



# Agricultural Ventilation Systems

- Curtains - Panels - Chimneys - Exhaust Systems - HVLS Fans - Automation -



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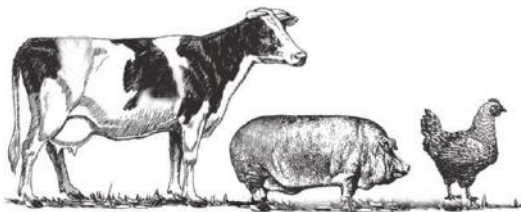
## Who We Are & What We Do

Sun-North Systems Ltd. is the leading international manufacturer of natural ventilation systems. Since 1985, Sun-North has pioneered the design and manufacturing of natural, power and dual ventilation systems. Sun-North is very aware that ventilation is the second most critical factor in raising, profitably, all types of livestock.

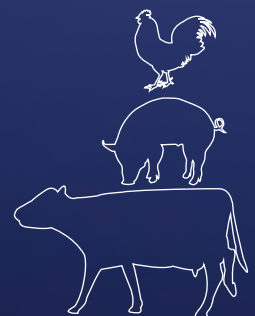


## Our Mission

Our mission is to continually develop and provide quality, cost efficient ventilation systems to resolve the issues in our customer's particular eco-climate. We value our reputation of providing top notch service.



**"We Are Nature's Answer To  
Healthy Livestock Confinement"**



# CURTAIN SYSTEMS

## Quality Curtains That Are Easy to Maintain & Operate

Curtains are a hassle free way of providing natural light and proper ventilation to your structure. There are several varieties to choose from including Roll-Over, Centre Roll, Weather Stop, Insulated and Parlour Systems. The benefits of a curtain system are:

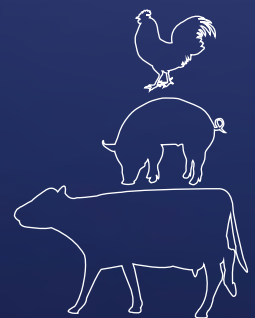
- Systems are designed for all climates and weather.
- Low maintenance.
- A variety of curtain material types and weights are available.
- Manual or electric operation.
- Temperature controllers available for fully automated systems.
- Corrosion resistant hardware.
- Easy installation.
- A variety of wind support systems are available.
- Opening height of 2ft to 24ft (0.6m to 7.3m).
- Available for any type of structure, eg. steel/wood.
- All materials have an enhanced UV protective coating.



## Roll-Over Curtains

When a high sidewall curtain is the answer, then the roll-over curtain system is the solution. As the curtain is lowered from the top it is kept taught by wrapping the excess curtain around the permanently mounted bottom rolling tube. This system reduces the dirt and moisture build up associated with a drop down curtain, wind noise is decreased and the haven for rodents is eliminated. The curtain rolls with an easy smooth motion and your barn sidewall will have a nice neat appearance.

- Support options are either wind pipe or wind rope.
- This type of system is very popular in the dairy sector.
- Works on a maximum 9'6" (2.9m) opening height and 200ft (61m) in length (over this size a split system is required).
- Sun-North is always testing new brackets and pulleys to ensure high quality and longevity.
- Can be operated manual or fully automatic with thermostat for comfort in your barn.

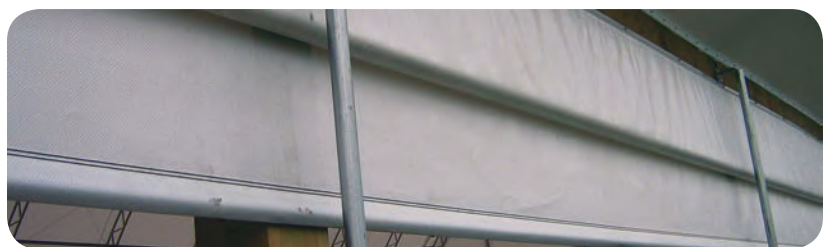


## Centre Roll Curtain System

The Centre Roll system is very popular with farmers with large sidewall openings and long barns in moderate climates. In a lot of cases this curtain is rolled automatically up under the eave in late spring and not adjusted until late summer. Sun-North often manufactures this curtain in 10oz. to 16oz. poly vinyl since the vertical wind supports are often wider apart which is typical with a steel structured facility.

