



# FILL-RITE®

## NX25-120 SERIES AC FUEL TRANSFER PUMPS

Installation and Operation Manual



**MADE IN USA**   
WITH GLOBAL MATERIALS

**GR**  
GORMAN-RUPP  
COMPANY  
*The Pump People*

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**Thank You!**

Thank you for your loyalty to the Fill-Rite® brand of fuel transfer pumps. Your safety is important, so please read and thoroughly understand the procedures set forth in this manual. In addition, please save these instructions for future reference and record the model, serial number, and purchase date of your fuel transfer pump. Protect yourself as well as those around you by observing all safety instructions and adhering to all danger, warning, and caution symbols. Please register your Fill-Rite® product via [info.fillrite.com/product\\_registration](http://info.fillrite.com/product_registration).

**IMPORTANT RETURN POLICY**

**Please do not return this product to the store.** For all warranty and product questions, please contact Fill-Rite Technical Support at 1 (800) 720-5192 or via email at [FillRiteTech@fillrite.com](mailto:FillRiteTech@fillrite.com) (M-F, 8 AM – 5 PM ET).

MODEL#	
SERIAL#	
PURCHASE DATE:	



**Limited Warranty Policy**

Fill-Rite Company warrants the goods manufactured shall be free from defects of materials and workmanship. Specific warranty details for individual products can be found at [fillrite.com](http://fillrite.com).

**Unique Features of the nextec Pump**

Your nextec fuel transfer pump will perform differently from non-intelligent pumps on start-up and while operating. You will want to keep the following in mind as you begin to use and learn how your nextec Intelligence® pump operates.

- **On initial start up**, the pump may rev momentarily, but will slow down, as if idling, as it responds to the load it senses. **This is a normal condition**, and it will continue at this low speed until you squeeze the handle on the dispensing nozzle to begin fluid flow.
- When you squeeze the nozzle handle to begin flow, the microprocessor in the pump will sense the change, and will raise the RPMs to meet the load.

**It is not uncommon for the pump to change RPMs during operation.** It will do this as it senses performance parameters are changing. For example, if you increase or decrease the flow at the nozzle, the electronics controlling the motor will sense the changes and adjust the motor speed to optimize performance.

- If the pump senses a condition that is outside normal operating parameters (e.g. low input voltage), it will sound a series of tones to alert you to the condition, and to help you diagnose it. See the “Intelligent Tones” section of the Troubleshooting Guide on page 15 for greater detail on this feature.
- Your nextec pump has a **Continuous Duty Cycle**, meaning it does not have to be shut off to “rest” after a specific period of use. This allows you to move from fueling one piece of equipment to another without having to shut the pump off. The nextec Intelligence does, however, have an automatic shut off if the pump is left running in bypass mode (without dispensing any fluid) for 20 minutes. This feature protects from unnecessary power consumption and excessive wear to the pump in the event you forget to shut the pump off. Should the pump turn itself off under these conditions, simply cycle the power switch off, then back on to restore pump operation.
- The nextec Intelligence will also shut the motor down if:
  - ▶ Pump temperature exceeds threshold parameters
  - ▶ Input voltage is outside threshold parameters
  - ▶ Rotor is locked

**About This Manual**

From initial concept and design through final production, your Fill-Rite fuel transfer pump is built to provide years of trouble-free use. To ensure the safety of yourself and those around you, it is critical that this manual is read in its entirety prior to attempting to install or operate your new purchase. We strongly urge that any installer and operator become familiar with the terms, diagrams, and technical data in this manual and pay close attention to warning symbols and definitions. At Fill-Rite, your satisfaction with our products is paramount. If you have questions or need assistance with your product, please contact Technical Support at 1 (800) 720-5192 or via email at FillRiteTech@fillrite.com (M-F, 8 AM – 5 PM ET).

<b>⚠ DANGER</b>	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
<b>⚠ WARNING</b>	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
<b>⚠ CAUTION</b>	Indicates a hazardous situation which, if not avoided, could result in moderate or minor injury.
<b>NOTICE</b>	Indicates information considered important but not directly hazard related.

