

Potter Nitrogen Generator

Installation, Operation, & Service Manual



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Section 1 – Safety

Safety Guidelines

This manual contains safety information that is important to know and understand. This information is provided for the safety of installers, operators, and users of the Potter Nitrogen Generator as well as equipment. To help recognize this information, observe the following symbols.

DANGER

Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.

WARNING

Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.

CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.

NOTICE

Notice indicates important information, that if not followed may cause damage to equipment or property.

Important Notice to Users

The Installation and Owner's Manual supplied with each unit must be read thoroughly and completely understood before installation and operation of the Potter Nitrogen Generator. All appropriate safety standards for handling of gases as determined by local or national laws and regulations should be followed at all times.

Unpacking

After unpacking unit, carefully inspect all parts and equipment for any damage that may have occurred during transit. Make sure to tighten fittings, bolts, etc. before putting unit into service.

WARNING

Do not operate unit if damage occurred during shipping, handling, or use. Contact Potter immediately.

General Safety Information

Important: Read all of the safety information in this manual before operating this equipment. Use of the equipment in a manner not specified within this manual may impair the protection provided by the generator and could result in an unplanned release of pressure, which may cause serious injury or damage. Only competent personnel, who have been trained, qualified, and approved by Potter Electric Signal Company should perform commissioning, servicing, and repair procedures.

When handling, installing, or operating this equipment, personnel must employ safe engineering practices and observe all related local regulations, health, and safety procedures, and legal requirements for safety.

Ensure that the equipment is depressurized and electrically isolated, before carrying out any of the scheduled maintenance instructions specified in this manual.

The warnings in this manual cover the most known potential hazards, but by definition cannot be all-inclusive. If the user employs an operating procedure, item of equipment, or a method of working that is not specifically recommended by Potter Electric Signal Company, the user must ensure that the equipment will not be damaged or become hazardous to persons or property.

Nitrogen is not a poisonous gas. However, in a concentrated form, there is a risk of asphyxiation. The generator produces a flow of nitrogen and oxygen enriched air which quickly disperses in the atmosphere. However, do not directly inhale the output gas from the outlet pipe.

The generator is classified as non-hazardous for transportation purposes and as non-flammable for fire regulations. This equipment is for indoor use only. Do not operate outdoors.

 **WARNING**

Operation of the Nitrogen membrane separator above the rated design pressure may be hazardous. Do not connect it to compressed air sources that can exceed its maximum rated pressure without installing appropriate pressure controls and safety relief devices in the compressed air supply line.

Specific procedures must be developed for maintenance of the equipment on which the membrane separator is located. Appropriate labels must be continuously displayed in all areas where personnel might be exposed to a nitrogen atmosphere under normal or upset conditions.

NOTICE

Do not attempt to disassemble the Nitrogen membrane separator. Equipment damage may occur and cause the system to function incorrectly.

Section 2 – System Description

The Potter Nitrogen Generator operates using membrane technology. The smaller oxygen and water vapor molecules can pass through (permeate) the membrane quickly. The larger nitrogen molecules are less likely to diffuse through the separator tubes; therefore, they continue downstream to the separator outlet. The permeated molecules are discharged to the atmosphere through a vent in the separator casing.

The Potter Nitrogen Generator is specifically designed to provide clean, dry, pure nitrogen for use in fire protection sprinkler systems. The generator is a fully assembled package ready to be connected to a new or existing fire sprinkler system using either a factory pre-engineered air compressor or an existing air source capable of providing the required air flow and air quality for the installation. These turn-key systems include all air filtration equipment required to keep the generator operating at peak efficiency. All models come standard with pressure gauges and a nitrogen purity analyzer to monitor both the generator output and the piping purity level.

Figure 1. Typical Complete System Diagram

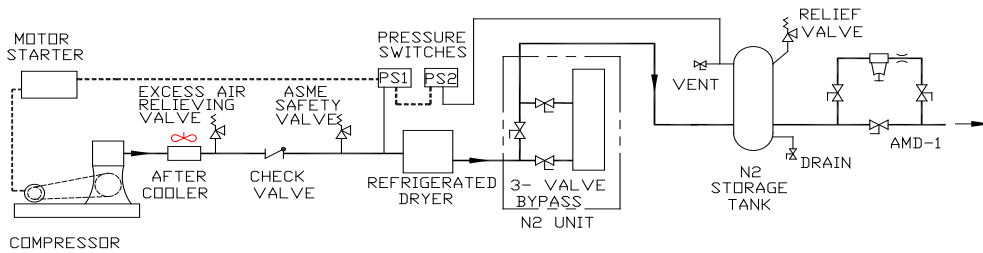
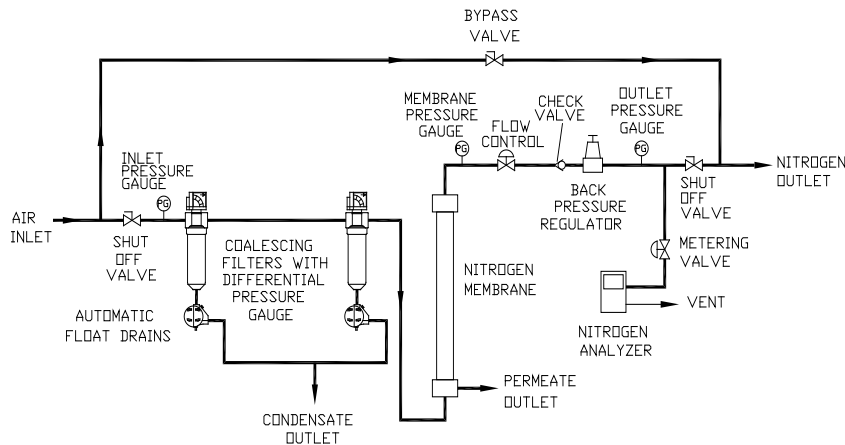


Figure 2. Typical N₂ Generator Unit Diagram



Section 3 – Installation Instructions

Initial Inspection (Arrival)

Check all packages and crates in shipment for damage. If damage is found, contact the carrier immediately and file a shipping damage claim with the carrier.

Make sure that all ordered parts were received. If there are any missing parts, please call the shipping carrier immediately.

If there are any questions concerning the shipment, please contact Potter Electric Signal at 800-325-3936.

Receiving

The compressor is inspected at the factory and packaged to protect against shipping damage. When the Potter Nitrogen Generator is unpacked, inspect it for damage or missing parts. Contact the shipping carrier to settle all claims.

⚠ WARNING

Do not operate the Potter Nitrogen Generator if damaged during shipment, handling, or use. Damage may result in bursting and cause injury or property damage.

Rigging & Moving

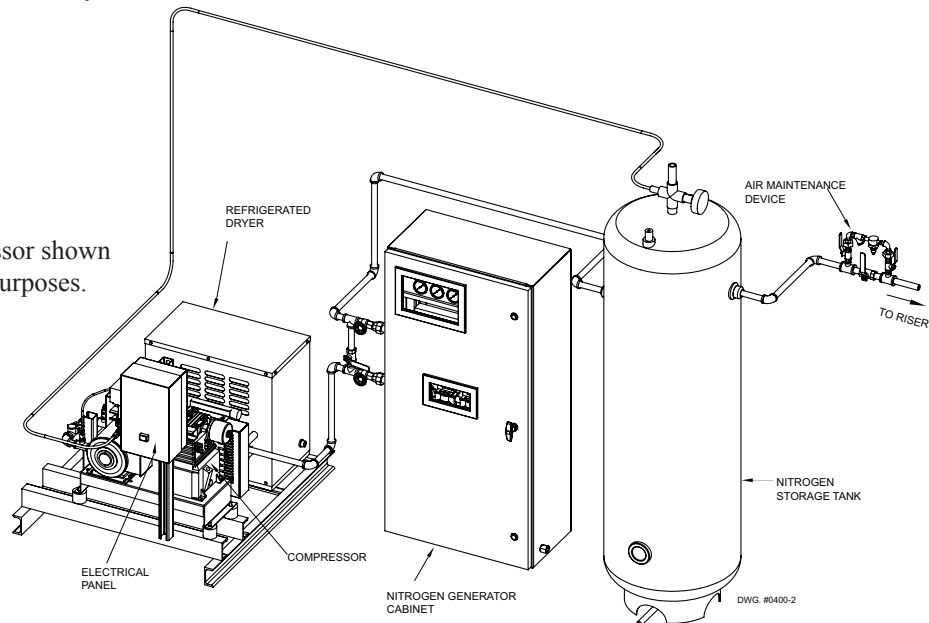
Only move the supplied equipment with the correct material handling equipment. Always follow safety guidelines when moving the equipment. Make sure they are secured correctly before moving.

Modular Nitrogen Generators

There are up to 3 items to be installed with each Potter Nitrogen Generator system. Determine the best location for each item and install each as shown on the system layout diagram.

Figure 3. Typical System Layout

Note: Dryer and compressor shown inverted for illustration purposes.



Air Compressor Package

Install the air compressor package on a level surface close to the nitrogen generator and nitrogen storage tank. The air compressor package includes a dryer. The exact location to the nitrogen generator and nitrogen storage tank isn't critical; however, electrical power is required for the air compressor package and could be a factor in determining the ideal location. A dedicated 115 volt, 15 amp electrical circuit is required for the air dryer. The air compressor package should be permanently installed following the General Air Products air compressor manual (provided).

NOTICE

Do not install the AIR COMPRESSOR PACKAGE in an area where ammonia, sulfur dioxide, hydrogen sulfide, mercaptans, chlorides, chlorine, oxides of nitrogen, acid fumes, solvent vapors, and ozone vapors or similar contaminants exist. The equipment can be damaged by ammonia and other vapors, shortening membrane life. Locate the air compressor package to make sure no vapors are drawn into the intake. Avoid locations such as a loading dock, where large amounts of exhaust fumes and smoke may enter the air intake.

Nitrogen Generator

Install the Potter Nitrogen Generator in a clean, dry location, with ambient temperatures above 50° F at all times. The generator unit should be leveled and anchored to the floor or wall with appropriate fasteners. If the location is below freezing at any time the generator unit must be enclosed in a separate, heated enclosure to keep the temperature above 50° F. The nitrogen generator must be accessible at the front for servicing all major components inside the cabinet.

Nitrogen Storage Tank

Bolt tank firmly to a level surface in a convenient location close to the fire sprinkler system connections. Support the piping to and from the tank independently.

NGP-SPV Self-Purging Valve Kit

Install a purge valve assembly kit on each system in a tee prior to the inspector test valve to aid in removal of oxygen during the purge process. The purge valve maintains system pressure during the purge process and prevents a system trip due to pressure loss. The air vent in the NGP-SPV automatically closes if water reaches the vent in the event of a alarm condition.

A plug is supplied to keep purge orifice free of debris when not in use. A ball valve allows isolation of assembly when not surging, to allow maintenance of strainer screen, replacement of air vent, or maintenance of purge orifice in the event it becomes clogged.

Installation for Modular System

NOTICE

Use back-up wrenches when making connections or piping damage may occur.
All piping connections must be independently supported and not impart stress on the components.

