Epoch Fans

When Silence is Golden and Less is More

High Volume Low Speed Fans

An Exciting Breakthrough in Direct Drive PMSM Motors and HVLS Fans

A Message from the President

Falco has a long history of innovation in the field of permanent magnet brushless motors and drives. Our journey started in 2009 as Strategic Technology Group as the company engaged in innovation of highly complex motors, drives and systems in personalized transportation solutions. In 2011, Falco eMotors was launched with unveiling of an extraordinary technology for electric bikes. Falco's products are currently sold in Europe and the US.

In 2015, we saw a great opportunity to make a huge impact on HVLS Fans. Customers in the HVLS fan industry has been begging for a solution for a long time. Epoch HVLS fans represent a significant technological breakthrough. Epoch fans operates silently and efficiently requiring no maintenance for years to come. With the least amount of energy consumption (40% more efficient than the best HVLS fan in the industry) and a sound signature of less than 35 dB, we are setting some serious world records. The motor and inverter efficiency are close to 95% each, giving you a light weight power house which can move a ton of air at a tremendous energy savings.

With this technology, watch your profits and productivity go through the roof and carbon footprint drop to the floor. We intend to revolutionize the big building human productivity and lower the carbon footprint significantly by changing the air flow smartly.

Join us in this extraordinary revolution!

Sincerely,
Rakesh Dhawan
B Tech (IIT, Kharagpur, India), MSEE (UMN, Minnesota, USA), MBA (ODU, Virginia, USA)

US Sales(Toll Free): +1 877 278 6323

Why EPOCH HVLS Fans?

An Exciting Breakthrough in Direct Drive PMSM Motors and Controls with Far Reaching Benefits for the Industry

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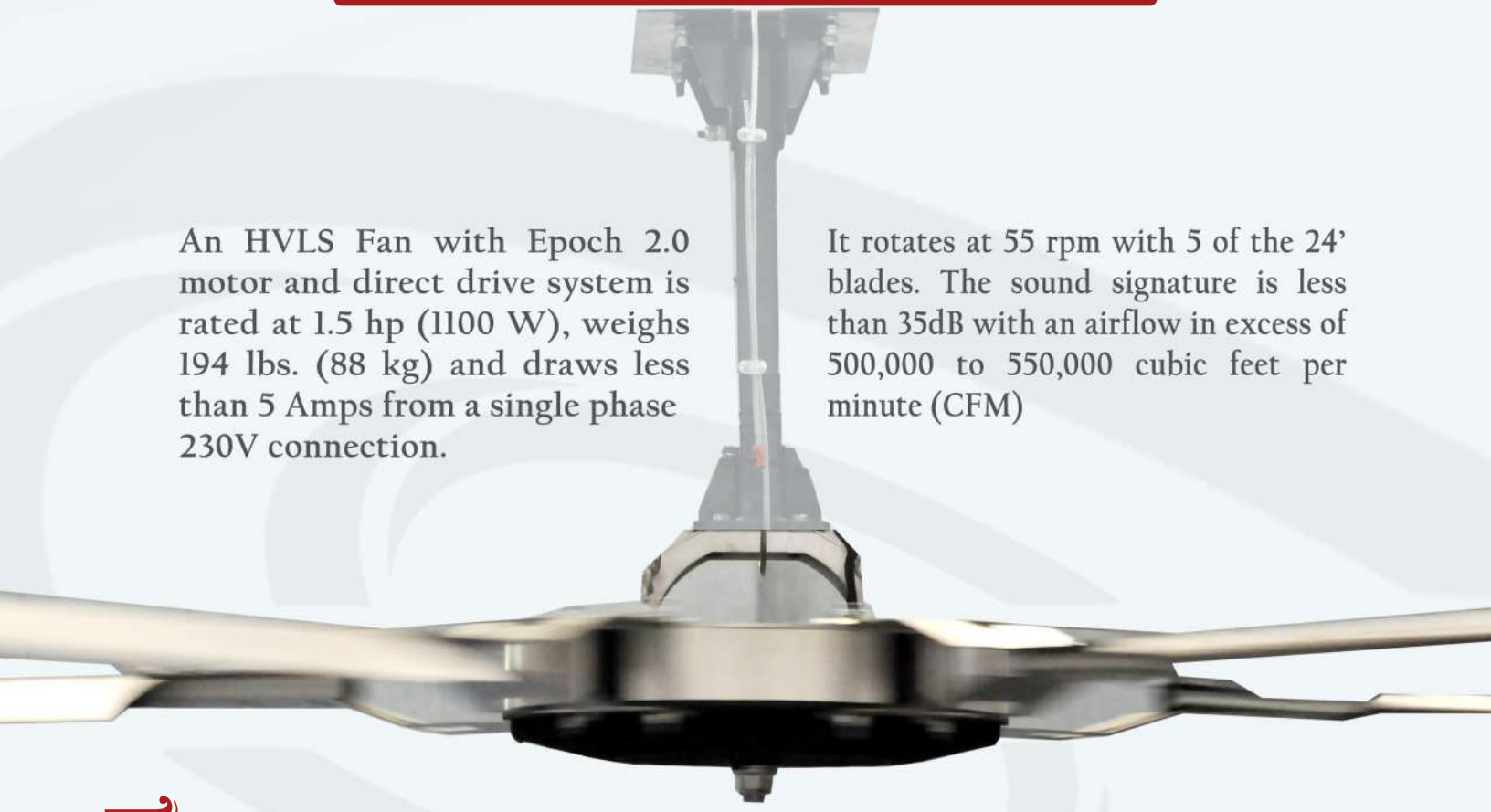
+91 9112290029/030

