
12
year service life
WARRANTY
6 blade fan series
HVLS air circulating fans
THE ORIGINAL
BIG FANS
Since 1995
MacroAir™
TECHNOLOGIES
Built for Life

Energy Saving HVLS Fans Move More Air

High volume low speed fans solve air quality and air movement challenges with less power consumption than other types of air moving equipment. The power to drive a fan is equal to the cube of the speed. If you double the speed of a fan it takes (2 times 2 times 2) or 8 times the electrical power. Because HVLS fans are so large they move plenty of air without the need for speed – a twenty four foot fan moves 376,804 cubic feet of air for about $1.00 a day.

Studies by universities and mechanical efficiency experts show HVLS fans are the most energy efficient fans available. Energy rebates for efficient equipment are available in most areas of the country.

Benefits achieved with HVLS fans.

- Improves the comfort of people and creatures
- Highly energy efficient, cuts energy costs
- Highest CFM per Watt and Thrust per Watt
- Circulates corner to corner, floor to ceiling
- Improves evaporative cooling process
- Outstanding coverage without drafts
- De-stratifies heat layers for winter comfort
- Promotes healthier air quality
- Keeps wet, moist areas dryer
- Decreases bacteria, mold, mildew and spoilage
- Improves livestock comfort and performance
- Deters birds, bugs, and flying insects
- Reduces complaints and liability issues
- Quiet and ergonomically located for safety
- Reduces heat stress

Enhance Ventilation Systems

By continuously mixing incoming fresh air with stale processed air the total amount of ventilation required is reduced. No other fan system, or ventilation technology does this better. In many cases, the number of high-speed exhaust fans can be reduced or eliminated all together, which can drastically cut fan power consumption!

Leverage Existing HVAC Systems

HVLS fans are an energy saving asset when incorporated with HVAC systems. They run for pennies an hour and move large air masses without creating turbulence. They reduce thermal loads, electricity use, and mechanical cooling and heating times. Employ fans to run during peak-load times, economizer cycles, or when setback times are scheduled. Incorporate fans into zone program designs to reduce tonnage and in some cases, completely eliminate it. Right size HVAC systems by using MacroAir fans to ensure comfort levels are maintained and energy savings goals are achieved. When designing HVAC systems less duct work and fewer ventilation fans may be required. Thermostat settings can be adjusted higher in summer and lower in winter to yield significant cost savings. Less run time means less system maintenance requirements and extended system life expectancies.

Design Green Earn LEED Credit

Energy efficient cost saving equipment is vital to your business, our economy and our planet. In acknowledgement of HVLS fan efficiencies many state and local energy saving programs offer rebates, grants and loans for HVLS fan procurement and installation. Be sure to check for these kinds of programs in your area.

What is Your Main Objective?

Better air circulation can improve employee comfort, heighten moods and improve performance. Consistent air movement helps protect against product spoilage and extends product life. HVLS fans promote cooling, de-stratify heat layers, and enhance the ventilation of fumes and gases. Plus HVLS fans are extremely energy efficient and will cut energy costs when cycled with HVAC systems.

Exceptional Quality, Service & Warranty

Product development and continuous improvement are the hallmarks of MacroAir. As the inventors of HVLS fan technology we understand the principles and mechanics, the how and the why behind the technology. We don't employ gimmicks to sell fans. We apply sound engineering principles to achieve optimum performance that lasts over time. The evolution of our product line is based on providing our customers with the features they need and the reliability they expect.

MacroAir fans are individually matched with engineered control panels to ensure optimal acceleration, speed, longevity, and overall efficiency and effectiveness. Quality inspections are performed at each work station and a thorough overall inspection is completed on each fan before our products are shipped. We make every effort to ensure our customers are completely satisfied. We offer the best customer support in the industry. Our staff is available 24/7 to answer your questions and provide assistance.

Our Six Blade Fan Series include an industry first, 12 Year Service Life Limited Warranty and a Life-Time Limited Warranty on Blades, Hubs and Frames. Additionally, we offer a one year limited labor warranty. Our products are built to last and perform year after year.

