    |    |    | 59           |    |    |    |    |    | 84           |    |    |    |    |    |
| 10           |    |    |    |    |    | 35           |    |    |    |    |    | 60           |    |    |    |    |    | 85           |    |    |    |    |    |
| 11           |    |    |    |    |    | 36           |    |    |    |    |    | 61           |    |    |    |    |    | 86           |    |    |    |    |    |
| 12           |    |    |    |    |    | 37           |    |    |    |    |    | 62           |    |    |    |    |    | 87           |    |    |    |    |    |
| 13           |    |    |    |    |    | 38           |    |    |    |    |    | 63           |    |    |    |    |    | 88           |    |    |    |    |    |
| 14           |    |    |    |    |    | 39           |    |    |    |    |    | 64           |    |    |    |    |    | 89           |    |    |    |    |    |
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| 17           |    |    |    |    |    | 42           |    |    |    |    |    | 67           |    |    |    |    |    | 92           |    |    |    |    |    |
| 18           |    |    |    |    |    | 43           |    |    |    |    |    | 68           |    |    |    |    |    | ATTACHMENT   |    |    |    |    |    |
| 19           |    |    |    |    |    | 44           |    |    |    |    |    | 69           |    |    |    |    |    | 1            |    |    |    |    |    |
| 20           |    |    |    |    |    | 45           |    |    |    |    |    | 70           |    |    |    |    |    | 2            |    |    |    |    |    |
| 21           |    |    |    |    |    | 46           |    |    |    |    |    | 71           |    |    |    |    |    | 3            |    |    |    |    |    |
| 22           |    |    |    |    |    | 47           |    |    |    |    |    | 72           |    |    |    |    |    | 4            |    |    |    |    |    |
| 23           |    |    |    |    |    | 48           |    |    |    |    |    | 73           |    |    |    |    |    | 5            |    |    |    |    |    |
| 24           |    |    |    |    |    | 49           |    |    |    |    |    | 74           |    |    |    |    |    | 6            |    |    |    |    |    |
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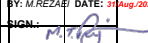
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2- APPROVED AS N

3- NOT APPROVED

BY: M.REZAEI DATE:

SIGN: 

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| BY: M. REZAEI DATE: 31 Aug 2023                                                             |                                     |
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|  | <b>LIDCO, Pars SEE Zone, Assaluyeh,<br/>Integrated Methanol and Ammonia<br/>Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT</b> |  |                  |                  |                      |                   |                |
|  | <b>HYDROTEST PROCEDURE</b>                                                                                                  |                                                                                     |                  |                  |                      |                   |                |
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|                                                                                   | Project No.<br>N278                                                                                                         | Vendor Doc.<br>VD                                                                   | P.O. No.<br>6019 | Department<br>GN | Document Type<br>PRC | Serial No<br>0018 | Revision<br>06 |

## Hydrostatic test

This procedure is applicable to all items subject to a hydrostatic test. Refer to project Inspection & Test Plan for the items subject to a hydrostatic test.

Following procedures will be maintained before and during testing:

- Before test, tested equipment will be inspected properly by the Airpack quality manager.
- Two calibrated pressure gauges will be installed on the highest and lowest position clearly readable.
- Test pressure will be between 50% and 75% of range of used pressure gauges (where possible)
- Used gauges are direct reading type and pressure should be stable during testing.
- Duration of test will be 1 hour as required per authorities code (ASME B31.3 for piping and ASME VIII latest edition for vessels)
- Prior to carrying out the hydrostatic test, weld of reinforcing pad will be leak tested (max 1 bar(g)) by air via tell tail hole and inspected with soap and water (if applicable).
- All oil, grease, dirt and foreign material will be removed.
- Start and end pressure will be recorded by hand during hydro test.

Below Items are tested separately, no complete hydrostatic test of package is done.

### Cooling water piping (carbon steel)

This test is executed by sup-supplier or Airpack. For hydrostatic tests a suitable positive displacement pump is available to supply a maximum pressure. Water will be of non-chloride type (max. 50 ppm - Cl<sub>2</sub>), temperature approximately 20°C. Tests are non-witnessed by client as per ITP.