With this design the curtain is permanently fastened along the top of the opening. There is a center horizontal sleeve and in the sleeve is an automatic tubular actuator that rolls while travelling up, wrapping the curtain around the centre sleeve as it travels. The system is kept taut and can be locked down in winter months.

- Systems designed for large dairies.
- Low maintenance.
- A variety of curtain material types & weights are available.
- Manual or electrical operation.
- Temperature controllers available for fully automated systems.
- Corrosion resistant hardware.
- Easy installation.
- Up to 500ft (152.4m) per drive.
- Opening height of 2ft to 24ft (0.6m to 7.3m) .
- Any type of structure, eg. steel/wood.
- Can be substituted for garage doors on your facility.



## Weather Stop Curtains

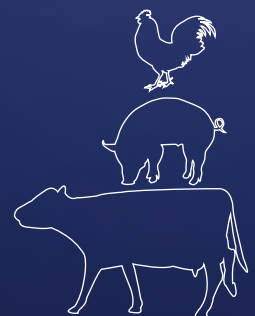
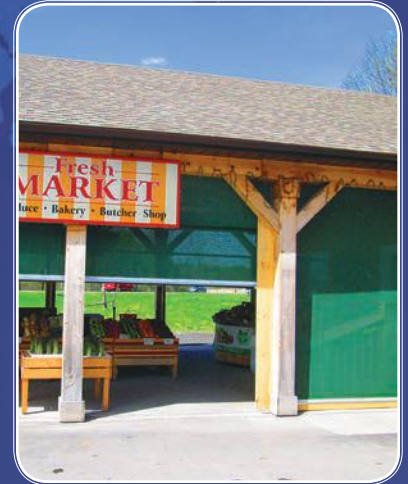
The Weather Stop curtain system is designed to close in large doors and openings on open front barns, commodity buildings, storage sheds and pavilions.

The fabric used is permeable allowing some air movement while maintaining a minimum level of ventilation. Due to the style of the fabric with small openings, rain and snow will not be allowed to penetrate and enter the building providing a protective barrier for the building's contents.

The Weather Stop curtain system uses gear drives to roll the curtain up and down allowing easy and clear access into the structure when needed.

The fabric is a proprietary-anti unravel knitted polyethylene with a high level of UV protection made for long life. The Weather Stop curtain system is available up to 20ft (6m) high.

- Weather Stop is an excellent alternative to overhead doors.
- Also used for pavilion and gazebo wind breaks.
- Does not restrict access when it is completely open.
- Does not restrict vision when inside.



## Insulated Curtain Systems

Our Insulated curtain consists of:

- An exterior layer of UV stabilized, non-breathable polyethylene weave material to the weather side.
- 8 inner layers of thermal non-woven polyester fabric.
- An outer layer of UV stabilized, non-breathable polyethylene weave material to the barn side.
- All 10 layers are resistant to the harsh chemical environment found in farm buildings.
- These layers will not absorb moisture, are mildew and rot resistant.
- Several standard heights and custom lengths are available.
- Extra horizontal hems can be requested for additional weight and easier folding.
- Sun-North carries different insulated material options from dark-out to light penetrating.





## Parlour Curtain Systems

Our interior Parlour curtains provide an affordable divider between sections of the building such as the parlour and holding area. The curtains are easy to operate, maintain and they will provide windbreak in turn saving you heating costs in the winter. They store up and out of the way during times of non-use.

Product benefits:

- Non-rusting hardware.
- Manual or electric operation.
- Washable vinyl material.
- Edge strips seal to stop drafts when curtain is closed.
- Fits all wall types from steel, masonry or standard wood framing.
- Satisfies dairy inspection and building code requirements.



# PANEL SYSTEMS

## Quality Panels That Are Easy to Maintain & Operate

Livestock productivity and profitability is directly linked to the quality of ventilation within your building. In order to ventilate, you have to insulate. The poorer the insulation within the confinement of a building, the greater the moisture build up and the less productive your livestock will be. When the goal is profitability, it is imperative to reduce moisture and moderate temperature swings, even in warmer climates.