Placing Fans in a 100,000 Sq. Ft. Facility

For a typical layout 5 to 10 fans will provide optimal air flow and coverage; however, each facility is different. So, please, ask us!

HVLS Fan Basics for Installation

Here are just a few basic considerations: What is the size of the facility? Ceiling heights should be a minimum of 15 feet. Allow at least 3 feet for clearance, 5 feet is optimal. Allow at least 18 inches for blade clearance; 2 feet or more is preferred. Electrical is 208-230 single or three phase, 480 volt three phase.

HVLS Fan Sizes and Ratings

We Custom Build

Standard fan sizes are six to twenty-four feet in diameter and come in two foot increments. We do not manufacture a 22 foot fan. All ceiling fans include mounting hardware that can be clamped to support beams. Underwriter Laboratories (UL) listed fans are available. Contact us for your special application requirements.

HVLS Fan Finishes and Colors

Blades Anodized Protected

MacroAir blades are anodized, extruded aluminum. Anodizing protects blade surfaces for durability, higher performance, easier cleaning, and a longer life. We also offer beautiful custom colors and faux wood finishes.

"The fans are awesome.

They really do the trick for us. In the summer, we use the fans along with the swamp coolers to keep the conditioned cool air circulating for improved employee comfort. In the winter, as heat rises the fans redistribute the warm air back down to the floor. The fans work great and keep the warehouse comfortable in all seasons."

Keith Almryde, Ashworth Inc.

Airvolution™ Line

Optimizes Comfort for People

Airvolution fans are specifically designed to enhance the comfort of people. A fan's large column of air pushing downward builds a comfortable deep floor jet of air that entrains outward. The depth of the floor jet (wall of moving air) is related to the diameter of the fan. There is no need for speed. Air velocities from 3 to 5 miles an hour optimize the cooling effect of air sweeping across moist skin. Too much air is turbulent and drying; it creates unwanted drafts and higher air velocities can heat the skin instead of cooling it.

MaxAir™ Line

Excels for Agriculture and Special Applications

Higher air velocities are often required when cooling livestock, or where extreme moisture, bacteria, mold, mildew, and wet conditions such as wet floors exist. In these circumstances higherair velocities equate to higher performance factors and a healthier environment. MaxAir fans are engineered to deliver the optimal air flow for these special conditions.

Ashworth Inc. Facility

Design Philosophy

Physics are what make Big Fans so amazing

Since our prototype of the first 10 blade HVLS fan in 1995, we have refined the design into the most durable/ cost effective fan on the market, eliminating unnecessary blade material, reducing weight and torque and increasing air flow efficiency and service life.

Inventor's Quote

"Adding Gizmos to the blades or increasing horsepower only works against the advantage of the laws of physics.

Our ***cut the fat*** attitude has created the leanest most effective fan on the market with the longest life expectancy. Our 6 blade fan is a lean green machine".

Walt Boyd, HVLS inventor.