**Safety Information**

<b>⚠ DANGER</b>	Electrical wiring should be performed with extreme caution and in compliance with local, state, and national electrical code NEC/ANSI/NFPA 70, NFPA 30, and NFPA 30A, as appropriate for the intended use of the pump. Threaded rigid conduit, sealed fittings, and conductor seal should be used where applicable. The pump must be properly grounded. It is recommended that a licensed electrician perform the installation. Improper installation or use of this product will result in serious bodily injury or death!
<b>⚠ DANGER</b>	To ensure safe and proper operation of your equipment, it is critical to read and adhere to all of the following safety warnings and precautions. Failure to follow instructions below, improper installation, or use of this product, will cause serious bodily injury or death! <ul style="list-style-type: none"> <li>• <b>NEVER</b> smoke near the pump, or use the pump near open flames when pumping a flammable liquid! Fire may result!</li> <li>• This product shall not be used to transfer fluids into any type of aircraft.</li> </ul>
<b>⚠ DANGER</b>	To minimize static electricity build up and possible explosion, use only static wire conductive hose when pumping flammable fluids, and keep the fill nozzle in contact with the container being filled during the filling process. Spark / static discharge may cause explosions.
<b>⚠ WARNING</b>	Threaded pipe joints and connections should be sealed with the appropriate sealant or sealant tape to minimize the possibility of leaks. Leaking fuel may cause the potential for fire and explosion.
<b>⚠ CAUTION</b>	The pump motor is equipped with electronic protection from thermal overload; if overheated, the motor will slow down. After the motor has cooled, you may cycle power or the switch to reset this safety feature and continue use. The pump will not restart until properly cooled.

**CAUTION**

This product is not suited for use with fluids intended for human consumption or fluids containing water. Materials of construction are not food grade. Water will cause rust and corrosion in the pump housing. If water enters the pump, flush immediately with a petroleum product (gasoline, diesel, kerosene, etc.) to eradicate residual water.

**NOTICE**

A Fill-Rite filter should be used on the pump outlet to ensure no foreign material is transferred to the fuel tank. Foreign material can damage the equipment being fueled.

**Fueling Safety**

**DANGER**

Fumes accumulated while fueling create an Explosive Atmosphere. It is **CRITICAL** that all possible sources of ignition be removed to a safe distance or extinguished. Sources of ignition would include (but not limited to) open flames, cigarettes, static discharge, or electrical connections that can create a spark. Explosion, fire, and severe injury or death will occur if the explosive vapors are ignited.

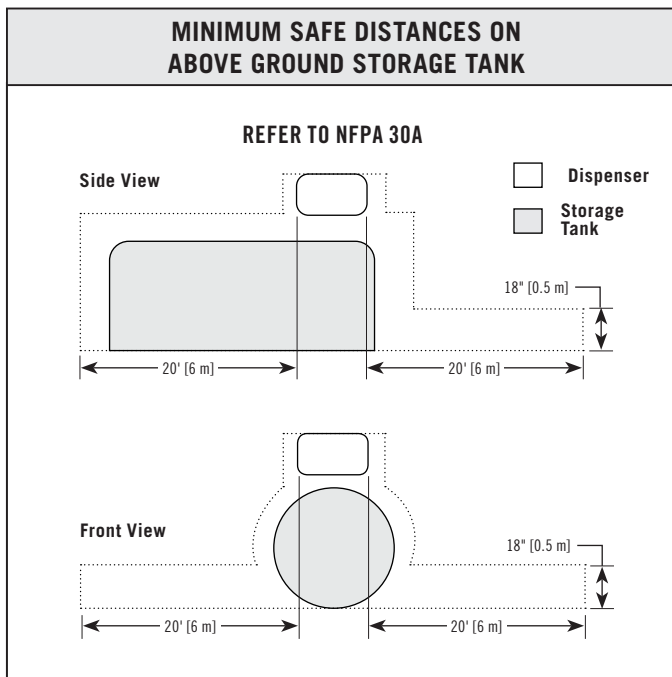
As a tank is being filled, air is displaced and exits via the fuel tank vent creating fumes, which when accumulated create an Explosive Atmosphere. To avoid possible explosion of accumulated vapors, it is critical to keep possible sources of spark / ignition at safe distances from the fuel vapors.

The accompanying diagram shows minimum safe distances between the storage tank, dispenser, and power source.

**WARNING**

Static electric spark can occur when filling portable containers sitting on truck bed liners, or on any vehicle's carpeting or floor matting. This spark will explosively ignite a gasoline vapor fire and cause **SERIOUS INJURY** or **DEATH**.

- **STATIC ELECTRIC SPARK EXPLOSION HAZARD.**
- **NEVER** fill portable containers that are in or on vehicles.
- **ALWAYS PLACE CONTAINERS ON GROUND.**
- Keep nozzle in contact with container while filling.