When only the most attractive and durable panels will do, then Sun-North Systems is the answer!

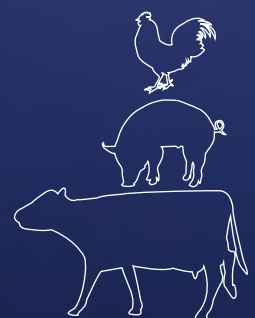


## Nova-Lite Panels

Sun-North Systems Ltd. manufactures and installs Nova-Lite sliding polycarbonate or acrylic glass panels in a wide range of sizes. The panels are virtually unbreakable and allow 99% light penetration.

Ask for Nova-Lite with its all aluminum heavy duty window and perimeter frame assembly. Our clients have found that it's the best panel for their tie-stall barns, milking parlours and equine areas.

- Continuous sidewall windows made to fit any length.
- 1ft to 6ft (0.3m to 1.8m) in height.
- Minimum maintenance.
- Stainless steel cable system and pulleys with bearings to ensure long life.
- Nova-lite panels typically drop to open but an option to slide up to open is available.





## Altra-Wall Insulated Panels

Altra-Wall is a lightweight, continuous rigid panel which slides over sidewall openings on livestock housing. The outer sleeve is a polyethylene weave and the core is 2 1/2" (6.35cm) of high density styrofoam.

Each system can be operated by electronic thermostats, actuators or manually by a hand winch. Altra-Wall is suitable for all types of livestock and can be custom designed to your individual specifications.

- Continuous length up to 100ft (30.5m).
- Custom sizing.
- Low maintenance.
- Suitable for all livestock.
- Automated or manual operation.
- 15 year warranty.
- Reduces power consumption.
- Year-round ventilation.
- Operates in the event of a power failure.
- Option to add windows to system is available.
- Typically used to on naturally ventilated facilities.



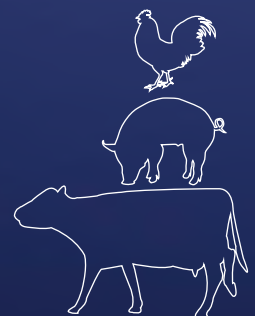
## Altra-Seal Panels

Altra-Seal is a lightweight continuous rigid panel which slides over sidewall openings on livestock housing. The outer sleeve is a polyethylene weave and the core is 2 ½" (6.35cm) high density styrofoam. The Altra-Seal system can be operated by electronic thermostats, actuators or manually by a hand winch. Altra-Seal is suitable for all types of livestock and can be custom designed to your individual specifications.

Lower noise and dust levels will reduce stress on both livestock and workers. Due to the unique construction of this product, drafts and air leakage are virtually eliminated.

This panels offers a continuous seal which makes it the perfect choice for a dual ventilated barn. Option for windows in panels is available.

- Continuous length up to 100ft (30.5m).
- Various colours and weights are available.
- Altra-Seal can be used on parlours, tie stalls and calf barns.
- Windows can be installed every 8ft (2.4m).



# EXHAUST SYSTEMS

## Natural and Power Exhaust Systems

Sun-North's main target is to achieve maximum comfort and energy efficiency in all agricultural facilities.

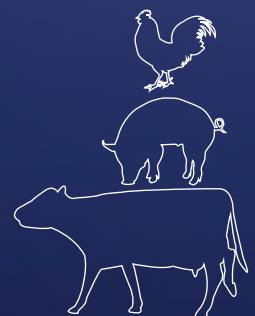
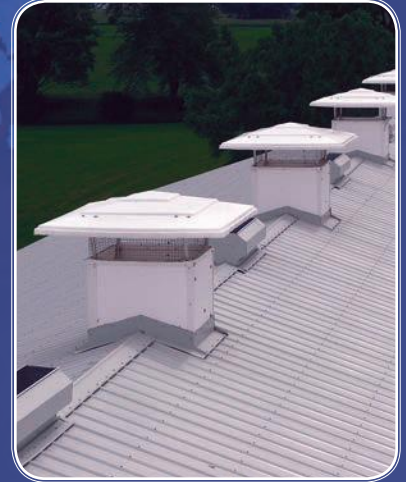
Each agricultural facility is uniquely different because of its geographical location. Therefore each barn needs a tailored ventilation system to suit all of the weather and temperature variables unique to the barns location. Meeting these variables does not necessarily mean an increase in cost or a complicated system.