Walter K. Boyd

HEAT SAVINGS CHART

CITY	ANNUAL ENERGY per 20,000sq/ft	Savings @ 20%	Simple Payback Years	ANNUAL ROI	5 Year ROI	Fan Only 5 Year ROI	Fan & Install 5 Year NPV
Minneapolis, MN	$19,849	$3,970	1.39	72%	304%	$11,530	$10,586
Milwaukee, WI	17,977	3,595	1.53	65%	275%	10,043	9,099
Chicago, IL	15,902	3,180	1.73	58%	244%	8,393	7,449
Albany, NY	15,878	3,176	1.73	58%	243%	8,374	7,430
Detriot, MI	15,497	3,099	1.77	56%	237%	8,072	7,128
Omaha, NE	15,141	3,028	1.82	55%	232%	7,788	6,845
Cleveland, OH	15,021	3,004	1.83	55%	230%	7,693	6,749
Denver, CO	14,594	2,919	1.88	53%	224%	7,354	6,410
Pittsburgh, PA	14,439	2,888	1.90	53%	221%	7,231	6,287
Boise, ID	14,144	2,829	1.94	51%	217%	6,996	6,052
Columbus, OH	13,737	2,747	2.00	50%	210%	6,673	5,729
Carson City, NV	13,708	2,742	2.01	50%	210%	6,649	5,705
Boston, MA	13,415	2,683	2.05	49%	205%	6,416	5,472
Philadelphia, PA	12,671	2,534	2.17	46%	194%	5,825	4,881
NYC	12,579	2,516	2.19	46%	193%	5,753	4,809
Seattle, WA	12,538	2,508	2.19	46%	192%	5,719	4,776
St. Louis, MO	12,073	2,415	2.28	44%	185%	5,350	4,406
Cincinnati, OH	11,900	2,380	2.31	43%	182%	5,213	4,269
Kansas City, MO	11,703	2,341	2.35	43%	179%	5,056	4,112
Newark, NJ	11,621	2,324	2.37	42%	178%	4,991	4,047
Baltimore, MD	11,228	2,246	2.45	41%	172%	4,678	3,734
Portland, OR	11,190	2,238	2.46	41%	171%	4,649	3,705
Oklahoma City, OK	8,877	1,775	3.10	32%	136%	2,810	1,866
Reno, NV	8,586	1,717	3.20	31%	132%	2,579	6,735
Norfolk, VA	7,919	1,584	3.47	29%	121%	2,049	1,105
Little Rock, AR	7,649	1,530	3.60	28%	117%	1,834	891
Greensboro, NC	7,330	1,466	3.75	27%	112%	1,580	636
Memphis, TN	7,224	1,445	3.81	26%	111%	1,496	552
Oakland, CA	7,121	1,424	3.86	26%	109%	1,414	470

Energy Savings

Using readily available ASHRAE data on city-specific heating degree days (HDD) and based on current natural gas cost estimates per BTU ($11.30 per MCF), and conservative facility design criteria; we calculated annual savings, annual and 5 year return on investment (ROI) and 5 year net present value (NPV) of the investment assuming an installed cost per fan of $5,500 and an annual interest rate of 6%. We assumed no increase in energy costs over the 5 year period (so you know your actual results could be much better). Actual installed fan costs per 20,000 square feet of facility space may vary depending on quantity purchased,regional and site-specific installation costs, and air movement challenges and objectives. A ceiling height of 20 Ft was used in these calculations. Best results for indoor applications will be achieved with our energy efficient 20Ft and 24Ft MacroAir HVLS fans having Whisperfoil XL™ blades, 1 hp motors, variable fan speed, and reverse capability.

A Simple Example of Energy Savings

36 inch High Speed	24' MaxAir Fan
10,000 to 12,000 CFM	376,804 CFM
Fans to Match CFM: 31	**... to 1**
Power: 14.53 kW:	1.65kW
Cost at .09 kWh: 1.31	0.148
Cost for 20,000 hrs: $26,200	$2,960
Energy Savings:	**$23,240**
Life: 3-5 Years	To 12 +
Rebuildable: NO	YES
Maintenance: YES	LOW

FAN PERFORMANCE CERTIFIED RATINGS

air performance certified ratings June 2007

8 FT Airvolution Fan

Model Number	HVLS Series	Fan Size	Blades	Voltage	Barometric Pressure	Ambient Air Density	Frequency	Input Power Watts	KiloWatts	Impeller Speed	CFM/Watt	Performance
MA08XL1006	Airvolution	8	Six	480	29.05	0.0721	60Hz	684.0	0.684	206 rpm	78.39	53,623 CFM

"Power rating (kW) includes transmission losses."

CR07-1 June 2007

air performance certified ratings January 2008 and June 2007

Model Number	HVLS Series	Fan Size	Blades	Voltage	Barometric Pressure	Ambient Air Density	Input Power Watts	KiloWatts	Impeller Speed	Thrust Ft.(lbf)
MA12XL1006	Airvolution	12	Six	480	29.09	0.0722	605.0	0.605	121 rpm	27.32
MA10XL1006	Airvolution	10	Six	480	29.10	0.0722	559.0	0.559	144 rpm	19.73

"The AMCA Certified Ratings Seal applies to airflow rate at free delivery only. Speed (rpm or rps) shown is nominal. Performance is based on actual speed of test"

CR08-1 January 2008

"MacroAir Technologies certifies that the Airvolution™ 8 Foot Fan Is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures for Installation Type A, performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program."

