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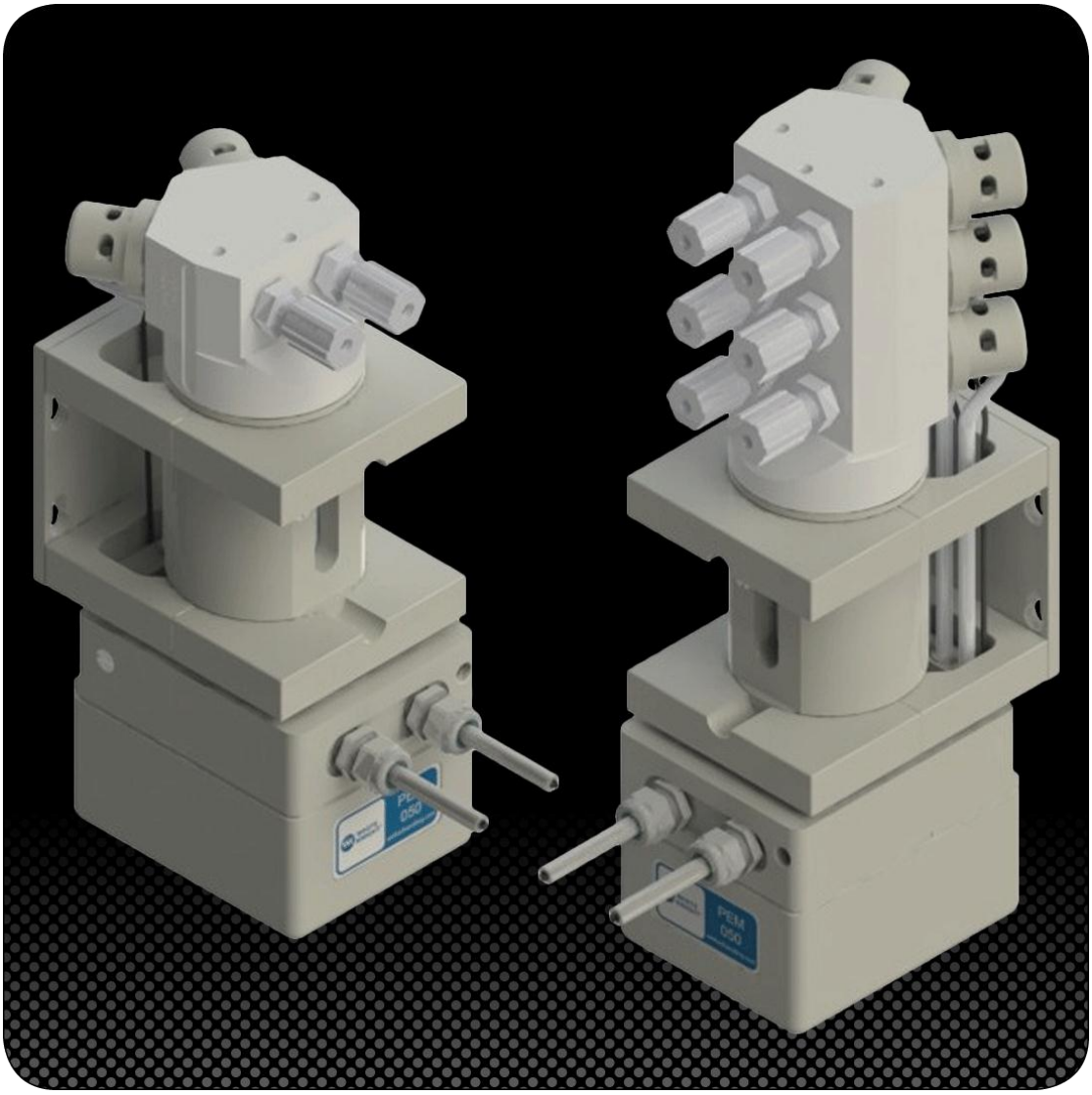
# PEM050 Installation Instructions