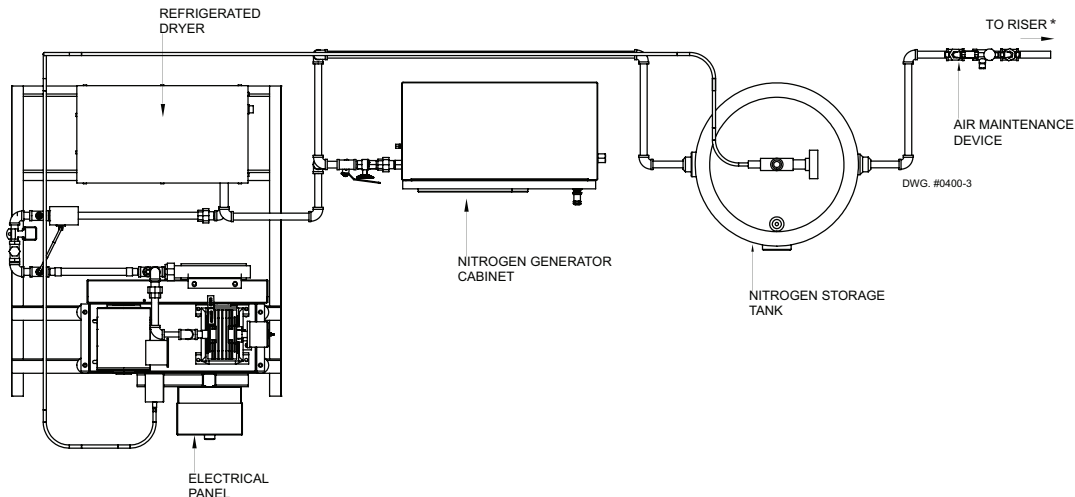
1. Install piping from the air compressor package air outlet to the nitrogen generator air inlet.
2. Install piping (½" minimum pipe) from the nitrogen generator outlet to the nitrogen storage tank
3. Install piping from the refrigerated air dryer and nitrogen generator condensate outlet connections to an appropriate drain location. Follow local regulations when disposing of condensate. (Some local regulations may require an oil/water separator.)
4. Install ¼" copper tubing (or equivalent) from the PS-2 pressure switch compression fitting located on the air compressor assembly to the nitrogen storage tank ¼" compression fitting.
5. Install ½" NPT pipe (or larger) from the nitrogen storage tank outlet connection to the sprinkler system air maintenance device using standard accepted installation practices. Use ½" NPT pipe or larger.
6. Install ½" NPT pipe (or larger) from the air maintenance device to the sprinkler system using standard accepted installation practices. *Additional system components may be required.*

CAUTION

Pipe the discharged air and water to a position where it will not be a hazard to personnel.

7. Install piping to the membrane permeate outlet if required by local jurisdiction, due to inadequate ventilation. Adequate or outdoor ventilation, may be required by local jurisdiction.

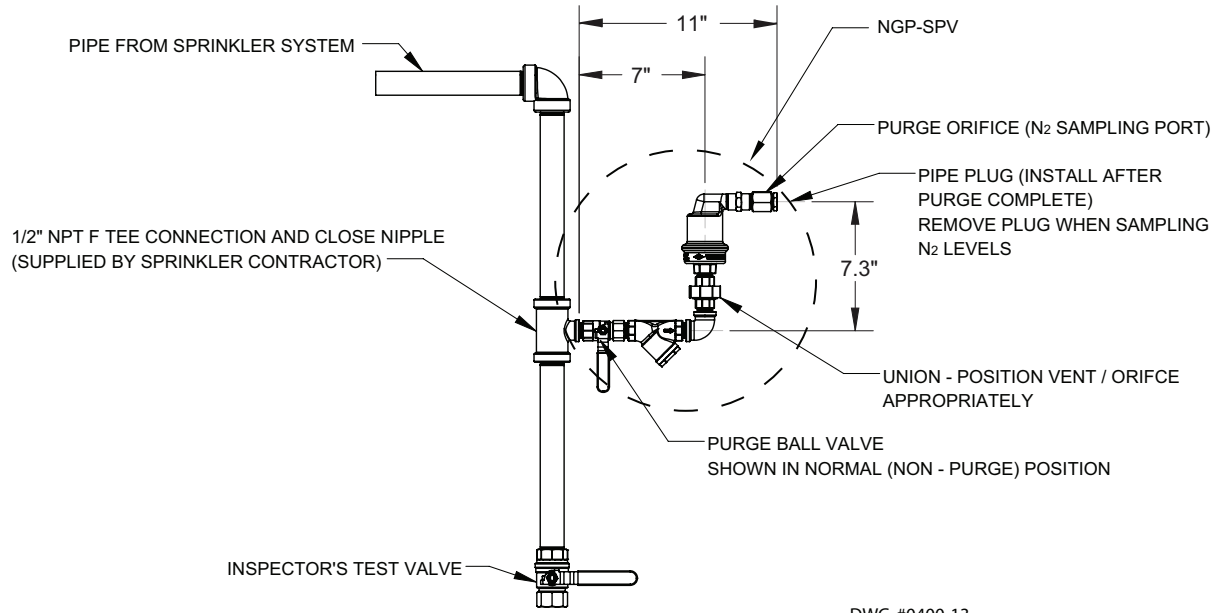
Figure 4. Typical System Layout



Note: Dryer and compressor shown inverted for illustration purposes.

8. Install a NGP-SPV on each riser in a tee prior to the inspector test valve. The purge valve assembly requires a male ½" NPT connection at installed tee. After installation, close the ball valve prior to initiating test or purging process. The ball valve should only be opened when purging the system. A ½" plug is installed in the orifice, which requires removal during purge process. The plug should be installed in an orifice when the purging process is not being performed to keep orifice free of debris and buildup.

Figure 5. NGP-SPV Installation Diagram (For Integrated Systems)



NOTICE

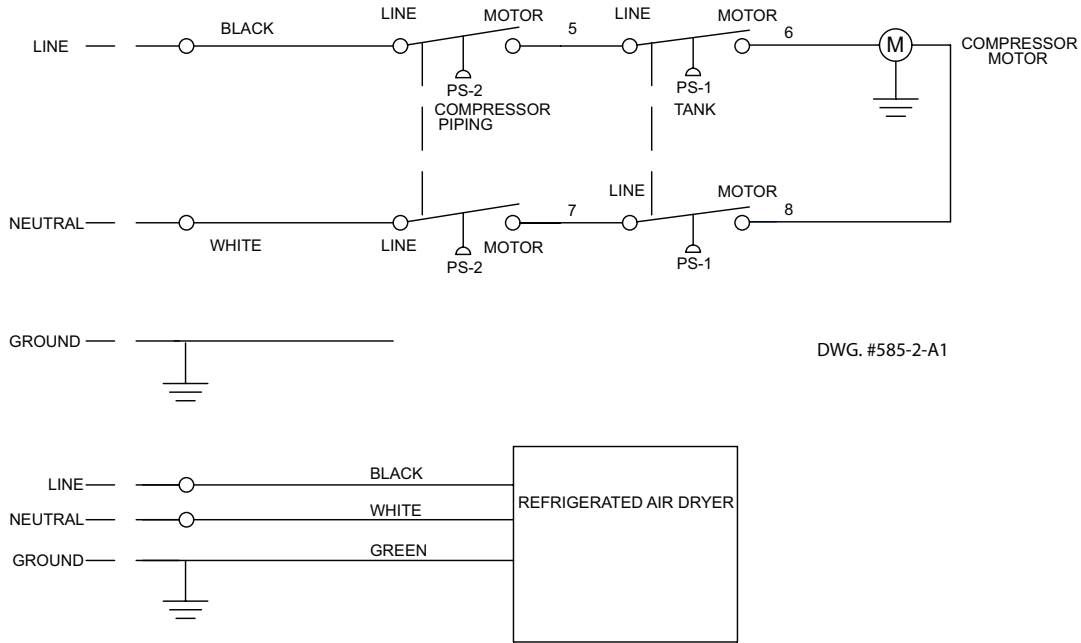
Make sure NGP-SPV is installed in a Horizontal and Level position.

Wiring

Refer to General Air Products air compressor manual and refrigerated air dryer manual for wiring instructions. An independent 115 volt, 15 amp circuit is required for the air dryer on all units.

Install electrical disconnect switches for both the compressor and the refrigerated air dryer. All wiring should conform to NEC and applicable local standards.

Figure 7 Wiring Diagram

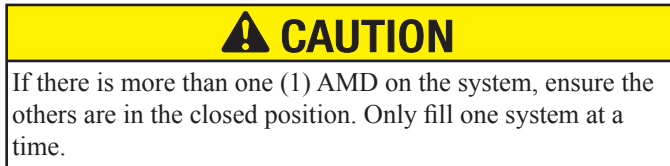


Section 4 – Start-up and Operation

Standard Filling Method

Before beginning start-up procedure, make sure the water supply is turned off.

1. Before Beginning, make sure the water supply is turned off.
2. Make sure all piping connections had been made according to installation instructions.
3. Close all air maintenance devices valves. If multiple AMDs are used, ensure all valves are in the closed position on each one.
4. Fully open the nitrogen bypass valve.
5. Fully close the nitrogen inlet and nitrogen outlet valves.
6. Power the air dryer ON and wait two (2) minutes
7. Allow tank pressure to reach cut-off pressure. See Table 1 for each unit's cut-off pressure.
8. Check all piping connections for leaks. See Figure 8 for details.
9. After making sure there are no leaks, open the air maintenance device bypass valve to begin filling the sprinkler system.



10. Allow the sprinkler system to reach the desired supervisory pressure.
11. As soon as the sprinkler system pressure is reached, put the sprinkler system back into service by placing the air maintenance device in the maintenance position. (Refer to the air maintenance device manual for proper operation)

Figure 8. Leak Check Valve Location Diagram

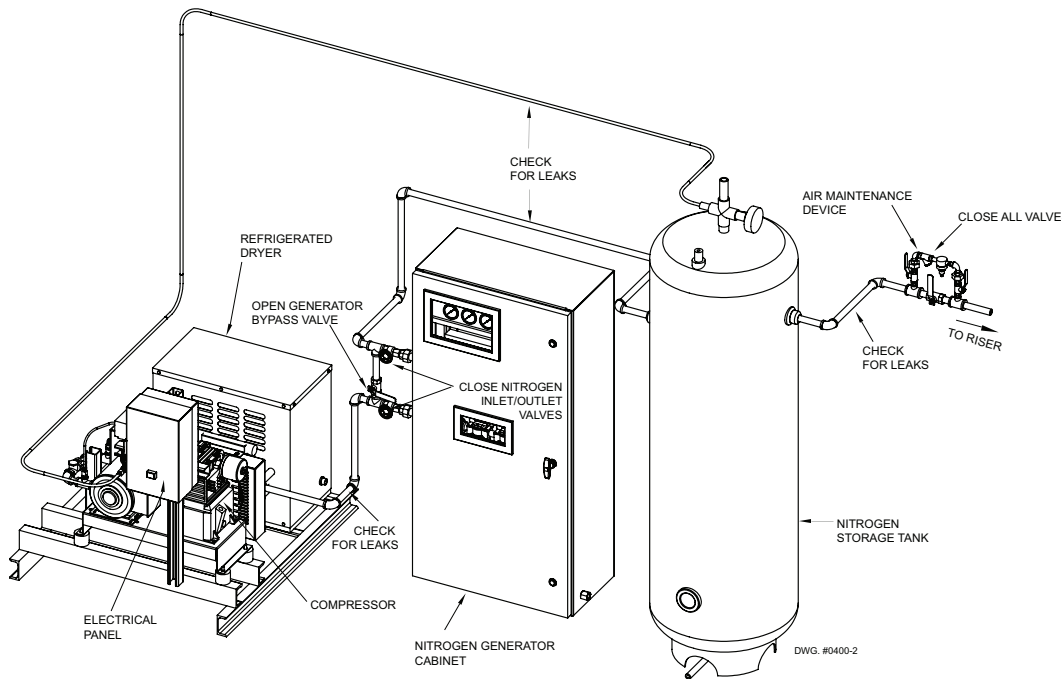


Table 1: Pressure Switch Factory Settings

Model	Compressor Cut – IN (PSIG)	Compressor Cut – OUT (PSIG)
NGP-750	60	80
NGP-1100	60	80
NGP-1275	60	80
NGP-1750	60	80
NGP-2200	60	80

Note: Actual settings may vary due to performance required

Nitrogen Purging Procedure

Once the system is at the desired supervisory pressure, it is time to start injecting nitrogen and purging the oxygen.