**Installation**

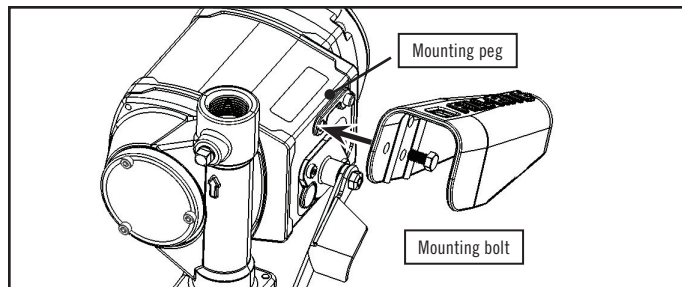
The NX25-120 pump is designed to offer several different mounting configurations. It can be mounted on a skid tank using the tank adapter supplied with the pump (see attached diagrams), or mounted on a concrete island using an optional pedestal adapter (model FRPA125 is available through your Fill-Rite distributor). Regardless of mounting style, all tanks must be properly vented.

**CAUTION**

Do not use check valves or foot valves unless they have a proper pressure relief valve built into them. Note that check valves will reduce rate of flow.

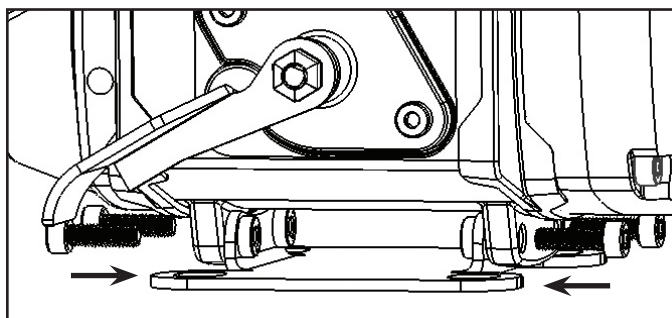
**Nozzle Boot Installation**

Install the nozzle boot using the supplied attaching bolt. Note that the bolt is inserted through the hole closest to the nozzle opening, and the boot is then positioned so the peg on the pump mounting surface inserts in the top second hole of the boot. This allows for correct alignment of the nozzle when inserted into the boot.



**Foot Mount Installation**

The mounting foot is bolted to the bottom of the pump using the four supplied socket head cap screws. Mount the foot with the bolt flanges inboard of the mounts on the pump as illustrated. Torque to 50 in-lbs with 4mm hex key.



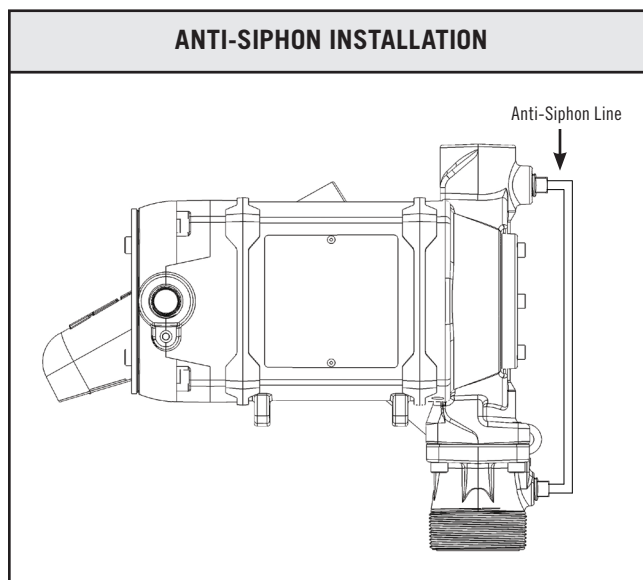
**Anti-Siphon Device**

NX25-120 pumps comes from the factory ready to install an anti-siphon tube back to the tank. An anti-siphon device (a.k.a. vacuum breaker) is important because it will break a liquid siphon if there is an open nozzle or a leaking hose below the fluid level in the tank when the pump is turned off. Fill-Rite recommends anti-siphon kit #KIT321ASN be installed from the pump outlet back to the vapor space in the tank.

This illustration shows where to install the tube so that it terminates in the vapor space at the top of the tank. The tube must terminate in the vapor space; if it terminates below the fluid level in the tank, it will not prevent siphoning. It is very important there are no liquid traps in the tubing; it must have a continuous slope from the pump down to the tank, and can be connected into any opening in the top of the tank if the tank adapter is not used. Use reducer bushings as required for proper fit and seal.

The 1/4" NPT opening in the side of the tank adapter terminates in the vapor space of the tank. Make liquid-tight connections using the appropriate sealant from the adapter to the anti-siphon outlet using a minimum of 1/4" metal tubing that is compatible with whatever liquid is being pumped. If the anti-siphon tank adapter is being used and the 1/4" NPT opening is not used for the tubing, leave the factory installed plug in place.

