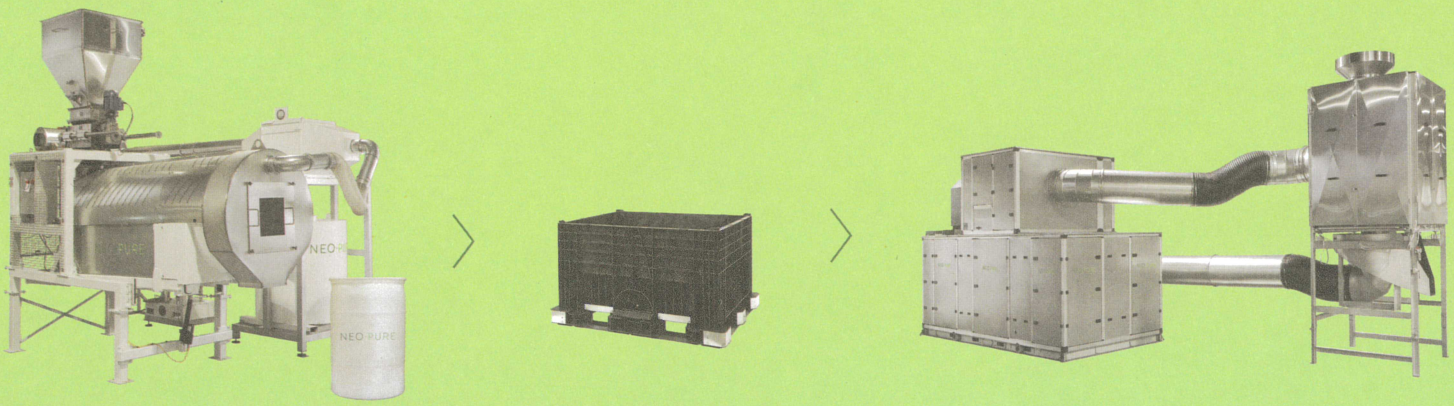
# NEO-PURE

Food Safety as Nature Intended

# HOW IT WORKS

Neo-Pure achieves a 5-log reduction of pathogens on seeds, grains, and nuts by following a patented and validated three-step process using its dedicated Food Safety System



## APPLY

- Uniform coverage
- Highly automated w/ traceability
- Validated, continuous process

## HOLD

- Achieves target log reduction
- Done in cleanable vessel
- Time varies by food

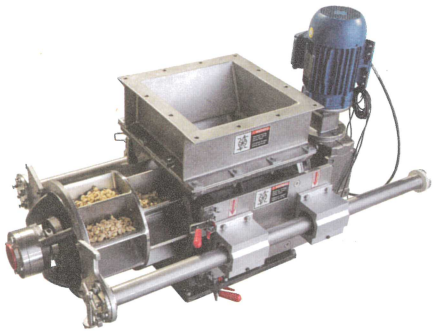
## DRY

- Removes free moisture
- Preserves sensory & nutrition
- Low heat & energy efficient

# APPLICATOR


## SPECIFICATIONS

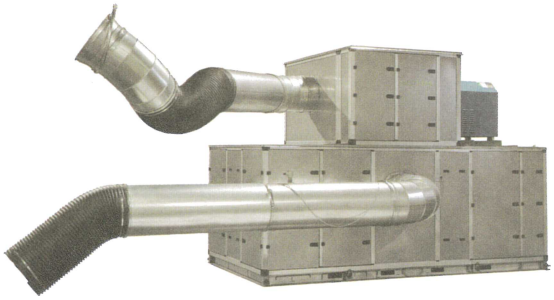
| | |
|---|---|
| FUNCTION: | Applies Neo-Pure uniformly onto seeds, grains & nuts |
| THROUGHPUT: | Up to 10 metric tonnes/hour |
| FOOTPRINT: | 250 total sq. ft. |
| DIMENSIONS: | 12 X 6 X 14 ft. (L X W X H) |
| MATERIAL: | Stainless Steel Food Contact Surfaces (304) |
| INSTALLATION: | Drop-in ready; 1-day installation |
| CLEANING: | Daily, ~2 hours |



