



VENTILATION PRODUCTS

For The Dairy Industry

ENVIRA-NORTH
SYSTEMS LIMITED
(519) 527-2198
www.enviranorth.com

TECHNICAL SPECIFICATIONS OF SAILFIN FANS

- Fans range from 12 ft to 24 ft (3.7 m to 7.3 m) in diameter
- Capable of moving nearly 315,000 CFM (148,000 L/S)
- Up to 5.65 mph (9.09 km/h) wind gusts
- Up to 212 CFM per Watt
- Operates on 1 to 2 HP (0.75 kW to 1.5 kW)
- Creates a non-disruptive airflow
- UL, CSA and CE certified

THE BENEFITS OF SAILFIN FANS IN DAIRY FACILITIES

- Keeps cool air moving in the entire facility
- Higher average wind speeds than traditional cooling fans
- Reduce cow crowding
- Increase milk production
- Reduce heat stress
- Minimizes the impact of heat on your cows' fertility
- Automatic controls will allow the fan to only operate when necessary reducing energy costs
- Fans are ceiling mounted out of the way of moving equipment
- Low power consumption for CFM delivery and velocity
- No drive belts or belt tighteners to maintain
- Electrical controls of the HVLS fans, can be located in one central lockable location
- Moving air reduces birds and flies in the facility
- Less wiring and labour required to install HVLS fans over traditional cooling fans

Cows will crowd together in the stream of air created by a traditional cooling fan, showing there is only relief in some places. With HVLS fans the entire building has air moving, therefore less crowding and standing of cows in the alleys will be present. With the additional air movement the cows will benefit from the cooling and get relief from possible heat stress.



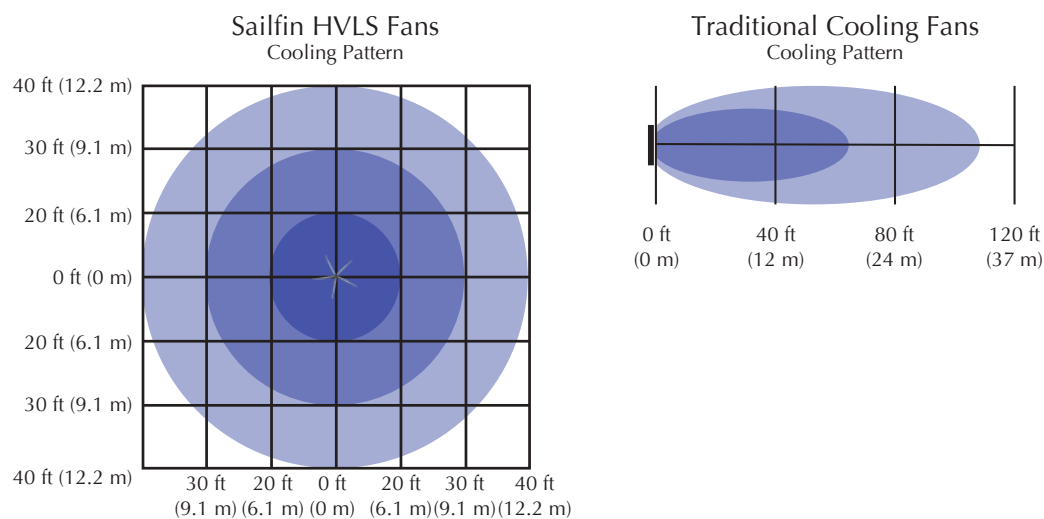
USING SAILFIN FANS WITH NATURAL VENTILATION

When curtains are open and Sailfin fans are utilized, the fans push the incoming air down, moving it in all directions. The air exits out the side walls at a lower level, allowing fresh air to enter at the top of the opening following the ceiling line. The fans move the air in a circular pattern therefore the natural wind direction coming into the building does not matter. Should natural wind not be present, the fans continue to create mechanical air movement.

During the cold of winter, the fans can be operated at a very low speed to slowly move the air around the building without drafts. This will help keep all areas of the building at the same temperature, which reduces freezing on the outside alley floors. Warm inside air is mixed with dry incoming air to reduce moisture levels inside the building.