1. Close the nitrogen bypass valve.
2. Slowly open the nitrogen outlet valve.
3. Slowly open the nitrogen inlet valve.
4. Go to the end of the system and put the NGP-SPV ball valve into the purge position.
5. If using the NGP-SPV AUTO – Hit the “TEST” button on the timer. This restarts the timer and opens the solenoid valve. The NGP-SPV will now be open for 14 days, before it automatically shuts off.
6. When the air compressor is running, monitor the nitrogen generator membrane pressure. Pressure should remain constant at roughly 110 PSIG.
7. The air compressor should automatically cycle OFF when the nitrogen storage tank pressure reaches the cut-off time. Refer to Table 1.
8. The air compressor should automatically turn on when the nitrogen storage tank pressure drops to the cut-on time. Refer to Table 1.
9. Run the system for at least 5 ON/OFF cycles. Take note of the systems cut-off and cut-on pressures.
10. To decrease time cycle, bleed the tank pressure using the pressure relief valve on the nitrogen storage tank.
11. After 5 cycles check the nitrogen purity using the Nitrogen Purity analyzer. For more information on this device read the Nitrogen Analyzer user manual in this document.
12. The nitrogen purity should read 95-99%. If not contact Potter Technical Support.
13. Turn off analyzer after use.
14. Continue the purging process until acceptable nitrogen levels are reached. It is recommended that you return in 14 days and check the nitrogen purity at the purge valve.
15. Close the purge valve after the desired nitrogen purity level is achieved.
(Note: This step will be done automatically if you are using the NGP-SPV AUTO only.)

⚠ WARNING

- The Potter Nitrogen Generator creates a 30% to 40% oxygen stream which may pose a flammability problem in an oxygen-sensitive environment. Pipe per installation requirements and ensure the area surrounding the Nitrogen Generator is adequately ventilated.
- The Potter Nitrogen Generator should always be installed in an adequately ventilated room. Nitrogen is nontoxic and largely inert. Rapid release of nitrogen gas into an enclosed space displaces the oxygen and can cause an asphyxiation hazard. Inhalation of nitrogen in excessive concentrations can result in unconsciousness without any warning symptoms.

Normal Operation

Nitrogen is generated by the Potter Nitrogen Generator from compressed air. The generator is controlled by pressure controls that monitor the nitrogen pressure and automatically starts and stops the air compressor based on the control settings. Occasional start and stop operation of the Potter Nitrogen Generator is normal. Frequent start and stop operation (more than 4 times per hour) is not normal operation, indicating service is required.

When the air compressor is not running, the Inlet and Membrane pressure gauges will read “0”. Only the Outlet pressure gauge indicates pressure while the compressor is not running. When the air compressor is running, all three pressure gauges read pressure and typically show different pressure readings – this is normal.

Section 5 – Maintenance

WARNING

All pressure must be relieved from the entire nitrogen generator system BEFORE servicing. To avoid system damage and/or personal injury, the nitrogen generator should be isolated from the compressed air supply and the generator system fully depressurized before any maintenance or service is performed. All maintenance and troubleshooting activities for the Potter Nitrogen Generator should be performed by qualified personnel using reasonable care.

Before servicing, isolate all risers by closing all AMD valves and relieving all system pressure from the Potter Nitrogen Generator. Failure to do so could result in serious injury or death.

The Potter Nitrogen Generator features durable components and construction for long-lasting value, reliable performance, and require little maintenance. The air filter and oil in the compressor require quarterly inspection/replacement. The filters in the generator enclosure, and batteries for Nitrogen Purity Analyzer require yearly replacement.

Check the performance and operating conditions of the Potter Nitrogen Generator. This includes:

- Verifying stable pressure readings on all pressure gauges.
- Confirming the filter differential pressure gauges read in the ‘green’ zone when the air compressor is running.
- Confirming that operating pressure settings are correct. (Refer to Table 7.)

The following table shows the scheduled maintenance required on the Potter Nitrogen Generator:

Table 2: Scheduled Maintenance Table

Part	Frequency
Filters	Replace annually or as differential pressure indicates
Compressor Oil <i>(only for lubricated compressor)</i>	Replace quarterly
Automatic Drains	Clean annually or as required
Nitrogen Purity Sensor	Replace Battery and Sensor Element annually

Table 3: List of Service Parts

Part Number	Description
1119784	NGP-SPV: Nitrogen Self Purge Valve
1119785	NGP-MK: Nitrogen Maintenance Kit <i>(includes P/N's 5130098 & 5330157)</i>

The nitrogen membrane has an estimated 10 year service-free life, provided the quality of input air listed under the Technical Specifications section of this manual are always met. The hollow fiber membrane doesn't require any maintenance. When the desired nitrogen purity cannot be obtained, the membrane should be replaced.

Filter Replacement

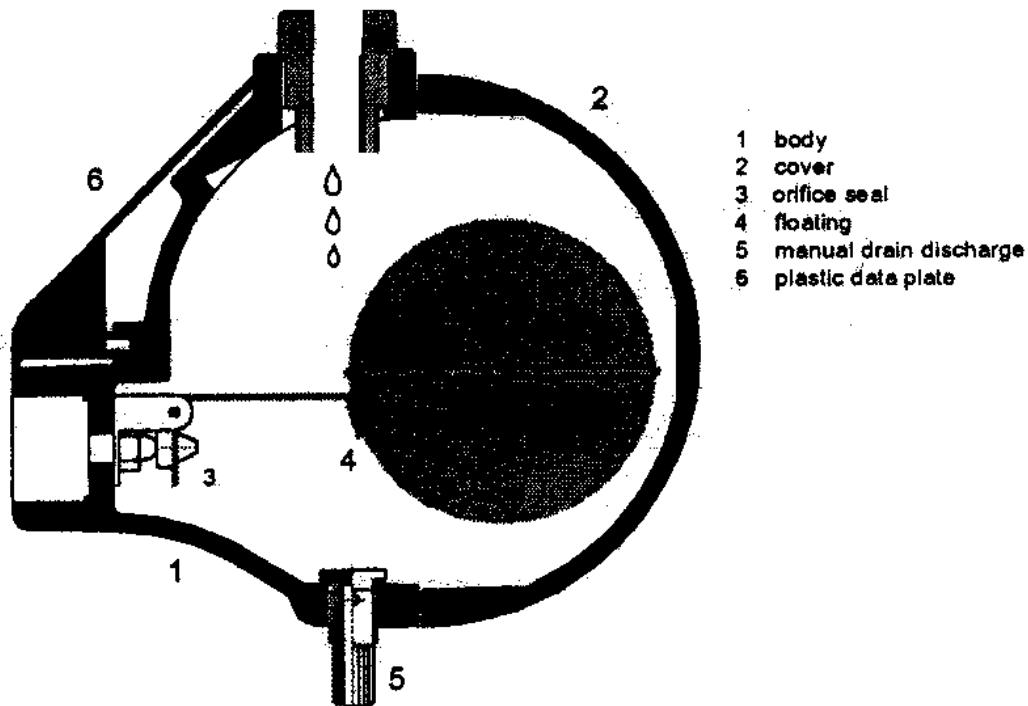
To replace the filters in the generator cabinet:

1. Isolate to relieve pressure first.
2. Loosen and remove the copper tubing running from the bottom of the bowls to the automatic float drains.
3. Unscrew the bowl from the filter body.
4. Remove the element by unscrewing the retainer at the bottom of the filter.
5. Be sure that the 10C10-050 filter is on the inlet (left side) and the 4C10-050 is to the right.
6. Clean filter body and bowl with a clean rag.
7. Reinstall filters and bowls - be careful not to switch bowls or filters, and check for leaks.

Automatic Drain Cleaning

1. Remove the drain piping and clamp securing the automatic drains.
2. Remove and disassemble the drain.
3. Carefully clean the inside of the drain with a clean rag.
4. Reinstall drains.
5. Reinstall piping and pressure test the filters and piping for leaks.

Figure 9. Drain Assembly Details



Section 6 – Nitrogen Analyzer Instructions

Table 4: Nitrogen Analyzer Features

Component	Description
3 ½ Digit Display	The 3 ½ digit liquid crystal display (LCD) provides direct readout of nitrogen concentrations in the range of 0 - 105.0% (100.1% - 105.0% used for calibration determination purposes). The digits also display error codes and calibration codes as necessary.
Low Battery Indicator	The low battery indicator is located at the top of the display and is only activated when the voltage on the batteries is below a normal operating level.
% Symbol	The “%” sign is located to the right of the concentration number and is present during normal operation.
Calibration Symbol	The calibration symbol is located at the bottom of the display and is timed to activate when a calibration is necessary.
ON/OFF Key	This key is used to turn the device on or off.
Calibration Key	This key is used to calibrate the device. Holding the key for more than three seconds will force the device to enter a calibration mode

CAUTION

The device will assume a percent oxygen concentration when calibrating. Be sure to apply 100% oxygen, or ambient air concentration to the device during calibration or the device will not calibrate correctly.

Automatic Calibration

After the unit is turned on, it will automatically calibrate to room air. The display should be stable and reading 79.1%.

To check the nitrogen concentration of a sample gas: (after the unit has been calibrated)

1. Connect the Tygon tubing to the bottom of the analyzer by threading the barbed adapter onto the oxygen sensor.
2. Attach the other end of the sample hose to the sample gas source and initiate flow of the sample to the unit at a rate of 1-10 liters per minute. *2 liters per minute is recommended.*
3. Using the ON/OFF key, make sure the unit is in the power “ON” mode.
4. Allow the nitrogen reading to stabilize. This will take about 30 seconds or more.

Calibrating the N₂ Analyzer

Calibrate the N₂ analyzer upon initial power-up. Thereafter, Maxtec® recommends calibration on a weekly basis. To serve as a reminder, a one week timer is started with each new calibration. At the end of one week a reminder icon appears on the bottom of the LCD. Calibration is recommended if the user is unsure when the last calibration procedure was performed, or if the measurement value is in question.

With compressed air (79.1% N₂), new calibration is required when:

- The measured N₂ percentage in 79.1% N₂ is above 80.1% N₂
- The measured N₂ percentage in 79.1% N₂ is below 78.1% N₂
- The CAL reminder icon is blinking at the bottom of the LCD

A simple calibration may be made with the sensor open to static ambient air.

