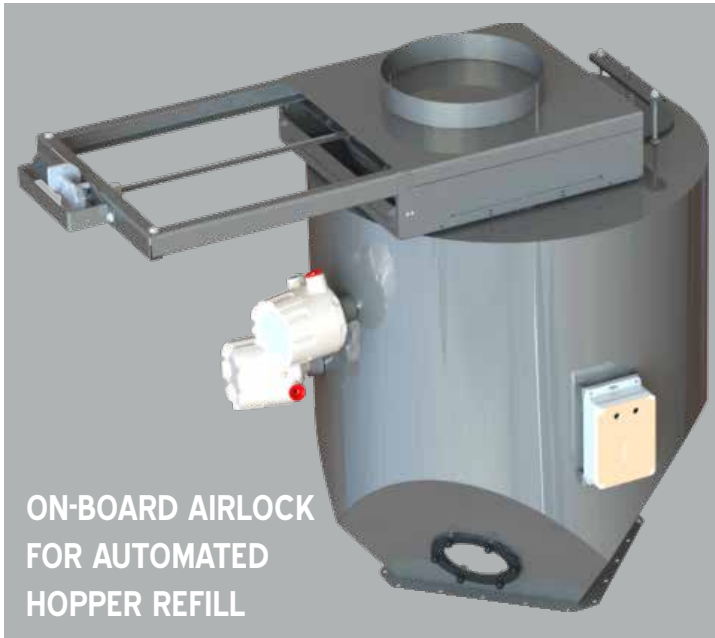




CONTINUOUS FEED AIRLOCK



**ON-BOARD AIRLOCK
FOR AUTOMATED
HOPPER REFILL**

Continuous Feed Hopper with Airlock System

To eliminate manual refilling of the hopper, ALL Power Labs is now offering a Continuous Feed Airlock as an option on all Power Pallets. Controlled by an Electronic Control Unit (ECU) with an array of sensors, this system allows a store of feedstock at ground level to be automatically fed, via a standard agricultural feed transport (not included), into the hopper through an automated gate valve on the hopper lid. The horizontal motion of the linear drive operating the gate valve is converted into a vertical sealing force by an innovative leaf spring system, ensuring an airtight seal and reliable operation.

The custom ECU, using an open-source processor with an APL-designed circuit board, reads data from sensors installed in the hopper and opens the gate valve when the feedstock is low, then signals the motorized feed transport to reload the hopper. Once it detects the hopper is full, the ECU shuts off the feed transport then closes the gate valve. This smart automation also reads gate position and motor-current sensors to assure safe operation for both operators and the Power Pallet. If problems are detected, the ECU will set the Continuous Feed system into various safe and stable modes and trigger alarms to alert the operator.

PERFORMANCE

Fill Cycle ¹	30 min - 90 min
Feedstock Volume/Fill	0.15 m ³
Weight	30 kg - 65 lbs
Open-Close Time	Less than 15 seconds
Feeder Control	10 A , 12V DC relay 2-wire NO
Mounting	Standard hopper Cam-locking ring
Open Cycle Time	Less than 1 minute
Overfill Protection	Software interlock
Error Handling	Alarms and safe recovery

¹ Time between fill events varies according to electrical load and feedstock type

MAJOR COMPONENTS INCLUDED

Lid Mount Gate Valve	Stainless steel Self sealing
Valve Drive Motor	Brushed 12V DC
Valve Drive System	Fast-travel stainless steel Precision Acme screw
Electronic Control Unit	Self-contained operation Open-source software
Wiring Harness	Plugs into PP harness
Level Sensing	Rotary paddle sensors One upper, one lower
Position Sensing	Inductive PNP
Alarm Output	10A, 12V DC Relay
Feed Control	Logic-controlled relay

CONVEYOR SYSTEM (NOT INCLUDED)

CONVEYOR SYSTEM	SPECIFICATIONS
Feedstock Lift Conveyance	15 m ³ /hr minimum feed rate
Fill Funnel	300 mm diam. output
Conveyance Switchgear	10A, 12V DC max signal

All specifications are subject to change without notice