

Hydrotest procedure

Document No. 17735-17

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Hydrostatic Test Procedure for

REV.	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
01	14-09-2023	Issued for Approval	S.K.	J.J.	S.K.

NARGAN COMPANY	
INSPECTION	
1- APPROVED	<input type="checkbox"/>
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BY: <i>[Signature]</i> DATE: 14-09-2023	
SIGN: <i>[Signature]</i>	

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BY: M. BEZEL	DATE: 2023/05/02
SIGN: 	

Final checking of below design and test pressures will be done after issuance of drawings for below mentioned equipment by vendor.

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 at the highest and lowest position clearly readable.
- Test pressure will be between 50% and 100% of design pressure. Used pressure gauges (where possible) should be stable during testing.
- Used gauges are direct reading type.
- Duration of test will be 30 minutes (ASME VIII latest edition for vessels) or 1 hour (ASME B31.3 for piping and other codes).
- Duration as per ASME VIII, Div.1, shall be one hour as minimum.
- 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. 150 ppm - Cl₂), temperature approximately 20°C. Tests are non-witnessed by client as per ITP.

Hydrostatic test pressure: 1.5x design pressure for the following items (as per P&ID drawing 17735-03)

- Piping cooling water inlet / inter- aftercooler : 8,25 bar(g)
- Piping inter- aftercooler / cooling water outlet : 5,25 bar(g)

Design pressure of cooling water is 7 barg according to design basis

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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. 10 ppm - Cl₂), temperature approximately 20°C. Tests are non-witnessed by client as per ITP.

Vendor shall submit a sketch to demonstrate different stages of tests for shell and tube sides.

Hydrostatic test pressure: 1.5x design pressure for the following items (as per P&ID drawing 17735-03)

- Piping 1st stage suction / inlet : 18,75 bar(g)
- Piping 1st stage discharge / 2nd stage suction : 37,5 bar(g)
- Piping 2nd stage discharge : 51 bar(g)

Inter- Aftercooler

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. 200 ppm - Cl₂), temperature approximately 20°C. Tests are non-witnessed by client as per ITP.

Hydrostatic test pressure: 1.5x design pressure for the following items (as per P&ID drawing 17735-03)

- Intercooler E-001 shell (CS) : 37,5 bar(g)
- Intercooler E-001 Tubes (SS316) : 8,25 bar(g)
- Intercooler E-002 shell (CS) : 51 bar(g)
- Intercooler E-002 Tubes (SS316) : 8,25 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. 200 ppm - Cl₂), temperature approximately 20°C. Tests are non-witnessed by client as per ITP.

Hydrostatic test pressure: 1.5x design pressure for the following items (as per P&ID drawing 17735-03)

- Pulsation dampener V-001 : 18,75 bar(g)
- Pulsation dampener V-002 : 37,5 bar(g)
- Pulsation dampener V-003 : 37,5 bar(g)
- Pulsation dampener V-004 : 51 bar(g)

As per ASME Sec. VIII, Div.1, test pressure shall be 1.3 of design pressure.

this shall be checked and clarified by vendor. (for case of tube rupture what measure is considered?) this comment will be discussed in coolers datasheet/ drawing.

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Compressor pressure parts

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. 150 ppm - Cl₂), temperature approximately 20°C. Tests are non-witnessed by client as per ITP.

Hydrostatic test pressure will be 1.5x design pressure. (37,5 bar(g) / 51 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

If design pressure of every item changed, this doc shall be revised accordingly.

	
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BY: M. REZAEI DATE: 18 Sep. 2023	
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LIDCO, Pars SEE Zone, Assaluyeh,
Integrated Methanol and Ammonia
Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT



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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 : 30 min.
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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