Calibration Errors and Error Codes

The nitrogen purity analyzer has a self test feature built into the software to detect faulty calibrations, oxygen sensor failures, and low operating voltage. Refer to the following table for an explanation of error codes and possible actions to take.

Table 5: Error Codes

Code	Meaning	Corrective Action
E02	No sensor attached	Open the hand held nitrogen purity analyzer and disconnect and reconnect sensor. Unit should perform an auto calibration and should read 79.1%. If not, contact Customer Service for possible sensor replacement.
E02	No valid calibration data available	Make sure unit has reached thermal equilibrium. Press and hold the Calibration Button for three seconds to manually force a new calibration.
E02	Battery below minimum operating voltage	Replace batteries.
CAL Err St: O2	Sensor reading not stable	Wait for displayed nitrogen reading to stabilize, when calibrating the device at 100% oxygen. Wait for unit to reach thermal equilibrium (Please note that this can take up to one half hour, if the device is stored in temperatures outside the specified operating temperature range).
CAL Err lo	Sensor voltage too low	Press and hold the Calibration Button for three seconds to manually force a new calibration. If unit repeats this error more than three times, contact Customer Service for possible sensor replacement.
CAL Err hi	Sensor voltage too high	Press and hold the Calibration Button for three seconds to manually force a new calibration. If unit repeats this error more than three times, contact Customer Service for possible sensor replacement.
CAL Err Bat	Battery voltage too low to recalibrate	Replace batteries.

Changing the Batteries

When the batteries need to be changed, the device will indicate this in one of two ways:

- » The battery icon on the bottom of the display will begin to flash. This icon will continue to flash until the batteries are changed. The unit will continue to function normally for approx. 200 hours.
- » If the device detects a very low battery level, an error code of “E04” will be present on the display, and the unit will not function until the batteries are changed.

To change the batteries, begin by removing the three screws from the back of the device. A #1 phillips screwdriver is required to remove these screws.

Once the screws are removed, gently separate the two halves of the device.

The batteries can now be replaced from the back half of the case. Be sure to orient the new batteries as indicated in the embossed polarity on the back case.

NOTE: If the batteries are installed incorrectly the batteries will not make contact and the device will not operate.

Carefully, bring the two halves of the case together while positioning the wires so they are not pinched between the two case halves. The gasket separating the halves will be captured on the back case half.

Reinsert the three screws and tighten until the screws are snug.

The device will automatically perform a calibration and begin displaying % of oxygen.

HELPFUL HINT: If unit does not function, verify that the screws are tight to allow proper electrical connection.

Changing the Oxygen Sensor

Should the oxygen sensor require changing, the device will indicate this by presenting “Cal Err lo” on the display after initiating a calibration.

To change the oxygen sensor, begin by removing the three screws from the back of the device. A #1 Phillips screwdriver is required to remove these screws.

Once the screws are removed, gently separate the two halves of the device.

Disconnect the oxygen sensor from the printed circuit board by pressing the unlock lever first and then pull the connector out of the receptacle. The oxygen sensor can now be replaced in the back half of the case.

HELPFUL HINT: Be sure to orient the new sensor by aligning the red arrow on the sensor with the arrow in the back case. A small tab is located on the back case that is designed to engage the sensor and prevent it from rotating within the case.

NOTE: If the oxygen sensor is installed incorrectly, the case will not come back together and the unit may be damaged when the screws are reinstalled.

Reconnect the oxygen sensor to the connector on the printed circuit board.

Carefully bring the two halves of the case together while positioning the wires to ensure they are not pinched between the two case halves. Make sure the sensor is fully inserted and in the proper orientation.

Reinsert the three screws and tighten until the screws are snug. Verify the unit operates properly.

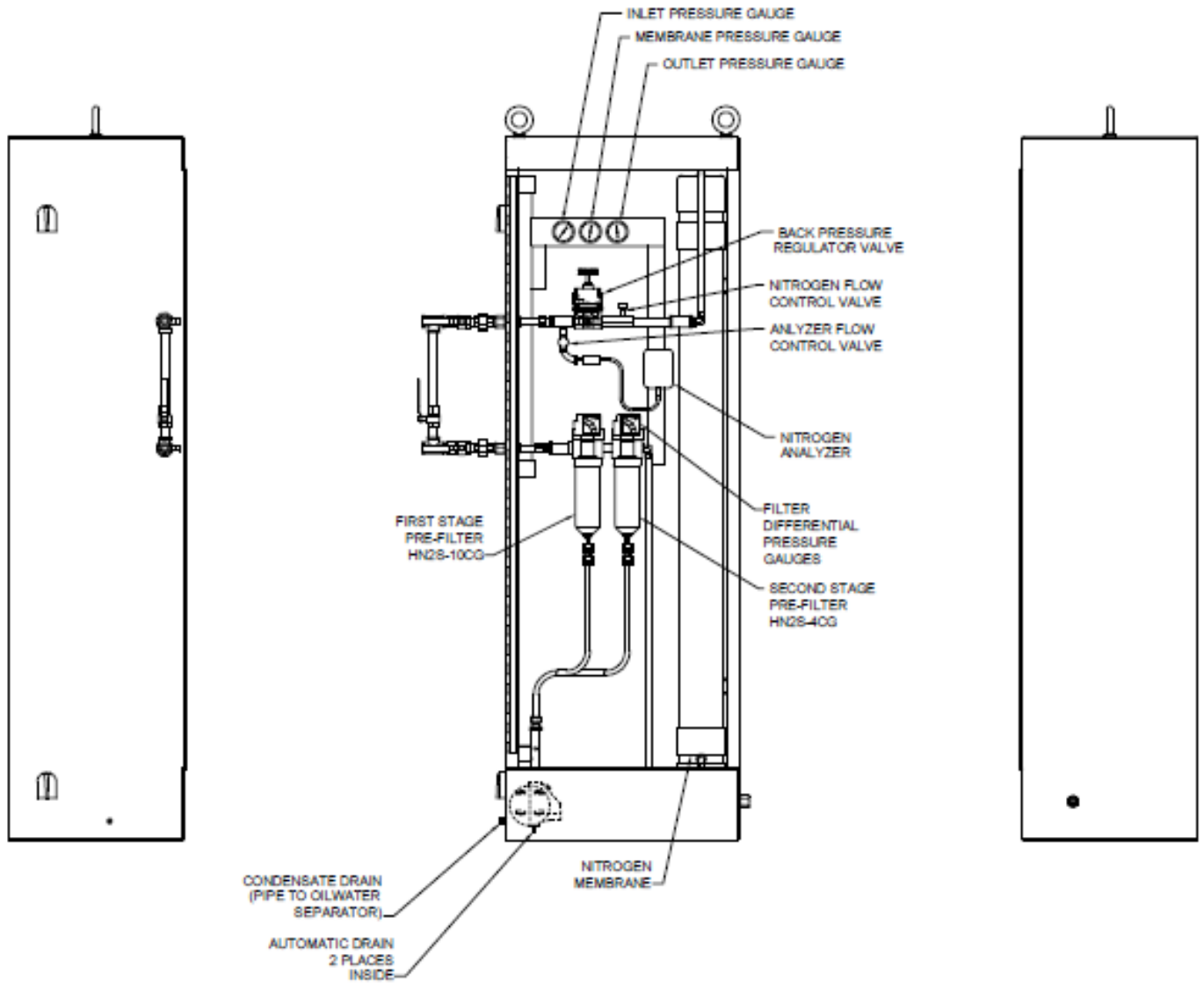
The device will automatically perform a calibration and begin displaying % of oxygen.

Section 7 – Troubleshooting**Table 6: Troubleshooting**

Symptom	Possible Cause(s)	Corrective Action
Nitrogen percentage too low	Analyzer Flow control shut	Open analyzer flow control valve 1/16 turn from closed.
	Nitrogen Flow control open too far	Close Nitrogen flow control in 1/16 turn increments to achieve desired purity level.
	Insufficient Membrane pressure	Observe Membrane pressure while operating. <i>Consult factory for setting procedure.</i>
	Defective or wet Nitrogen Membrane	Replace or dry Membrane by purging nitrogen tank, purge manual drains on automatic drains-clean drain if excessive water is released from manual drain.
Nitrogen Percentage too high	Low flow	This may be normal nearing the end of a filling cycle.
	Nitrogen Flow control closed too far.	Open flow control until purity level is reached.
	Defective check valve	Replace check valve.
	Filters clogged	Replace filters.
No Pressure or Low pressure	Bypass valve open	Close bypass valve, open nitrogen outlet, and air inlet valves.
	Compressor not starting	Press reset button, check for power and function of pressure switches.
	Clogged filters	Replace filters.
	Air leakage	Repair leaks.
No Reading on Analyzer	Batteries weak	Replace batteries.
Analyzer Error: Cal Err lo	Oxygen Sensor needs to be changed	Replace Oxygen Sensor.
Analyzer Error: E04	Batteries weak	Replace batteries.
Analyzer Error: E02	No sensor attached	Open the nitrogen analyzer and disconnect and reconnect sensor.

