

MiniDoser®

Liquid Nitrogen Dosing

MiniDoser™ is an Ultra-Compact doser, requiring the smallest installation foot print in most food production fillers. It has the capability to dose large volume of liquid nitrogen to inert full containers with high-volume headspace. Applications for food inerting are such as peanuts, potato chips and snacks



How it Works

LN2 is supplied to the doser by a vacuum insulated pipe and flows into the dosing head. Sensor will detect the container and send pulses to the controller. Controller will command the dosing head to dispense the required amount of LN2 into the container. LN2 droplets quickly evaporate and expand 700 X into gaseous N2 equivalent, filling the container headspace with inert N2 gas at the desired pressure.

Applications

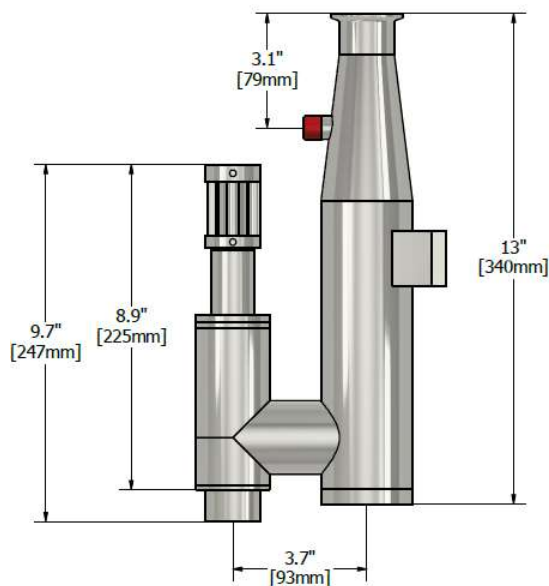
- **Oxygen Exclusion** – Reduce residual oxygen in product headspace to prevent oxidation to the product
- **Extend Product Shelf Life** – N2 in product packaging can extend product shelf life longer
- **Replace traditional MAP** – increase production efficiency and effectiveness compared to inert gas flushing in MAP peanuts, potato chips and snacks

Ergonomic Features and Benefits

- **Frost-free nozzle** – Self-generating GN2 for dosing head blanketing
- **Consistent Container Pressure** – delivers accurate dosing $\pm 2\%$
- **Lowest LN2 Consumption** – Discrete dosing reduce LN2 wastage, NO-container-NO dose capability
- **Lowest LN2 losses** – Proprietary vacuum insulation with lowest heat leak
- **Minimized Product Splash** – Soft-dose nozzles prevent product splash, maintain line hygiene and reduce COP / CIP cleaning frequency
- **Lowest system downtime** – Achievable by system maintenance alarm and remote monitoring
- **Highest Hygiene Design** – Wash down EP Head with hygienic design and stainless steel 304L material
- **Lowest Maintenance** – ultra long life cycle EP type dosing valve > 30 million
- **Ease of Installation** – Compact size enables ease of installation in limited space
- **Applications Flexibility** – Compatible with soft-dose and micro-dose technology for hot fill, powder, and granular applications
- **5 years vacuum warranty** – lowest cost of ownership

MiniDoser® Specifications

Material	Stainless Steel 300 Series
Head Pressure	0.4 ~ 3 psi
LN2 Supply Pressure	22 psi (1.5 bar)
Steady State Consumption	< 0.03 gal (0.1 liter) / hour
Body Dimension	13"H x 2.5"W (340 x 63mm)
Dosing Head Dimension	Standard 9.5"H x 2"W (241x50mm)
Dosing Head Arm Reach	3.7" (93mm)
Weight	6 lbs (3kg)
Utilities	GN2 60 psi; Electric 110-220VAC



Controller Specifications

Model	500FD	800SC	2000DSC	2500DSC
PLC Platform	Siemens S7-1200	Siemens S7-1200	Siemens S7-1200	Siemens S7-1200
HMI (LCD touch screen)	4.3" Color	4.3" Color	7.0" Color	7.0" Color
Dose Duration, 1ms int.	15 to 1500 ms	5 to 1000 ms	5 to 1000 ms	5 to 1000 ms
Dose Volume, mg/dose	10 to 2000	10 to 1400	5 to 1400	5 to 1400
Dose Accuracy	± 2%	± 2%	± 1%	± 1%
Max. Discrete Dosing	500 CPM	800 CPM	2000 CPM	2000 CPM
Fixed Delay	✓	✓	✓	✓
Speed Compensation		✓	✓	✓
Dose Compensation		✓	✓	✓
Dynamic Dose	✓			
Encoder Compatible			✓	✓
Nozzle Pre-Cooling			✓	✓
Quick Service Purging	N/A	N/A	N/A	Automatic
Nozzle Defrost	N/A	N/A	N/A	Automatic
User Signal Interface			✓	✓
Modbus User Interface	✓	✓	✓	✓
Ethernet User Interface	option	option	✓	✓
Smart Maintenance			✓	✓
Dosing Head	Standard	Standard	EP	EP
Certifications	CE, NEMA 4X	CE, NEMA 4X	CE, NEMA 4X	CE, NEMA 4X