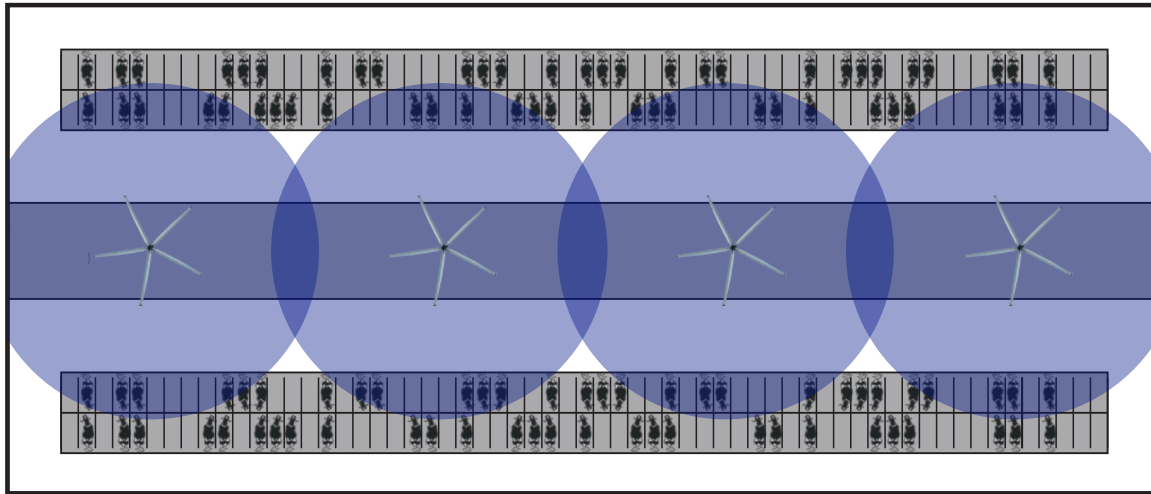
OUR BLADE ADVANTAGE

- Offering stall angles as high as 23°
- Always stalling gradually
- Eliminating span-wise pumping; the primary cause of efficiency loss in all rotating systems
- Eliminating tip stalling; the primary cause of blade noise and damaging vibration
- Lowering noise by offering hyper-stability which also lowers vibrations which cause wear and tear on the blades and drive train
- We are proud to acknowledge that no other blade can match our blade design when it comes to generating substantially greater lift while reducing drag



4 ROW DAIRY BARN

Optional Sailfin Fan Placement

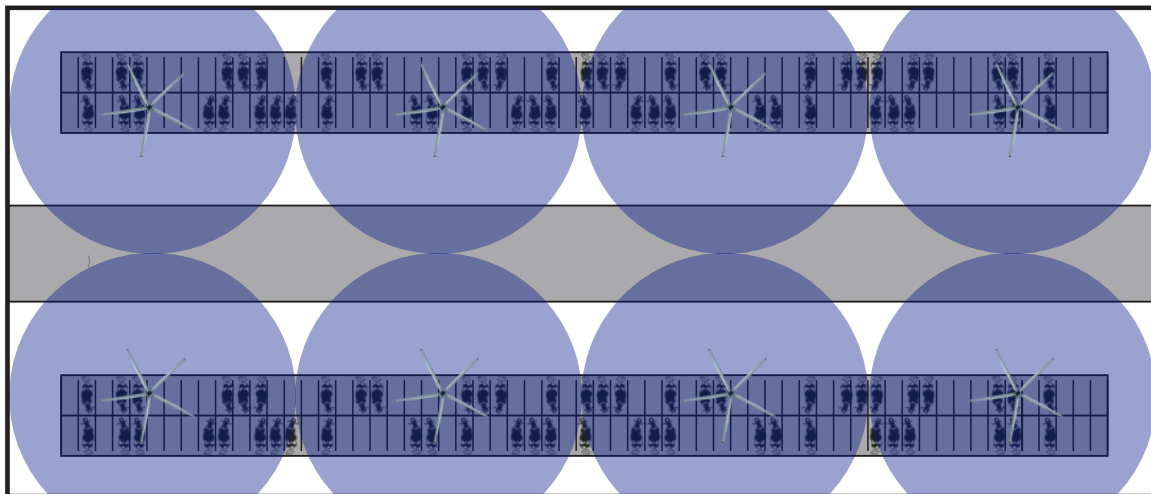


4 Row Dairy Barn Layout
24 ft (7.3m) Sailfin Fans

Scale 1" = 40 ft
Scale 2.5 cm = 12 m

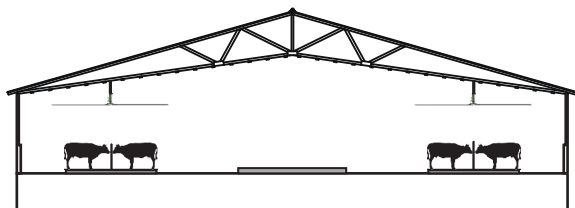


- Each row of 24 ft (7.3 m) fans centred between the sidewall & centre of barn
- Maximizes air movement over the entire facility
- Various sizes of fans available to meet your custom needs