## Insulated Poly Chimney

Sun-North's chimneys exhaust moist, stale air from the building envelope. They come in different inside dimensions and various custom lengths. White is the standard colour for the one piece poly roof. Each chimney comes with metal roof flashing (bone white). All hardware is included and can be shipped assembled or knocked-down.

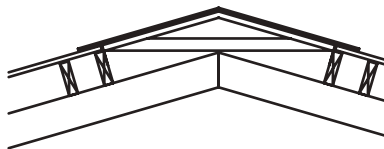
- Aluminum roof supports.
- Insulated baffle.
- Stainless steel torsion springs and hardware.
- One piece anti-buckling poly roof.
- Different sizes are available.
- Exhaust stale air.
- Wind direction does not affect operation.
- Easy to install.
- Baffle control for easy adjustment.
- Birdscreen options are available.
- Restricts snow and rain entry.
- Sun-North chimneys have a minimum ventilation gap when chimneys are fully closed of 3/4" (1.9cm) to adhere to ventilation standards.



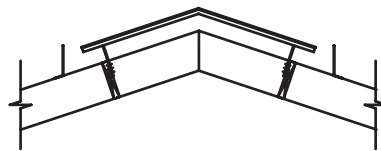
## Poly Ridge Lite

Exhausting stale, moist air is an essential part of a well designed ventilation system to maintain optimal animal health.

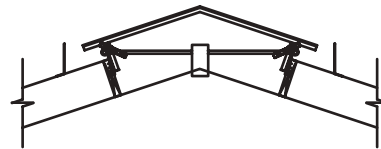
Our Ridge Lite systems have been designed to provide ridge ventilation with plenty of light penetration. There are several styles available to suit all projects and budgets.



Fixed Ridge - provides extra light for use between chimneys.



Raised Ridge - provides light and ventilation without the rain penetration of an open ridge.



Raised Ridge with Baffles - adding baffles allows control of exhaust capacity. Motor drives are available for up to

200ft (61m). A minimum level of ventilation is maintained at all times and the baffles are designed to minimize winter frost build up allowing year round operation.

Features:

- Durable and corrosion resistant construction.
- Diffused light for maximum benefit without the hot spots.
- Available for 8" to 4ft (20cm to 1.2m) wide openings.
- Wind flashing to increase air draw and deflect snow/rain.
- High UV rated glazing.



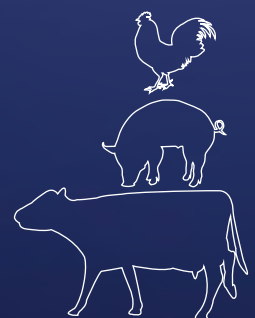
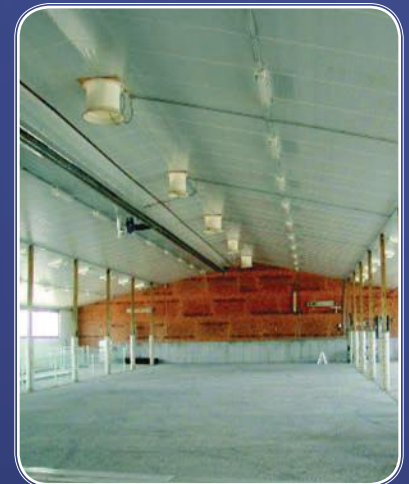


## Insulated Power Chimneys

Extreme climate conditions such as northern winters and southern summers may require power assist to maximize or minimize air flow to optimize animal comfort. Sun-North incorporates power ceiling inlets, power chimney fans and power sidewall fans that engage before the natural ventilation sidewall panels and ridge systems are implemented.