"Performance ratings include the effects of the variable frequency drive."

"MacroAir Technologies certifies that the Airvolution™ HVLS™ Fan Series is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program."

"Performance ratings include the effects of the variable frequency drive."

In-House Manufacturing

For Quality, Flexibility and Value

Our in-house operation yields economies that we pass along to our customers with the most competitive pricing in the industry. We take pride in our position as the creators and industry leaders of HVLS fan technology. MacroAir builds products with features, quality and standards we would expect, if we were the customer. Our Six Blade Airvolution™ and MaxAir™ Series offer more standard features and more value; including a standard 12 Year Service Life Limited Warranty. We pay close attention to our customers before and after the sale to ensure product expectations and complete satisfaction is achieved.

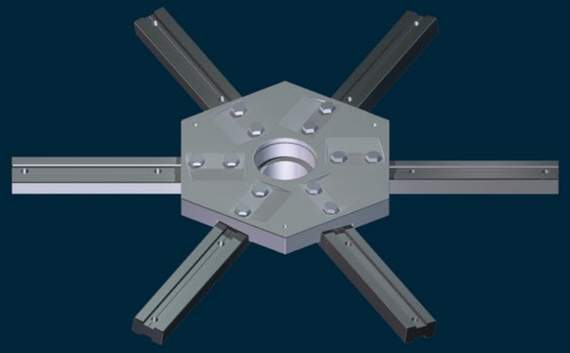
Our Power Units Are Designed To Last

MacroAir's power units include motor, gearbox, frame, hybrid hub, bushing and patent pending interlocking safety system. We source, test, and carefully match motors and helical gear reducers for optimum reliability, low noise and long product life. Our industry standard, best in class components equate to quiet efficiency, the highest service factor and zero maintenance.

We use 3 phase induction motors, rated for inverter duty, with Class F insulation. Gearboxes feature over-sized bearings and are lubed for life.

Controllers

Our in-house panel shop manufacturers control panels to our high quality standards, and to meet the worldwide standards for safety and EMC compliance. Variable speed fans feature EMI/RFI suppression, lockable service disconnect , and low voltage controls, complete with enclosures and cables, as standard equipment.



Superior Hybrid Hub Design

Patent pending Hybrid Hub with honey comb structure is engineered for optimum strength and durability. The hub is "locked into the blades" with invertible H-Beam Blade Struts, keyed and bolted for the perfect fit.

Unique Universal Mounting System

MacroAir's load reducing Universal Mounting System completely isolates the rest of the fan unit and all its components from the facility structure. The system prevents any vibration or movement from being transferred back into the ceiling. The system is easy to install and adaptable to most mounting requirements.

Integrated Safety System

MacroAir makes every effort to engineer safe, reliable products. Our Six Blade Fan Series features our patent pending interlocking safety system, guy wires, safety cable and hybrid hub assembly. This system is designed to prevent the hub and blades from falling from the fan unit in the unlikely event of the shaft breaking. Plus the safety system prevents the blades from falling separately or together. Additionally, collet-type friction bushings allow controlled slippage in the event of failure.

SONGPA-GU Multipurpose Indoor Gymnasium in Seoul, South Korea

the greenest fan on earth.™

REVERSIBLE

IN WINTER FOR IMPROVED COMFORT, PRODUCTIVITY & HEAT SAVINGS

"CHANGING THE WAY EXPERTS DESIGN AND IMPLEMENT AIR FLOW SYSTEMS WORLDWIDE..."