Fill-Rite offers Anti-Siphon kit #KIT321ASN (available through your Fill-Rite distributor). This kit contains the necessary fittings and tubing to complete the installation as pictured in this section. **NOTE: This kit ONLY works for tank top installations.**



**Tank Installation**

The NX25-120 pump mounts to the bung of a tank by way of the tank adapter that is bolted to the inlet flange. The suction tube threads into the bottom of the tank adapter, and must be cut to a length that positions it at least 3" from the bottom of the tank. The tank must be equipped with a vent cap.

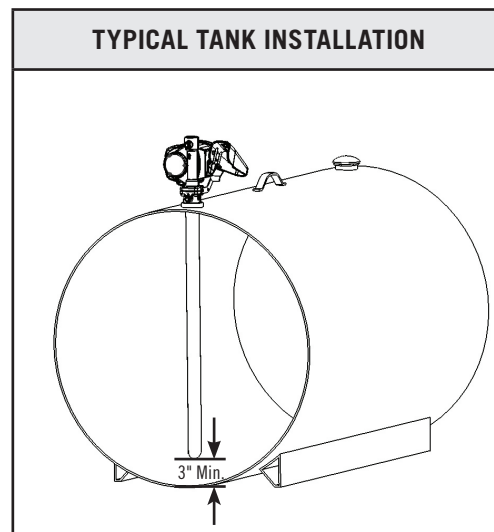
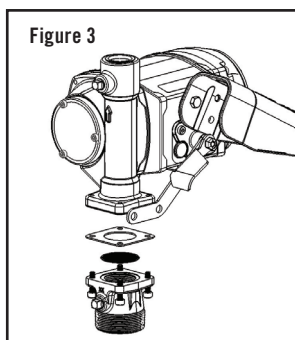
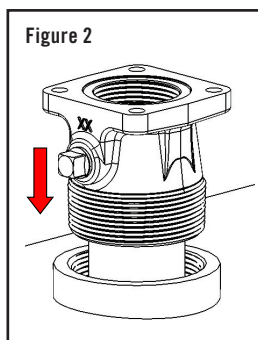
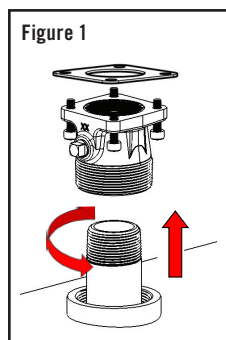
**Materials**

- 1-1/4" steel pipe cut to a length at least 3" above of the bottom of the tank when screwed into the tank adapter, with the tank adapter screwed into the bung connection on top of the tank.
- Thread pipe joint sealant appropriate for the application.

**Installation Procedure**

1. Thread the 1-1/4" pipe into the tank adapter. Seal threads liquid-tight with appropriate sealant (Figure 1).
2. Screw the tank adapter (with suction pipe) into the tank bung; seal threads liquid-tight with appropriate thread sealant (Figure 2).
3. Mount the pump on the adapter; making sure the seal and screen are installed as shown (Figure 3).

**NOTE: Tank adapters come in either NPT or BSP threads, depending on the model you purchase (see page 11 for model-specific information).**



**NOTICE**

Be certain the screen is properly seated in the indentation in the tank adapter before installing seal and tank adapter to the pump. Failure to properly seat the screen can result in fluid leakage.

**Electrical Wiring**

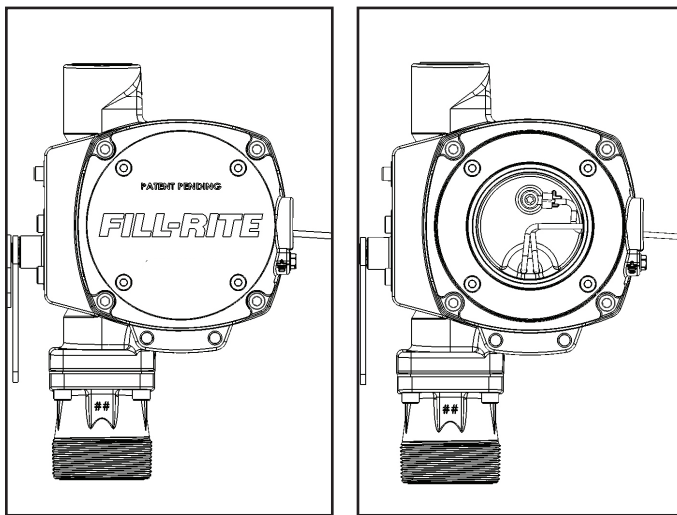
**WARNING**

Electrical wiring should be performed **ONLY** by a licensed electrician in compliance with local, state, and national electrical code NEC/ANSI/NFPA 70, NFPA30, and NFPA 30A, as appropriate to the intended use of the pump. Threaded rigid conduit, sealed fittings, and conductor seal should be used. The pump must be properly grounded. Improper installation or use of this pump can result in serious bodily injury or death!