Rotary Valve

Unique system to meter food for consistent throughput and easy cleaning

# DRYER

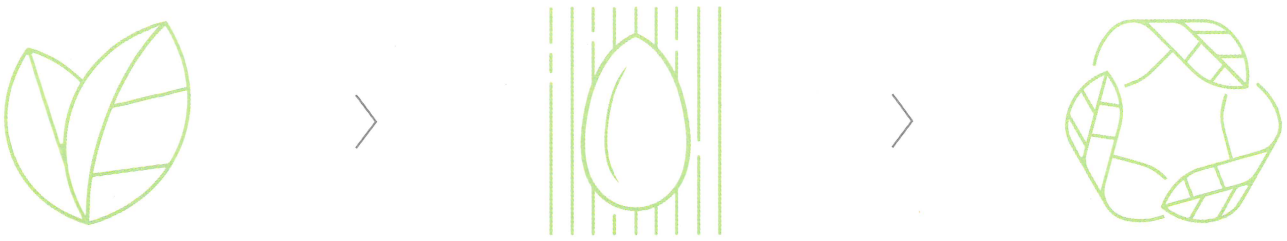


Air Handling Unit (AHU)

## SPECIFICATIONS

| | |
|---|---|
| FUNCTION: | Removes moisture, keeps food raw |
| THROUGHPUT: | At least 40 tonnes per week |
| FOOTPRINT: | Chamber: 27 sq. ft., AHU: 94 sq. ft. |
| DIMENSIONS: | Chamber: 6 X 6 X 11ft., AHU: 8 X 13 X 10 ft. |
| MATERIAL: | Stainless steel chamber (304) |
| INSTALLATION: | Drop-in ready; 1-day installation |
| CLEANING: | Weekly, ~1.5 hours |

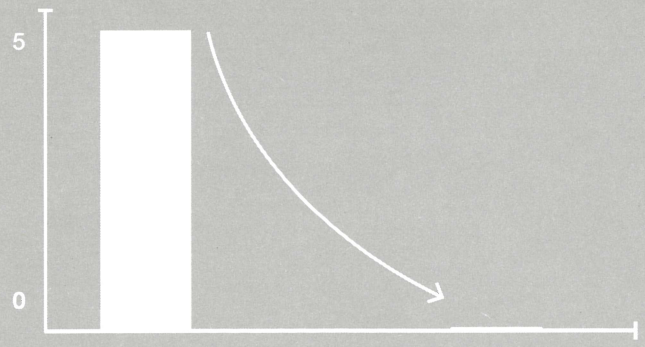
# NEO-PURE SOLVES YOUR FOOD SAFETY PROBLEM FOR SEEDS, GRAINS & NUTS



NEO-PURE is an organic liquid solution derived from plants

When applied onto seeds, grains & nuts, it destroys pathogens on the surface and in cracks and crevices

Afterwards, it completely biodegrades into $H_2O$ that is dried off




## 5-LOG REDUCTION

NEO-PURE is validated to achieve a 5-log reduction of pathogens like *Salmonella*

# YOUR FOOD REMAINS

## RAW

NO HEAT that could degrade food, so all nutrition remains intact

## ORGANIC

NEO-PURE is certified organic to US NOP & Canadian COR standards

## VIABLE

Sensory, shelf life, and germination rates are preserved

Additional Specifications:

-The Applicator requires 34 amps at 460VAC/3 phase, and 15 amps at 120VAC/1 phase
Some of the major components are: Drum rotation motor (3 HP), Atomizer motor (1/3 HP), Rotary Valve motor (1.5 HP), Exhaust Fan motor (5 HP)

-The Dryer needs to be fused for 200 amps at 460VAC/3 phase.

Under normal conditions, it operates much lower, around 120 to 140 amps due to recovery or heat from the exhaust air back into the supply air.
Some of the major components are: Supply fan (15 HP), Exhaust fan (7.5 HP), Compressor A (34 HP), Compressor B (34 HP), Electric heater (50 kW)

-The discharge height for the dryer is 18 inches, but can be raised up to 37 inches with included extension legs. We empty the chamber into 32" high containers, so the unit viewed in our shop would have been with extension legs on.
The dimensions of the drying chamber are 64" W x 69" L x 149" H, or optionally with extension legs 167" tall. This would be the top of the hopper under the tallest configuration.