Typically, power assist would be assigned for a minimum of 20% of the needed ventilation. This allows the producer to utilize natural ventilation 80% of the time, save on energy costs and know a ventilation system will still be fully operational in the event of a power failure greatly reducing the risk of animal suffocation in circumstances of extreme heat.

Power chimneys are typically used in calf barns, poultry housing and dual vent hog barns.

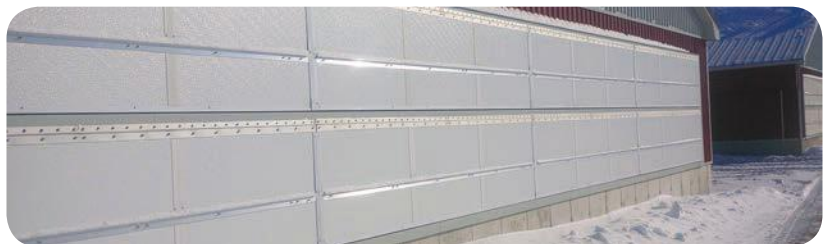


## Tunnel Ventilation & Cross Flow Systems

Tunnel Ventilation is a variation of cross flow ventilation often making use of the end wall of a poultry or dairy facility to maximize ventilation requirements.

In extreme heat conditions this system allows high velocity air to move across the livestock. End walls and/or sidewalls are equipped with sliding panels/curtains (internal or external mounting) that adjust to satisfy the negative pressure created by the bank of fans located in the end walls of the barn. This system may only be utilized to alleviate heat stress situations.

- Custom sizes available.
- All aluminum hardware.
- Totally enclosed, maintenance free, high efficiency motors.
- Maintenance free.
- Dark out finish on interior.
- Superior air-moving capacity.
- Positive drive state-of-the-art rack and pinion drive system.



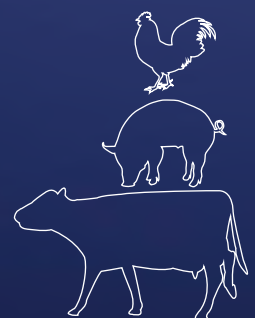
## Exhaust Fans

High performance and innovation in design are just a couple of ways to describe fan products by Sun-North Systems Ltd.

These large fans are ideal for tunnel and exhaust ventilation in dairy, poultry, swine, greenhouse and industrial applications.

The thicker fiberglass housing is strong, corrosion resistant and easy to clean. The fiberglass discharge cone does not stick out as far as other conventional exhaust hoods giving greater access to space around your structure and also ensures less wind scooping effect into the building.

Our fans are extremely quiet on all speeds of operation and include a totally enclosed high efficient motor. The heavy duty bearings, pulley design and the corrosion resistant fiberglass housing will ensure you long term usability.



# COOLING & CIRCULATION

## Cooling & Circulation Systems

Air-based cooling and water-based cooling are two cost effective, low maintenance methods of stress reduction and animal comfort in livestock facilities.

Livestock adapts well to relatively consistent cold or hot conditions. Production is affected when there is a repetition of abrupt temperature swings. Properly designed ventilation will moderate or eliminate the abrupt temperature swings offering animals the sensation of cooling under hot conditions and warming under cold conditions.

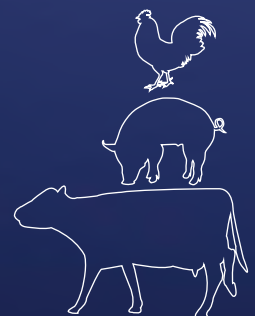
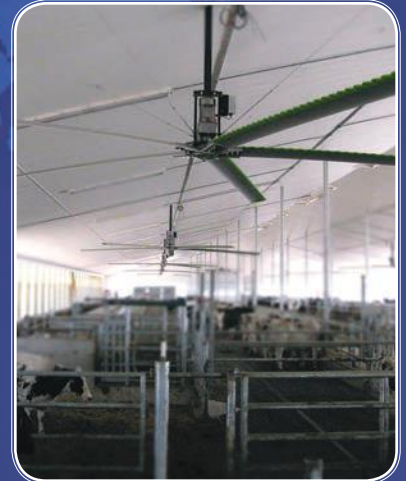
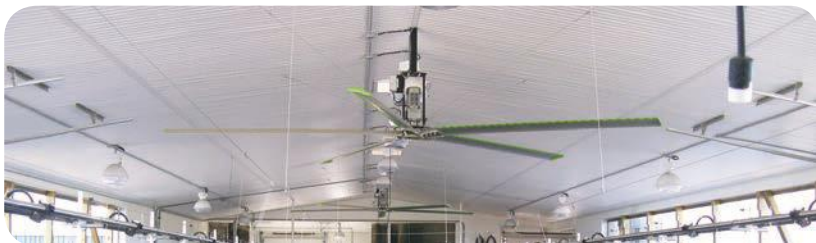