# Installation and Precautions

## Precautions

| Use of Electronically Controlled Metering Pumps |
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| Electrically controlled metering pumps do not qualify for use in explosion proof environments. |
| **Handling** |
| DO NOT LIFT PUMP BY LIQUID FITTINGS OR AIR TUBING! |
| **Air Supply** |
| The operation of the PEM050 requires a minimum of 60PSI air supply pressure, ran through a minimum ⅛" ID airline. Supplying less than 60 PSI air supply pressure to the pump will not allow the positively controlled inlet/outlet valves to fully actuate. Max air supply pressure is 80 psi. |
| **Dry Priming/Air Purging** |
| Initial priming of the PEM050 is critical to the pumps performance. For optimal air purging, the pump should be mounted with the liquid ports up (motor bottom configuration). The pump should be fully cycled until no air is found in the liquid dispense line. |
| **Pumping Slurries and Abrasives** |
| For pumping slurries, White Knight recommends mounting the PEM050 with the liquid inlet/outlet ports at the bottom of the pump (motor top configuration). |
| **Restriction of Liquid Inlet Line** |
| Restricting the liquid supply of the pump forces the pump to work harder than normal and should be avoided when possible. Pumping against a closed liquid inlet will cause serious damage to your pump and will void the pump warranty. |
| **Cross Contamination** |
| PTFE and many other plastics are very porous and may retain chemicals in the pores of the material. Record chemistries used in a pump to avoid cross contamination. |
| **NEMA 5 Applications** |
| The PEM050 is capable of NEMA 5 classification. However this requires that the end user route the constant air-cool bleed to a safe location. The port is located on the back of the motor housing and is assembled and shipped with a muffler to allow for immediate use upon arrival. The exhaust must remain clear of obstruction, or the motor housing cover will disengage. The exhaust port is ⅛" NPT, recessed in the motor housing. |
| **WARNING: Liquids and Gasses Under Pressure** |
|  While in a live system, pumps contain pressurized liquids and gasses. All pressure, liquid and air must be eliminated via shut off valves before the pump may be removed or detached from the system. |
| **WARNING: Handling of Chemicals** |
|  In the event that hazardous chemicals are used in or around the pump, ensure that appropriate personal protective equipment is used before handling. Reference the chemistry's Material Safety Data Sheet (MSDS) for handling instructions or other information specific to that chemical. |

## System and Pump Environment Recommendations/Requirements

| Clean Supply Air (CDA) |
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| White Knight high purity pumps require the use of Class 2 air for particles and moisture per ISO 8573-1. (Use 10 micron filter, maintain -40° C dew point) |
| **Abrasive Slurries** |
| Pumping of abrasive slurries will shorten the life of any pump. White Knight high purity pumps are still warrantied when used in abrasive applications however; wear of components will be accelerated. Normal wear is not a condition covered by warranty. |
| **Environmental Temperature** |
| This pump is rated to withstand environmental temperatures up to 80°C. |

## Installation Advantages

| High Discharge Pressure |
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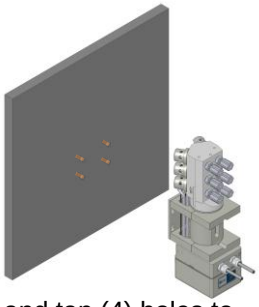
| The PEM050 is capable of discharging at pressures up to 80 psi, allowing the PEM050 to pump directly into pressurized vessels or lines. |
| **Mounting Orientation** |
| The PEM050 can be mounted in any orientation. For optimal air purge, resulting in highest accuracy, the pump should be mounted with liquid ports up (motor bottom configuration). When pumping slurries/abrasives the pump should be mounted with liquid ports on bottom (motor top configuration) to help increase the life of the diaphragm. |

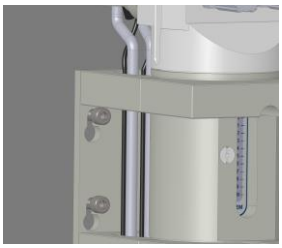
## Installation Instructions

1. 

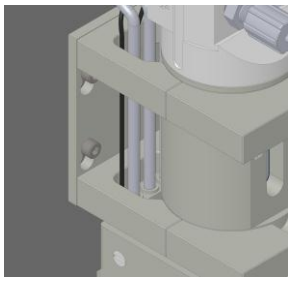
Drill and tap (4) holes to accept 4, ¼-20 set screws. Location of holes is critical, please see dimensional on page 4 of this manual.

2. 

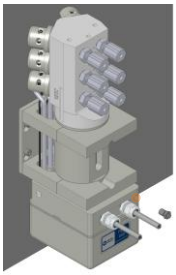
Thread screws partially into wall, leaving approximately ¼" of threads exposed. Align bracket holes with set screws and press against the wall.

3. 