**CAUTION**

All pumps should be operated at the Rated Nameplate Voltage. Power should be supplied to the pump from a dedicated 20 amp circuit breaker. No other equipment should be powered by this circuit. Wiring must be of sufficient size to carry the correct current for the pump. Voltage drop will vary with distance to pump and size of wire; refer to the National Electrical Code (NEC), or local codes, for Voltage Drop Compensation to be sure you are using the correct size wire for your application.

**Wiring Procedure**



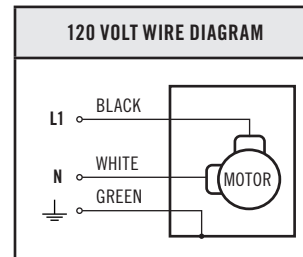
1. Remove the junction box cover and straighten the wires to make sure the stripped wire ends are accessible outside the junction box.
2. Connect the pump wires to the power supply lines according to the diagram. Be certain to properly insulate the connections with the appropriate wire nuts or other connectors. Note that the ground wire **MUST** be connected. The conduit connection is 1/2" NPT threading.
3. Fold the wires back into the junction box and replace the cover, making sure the cover gasket is in place. Torque fasteners to 44 in-lbs with 4mm hex key.

**WARNING**

NX25-120 pump is **NOT** dual voltage. Wire according to voltage on motor tag.

**NOTICE**

Be certain the gasket for the cover is in place, and the screws draw the cover down tight over the junction box. There must be no gap between the junction box and its cover.



**Operational Safety**

**DANGER**

**DO NOT** use pump in enclosed areas when pumping hazardous or explosive fluids. Pumping area should be well ventilated. Concentrated vapors in an enclosed area are noxious and highly explosive!

**WARNING**

**NEVER** disconnect the power wiring from the pump while pump is switched on or connected to a power source. **ALWAYS** switch the pump off and disconnect the power source **PRIOR** to disconnecting the power wiring from the pump. Electrical shorts, sparks, or unexpected start-up can occur.

**WARNING**

Use caution when operating the pump. The hoses can be a trip hazard; caution should be exercised while moving around the hoses to avoid tripping or entanglement.

**WARNING**

Pump assembly can become hot with extended use. Use caution if you have to touch the pump after extended periods of use.

**Operating Instructions**

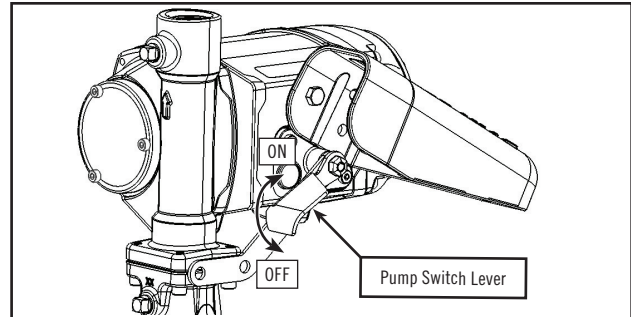
**NOTICE**

The motor has power at all times when connected to a power source. The switch does not apply or interrupt power to the motor. High voltage may still be present inside the pump after power is removed.

**CAUTION**

Always keep the nozzle in contact with the container being filled during the filling process to minimize the possibility of static electricity build up.

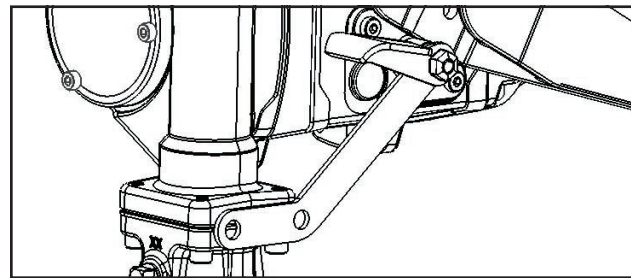
1. Remove dispensing nozzle from nozzle boot.
2. Move the switch lever to the "ON" (raised) position to start the motor. The pump should start and settle into a slow idle.
3. Insert the dispensing nozzle into the container to be filled.
4. Operate the nozzle to dispense fluid; release nozzle when the desired amount of fluid has been dispensed.
5. Move switch lever to the "OFF" (lowered) position to stop the motor.
6. Remove the dispensing nozzle from the container being filled and store it in the nozzle boot.



