AIR and WATER SYSTEMS
INDUSTRIAL HUMIDIFICATION • INDUSTRIAL COOLING
PO Box 49276 Charlotte NC 28277 • Off 704-588-2603 • Fax 704-588-2604 www.airandwatersystems.com

HVLS™

High Volume Low Speed Large Ceiling Fans

For Industrial Spaces

"We Move Air"

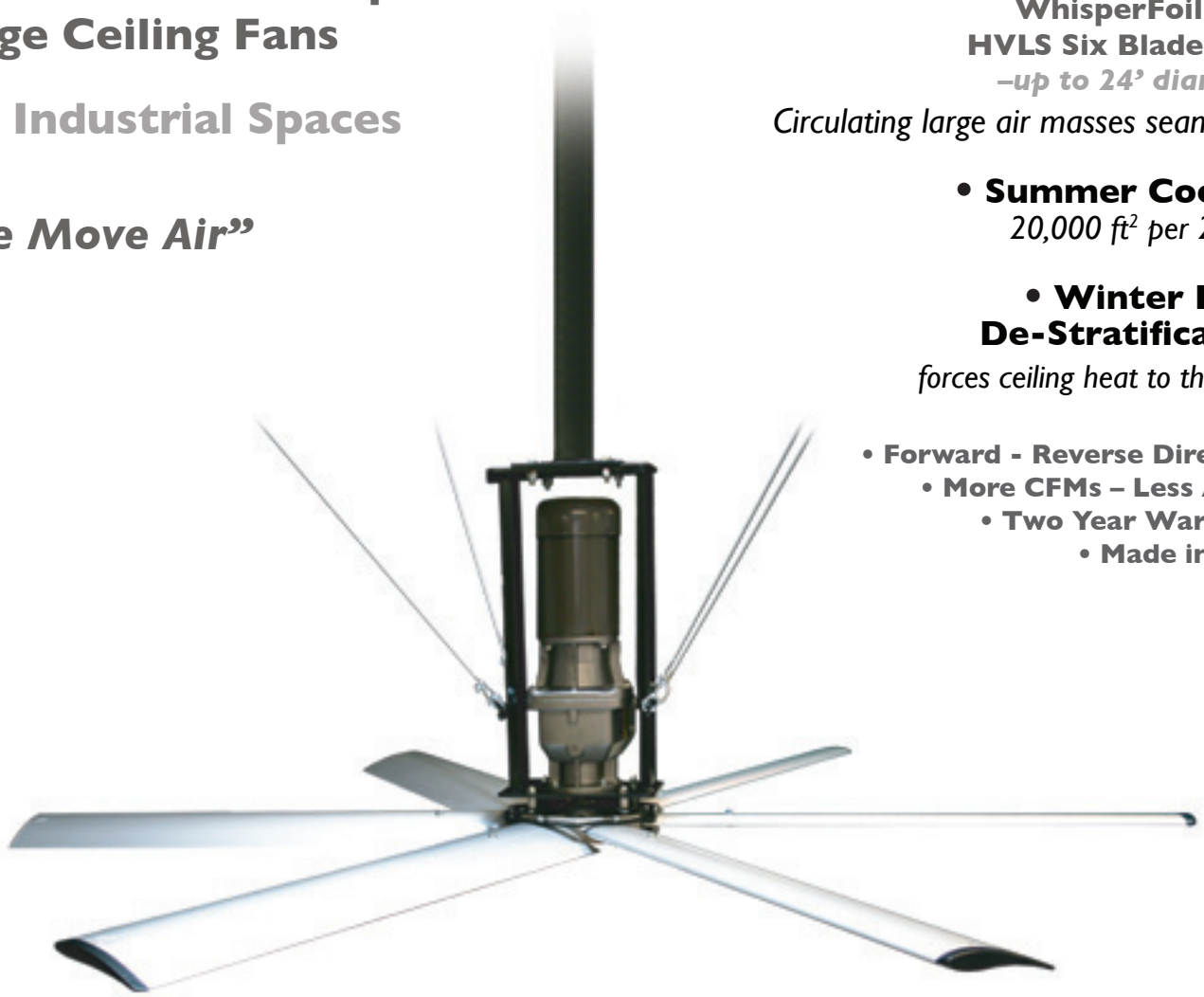
MacroAir Airvolution™
WhisperFoil XL™
HVLS Six Blade Fans
–up to 24' diameter

Circulating large air masses seamlessly

• Summer Cooling
20,000 ft² per 24' fan

• Winter Heat De-Stratification
forces ceiling heat to the floor

• Forward - Reverse Direction
• More CFMs – Less Amps
• Two Year Warranty
• Made in USA



The inventor of HVLS technology – Walter Boyd co-founder of MacroAir Technologies, designed the fans for cooling large open spaces featuring maximum performance & energy efficiency – ideal for industrial applications – extremely efficient, quiet and produces minimal air disruption directly below the fan.