## Altra-Air HVLS Fans

Altra-Air Fans with WhalePower Technology is a green power breakthrough which allows our High Volume Low Speed (HVLS) fans to deliver previously impossible level of performance.

The Altra-Air Fan provides cow cooling and bovine inspiration for dairy barn cooling. Third party studies on dairy fans have shown that agriculture fans lower the temperatures in dairy barns by 6 – 8 degrees. The cow cooling results in proven increased milk production.

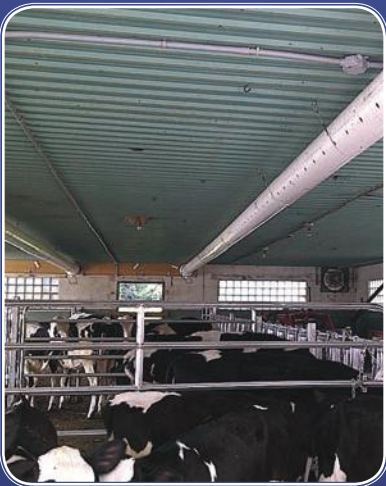
- Fans range from 8ft to 24ft (2.4m to 7.3m) in diameter.
- Capable of moving nearly 400,000 cfm (188,778 l/s).
- Quiet, efficient operation, no annoying high speed circulating or exhaust fans.
- Higher average wind speeds than traditional cooling fans.
- Reduce cow crowding.
- Increase milk production.
- Reduce heat stress.
- Minimises the impact of heat on your cows' fertility.
- Automatic controls will allow the fan to operate when necessary reducing energy costs.



## Fresh Air Positive Pressure Air Tube

Providing fresh air makeup is crucial for a healthy environment for young stock. This is often an ambiguous task in calf barns as drafts can be equally problematic for the health of the calves.

An effective solution is to introduce sufficient fresh air from outside using a poly bag or tube with small holes distributed appropriately along the length and around the circumference of the tube which is inflated by a fan. This will jet the air in many locations evenly and effectively throughout the barn.



## Directional Air Fans

### Basket Fans

Our new series of high volume basket fans are designed to create a high velocity air pattern at a low cost. The smooth bell shaped intake is designed for optimum performance and is balanced with an exhaust opening for maximum air velocity and distance coverage. Our fans are designed to withstand the harshest of agricultural and industrial environments.

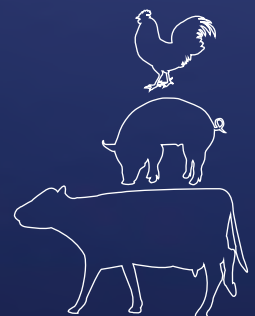
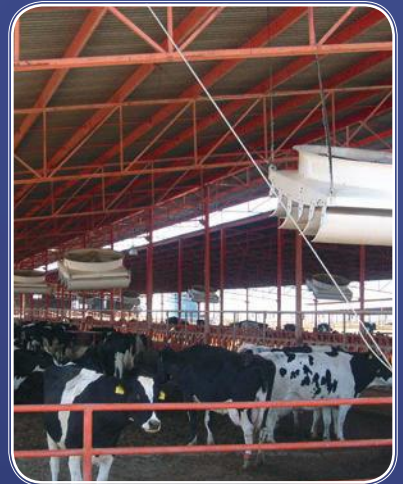


### Absolute Air Fans

In dairy facilities where alleyways and resting areas are restrictive, the Absolute Air can meet their ventilation needs.