4 Row Dairy Barn Layout
20 ft (6.1m) Sailfin Fans

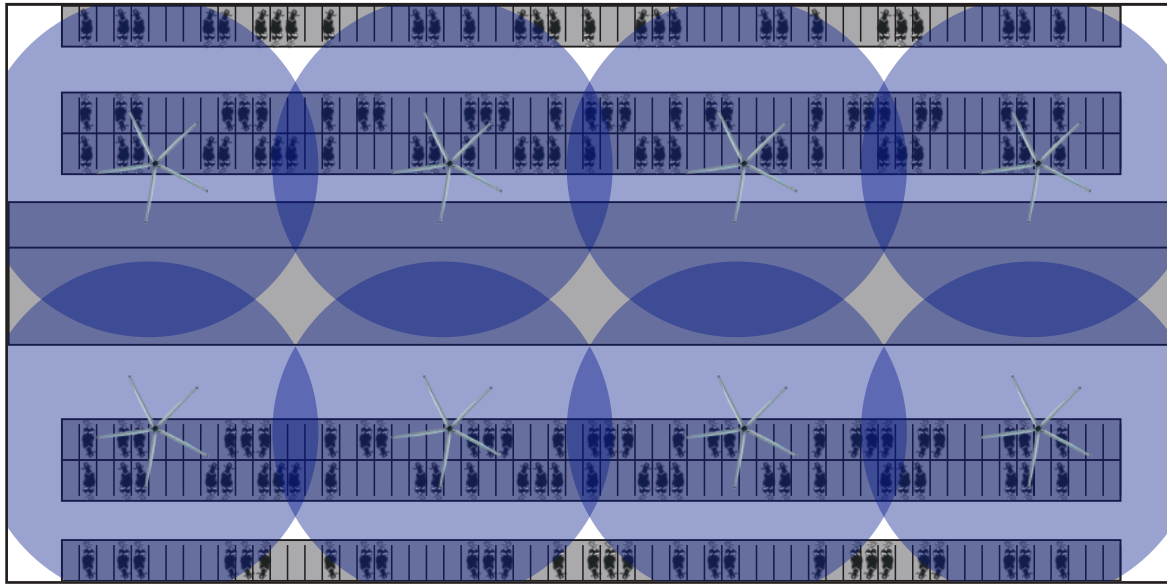
Scale 1" = 40 ft
Scale 2.5 cm = 12 m



- Each row of 20 ft (6.1 m) fans centred between the sidewall & centre of barn
- Maximizes air movement over the entire facility
- Various sizes of fans available to meet your custom needs

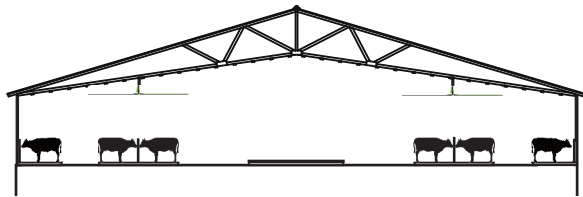


6 ROW DAIRY BARN Optional Sailfin Fan Placement



6 Row Dairy Barn Layout
24 ft (7.3 m) Sailfin Fans

Scale 1" = 40 ft
Scale 2.5 cm = 12 m



- Each row of 24 ft (7.3 m) fans centred between the sidewall & centre of barn
- Maximizes air movement over the entire facility
- Various sizes of fans available to meet your custom needs