**Pad Locking**

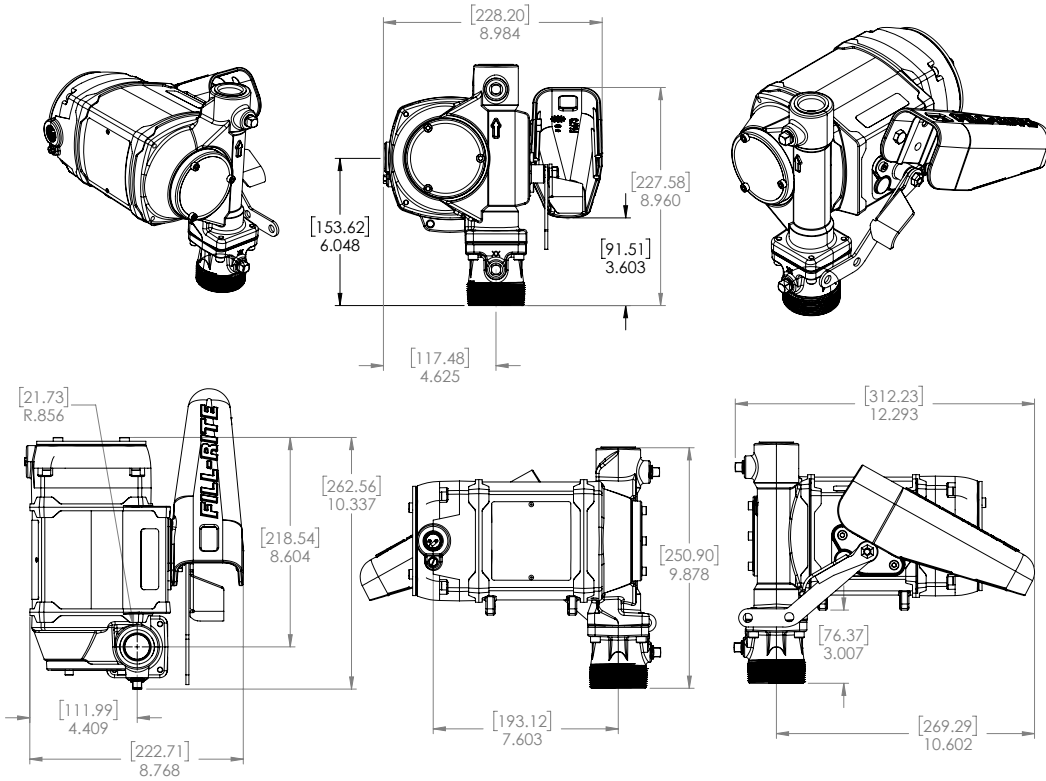
Your Fill-Rite nozzle can be pad locked to the pump for added security. With the pump turned off, and the nozzle in the stored position, a pad lock can be inserted through the locking link and the nozzle handle opening. This configuration prevents the nozzle from being removed from the nozzle boot.

The locking link is located on the nozzle side of the pump, and can be pivoted into position to work with the nozzle listed on the barrel label of your NX25-120 pump. Use the appropriate position and hole to lock your nozzle securely to the pump.