Hydrostatic test pressure: 1.3x design pressure for the following items (as per P&ID drawing 17735-03)

- Piping cooling water inlet / inter- aftercooler : 9,1 bar(g)
- Piping inter- aftercooler / cooling water outlet : 9,1 bar(g)

|                                                                                             |                                     |
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| BY: M.REZAEI DATE: 31/Aug/2023                                                              |                                     |
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|  | <p align="center"><b>LIDCO, Pars SEE Zone, Assaluyeh,<br/>Integrated Methanol and Ammonia<br/>Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                       |               |           |          |        |  |  |      |             |             |          |            |               |           |          |  |      |    |      |    |     |      |    |        |
|  | <p align="center"><b>HYDROTEST PROCEDURE</b></p> <table border="1"> <tr> <td colspan="7" data-bbox="367 331 1360 359">Document No. 17735-17</td> <td data-bbox="1360 331 1502 359">Page</td> </tr> <tr> <td data-bbox="367 359 505 386">Project No.</td> <td data-bbox="505 359 631 386">Vendor Doc.</td> <td data-bbox="631 359 776 386">P.O. No.</td> <td data-bbox="776 359 933 386">Department</td> <td data-bbox="933 359 1078 386">Document Type</td> <td data-bbox="1078 359 1219 386">Serial No</td> <td data-bbox="1219 359 1360 386">Revision</td> <td data-bbox="1360 359 1502 386"></td> </tr> <tr> <td data-bbox="367 386 505 413">N278</td> <td data-bbox="505 386 631 413">VD</td> <td data-bbox="631 386 776 413">6019</td> <td data-bbox="776 386 933 413">GN</td> <td data-bbox="933 386 1078 413">PRC</td> <td data-bbox="1078 386 1219 413">0018</td> <td data-bbox="1219 386 1360 413">06</td> <td data-bbox="1360 386 1502 413">4 of 6</td> </tr> </table> |                                                                                     | Document No. 17735-17 |               |           |          |        |  |  | Page | Project No. | Vendor Doc. | P.O. No. | Department | Document Type | Serial No | Revision |  | N278 | VD | 6019 | GN | PRC | 0018 | 06 | 4 of 6 |
| Document No. 17735-17                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                     |                       |               |           |          | Page   |  |  |      |             |             |          |            |               |           |          |  |      |    |      |    |     |      |    |        |
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| N278                                                                              | VD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 6019                                                                                | GN                    | PRC           | 0018      | 06       | 4 of 6 |  |  |      |             |             |          |            |               |           |          |  |      |    |      |    |     |      |    |        |

#### Main Process Air Piping (SS316)

This test is executed by sup-supplier or Airpack. For hydrostatic tests a suitable positive displacement pump is available to supply a maximum pressure. Water will be of non-chloride type (max. 50 ppm - Cl<sub>2</sub>), temperature approximately 20°C. Tests are non-witnessed by client as per ITP.

Hydrostatic test pressure: 1.3x design pressure for the following items (as per P&ID drawing 17735-03)

- Piping Package inlet / 1<sup>st</sup> stage suction : 16,25 bar(g)
- Piping 1<sup>st</sup> stage discharge / 2<sup>nd</sup> stage suction : 39,65 bar(g)
- Piping 2<sup>nd</sup> stage discharge / package outlet : 50,7 bar(g)

See DWG No.  
N-278-VD-6019-  
ME-DWG-0024-01  
(17735-23A) Detail  
drawings for  
coolers.

#### Intercooler (SS316)

This test is executed by sup-supplier or Airpack. For hydrostatic tests a suitable positive displacement pump is available to supply a maximum pressure. Water will be of non-chloride type (max. 50 ppm - Cl<sub>2</sub>), temperature approximately 20°C. Tests are non-witnessed by client as per ITP.

**Minimum** hydrostatic test pressure: 1.3x **64.35 Bar G** for the following items (as per P&ID drawing 17735-03)

- Intercooler KE-020-001 shell (SS316) : 39,65 bar(g)
- Intercooler KE-020-001 Tubes (SS316) : 9,1 bar(g)
- Aftercooler KE-020-002 shell (SS316) : 50,7 bar(g)
- Aftercooler KE-020-002 Tubes (SS316) : 9,1 bar(g)

**15 Bar G**

#### Pulsation Dampeners (carbon steel)

This test is executed by sup-supplier or Airpack. For hydrostatic tests a suitable positive displacement pump is available to supply a maximum pressure. Water will be of non-chloride type (max. 50 ppm - Cl<sub>2</sub>), temperature approximately 20°C. Tests are non-witnessed by client as per ITP.

**Minimum** hydrostatic test pressure: 1.3x **50.3 BarG** for the following items (as per P&ID drawing 17735-03)

- Pulsation dampener KV-020-001 : 16,25 bar(g)
- Pulsation dampener KV-020-002 : 39,65 bar(g)
- Pulsation dampener KV-020-003 : 50,7 bar(g)
- Pulsation dampener KV-020-004 : 50,7 bar(g)

**24 BarG**

**53.2 BarG**

**73.3**

See DWG No.  
N-278-VD-6019-  
ME-DWG-0025-01  
(17735-23B) Detail  
Drawings for  
Pulsation Damper.