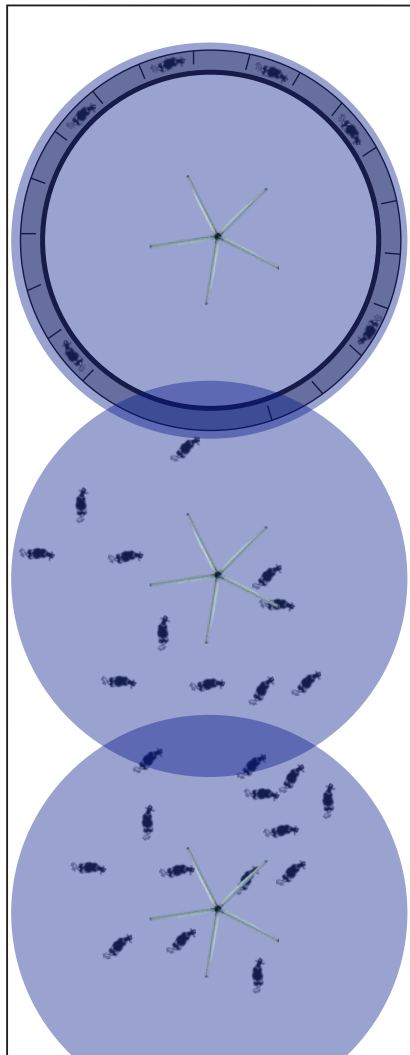
Contact your Envira-North sales representative to discuss a custom Sailfin fan placement for your specific dairy facility. Post spacing, barn size and ceiling heights determine the maximum size of fan allowed.

SAILFIN FAN CLEARANCE REQUIREMENTS

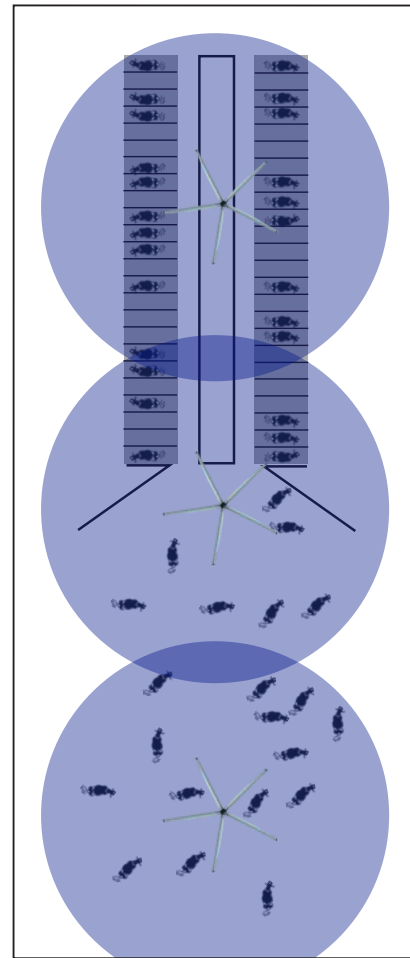
- Min 60" (152 cm) center of fan to roof deck for ideal operating performance without compromising overall fan performance
- Min 30" (76 cm) from fan blade's leading edge to obstruction above or below fan
- Min 18" (46 cm) from side of fan to any obstruction
- Min 144" (366 cm) floor to fan leading edge height
- Ideally a height of 180" (457 cm) from floor to blades to eliminate safety issues with equipment
- Note height from ceiling to blades is critical, as well as from floor to blades



MILKING PARLOURS & Holding Areas



Rotary Milking Parlour & Holding Area
24 ft (7.3 m) Sailfin Fans



Parallel Parlour & Holding Area
24 ft (7.3 m) Sailfin Fans

Scale 1"=25 ft
Scale 2.5 cm=12 m

- Mounting maximum size fans over the milking parlour and holding area will be the greatest cooling for cows
- Cows are in this area 2 or 3 times a day for approximately 1 hour and packed close together
- In areas of low humidity high pressure misting can be added under fans, this will then cool the air before reaching the cow level
- Large fans over the parlour area will cool the cows and make for a more comfortable working area for the people



OPERATION COSTS - SAILFIN FANS VS PANEL FANS

Energy Cost Comparison to Move Equivalent Amount of CFMs								
Description	hp	cfm	kWh	*kWh Cost (24 hrs)	# of Fans to Move 315,026 cfm	*Cost to Operate (24hrs)	*Cost to Operate (365 Days)	*Electric Savings in 1 Year
24 ft Sailfin Fan	2	315,026	1.486	\$3.17	1	\$3.17	\$1,158.54	\$4,075.96
54" Panel Fan	1	35,000	0.746	\$1.59	9	\$14.34	\$5,234.50	

*Calculated based on Ontario Electricity Rates chart below.