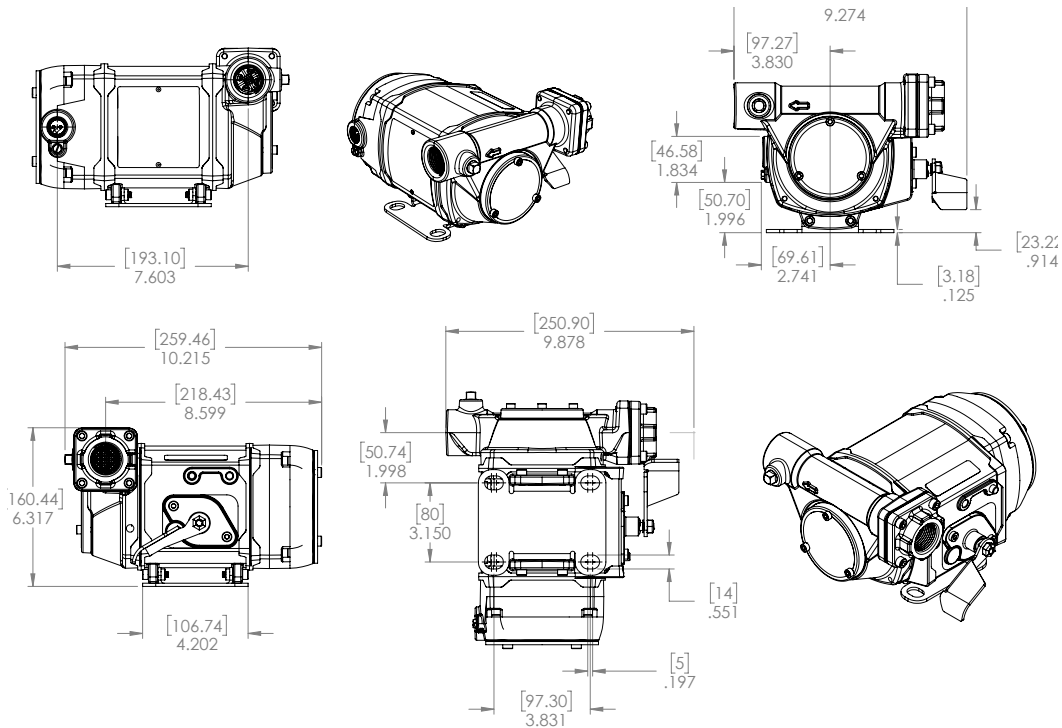


**NX25-120 Dimensional Information**

**Bung Mount Dimensional Information**



**Foot Mount Dimensional Information**



**Technical Information**

Motor	Specification
Power	115V AC 50/60 Hz
HP (horsepower) rating	1/3
Amps (FLA)	3.5
RPM	Variable 400 - 3500
Duty cycle	Continuous for Fuel Transfer
Thermal protection	Electronically Protected
Certification	UL / cUL Motor

Pump	Specification
Design	Rotary Vane
GPM in Supplied Configuration	25 GPM / 95 LPM*
Bypass Pressure Rating (PSI) - Max	25 PSI
Dry vac (in. Hg)	11
Head – Max	48.5'
Inlet – size / thread	1-1/4" Bung Mount NPT / 1" Foot Mount NPT
Outlet – size / thread	1" NPT
Inlet - Material	Cast Iron
Mount	2" NPT Bung / NPT Foot
Material – Pump Housing	Cast Iron
Materials – Wetted Material	Phenolic, Stainless Steel, Steel, Acetal, Thermoset , BUNA-N, Fluorocarbon, Ceramic
Rotor Material	Powdered Iron
Rotor Vane Material	Acetal
Compatible Fluids	Diesel, Gasoline, Bio-Diesel up to B20, E15, Kerosene, Mineral Spirits, Methanol (up to 15%)
Strainer Mesh Size	20 x 20
Warranty	Limited Lifetime
Minimum Rated Temperature	-40°F / -40°C

\*Adding accessories will affect flow rate

**Accessories\***

Accessories	Description
N100DAU13	1" Ultra High-Flow Automatic Nozzle
N100DAU13G	1" Ultra High-Flow Automatic Nozzle (Diesel)
N100DAU12	1" High-Flow Automatic Nozzle
900CD	Digital Meter
900CDP	Digital Meter with Pulser
FRH10020	20' x 1" Static Discharge Hose
FRH10012	12' x 1" Static Discharge Hose
S100H1315	1" Multi-Plane Swivel
TT10AN	1" Digital In-Line Turbine Meter

\*Able to be used with NX25-120 pump

**Servicing the Bypass Valve (Disassembly)**

**WARNING**

Disconnect electrical power and relieve any pressure in the lines prior to servicing this pump! Failure to do so can result in damage to the equipment and personal injury or death!

**NOTICE**

Removal of the bypass valve in the NX25-120 pump requires special attention; please adhere to the replacement procedure in the kit instructions to minimize the possibility of damaging the pump housing during the removal and re-installation process. Kit instructions are available at [fillrite.com](http://fillrite.com).

The bypass valve is located inside the pump housing. It is accessed through the inlet and outlet openings. It consists of three main components (Figure 1):

- A. Bypass Valve Retainer
- B. Bypass Valve Spring
- C. Bypass Valve

1. Unbolt the pump from the tank adapter.
2. Using a blunt object approximately 4" long (i.e. a deep well socket on an extension) inserted in the inlet opening, push the bypass valve firmly in place against the seat it seals on (Figure 2).
3. While holding the bypass valve firmly in place with the socket, insert needle nose pliers (at least 4" long) into the outlet opening and grasp the bypass valve retainer (Figure 2 & 3).
4. Push the bypass valve retainer down slightly and rotate it 90 degrees counter-clockwise. This will align the slot in the retainer with the key on the valve, allowing you to remove the retainer (Figure 2 & 3).

