

NANPU FRPD44-D

NANPU 1/2" NPT 3-Stage Industrial Air Drying System User Manual

Model: FRPD44-D | Brand: NANPU

INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your NANPU 1/2" NPT Industrial Grade 3 Stage Air Drying System, Model FRPD44-D. This system is designed to deliver clean, dry, and oil-free compressed air, essential for applications such as paint spraying and plasma cutting, ensuring optimal performance and extended tool life.

PRODUCT OVERVIEW

The NANPU 3-Stage Air Drying System integrates a particulate filter, coalescing filter, desiccant dryer, and air regulator into a single unit to provide comprehensive air purification.

Key Components and Stages:

- **Stage 1: Particulate Filter & Air Regulator**

Equipped with a 5-micron element, this stage removes most moisture and particles from the air line. The integrated pressure regulator allows for accurate adjustment and stabilization of air pressure. Features a metal bowl with a visible sight glass and an auto drain mechanism.

- **Stage 2: Coalescing Filter**

This stage features a 0.01-micron element, designed to remove 99.9% of smaller particles, moisture, and oil that pass through the first stage. A red indicator pops up when the filter element requires replacement.

- **Stage 3: Desiccant Air Dryer**

The desiccant dryer thoroughly dries and cleans the air before it reaches your pneumatic tools. Desiccant beads, added to a metal bowl with a visible sight glass, change color from blue to pink when they need replacement.



Figure 1: Complete NANPU 3-Stage Air Drying System.



1. Water trap filter/pressure regulator.equipped with 5 micron element to remove 95% of the initial moisture and debris from your compressed air line.regulator adjusts pressure from 7 to 215 psi.5oz metal bowl with visible sight glass.

2.Coalescing filter also known as oil removing filter armed with A 0.01 micron element that removes 99.98% of moisture,moisture vapor and oil that made its way past your stage 1 filter.5oz metal bowl with visible sight glass.red indicator pops up when time for filter change.

3.Desiccant air dryer,dries out your super clean air before going downstream to your air tools.uses 5oz desiccant beads in the bowl.beads turn from blue to pink when time to change,comes with 2 bags of desiccant beads.

Figure 3: Air flow diagram through the three filtration stages. Air enters the water trap filter/regulator, then passes through the coalescing filter, and finally the desiccant air dryer before exiting.



Figure 4: Internal components of each stage, illustrating the 5-micron element for Stage 1, the 0.01-micron element for Stage 2, and the desiccant beads for Stage 3.

SAFETY INFORMATION

- Always depressurize the air system before performing any maintenance, filter changes, or adjustments.
- Ensure all connections are secure and leak-free to prevent air loss and potential hazards.
- Do not exceed the maximum operating pressure of 175 psi.
- Wear appropriate personal protective equipment (PPE), including eye protection, when working with compressed air systems.
- Keep the unit away from heat sources and open flames.
- Dispose of used filter elements and desiccant beads according to local regulations.

SETUP

1. **Mounting:** Securely mount the air drying system to a stable surface using the integrated brackets. Ensure it is

installed in a vertical position for proper drainage.

2. **Air Line Connection:** Connect the compressed air supply to the "IN" port and your pneumatic tools or equipment to the "OUT" port. The system uses 1/2" NPT fittings. Use thread seal tape on all threaded connections to ensure an airtight seal.
3. **Desiccant Bead Installation:** The desiccant beads are typically supplied in separate bags. Unscrew the metal bowl of the Stage 3 desiccant dryer, carefully pour the beads into the bowl, and reattach the bowl securely. Ensure the visible sight glass is properly aligned.
4. **Pressure Adjustment:** Turn the pressure regulating knob counter-clockwise to reduce pressure or clockwise to increase it. Adjust to the desired operating pressure for your tools.
5. **Initial Check:** Slowly introduce air pressure into the system and check for any leaks using a soapy water solution. Tighten connections as necessary.

Your browser does not support the video tag.

Video 1: Official NANPU Industrial Grade 3 Stage Air Drying System overview. This video demonstrates the system's features and basic installation steps.