The belt driven Absolute Air fan is constructed of fibreglass and aluminum. Absolute Air has high and low speed selectors and is able to move 80,000 cfm (37,756 l/s) over an area of 6458ft<sup>2</sup> (600m<sup>2</sup>). It is complete with 6 adjustable air flow deflectors.

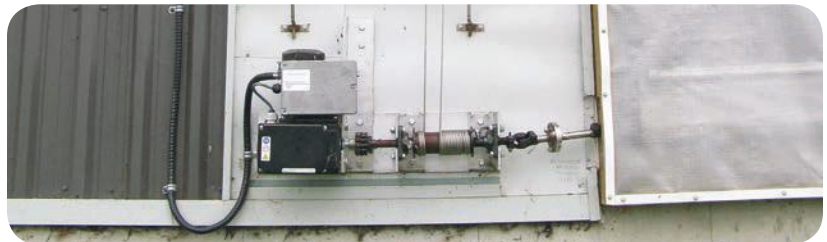
- Ideal for dairy barns as this fan will provide cow cooling, insect control, drying of bedding, and employee comfort.
- Can be mounted on a steel post, building column or suspended from the ceiling (all optional).



## Automation Systems - Power & Controls

Modern ventilation and environmental management vary from very simple to very sophisticated automated systems. Sun-North manufactures Shepherd electronic controls and power drives ranging from complete natural ventilation to dual ventilation (using both natural and fan power).

Since 1985, Sun-North has been designing and providing controls that create the ideal stress free rearing environment, allowing your animals to reach their optimum genetic potential. Energy management (conservation of electricity and gas) has become absolutely essential for successful and profitable animal husbandry. All too often barns are over ventilated during cold periods and under ventilated in hotter times. Sun-North's controls can give you peace of mind knowing that their controls will sense sudden temperature swings, strong winds, heavy rains and then adjust automatically.





## Automation Systems

### Dual Ventilation Controls

When sensitive livestock requires sensitive control then a combination of natural and fan ventilation is the best choice to optimize comfort conditions and maximize energy efficiencies. In this situation, power ventilation would be required approximately 20% of the time.

Shepherd controls will monitor and activate power inlets and fans in conjunction with sidewall curtains, panels, ridge outlets and chimneys. The Shepherd controls will turn on and off to adjust heating and cooling requirements as needed.

### Tri-Star Control

The Tri-Star allows for integration of all of your ventilation components for complete control over your barn environment.



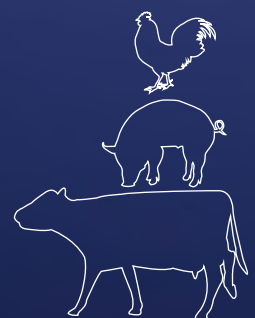
- Natural ventilation.
  - 8 zones of panels / curtains.
  - 2 zones of chimneys.
- Proportional control without potentiometers.
- Winter and summer settings.
- Wind direction / speed and rain sensing is available with the weather package allowing the Tri-Star to control the ventilation with regards to real time weather systems .
- 4 zones of fans can be set up for either tunnel or circulation.
  - 2 of these fan zones can be tied directly to the Altra-Air fans.
- Cell phone app control available.

The Tri-Star is an expert dairy control that offers many options for controlling your barn ventilation in 1 easy to use package!

### Natural Ventilation Control

Sun-North Shepherd controls are state of the art electronic controls which are able to monitor many different regions of your animal facility. Shepherd controls will adjust individual sidewall panels and ridge outlets over the entirety of your building taking into account inside temperature, outside weather conditions and will adjust for swings in wind and rain directions.

All livestock buildings create micro climates (very noticeable areas of temperature differences). Shepherd controls will monitor and adjust for these areas of temperature difference.



## Power Drives

Sun-North's new generation power drives are a state of the art answer to worry free panel and curtain operations. These compact gear drives are self-braking with worm wheel transmission complete with CSA approved electric motors with multi range voltage. Each drive has a built in linear limit switch system complete with working and stand by safety switches.