-Equipment control manufacturers are:
Applicator PLC: Schneider

Dryer PLC: Carel

VFDs are Allen-Bradley

-Recommend drying times for each food product are determined by Agri-Neo during development testing and validation. This is based on returning the product to the original moisture of the raw product (prior to treatment with Neo-Pure). An operator will input this drying time into the HMI (we provide a cheat sheet that shows dry time for each product) and a timer counts down as long as the temperature is within range of set point. In addition, off-line confirmation of moisture content is a critical quality control step that should be performed for each dryer batch

| SYSTEM SPECIFICATIONS (see Figure 2 for Drying Chamber diagram; and Figure 3 for Air Handling Unit diagram below): | SITE REQUIREMENTS |
|---|---|
| DRYING CHAMBER DIMENSIONS:<br>• 64" W x 69" L x 149" H<br>• Height up to 167" with optional extension legs<br>DRYING CHAMBER WEIGHT:<br>• 2,100 lbs<br>DRYING CHAMBER LOAD HEIGHT (TREATED SEED):<br>• 149" (or 167" with extension legs)<br>DRYING CHAMBER DISCHARGE HEIGHT (DRIED SEED):<br>• 18" (or 37" with extension legs)<br>AHU DIMENSIONS:<br>• 94" W x 156" L x 114" H<br>AHU WEIGHT:<br>• 10,000 lbs<br>INCLUDED COMPONENTS:<br>• NPDC1000 Drying Chamber<br>• NPAHU5000 Air Handling Unit | POWER SUPPLY:<br>• 200 amps at 460 VAC, 3 phase<br>COMPRESSED AIR:<br>• 80 psig<br>DRYER & AHU AIR SUPPLY:<br>• From room<br>DRYER & AHU AIR EXHAUST:<br>• 12" x 12" to outside<br>CUSTOMER SUPPLIED COMPONENTS:<br>• Inlet conveyance<br>• Outlet conveyance<br>• Room air make-up |

DYLAN Wright
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15 amps at 120 VAC, 1 phase

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## [NPA300R] NEO-PURE APPLICATOR

**APPLICATOR DESCRIPTION:**

- Continuous application system
- Painted Carbon Steel Frame; 304SS Food Contact Areas
- Rotary Valve for quick product changeover times
- Application rates of up to ***120 L Neo-Pure per metric ton (food product dependent)***
  - **Note**: Higher Neo-Pure application rates may reduce total throughput
- Applicator Hopper = 20 $ft^3$ capacity
- Vapor Capture Fan = 5 horsepower, 700 cfm
- Day Tank Capacity = 227 L

### SYSTEM SPECIFICATIONS
(see figure 1. applicator diagram below)

**APPLICATOR DIMENSIONS:**

- 64" W x 141" L x 145" H

**WEIGHT:**

- 4,000 lbs

**SEED HOPPER LOAD HEIGHT (UNTREATED SEED):**

- 145"

**DRUM EXIT HEIGHT (TREATED SEED):**

- 36"

**INCLUDED COMPONENTS:**

- Neo-Pure stainless steel preparation tank
- Rotary Valve
- Application chamber with Neo-Pure atomizer
- 304 Stainless steel coating drum
- Touch Screen PLC and interlocks
- Vapor capture with ducting, filtration, exhaust fan