Figure 5: Included accessories: 5 micron and 0.01 micron filter elements, and desiccant bead bags.



Figure 6: Included 1/2" NPT fittings and thread seal tape for secure connections.

OPERATING INSTRUCTIONS

1. **Power On:** Ensure your air compressor is turned on and supplying air to the system.
2. **Pressure Monitoring:** Observe the metal gauge on Stage 1 to ensure the desired operating pressure is maintained. Adjust the pressure regulating knob as needed.

3. **Drainage:** The auto drain on Stage 1 will automatically release accumulated moisture. For the manual drain on Stage 2, periodically open the drain valve to release collected liquids.

4. **Indicator Monitoring:**

- **Stage 2 Coalescing Filter:** A red indicator will pop up when the 0.01-micron filter element needs replacement.
- **Stage 3 Desiccant Dryer:** The desiccant beads will change color from blue to pink, indicating they are saturated and require replacement.



Figure 7: Pressure regulating knob for adjusting air pressure.



Figure 8: Metal pressure gauge for monitoring system pressure.



Figure 9: Visible sight glass on filter bowls for monitoring fluid levels.



Figure 10: Red indicator on the coalescing filter, signaling element replacement is due.

MAINTENANCE

Regular maintenance ensures the longevity and efficiency of your air drying system.

Filter Element Replacement:

- **5 Micron Element (Stage 1):** Replace when the filter appears visibly dirty or when air flow is restricted.
- **0.01 Micron Element (Stage 2):** Replace when the red indicator pops up.
- **Procedure:**
 - a. Depressurize the entire air system.
 - b. Unscrew the metal bowl from the corresponding filter stage.
 - c. Remove the old filter element.
 - d. Insert the new filter element, ensuring it is seated correctly.
 - e. Reattach the metal bowl securely.
 - f. Repressurize the system and check for leaks.

Desiccant Bead Replacement (Stage 3):

- Replace the desiccant beads when they change color from blue to pink.
- **Procedure:**
 - a. Depressurize the entire air system.
 - b. Unscrew the metal bowl from the desiccant dryer stage.
 - c. Carefully empty the spent desiccant beads.
 - d. Pour fresh desiccant beads into the bowl.
 - e. Reattach the metal bowl securely.
 - f. Repressurize the system and check for leaks.



Figure 11: Replacement filter elements and desiccant beads are available for purchase to maintain system performance.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Air leakage from connections	Loose fittings, insufficient thread sealant.	Depressurize system, tighten all connections, apply more thread seal tape if necessary.
Red indicator on Stage 2 is up	0.01 micron coalescing filter element is saturated.	Replace the 0.01 micron filter element.
Desiccant beads are pink	Desiccant beads are saturated with moisture.	Replace the desiccant beads.
Reduced air flow or pressure drop	Clogged filter elements (Stage 1 or 2), regulator malfunction.	Check and replace filter elements. Inspect regulator for proper function.
Auto drain not functioning	Drain mechanism clogged or stuck.	Depressurize system, inspect and clean the auto drain mechanism. Ensure proper installation.

SPECIFICATIONS

- **Model Number:** FRPD44-D
- **Port Size:** 1/2" NPT
- **Operating Pressure Range:** 30-175 psi
- **Flow Rate:** 141 CFM (4000 L/min)
- **Stage 1 Filter Element:** 5 Micron
- **Stage 2 Filter Element:** 0.01 Micron
- **Bowl Material:** Metal with Visible Sight Glass
- **Drain Type:** Auto Drain (Stage 1), Manual Drain (Stage 2)
- **Item Weight:** 7.43 pounds
- **Package Dimensions:** 13.82 x 11.05 x 4.62 inches
- **Manufacturer:** NANPU

WARRANTY

For warranty information, please refer to the product packaging or contact NANPU customer support directly. Keep your purchase receipt for warranty claims.

SUPPORT

For technical assistance, replacement parts, or further inquiries, please visit the official NANPU website or contact their customer service department. Contact details can typically be found on the product packaging or the brand's official online store.