World's 1st Most Powerful, Efficient and Silent Driect Drive HVLS Fans

An HVLS Fan with Epoch 2.0 motor and direct drive system is rated at 1.5 hp (1100 W), weighs 194 lbs. (88 kg) and draws less than 5 Amps from a single phase 230V connection.

It rotates at 55 rpm with 5 of the 24' blades. The sound signature is less than 35dB with an airflow in excess of 500,000 to 550,000 cubic feet per minute (CFM)



5 BLADES

Epoch HVLS Fans incorporate five blades. The airfoil design is optimized for low speed rotary functions. The blades are inspired by falcon wings and modern day aeronautics, The blades are designed for continuous adaptation to maximize the air flow at every speed.

This is achieved through the uplift and droop design which provides not only the highest CFM but also the higest safety and efficiency. The Epoch 5-blade configuration generates the most silent, efficient, and effective airflow in the industry today.

It is far superior configuration than a 2-or 3- or 4- or 6- or 8- blades configuration. Fans with Less than five blades generate less CFM while Fans with more than five blades generate more noise, disruptive air flow and less CFM.

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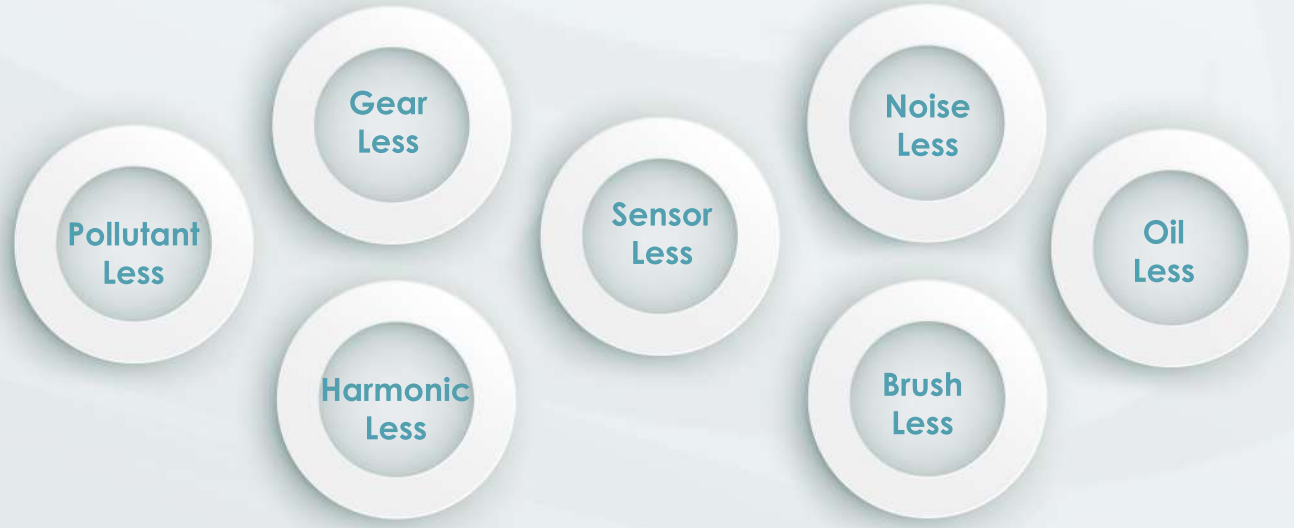
Technology Comparison

We are sending The Gearbox to outer space



Technology Comparison

	Geared Induction Motors	*BLDC Motors*	*EPOCH HVLS Fans*
Unity Power Factor Correcton	✗	✗	♥
Zero Maintenance	✗	+	♥
Zero Sound	✗	✗	♥
Lowest Weight	✗	✗	♥
Lowest Operating Cost	✗	✗	♥
Long Life	✗	✗	♥
Smart & Adaptive Air Flow	✗	✗	♥