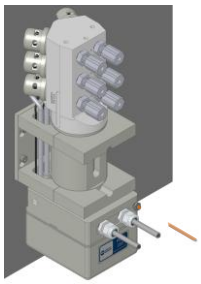
Ensure that the pump sits on all four (4) screws and is flush against the wall.

4. 

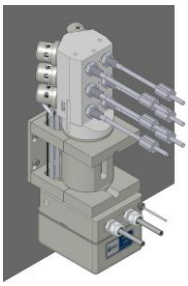
Tighten screws until slight pressure is applied to the mounting plate. CAUTION: OVER TORQUEING CAN CAUSE DAMAGE TO THE BRACKET AND/OR THE WALL THE PUMP IS MOUNTED TO!!

5. 

Attach the Quick connect fitting to the motor housing

6. 

Attach airline to the quick connect. Air supply line must be ⅛" minimum orifice, unrestricted to source. Air supply must be at least 60 PSI, and not more than 80 PSI at point of use.

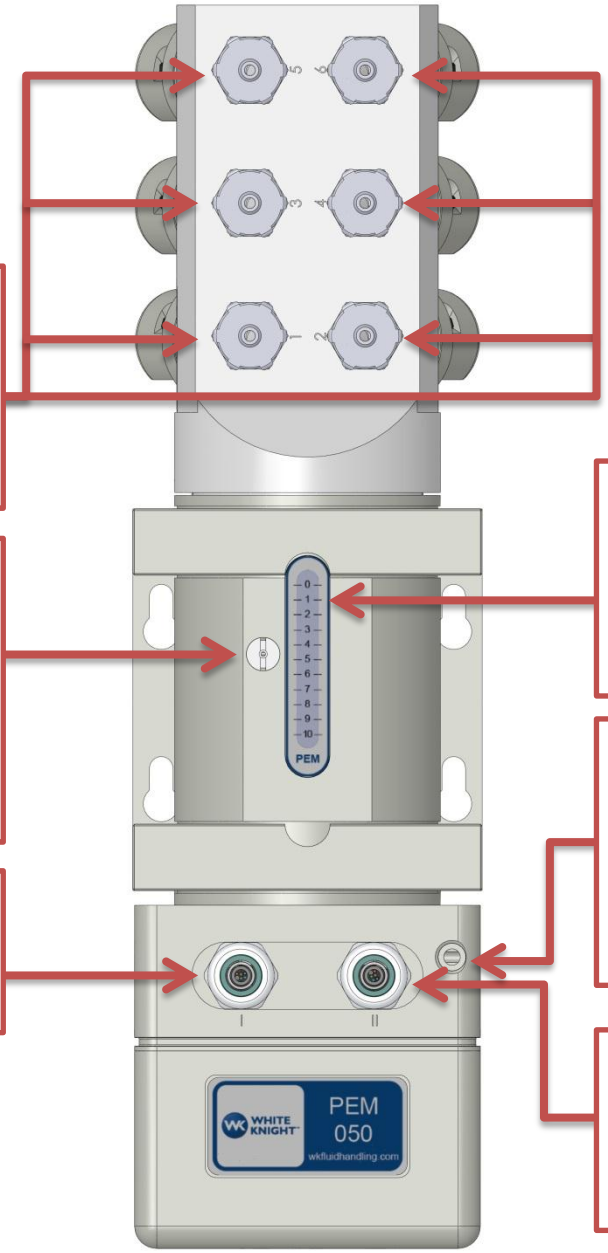
7. 

Attach Liquid Fittings per manufacturers' instructions.

| **Electrical Connections** |
| --- |
| Use of electronics does not qualify for pumps used in potentially explosive atmospheres. For instruction on the installation of the electrical connections and setup of this pump, please see section 5 of this manual. |

## Connections

All connections to the PEM050 can be accessed from the front of the pump. The diagram below shows all of the connections for reference throughout the manual.




**Liquid I/O Ports:**

Each port can be ether a refill port or dispense port, see communication protocol for more details.

**Air Vent / Leak Port:**

This port is open to the surrounding air, and is available for indicating leaks. Can be connected to a leak detect:

**Power & I/O Connection:**

Power and I/O connections more details in section 5.

**Position Indicator:**

This is a visual indicator used to verify that motion, and can be used as a relative indication of amount dispensed.

**CDA Input:**

This connection supplies the compressed air to operate the pilot operated air valves. CDA pressure should be between 60-80 PSI.

**Communication Connection:**

Serial RS422/485 or Ethernet connections available see section 5 for more details.