**Servicing the Bypass Valve (Reassembly)**

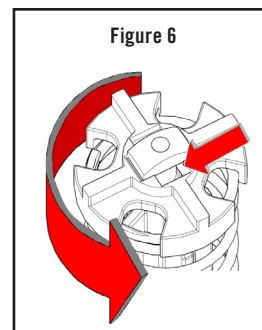
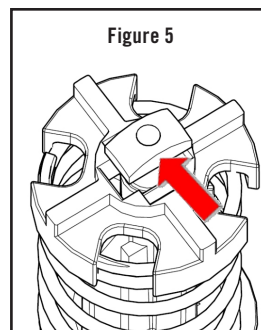
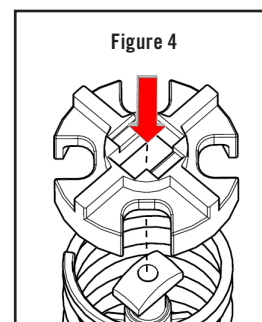
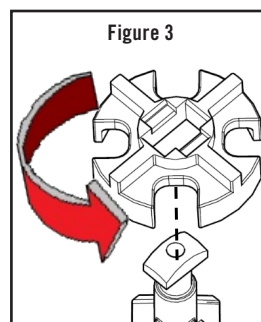
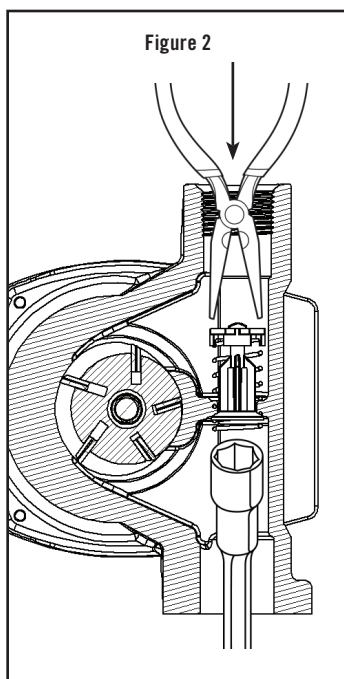
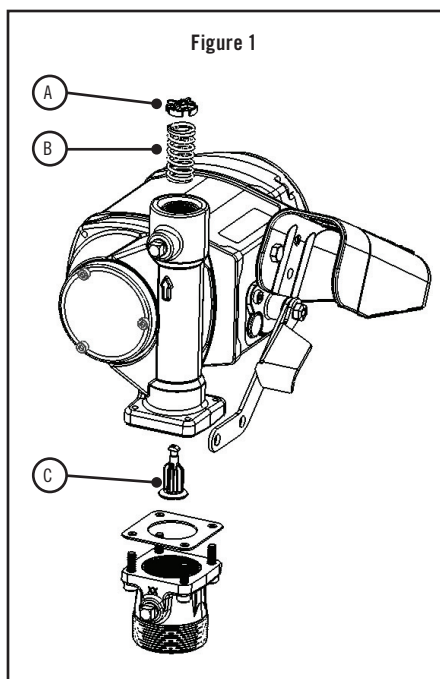
**WARNING**

Always wear eye protection anytime you look into the Pump Outlet; a mispositioned or improperly installed valve spring retainer can pop up unexpectedly. Note that use of a small flashlight can help you better see and more easily align the components in this task.

1. Using needle nose pliers, place the bypass valve retainer on top of the bypass valve spring. Carefully align the slot in the top of the bypass valve retainer with the locking tab on top of the bypass valve (Figure 4).
2. Push the bypass valve retainer down over the locking tab on the bypass valve. Push the retainer down (compressing the spring) until it is completely below the locking tab (Figure 5).
3. Rotate the bypass valve retainer 90 degrees counterclockwise and allow the spring to gently push it back up to contact the locking tab. The locking tab **MUST** be seated in the indentation in the bypass valve retainer (Figure 6).

**WARNING**

It is critical that the locking tab be seated in the indentation in the bypass valve retainer as illustrated. Failure to do so can cause the retainer to come off when operating in bypass mode, potentially damaging the pump, or ejecting upward through the pump outlet while servicing.



**Model Specific Information**

Model	Voltage	Mount	Threads	Accessory Package	Hose	Nozzle	Meter	Certification
NX25-120NB-PX	115V	2" NPT Bung	NPT	PX	-	-	-	UL/cUL
NX25-120NB-AA	115V	2" NPT Bung	NPT	AA	1" X 18'	1" Ultra High-Flow Automatic	-	UL/cUL
NX25-120NF-PX	115V	Foot	NPT	PX	-	-	-	UL/cUL
NX25-120NF-AA	115V	Foot	NPT	AA	1" X 18'	1" Ultra High-Flow Automatic	-	UL/cUL

**Available Accessory Packages**

Accessory Type	Accessory Item	Accessory Package	
		PX	AA
Pump Only	No Accessories	X	
Hose	1" X 18' Static Wire Hose		X
Nozzle	1" Ultra High-Flow Nozzle, Green Cover		X