Section 8 – Nitrogen Generator Parts Diagram

Figure 10. Nitrogen Parts Diagram



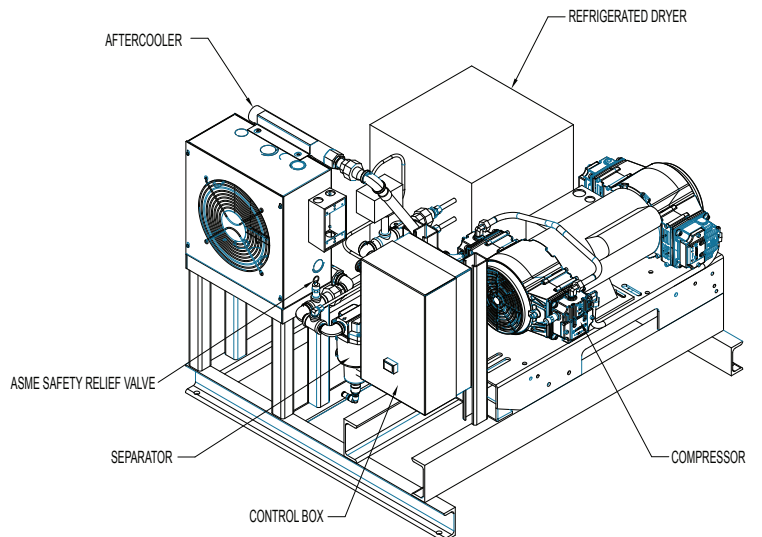
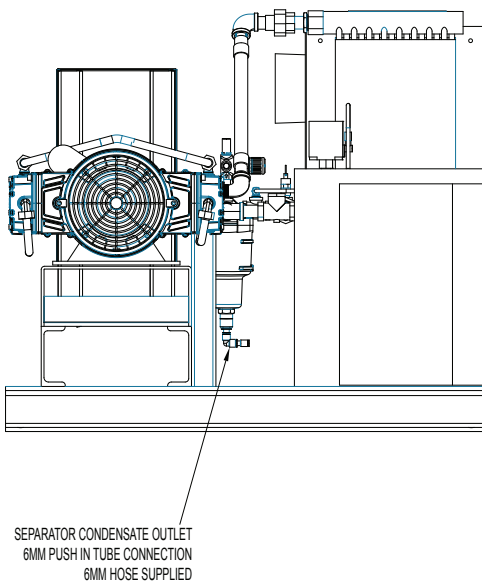
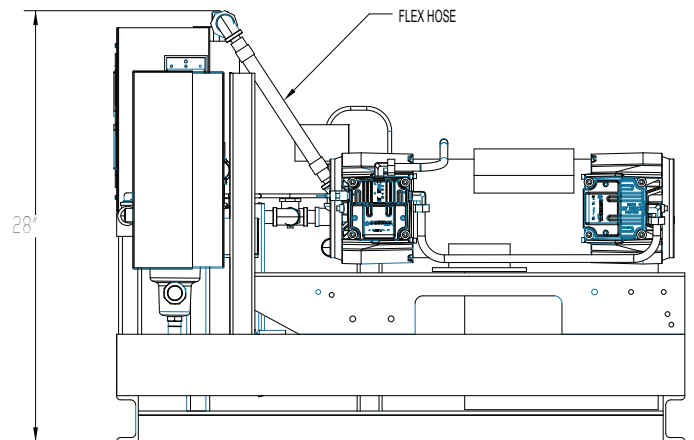
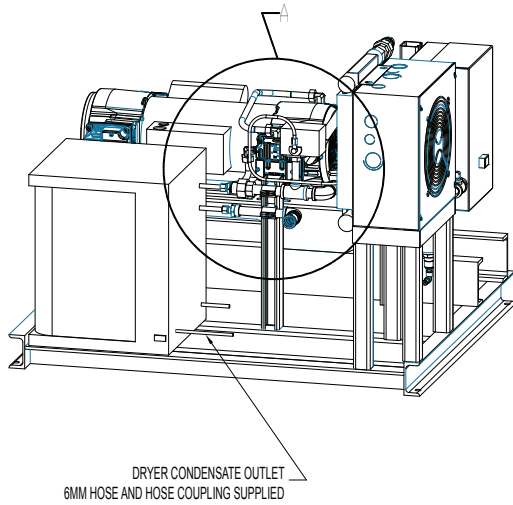
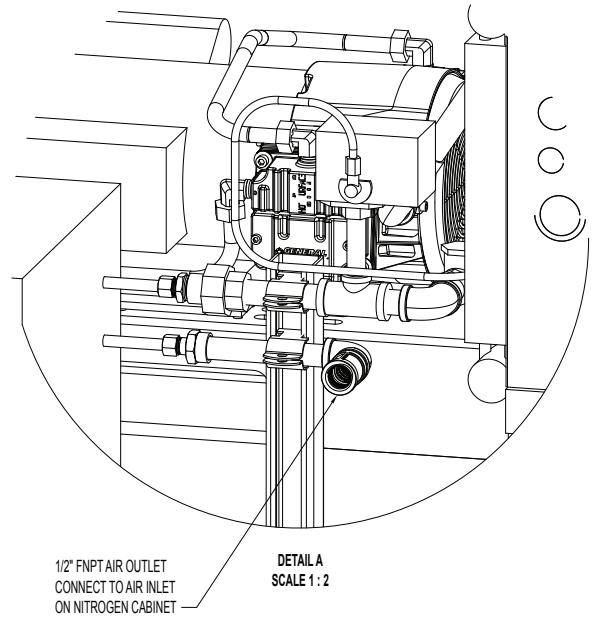
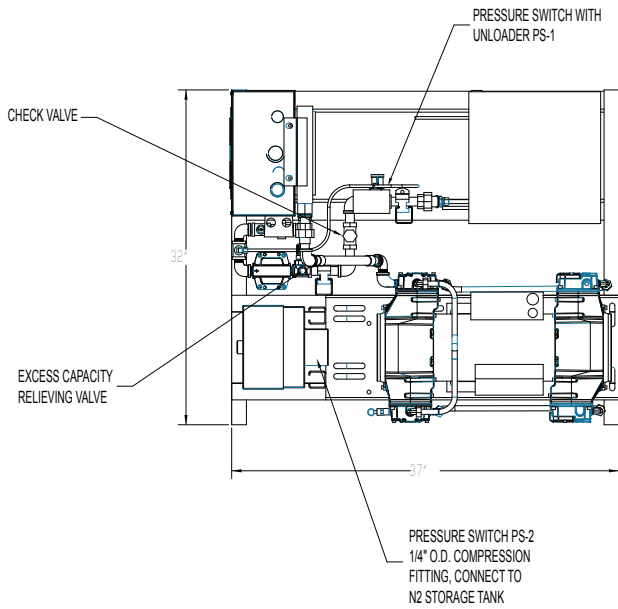
Section 9 – Technical Specifications and Drawings

Table 7: Requirement for Compressed Air Supplied to Generator

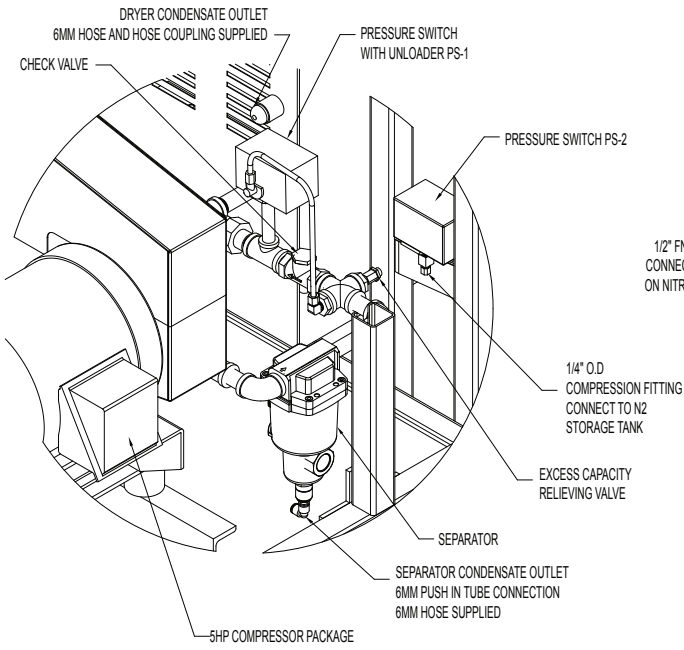
Variable	Description
Air Purity	ISO Class1.4.1 or better: Free of water (38°F, 3°C Dew Point), compressor oil (0.008 PPM or .01 mg/m ³), hydrocarbons, and particles (<0.01 μm microns)
Temperature Range	50°F (10°C) to 110°F (60°C)
Recommended Inlet Temperature	95-100°F (35-38°C)
Pressure	Maximum air pressure entering generator should not exceed 170 PSIG

Section 10 – Technical Diagrams and Illustrations

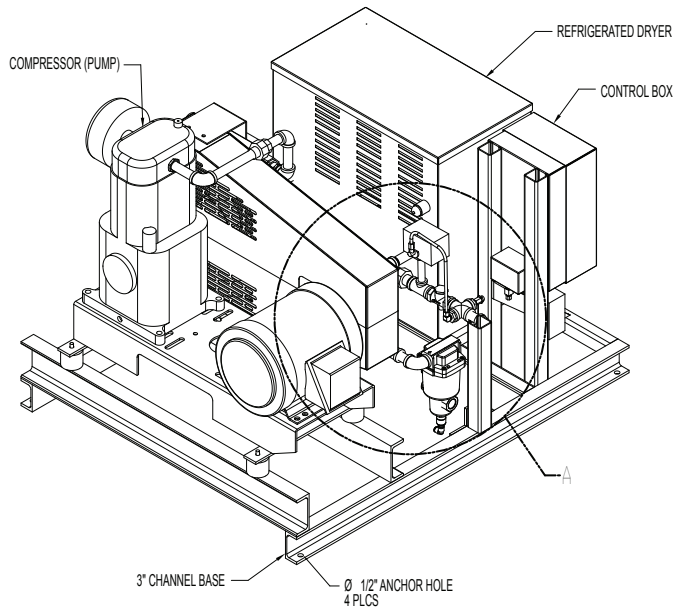
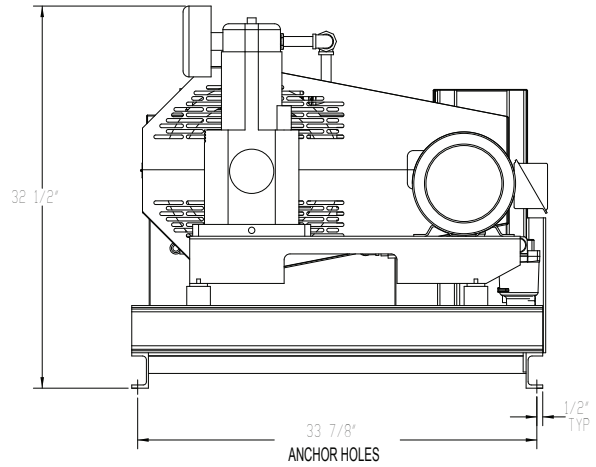
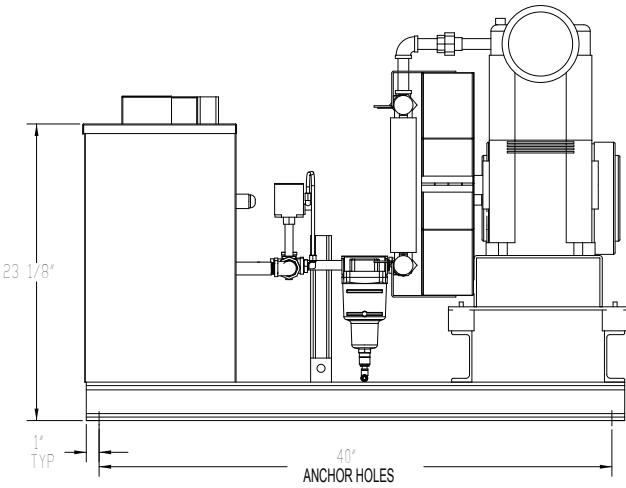
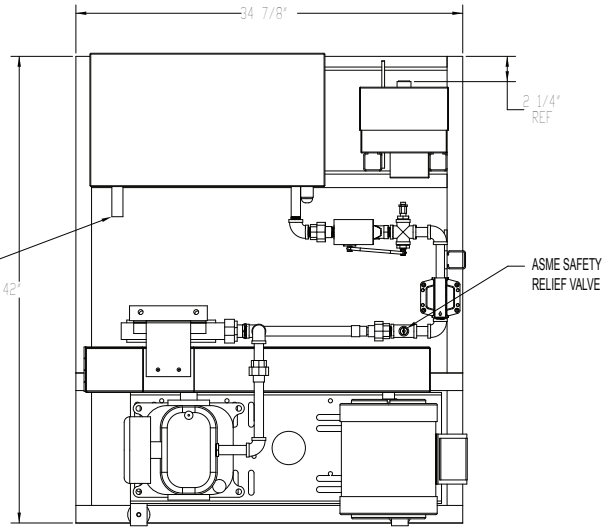
Compressor Package: NGP-750, NGP-1100, NGP-1275