All units are double/single sided drives and are easily adaptable for potentiometer position feedback. Sun-North's power drives can be operated during installation or during a power failure by a battery powered drill and an adapter. All Sun-North gear drives are enclosed in a weather tight poly enclosure.



## Automation Systems

### Linear Actuators

Sun-North manufactures two different sizes of linear actuators, a medium duty (BX) with 1500lbs (680kg) of lift and a heavy duty (BXX) with 2500lbs (1134kg) of lift. The sizes range from 15" to 76" (0.4m to 1.95m) of travel meaning the largest actuator lifts a panel or curtain that covers a 76" or 1.95m opening.

- Actuators are contained in a 16ga. galvanized steel enclosure that can be mounted inside or outside of a building.
- Each actuator is equipped with a manual turning nut (on the end) that is easily accessible with a ratchet allowing operation of the actuator to open a curtain or panel during a power failure.
- The motor compartment is completely separate allowing ease of service and exchange.
- Potentiometers for auto curtain positioning and feedback are available for easy attachment.
- Gear box attachments for manual override are available.

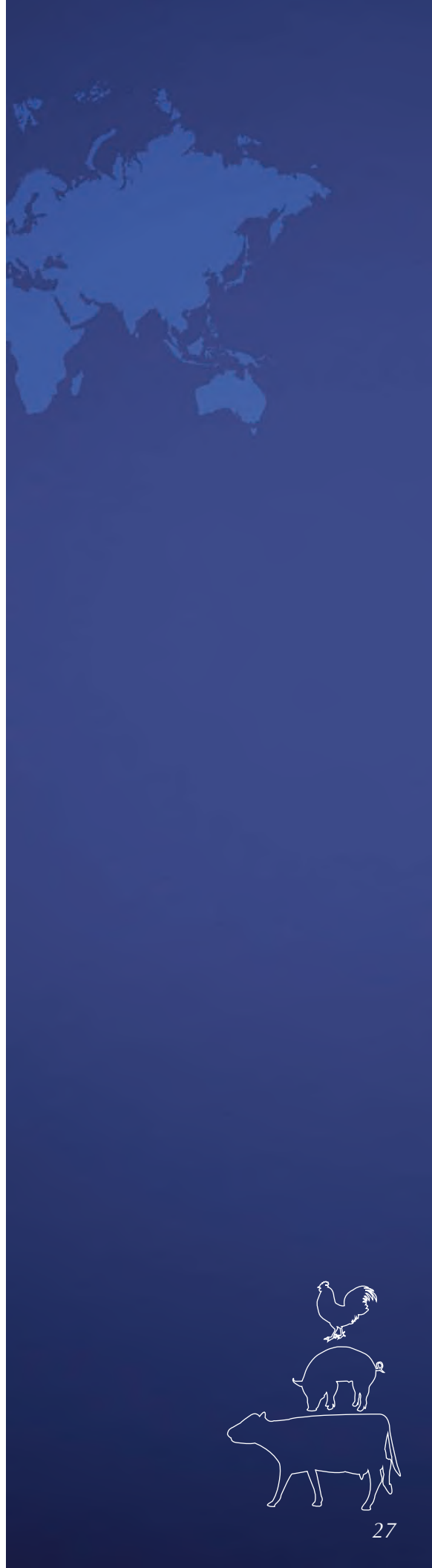
Sun-North actuators are CSA and/or CE approved to international standards and compatible with virtually all brands of electronic controls.

### Vent Door Actuators

Sun-North supplies two smaller vent door actuators. The VA18 lifts 800lbs (363kg) and travels 18" (0.5m) and the VA24 lifts 500lbs (227kg) and travels 24" (0.6m).

- The VA18 has a 14" (0.4m) per minute travel and .9 amp rating at 230 volts.
- The VA24 as a 14" (0.4m) per minute travel and 1.8 amp rating at 120 volts.
- Built-in anti-rotation device and is shipped ready to mount on the wall.
- Totally sealed with a built-in potentiometer and limit switches are easy to adjust.
- CSA/UL certified.

Notes:





## Agricultural Ventilation Systems For Your Facility

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