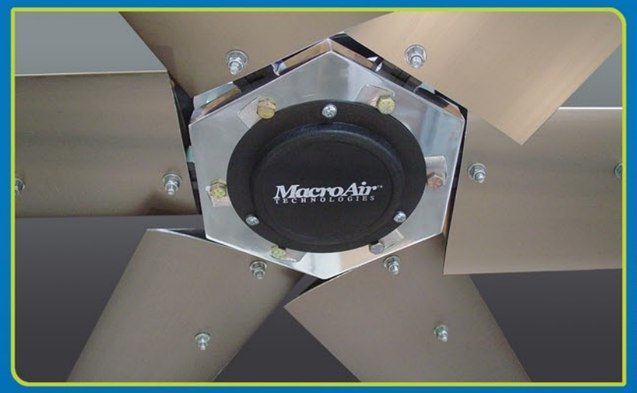
WhisperFoil XL™ Blade

Patented Blade Design

Our patented aluminum extruded blades deliver performance, strength, durability and ease of maintenance. Our development criteria for the best performing blade included overall weight, engineered strength, durability and air movement potential. We tested many designs including different style blade tips and winglets. We found winglets added nothing to air performance. The best possible design was an extruded blade, with a classic, smooth aerodynamic shape - MacroAir's WhisperFoil XL and WickerBill blades are exactly what we wanted in a blade.

Guying System

MacroAir incorporates guying into our mounting system for one important reason; guying reduces the isolated load on the center mount and ceiling truss reducing the chance of damaging the building structure. If guying can preclude roof or structural damage sometime in the future, then it is worth it.



Art In Air Create a Dazzling Presentation

New Bronze finish is available with custom Polished Hybrid Hub.

FAN SPECIFICATIONS

Diameter in Feet	Cubic Feet Per Minute (Forward)	Cubic Feet Per Minute (Reverse)	Max. Speed Kilowatts KW (a)	Typical Industrial Spacing Feet (b)	Max. Effective Area SQ Feet (c)	Maximum RPM	Horsepower	Hanging Weight Lbs (Within Mfg. Tolerances)
24 MaxAir	376,804	263,763	1.65	110	20,000	65	2	236
24 Airvolution	275,694	192,986	.694	100	18,000	50	1	240
20 MaxAir	237,231	166,062	1.03	100	18,000	70	1.5	217
20 Airvolution	201,805	141,264	.592	95	15,000	60	1	232
18 Airvolution	179,015	125,311	.648	90	15,000	71	1	222
16 Airvolution	158,911	111,238	.693	90	15,000	88	1	208
14 Airvolution	128,010	89,607	.734	70	8,000	104	1	194
14 AgGreenStar Airvolution	128,010	89,607	.678	70	8,000	104	1	194
12 Airvolution	97,695	68,387	.605	65	7,000	121	1	190
10 Airvolution	83,025	58,118	.559	60	5,000	144	1	181
8 Airvolution	53,623	37,585	.684	55	4,000	206	1	160
Eco6 Airvolution	26,432	(n/a)	.265	(d)	(d)	204	.375	233

(a) Power Consumption (kW): This is the avg. power consumption of the fan at 59° F and 29.92 in/Hg atmospheric pressure, in dry air.
(b) Typical Industrial Spacing is measured from center to center of range for most industrial applications; the more floor congestion the closer the spacing.
(c) Max. Effective Area determined within a circular area on an unobstructed floor under the fan.
(d) Mount on wall, pole, or ceiling. Air flow; spread is 20 feet and forward throw is 100 feet.

STANDARD Value-Added, Features, SIX BLADE FAN SERIES

- Lifetime Warranty on Blades, Hubs, and Frames / 12 Year Service Life Limited Warranty
- Patent Pending Interlocking Safety System
- EMI/RFI Wiring Package includes Shielded Cable (not applicable to Single Speed Fans)
- Remote Control with Remote Cable Wire
- Control Panel with Lockout/Tagout Disconnect and E-Stop
- Variable Frequency Drives with Soft-Start Technology and Input Line Filter
- Safety Cable and Guy Wires
- Universal Load-Reducing Swivel Ceiling Mount System
- Glulam or I-Beam Mounting Clamps
- Hybrid Hub with Keyed H Beam Blade Struts
- Install Ready (all that's required is power to the control panel)

As part of our ongoing product improvement practices, MacroAir reserves the right to change specifications and design without notice.

UL LISTED FANS ARE AVAILABLE

MacroAir Technologies Inc
794 South Allen Street
San Bernardino, CA
92408

866 668 3247

www.macro-air.com

Printed in the USA on Recycled Paper