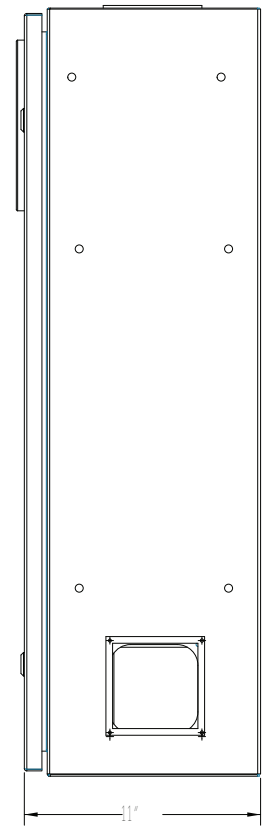
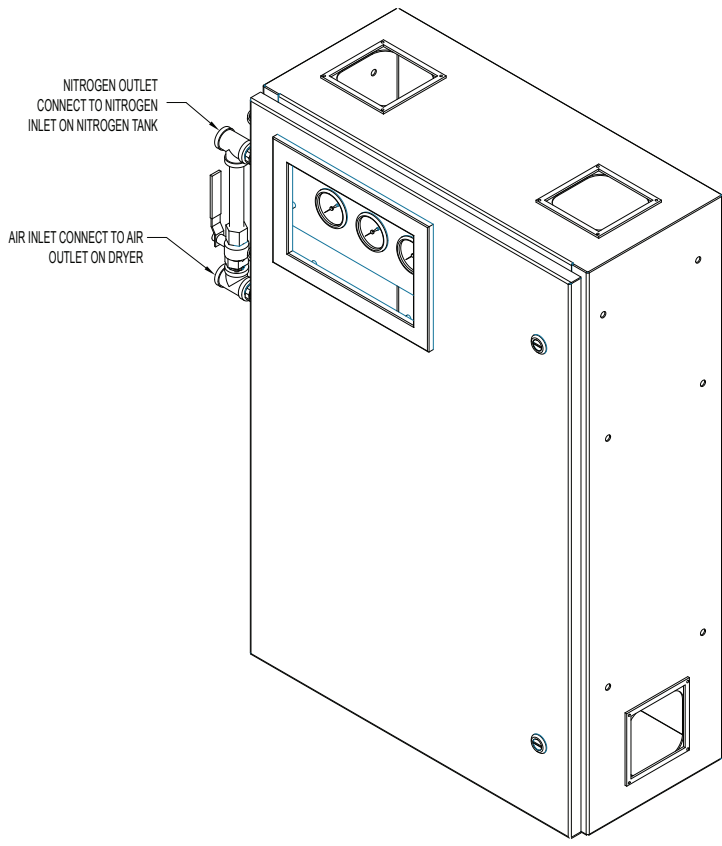
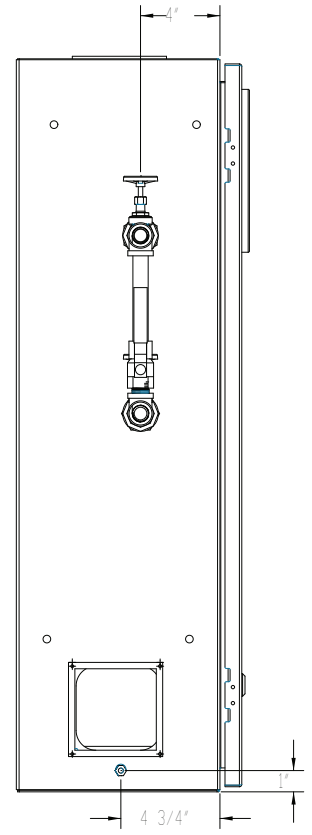
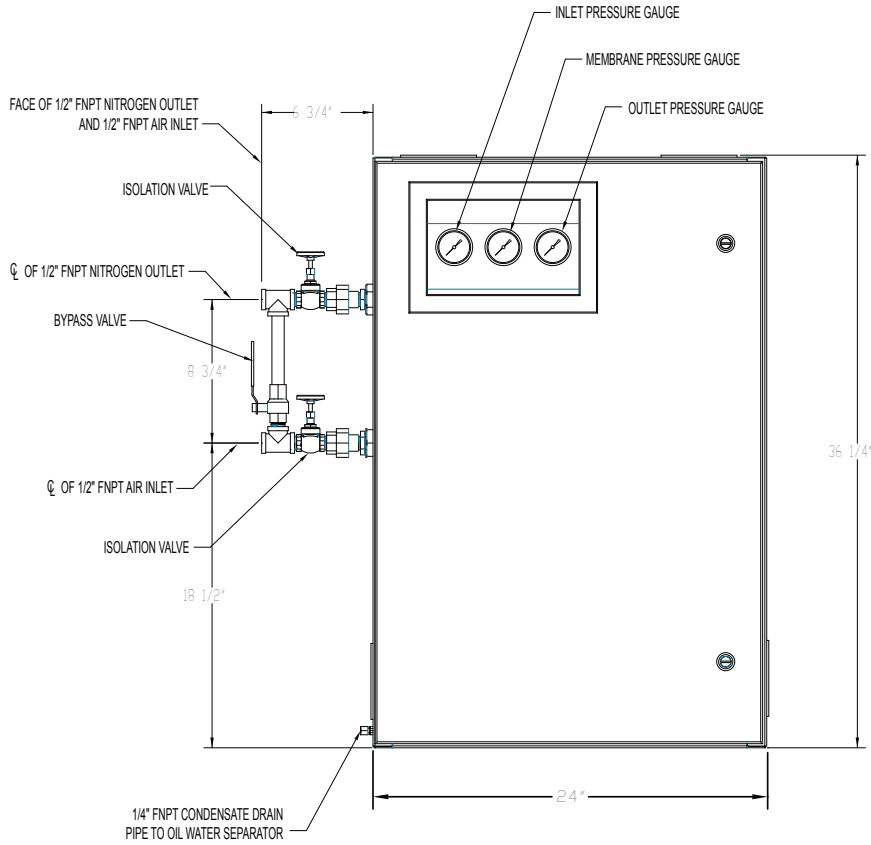
Compressor Package: NGP-1750, NGP-2200



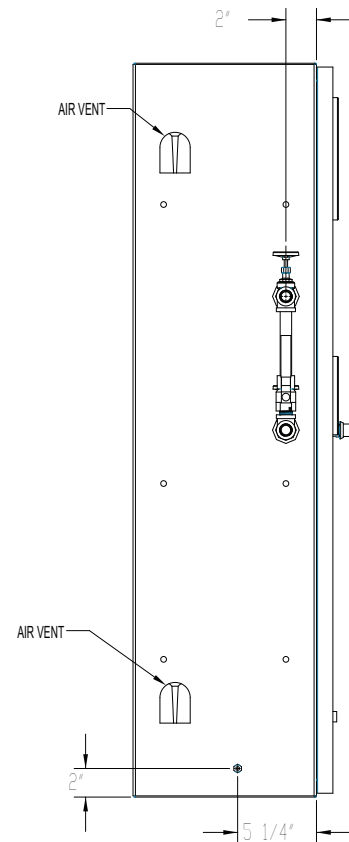
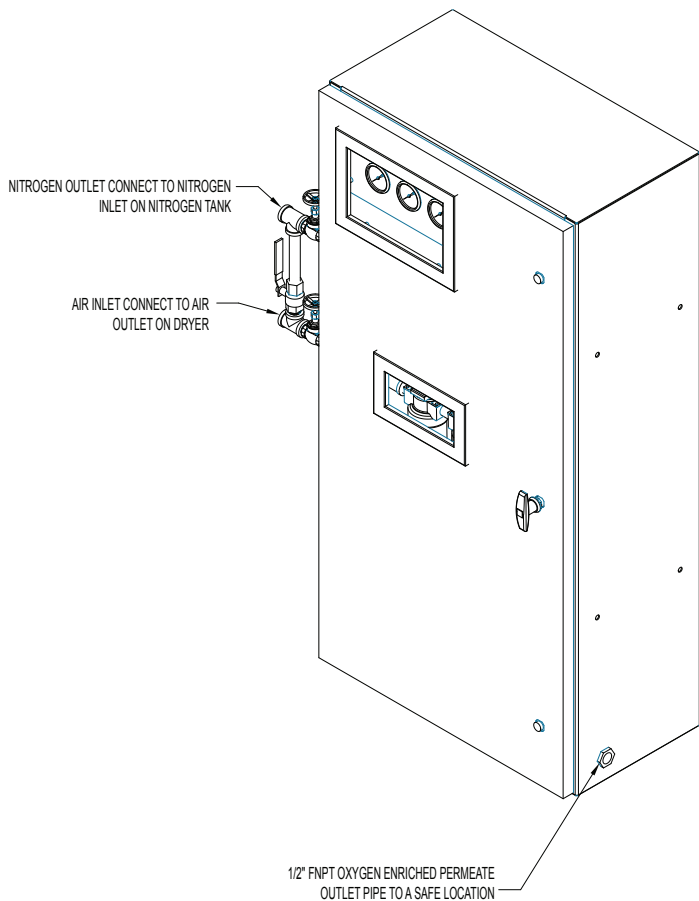
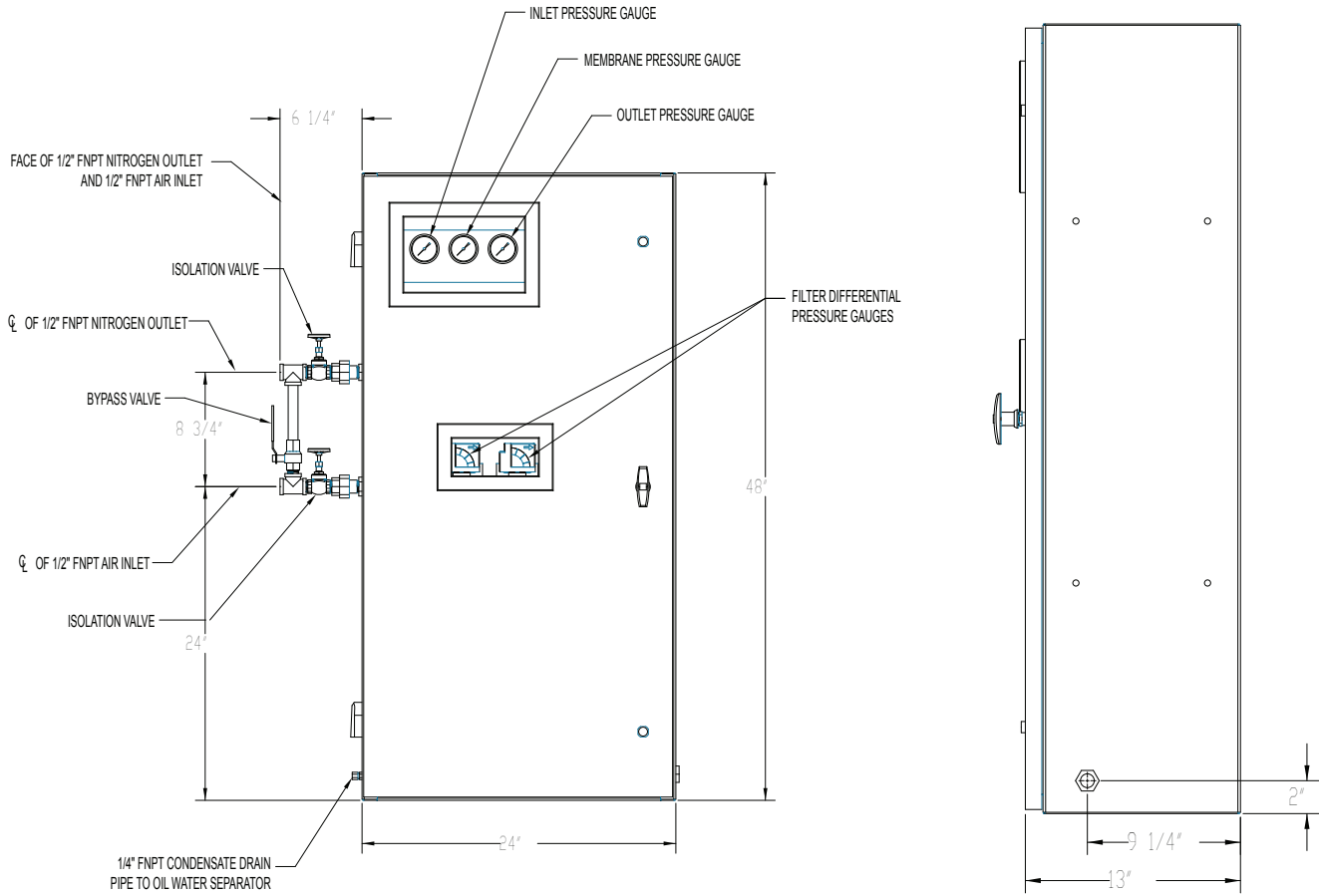
DETAIL A
SCALE 1:3