Energy Cost Comparison For Typical Basket Fan Installations								
Description	hp	cfm	kWh	*kWh Cost (24 hrs)	# of Fans for a 60' Diameter Area	*Cost to Operate (24hrs)	*Cost to Operate (365 Days)	*Electric Savings in 1 Year
24 ft Sailfin Fan	2	315,026	1.486	\$3.17	1	\$3.17	\$1,158.54	\$1,749.52
54" Panel Fan	1	35,000	0.746	\$1.59	5	\$7.97	\$2,908.06	

*Calculated based on Ontario Electricity Rates chart below.

*ONTARIO ELECTRICITY RATES (MAY 1, 2018)

12 hrs	6.5¢	\$0.78
6 hrs	9.4¢	\$0.564
6 hrs	13.2¢	\$0.792
Total for 24 hrs	\$2.136	

Rates subject to change.

The above calculation is designed to be informational only and the results produced are hypothetical. Results may vary due to electrical and environmental conditions.






SAILFIN FAN PERFORMANCE




Altra-Air Sailfin Fans Performance Specifications				
Fan Size in Diameter	12 ft	16 ft	20 ft	24 ft
	3.7 m	4.9 m	6.1 m	7.3 m
Motor Power	1 HP	1.5 HP	2 HP	2 HP
	0.75 kW	1.1 kW	1.5 kW	1.5 kW
Power Consumption	782 W	939 W	1460 W	1486 W
	782 W	939 W	1460W	1486 W
Actual Amps at 230 Volts	3 A	3.6 A	5.6 A	5.7 A
	3 A	3.6 A	5.6 A	5.7 A
Torque	39 ft-lbs	104 ft-lbs	160 ft-lbs	183 ft-lbs
	53 Nm	141 Nm	217 Nm	248 Nm
Thrust	28 lbs	52 lbs	63 lbs	142 lbs
	125 N	231 N	280 N	632 N
Speed	105 rpm	80 rpm	63 rpm	53 rpm
	105 rpm	80 rpm	63 rpm	53 rpm
Airflow	70,424 cfm	127,033 cfm	176,200 cfm	315,026 cfm
	33,236 l/s	59,953 l/s	83,157 l/s	148,676 l/s
Maximum Effective Diameter	80 ft	140 ft	200 ft	230 ft
	24 m	43 m	61 m	70 m
Maximum Velocity	386 ft/min	550 ft/min	505 ft/min	497 ft/min
	1.96 m/s	2.79 m/s	2.56 m/s	2.52 m/s
Weight (No Mount)	245 lbs	275 lbs	320 lbs	347 lbs
	111 kgs	125 kgs	145 kgs	157 kgs
Noise Level	62.5 dBA	62.7 dBA	63.4 dBA	63.4 dBA
	62.5 dBA	62.7 dBA	63.4 dBA	63.4 dBA

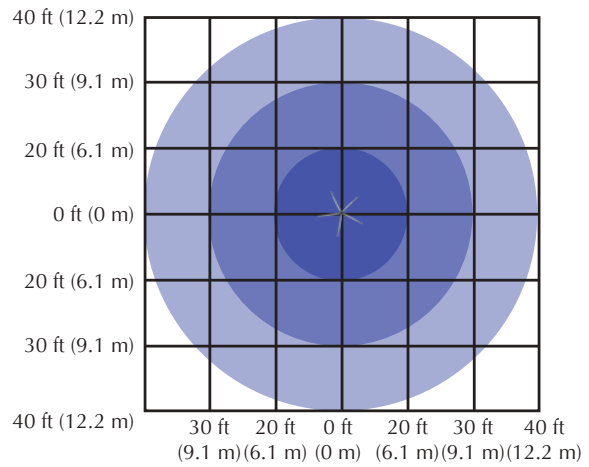
The data in this specification sheet represent the most current data developed by Envira-North Systems or other agencies. Envira-North Systems is constantly seeking to improve its products for the betterment of its customers; we therefore reserve the right to change these specifications as required without notification. Weights are subject to change. Please contact our shipping department for the latest information on shipping container sizes and weights. Maximum effective diameter is where horizontal airspeed at 1.0 ft (0.3 m) above floor drops below 0.66 ft/s (0.2 m/s) in an empty room.