### SITE REQUIREMENTS

**POWER SUPPLY:**

- 34 amps at 460 VAC, 3 phase
- 15 amps at 120 VAC, 1 phase

**WALL PENETRATION FOR VAPOR CAPTURE EXHAUST:**

- For 8" circular ducting

**VAPOR CAPTURE FAN MOUNT:**

- 96" off of floor

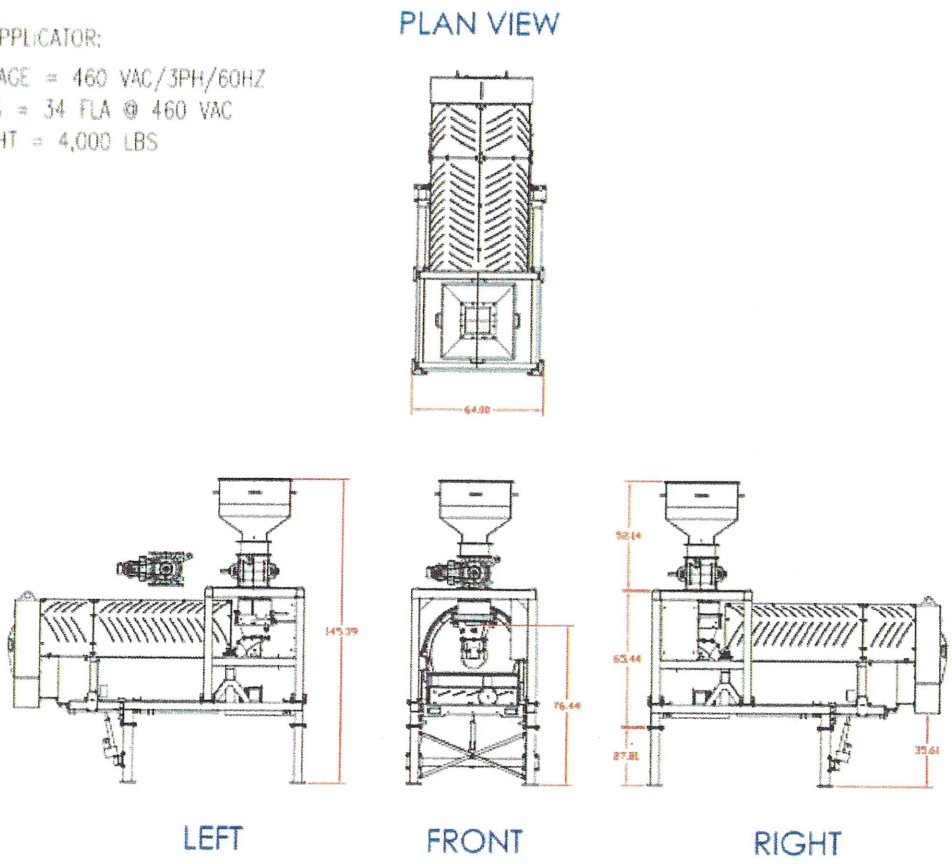
**CUSTOMER SUPPLIED COMPONENTS:**

- Inlet conveyance
- Outlet conveyance

**Figure 1. Applicator Diagram**

NEO-PURE APPLICATOR:

1) VOLTAGE = 460 VAC/3PH/60HZ
2) AMPS = 34 FLA @ 460 VAC
3) WEIGHT = 4,000 LBS



## NPDC1000 NEO-PURE DRYING SYSTEM

**DRYING SYSTEM DESCRIPTION:**

**Drying Chamber:**

- ***Batch Drying System***: Drying Chamber and Air Handling Unit (AHU)
- Drying Chamber = Complete 304SS construction
- Chamber capacity = ***32 ft³, static bed***
- Chamber is flood-fed by tote or conveyor (customer supplied)

**Air Handling Unit (AHU)**

- Single heavy frame, fully welded steel
- Aluminum frame and aluminum composite sheet metal construction
- 5000 cfm @ 8" w.c.
- 160 F max air temperature output
- MERV8 Air filtration

**OPTIONS:**

- Spare screens for quick product changeover times (approximately 30 min)