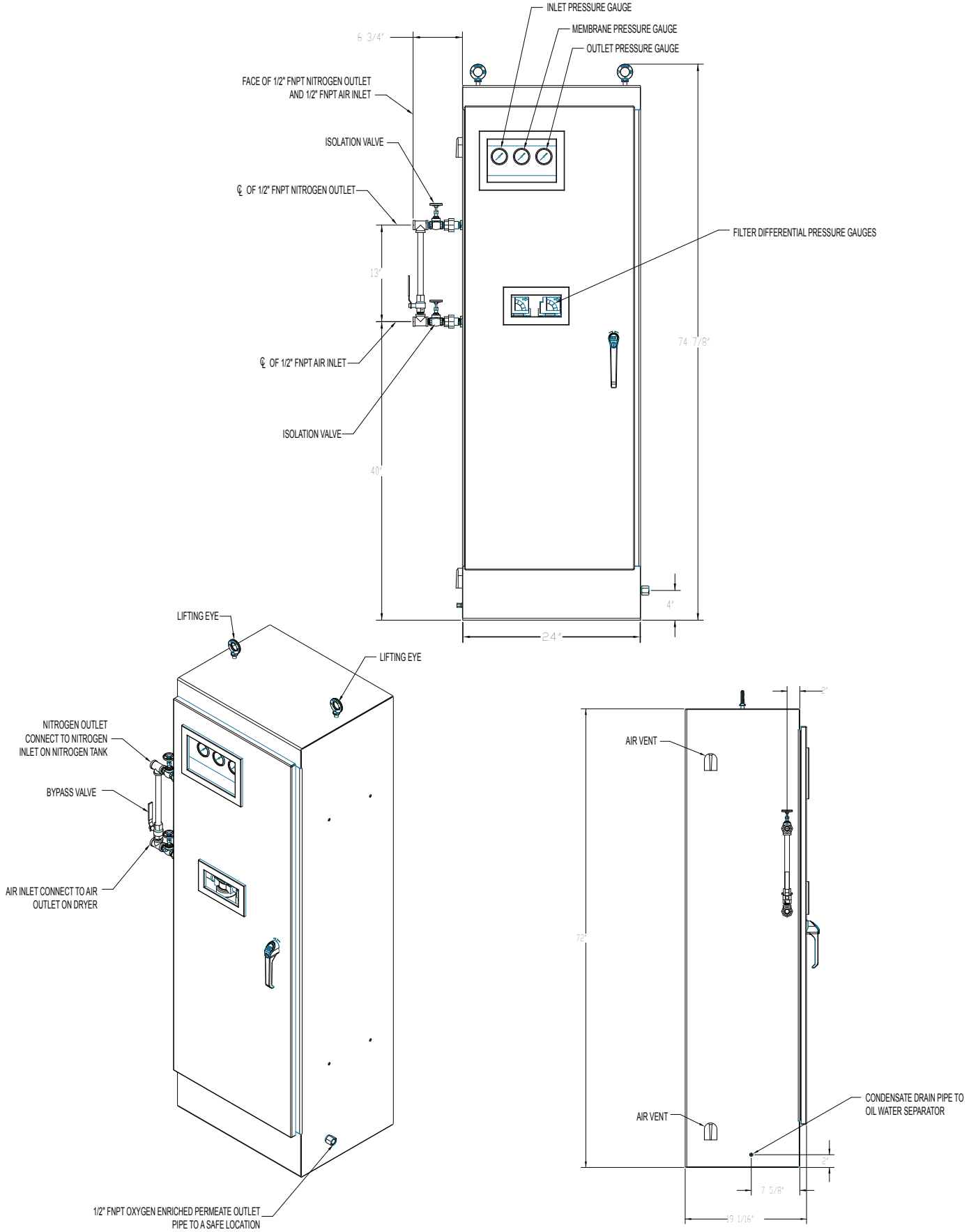
Membrane Package: M1



Membrane Package: M2, M3, M4

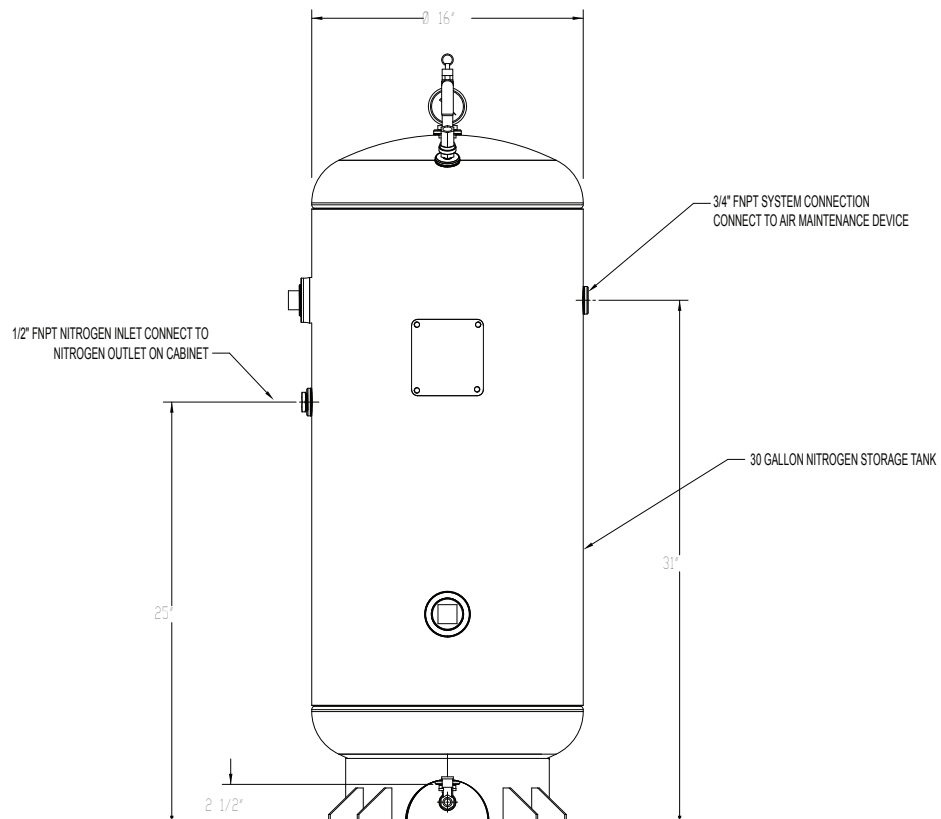
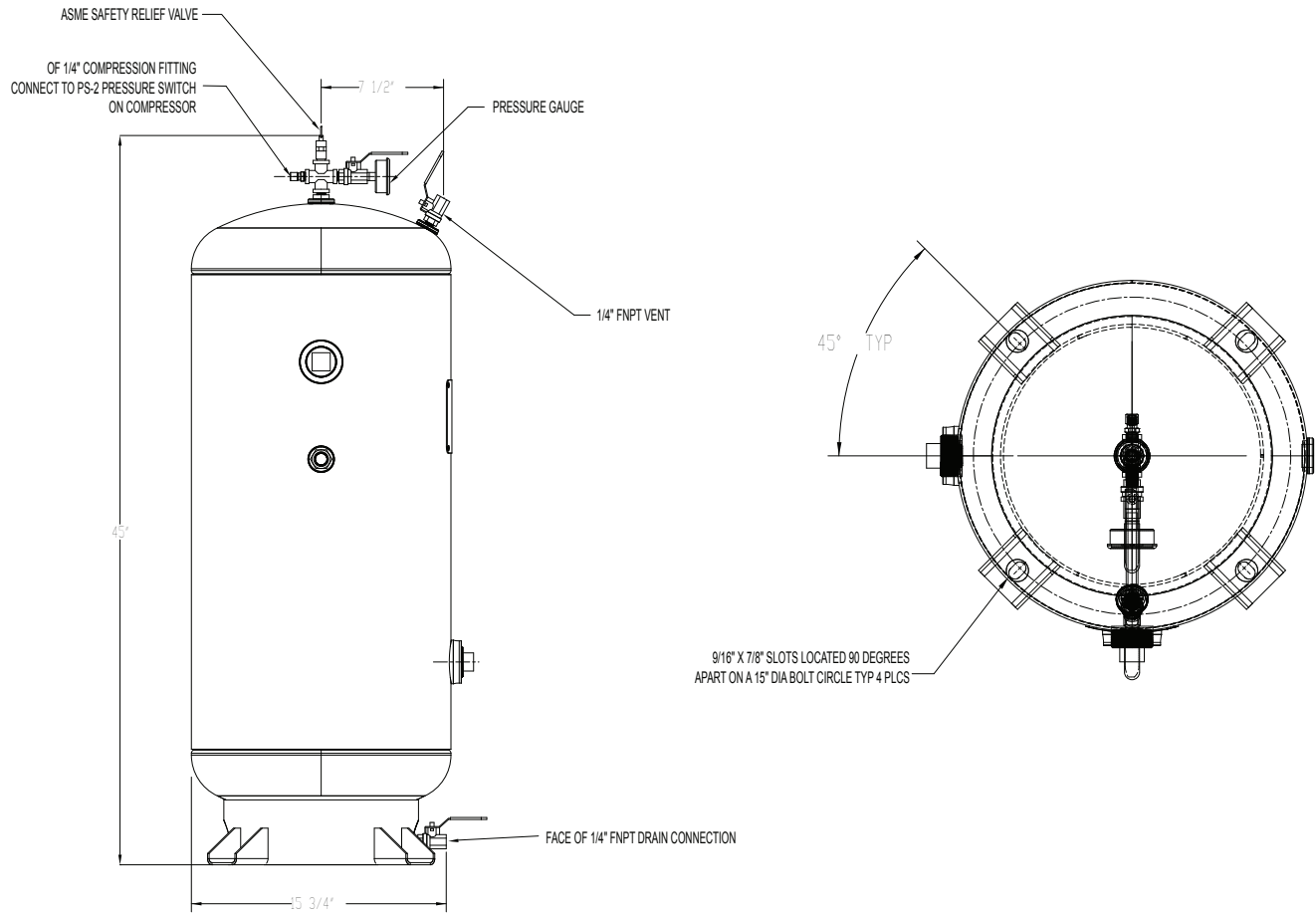