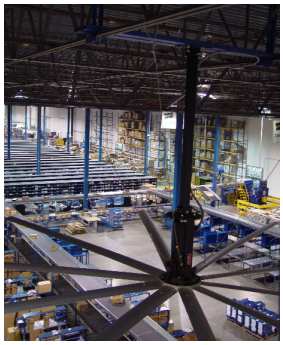
The key operational design is the airfoil shape of the blades with a high aspect ratio like a plane wing – long, narrow and hollow making it lightweight. The blades are anodized extruded aluminum for long life and easy maintenance. The fan uses a 1hp motor and provides air speeds of 3-7 mph.

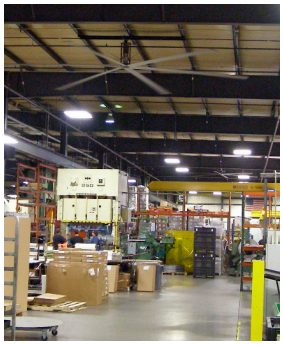
THE ORIGINAL BIG FANS Since 1995

HVLS Fans: The Most Energy Efficient Fans Available

The relationship between speed (rpm), diameter, airfoil shape, and the resultant size and momentum of a fan's air column yields exponential efficiencies – an air column can sustain movement longer by leveraging its own momentum allowing air to entrain, circulate and reach corner to corner – encompassing circulation diminishes areas of unhealthy air. By operating at very low rpm, torque and wear are minimized and fan mechanical efficiencies are increased for a longer life cycle. Low rpm's equates to a highly efficient fan using very little power to operate – pennies an hour!

Compare: Thirty one 36" 1hp high speed fans equal the cfm's of just one 24' HVLS 1hp fan saving over $20,000/year in electrical cost.





• **Leverage Existing HVAC Systems:** move large air masses without creating turbulence – reducing thermal loads, electricity use, and mechanical cooling and heating times – thermostat settings can be adjusted higher in summer and lower in winter to yield significant cost savings – lowers overall maintenance and extends system life expectancies. • **Enhance Ventilation Systems:** Continuous mixing of incoming fresh air with stale processed air lowers amount of total ventilation - reduce the number of high speed exhaust fans. • **Optimize People Comfort:** A fans large column of air pushing downward builds a comfortable deep floor jet of air that entrains outward – requires no need for air speed velocities – just 3-5 miles an hour for optimized cooling effect • **De-Stratifies Uneven Heat** reducing higher cost of heat cycling. • **Control Panel Specs:** engineered to ensure optimal acceleration, speed, and longevity (Multiple fans can be run off a single control panel). Nema 1 enclosure; Variable Frequency Drive (VFD); Fuse Block Fuses: 12, 15 & 20 amp; Control Switch: FWD/OFF/REV; Disconnect Switch: 20 amp lockable; Input Power: 208V/240V 1Ø, 208V/240V 3Ø, 480V 3Ø

HVLS Six Blade Fan Diameters and Specifications (60 Hz)

Blades: Extruded 6063-Y351 Anodized Aluminum • Hub: Cast Aluminum

Airvolution	24'	24'	20'	20' (70Hz)	18'	16'	14'	12'	10'	8'
Displacement CFM (Forward Blowing Down)	376,804	275,694	201,805	237,231	179,015	158,911	128,010	97,695	83,025	53,623
Displacement CFM (Reverse Blowing Up)	263,763	192,986	141,264	166,062	125,311	111,238	89,607	68,387	58,118	37,585
Maximum Effective Area*	20,000	18,000	15,000	18,000	15,000	15,000	8,000	7,000	5,000	4,000
Typical Industrial Spacing Ft**	110	100	95	100	90	90	70	65	60	55
Maximum RPM	54	50	60	85	71	88	104	121	144	206
Power Consumption kW (Avg)	1.65kW	.694kW	.592kW	1.032kW	.648kW	.693kW	.734kW	.605kW	.559kW	.684kW
Motor Horsepower	2	1	1	1.5	1	1	1	1	1	1

*Maximum Effective Area determined within a circular area on an unobstructed floor under the fan.

**Typical Industrial Spacing from center to center of range – the more floor congestion, the closer the spacing.