**RECOMMENDATIONS:**

- Installation area should have water and drains available for cleaning

| **SYSTEM SPECIFICATIONS** (see Figure 2 for Drying Chamber diagram; and Figure 3 for Air Handling Unit diagram below): | **SITE REQUIREMENTS** |
|---|---|
| **DRYING CHAMBER DIMENSIONS:**<br>• 64" W x 64" L x 130" H<br>**DRYING CHAMBER WEIGHT:**<br>• 2,100 lbs<br>**DRYING CHAMBER LOAD HEIGHT (TREATED SEED):**<br>• 130"<br>**DRYING CHAMBER DISCHARGE HEIGHT (DRIED SEED):**<br>• 18"<br>**AHU DIMENSIONS:**<br>• 131" W x 161" L x 120" H<br>**AHU WEIGHT:**<br>• 10,000 lbs<br>**INCLUDED COMPONENTS:**<br>• NPDC1000 Drying Chamber<br>• NPAHU5000 Air Handling Unit<br>• Remote HMI Touch Screen | **POWER SUPPLY:**<br>• 200 amps at 460 VAC, 3 phase<br>• 15 amps at 120 VAC, 1 phase<br>**COMPRESSED AIR:**<br>• 80 psig<br>**DRYER & AHU AIR SUPPLY:**<br>• From room<br>**DRYER & AHU AIR EXHAUST:**<br>• 12" x 12" to outside<br>**CUSTOMER SUPPLIED COMPONENTS:**<br>• Inlet conveyance<br>• Outlet conveyance<br>• Room air make-up |

**Figure 2. Drying Chamber Diagram**

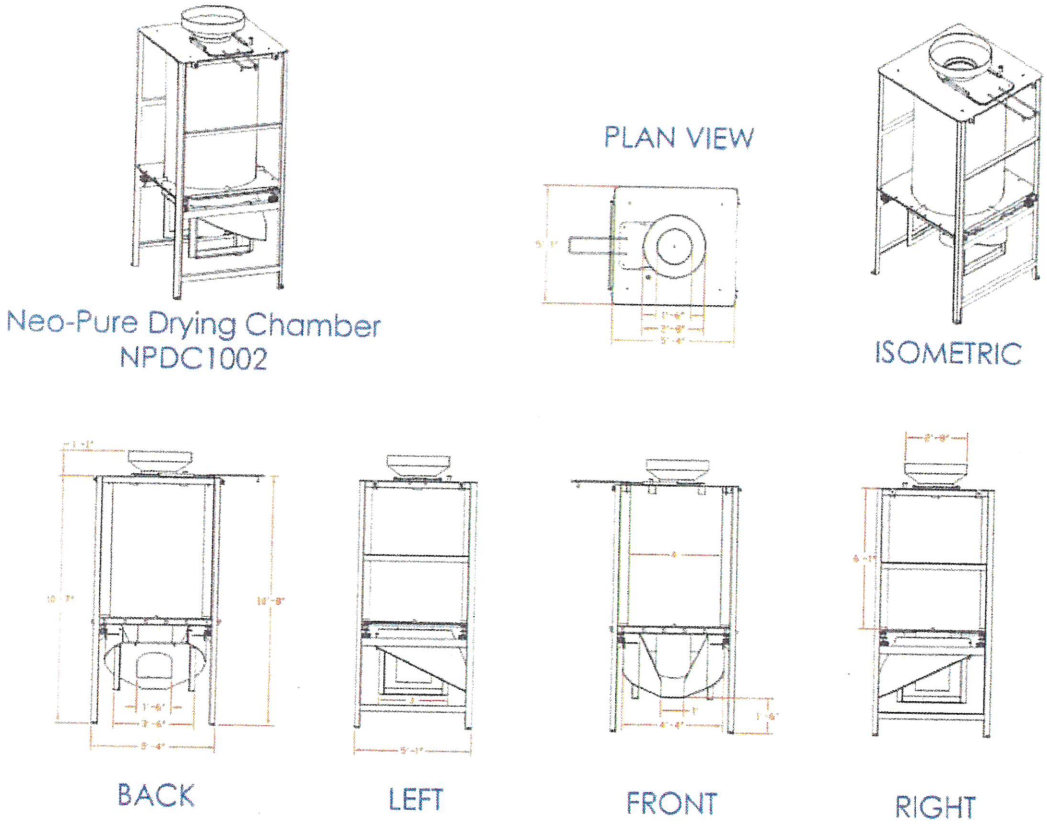


Figure 3. Air Handling Unit Diagram