Membrane Package: M5

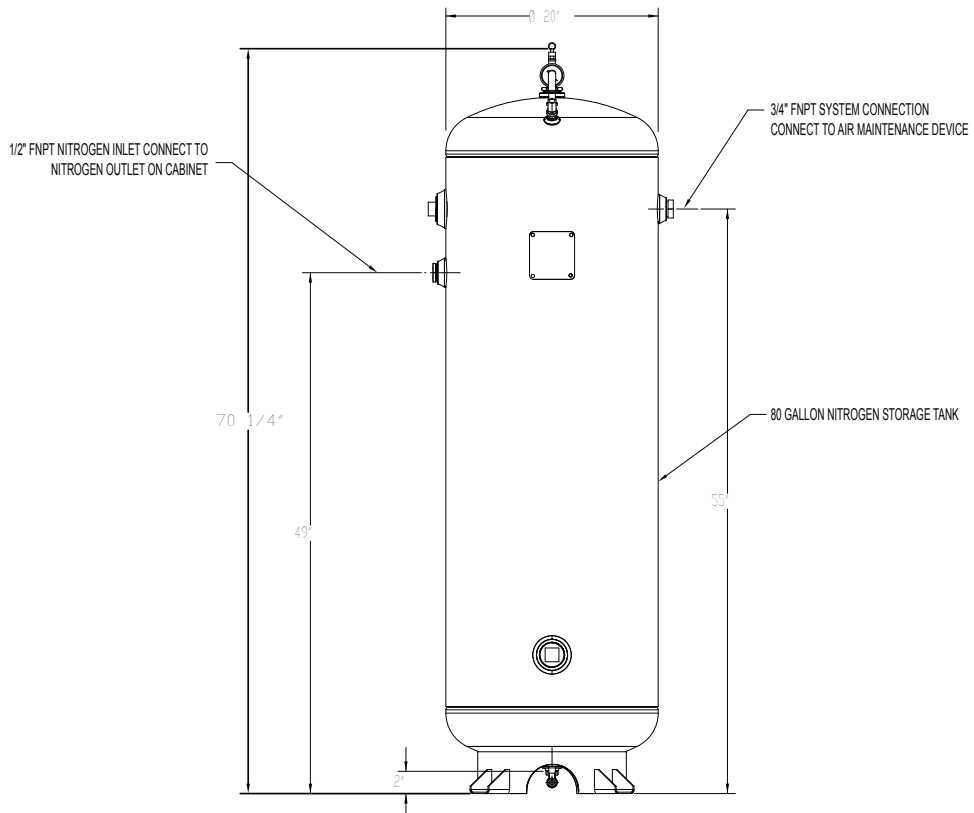
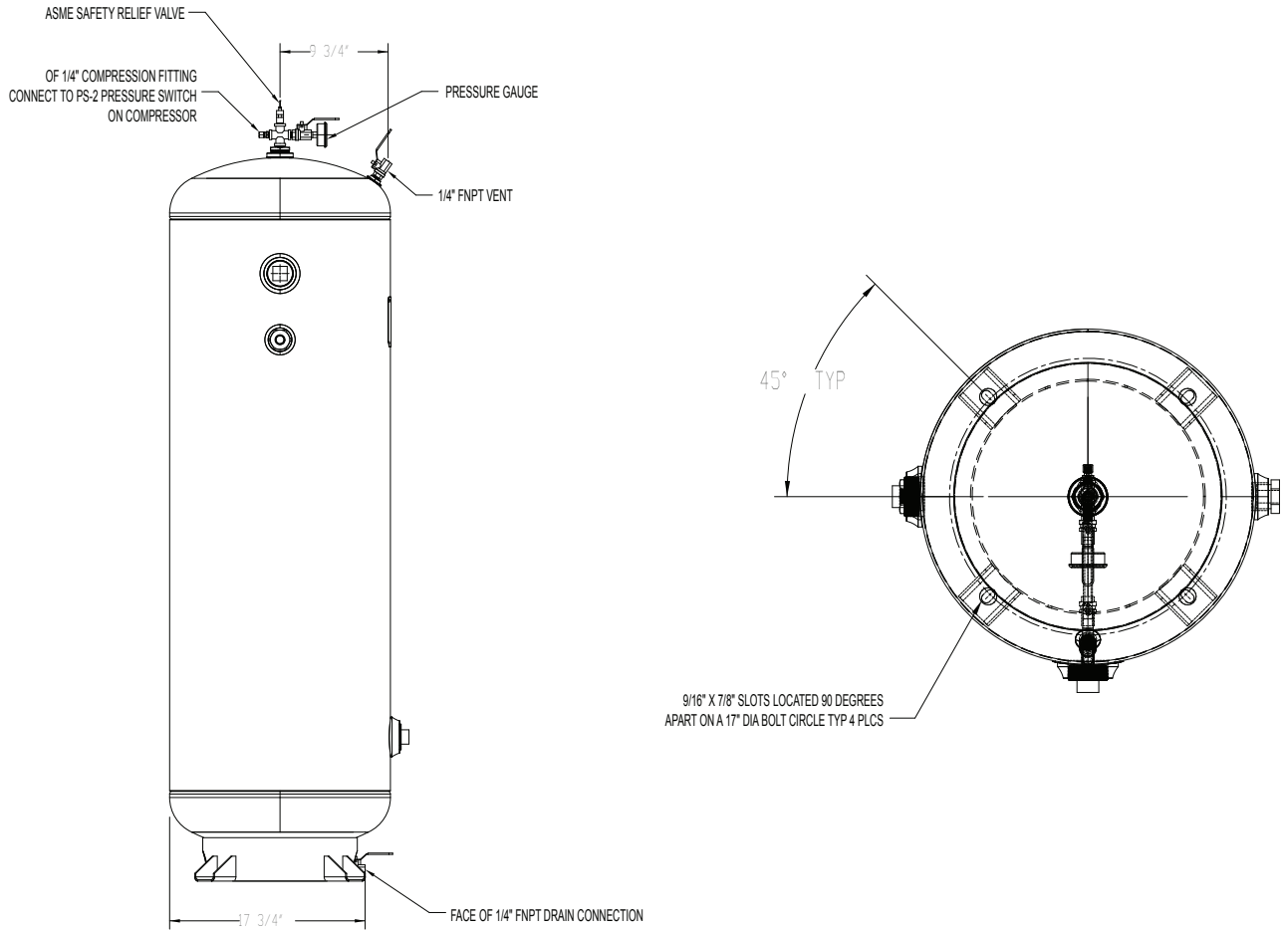


Nitrogen Storage Tank: 30 gallons

Nitrogen Storage Tank: 30 gallons



Nitrogen Storage Tank: 80 gallons



Section 11 – Factory Settings

#5400277 - REV. B

Potter Nitrogen Generator Factory Settings

NGP- _____ Date Code: _____

Order #: _____ Orifice Size: _____


N₂ Purity: _____ Membrane Pressure: _____


of Risers:

1	2	3	4	5

Riser Capacity:

--	--	--	--	--

MFG by:  **GENERAL**
AIR PRODUCTS
118 Summit Drive, Exton, PA 19341

For:  **POTTER** PRECISION
SOLUTIONS
1609 Park 370 Place, Hazelwood, MO 63042

Section 12 – Maintenance and Purge Log

Table 8: Maintenance Log

		Initial Fill				Post Purge			
Riser	Location	Date	Time	N ₂ Level at Generator	N ₂ Level at Purge Valve	Data	Time	N ₂ Level at Generator	N ₂ Level at Purge Valve
1									
2									
3									
4									
5									

Table 9: Purge Log

Work Completed	Notes	Date	Name

Section 13 – Warranty Policy

Rev: 07/2012

GENERAL PROVISIONS & LIMITATIONS

Potter Electric Signal Company, LLC (the “Company”) warrants to each original purchaser (“Purchaser”) of its new products from the Company or its Authorized Distributor that such products are, at the time of delivery to the Purchaser, made with good materials and workmanship. No warranty is made with respect to:

1. Any product, which has been repaired or altered in such a way, in the Companies judgment, as to affect the product adversely.
2. Any product, which has, in the Companies judgment been subjected to negligence, accident, improper storage, improper installation or application.
3. Any product, which has not been operated or maintained in accordance with the recommendations of the Company.
4. Components or accessories manufactured, warranted and serviced by others.
5. Any reconditioned or prior owned product.

Claims for items described in 4. above should be submitted directly to the manufacturer.

WARRANTY PERIOD

The Company’s obligation under this Warranty is limited to repair or, at its option, replacing during normal business hours at the designated facility of the Company, any part that in its judgment proved not to be as warranted within the applicable Warranty Period as follows.

COMPONENTS

All non-consumable components are warranted for 12 months from the date of purchase. Consumables are not covered under warranty. The unit must have been installed by either a factory authorized distributor or agent in accordance with the factory recommendations taking into account all other local site conditions not originally noted to the factory. The unit must be operated and maintained in accordance with the Factory recommendations and original design conditions. Failure to provide such proof of the above may void warranty.

LABOR TRANSPORTATION & INSPECTION

The Company will repair or replace any product or part thereof which in the Companies judgment is proved to be not as warranted. Labor costs are not covered under warranty.

All costs of transportation of product, labor or parts claimed not to be as warranted and, of repaired or replaced parts to or from factory shall be borne by purchaser. The Company may require the return of any part claimed not to be as warranted to one of its facilities as designated by the Company, transportation prepaid by Purchaser, to establish a claim under this warranty.

Replacement parts provided under the terms of the warranty are warranted for the remainder of the Warranty Period of the product upon which installed to the same extent as if such parts were original components.

DISCLAIMER

THE FOREGOING WARRANTY IS EXCLUSIVE AND IT IS EXPRESSLY AGREED THAT, EXCEPT AS TO TITLE, THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED OR STATUORY, INCLUDING ANY IMPLIED WARRANTY OR MERCHANTABILITY.

THE REMEDY PROVIDED UNDER THIS WARRANTY SHALL BE THE SOLE, EXCLUSIVE AND ONLY REMEDY AVAILABLE TO THE PURCHASER AND IN NO CASE SHALL THE COMPANY BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES. UNDER NO CIRCUMSTANCES SHALL THE COMPANY BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, LOSSES OR DELAYS HOWSOEVER CAUSED.

No statement, representation, agreement, or understanding, oral or written, made by any agent, distributor, representative or employee of the Company which is not contained in this Warranty will be binding upon the company unless made in writing and executed by an officer of the Company.

This warranty shall not be effective as to any claim which is not presented within 30 days after the date upon which the product is claimed not to have been as warranted. Any action for breach of this warranty must be commenced within one year after the date upon which the cause of action occurred.

Any adjustment made pursuant to this warranty shall not be construed as an admission by the Company that any product was not as warranted.

PROMPT DISPOSITION

The Company will make a good faith effort for prompt correction or other adjustment with respect to any product, which proves to be defective within the warranty period. Before returning any product, write or call the distributor, agent or authorized company from which the product was purchased, describing defect and giving date and number of original invoice, as well as proof of Factory supplied consumables and proof of scheduled maintenance. Title and risk of loss pass to buyer upon delivery to the common carrier.

PRODUCT SUITABILITY

Many States, Localities and Countries have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While Potter attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, please review the product application, and national and local codes and regulations, and be sure that the product, installation, and use will comply with them.