SAILFIN FAN AIR SPEEDS

Air Speed								
	12' (3.7 m)		16' (4.9 m)		20' (6.1 m)		24' (7.3 m)	
	Full Speed (60 Hz)	Half Speed (30 Hz)	Full Speed (60 Hz)	Half Speed (30 Hz)	Full Speed (60 Hz)	Half Speed (30 Hz)	Full Speed (60 Hz)	Half Speed (30 Hz)
 Area A	4.17 mph 6.71 km/h	1.68 mph 2.71 km/h	3.41 mph 5.49 km/h	0.60 mph 0.97 km/h	4.56 mph 7.33 km/h	0.83 mph 1.33 km/h	5.65 mph 9.09 km/h	1.61 mph 3.38 km/h
 Area B	1.90 mph 3.05 km/h	0.60 mph 0.97 km/h	2.66 mph 4.28 km/h	0.00 mph 0.00 km/h	2.58 mph 4.15 km/h	0.35 mph 0.57 km/h	3.47 mph 5.58 km/h	1.23 mph 1.97 km/h
 Area C	0.60 mph 0.97 km/h	0.00 mph 0.00 km/h	1.40 mph 2.25 km/h	0.00 mph 0.00 km/h	1.12 mph 1.81 km/h	0.00 mph 0.00 km/h	1.35 mph 2.18 km/h	0.00 mph 0.00 km/h
Maximum Volume	70,424 CFM		127,033 CFM		176,200 CFM		315,026 CFM	

-  Area A - 20 ft (6.1 m) from centre of fan
-  Area B - 30 ft (9.1 m) from centre of fan
-  Area C - 40 ft (12.2 m) from centre of fan



Testing is based on a blade height of 16 ft (from concrete floor to bottom of hub).
 Smoke test videos of each model can be viewed on our YouTube Channel.
 All above data was recorded using a standard anemometer 1ft off the floor at the distances shown.
 Specifications may vary due to electrical and environmental conditions.
 Specifications subject to change without notice.



CONTROL OPTIONS

EssentialAIR FAN CONTROL

VFD



- Wall Mounted Variable Frequency Drive (VFD) Configuration
- Minimal Distance Between VFD & HVLS Fan
- One Per Fan Required

ZoneAIR FAN CONTROL

VFD



Mount Plate



Wiring Harness

- Fan Mounted VFD
- One ZoneAIR Control Per Fan Required
- Package Includes Mounting Plate + Wiring Harness
- Designed to Provide a Single Control for Multiple Fans
- Requires Additional Controls

OPTIONS



LOW VOLTAGE CONTROL (LVC)

- Controls Groups of (up to) Seven (7) Fans
- Lockable Cover
- Stop Button
 - Forward/Reverse
 - Speed Up/Down
 - Toggle Between Manual/Auto Modes

OPTIONS



TEMPERATURE CONTROL (TFD-1)

- Programmed for Automatic Fan Speeds
- Constantly Measures Temperature
- Automatically Adjusts to Your Set Points

CommandAIR FAN CONTROL

VFD



Remote Keypad



100 ft (30.48 m)
CAT 5 Cable



Mount Plate



Wiring
Harness

- Fan Mounted VFD
- One CommandAIR Control Per Fan Required
- Package Includes Mounting Plate + Wiring Harness + Control Wire and Remote Keypad
- Provides Remote Troubleshooting for Fan Mounted VFD
- User Friendly, Simplified Installation and Operation

CONTROL OPTIONS

TouchAIR FAN CONTROL



Touch Pad
Control

- Single Point Fan Control
- Controls up to 65 Fans
- CAT-5 Daisy Chain Connections
- Intuitive Operation
- Individual and Group Controlling
- Remote Diagnostics
- Over 1640 ft (500 m) of Wire Distance
- Used in Conjunction with ZoneAIR Fan Control

LinkAIR FAN CONTROL



LinkAir
Module

- Single Point Fan Control
- Controls up to 247 Fans
- Uses BACnet Signal
- Works in Conjunction with Building Automation Controls
- Individual Fan and Group Controlling
- Used in Conjunction with ZoneAIR Fan Control

HAR-MINUS FAN CONTROL



- Fan Mounted VFD
- One Har-Minus Control Per Fan
- Very Low Harmonic Transmission
- Requires Low Voltage Control
- Designed Specifically for Agricultural Sector

WIND SENSOR



- For Use With Outdoor and Open Sidewall Applications
- Automatically Adjusts Systems During High Winds
- Compact Design
- Programmable For Customized Applications



Tel: 1-519-527-2198 Fax: 1-519-527-2560
Toll Free: 1-866-771-7766

bigair@enviranorth.com

92 Railway St. P.O Box 668
Seaforth, Ontario
Canada N0K 1W0

enviranorth.com