|                                                                                             |                                     |
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| INSPECTION                                                                                  |                                     |
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| 2- APPROVED AS NOTED                                                                        | <input checked="" type="checkbox"/> |
| 3- NOT APPROVED                                                                             | <input type="checkbox"/>            |
| BY: M.REZAEI DATE: 31/Aug/2023                                                              |                                     |
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|  | <b>LIDCO, Pars SEE Zone, Assaluyeh,<br/>Integrated Methanol and Ammonia<br/>Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT</b>                                                                                                                                                                                                |  |             |               |           |            |               |           |          |      |    |      |    |     |      |
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|  | <b>HYDROTEST PROCEDURE</b>                                                                                                                                                                                                                                                                                                 |                                                                                     |             |               |           |            |               |           |          |      |    |      |    |     |      |
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|                                                                                   | <table border="1"> <thead> <tr> <th>Project No.</th> <th>Vendor Doc.</th> <th>P.O. No.</th> <th>Department</th> <th>Document Type</th> <th>Serial No</th> <th>Revision</th> </tr> </thead> <tbody> <tr> <td>N278</td> <td>VD</td> <td>6019</td> <td>GN</td> <td>PRC</td> <td>0018</td> <td>06</td> </tr> </tbody> </table> |                                                                                     | Project No. | Vendor Doc.   | P.O. No.  | Department | Document Type | Serial No | Revision | N278 | VD | 6019 | GN | PRC | 0018 |
| Project No.                                                                       | Vendor Doc.                                                                                                                                                                                                                                                                                                                | P.O. No.                                                                            | Department  | Document Type | Serial No | Revision   |               |           |          |      |    |      |    |     |      |
| N278                                                                              | VD                                                                                                                                                                                                                                                                                                                         | 6019                                                                                | GN          | PRC           | 0018      | 06         |               |           |          |      |    |      |    |     |      |

### Compressor pressure parts

This test is executed by sup-supplier or Airpack. For hydrostatic test positive displacement pump is available to supply a maximum pressure of non-chloride type (max. 50 ppm - Cl<sub>2</sub>), temperature approx 100°C are non-witnessed by client as per ITP.

is 45.75 related to first stage and 58.5 related to second stage cylinder?  
The matter will be approved after specifying first stage MAWP in datasheet.

Hydrostatic test pressure will be 1.5x design pressure. (45,75 bar(g) / 58,5 bar(g)) and as per approved datasheet.

After test,

- Equipment must be free from any unexpected condition
- Equipment will be dried and cleaned appropriately. Stainless steel will be cleaned by pressurized air.
- Witnessed test report shall be issued by QA department.

Hydrostatic test will be done after completion of all welding and before any painting activities

|                                                                                             |                                     |
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| <b>INSPECTION</b>                                                                           |                                     |
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| 2- APPROVED AS NOTED                                                                        | <input checked="" type="checkbox"/> |
| 3- NOT APPROVED                                                                             | <input type="checkbox"/>            |
| BY: M.REZAEI DATE: 31/Aug/2023                                                              |                                     |
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|  | <p align="center"><b>LIDCO, Pars SEE Zone, Assaluyeh,<br/>Integrated Methanol and Ammonia<br/>Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT</b></p> |  |                            |                      |                  |                 |                                     |
|  | <p align="center"><b>HYDROTEST PROCEDURE</b></p>                                                                                                  |                                                                                     |                            |                      |                  |                 |                                     |
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| <p>N278</p>                                                                       | <p>VD</p>                                                                                                                                         | <p>6019</p>                                                                         | <p>GN</p>                  | <p>PRC</p>           | <p>0018</p>      | <p>06</p>       | <p align="center"><b>6 of 6</b></p> |

AIRPACK NEDERLAND B.V.  
GROENEWEEGJE 25  
4301 RN ZIERIKZEE  
THE NETHERLANDS

### HYDROSTATIC TEST CERTIFICATE

Customer :  
Purchase Order number :  
Equipment :  
Airpack reference :  
Serial number :  
Date :

We certify that the here under mentioned test data is true and correct.  
The test procedure is in accordance with ASME B31.3 & Hydrostatic Test Procedure doc  
number : 17735-17

Subject name :  
Subject number :  
Drawing no. :  
Test no. : 01 of 0X

### HYDROSTATIC TEST:

Fluid: :  
Test date :  
Constant during : 1 hour.  
Test pressure :

### RECORDED PRESSURES

Start pressure :  
End pressure :

Test pressure gauge number :

Remarks (If any) :

In presence of :

Airpack Approval:

Customer Approval:

|                                                                                             |                                     |
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|        |                                     |
| <b>INSPECTION</b>                                                                           |                                     |
| 1- APPROVED                                                                                 | <input type="checkbox"/>            |
| 2- APPROVED AS NOTED                                                                        | <input checked="" type="checkbox"/> |
| 3- NOT APPROVED                                                                             | <input type="checkbox"/>            |
| BY: M.REZAEI DATE: 31/Aug/2023                                                              |                                     |
| SIGN:  |                                     |