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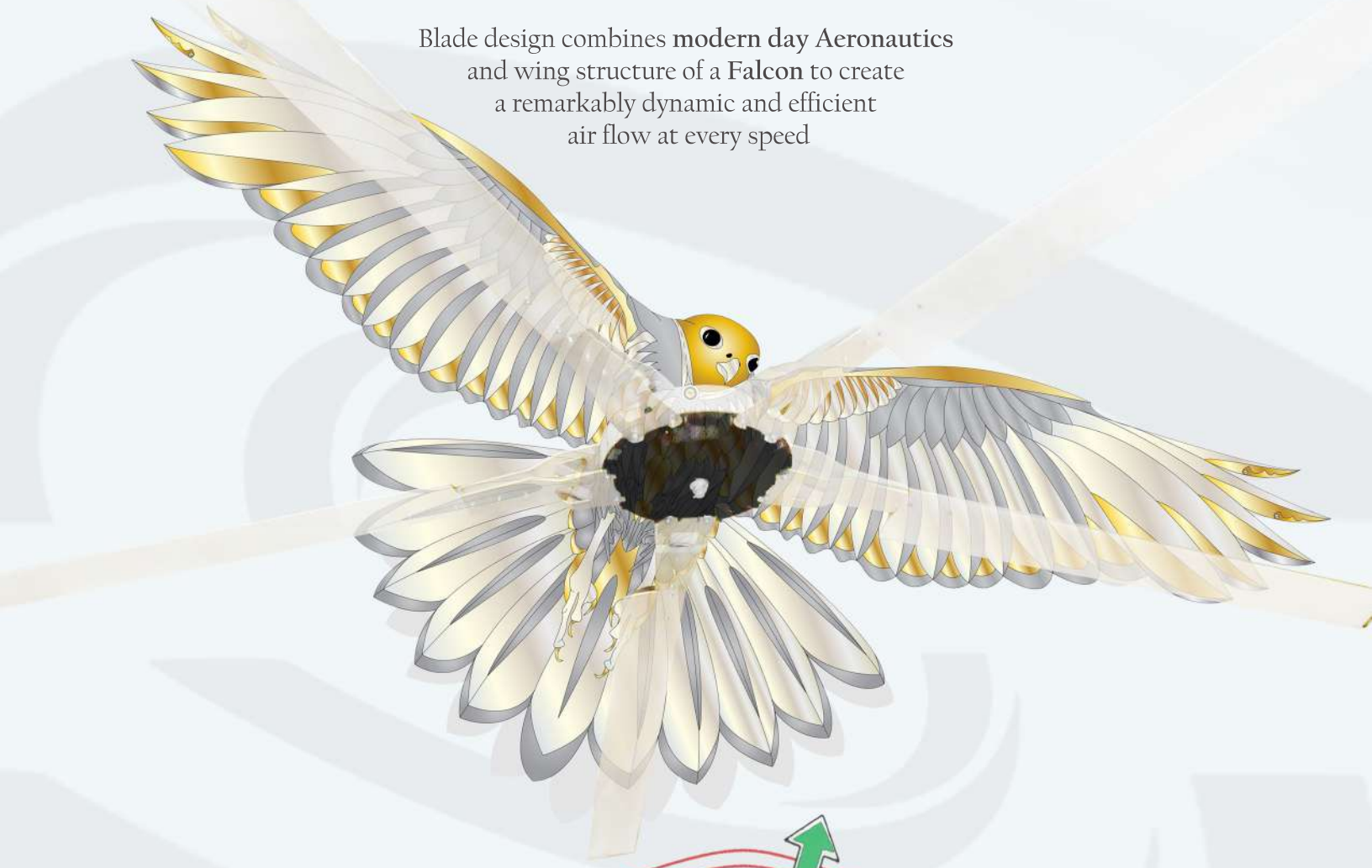
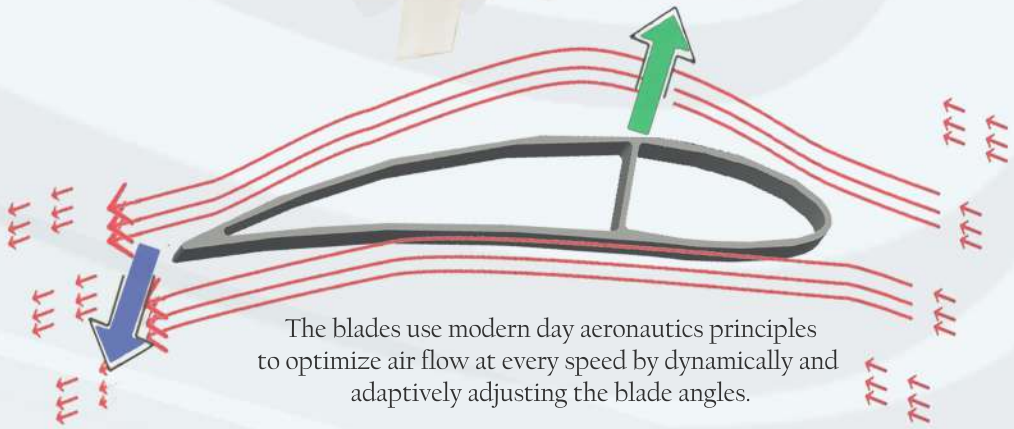
5 BLADES

Airfoil and Blade Design Inspired by Nature

Blade design combines **modern day Aeronautics** and wing structure of a **Falcon** to create a remarkably dynamic and efficient air flow at every speed





The blades use modern day aeronautics principles to optimize air flow at every speed by dynamically and adaptively adjusting the blade angles.

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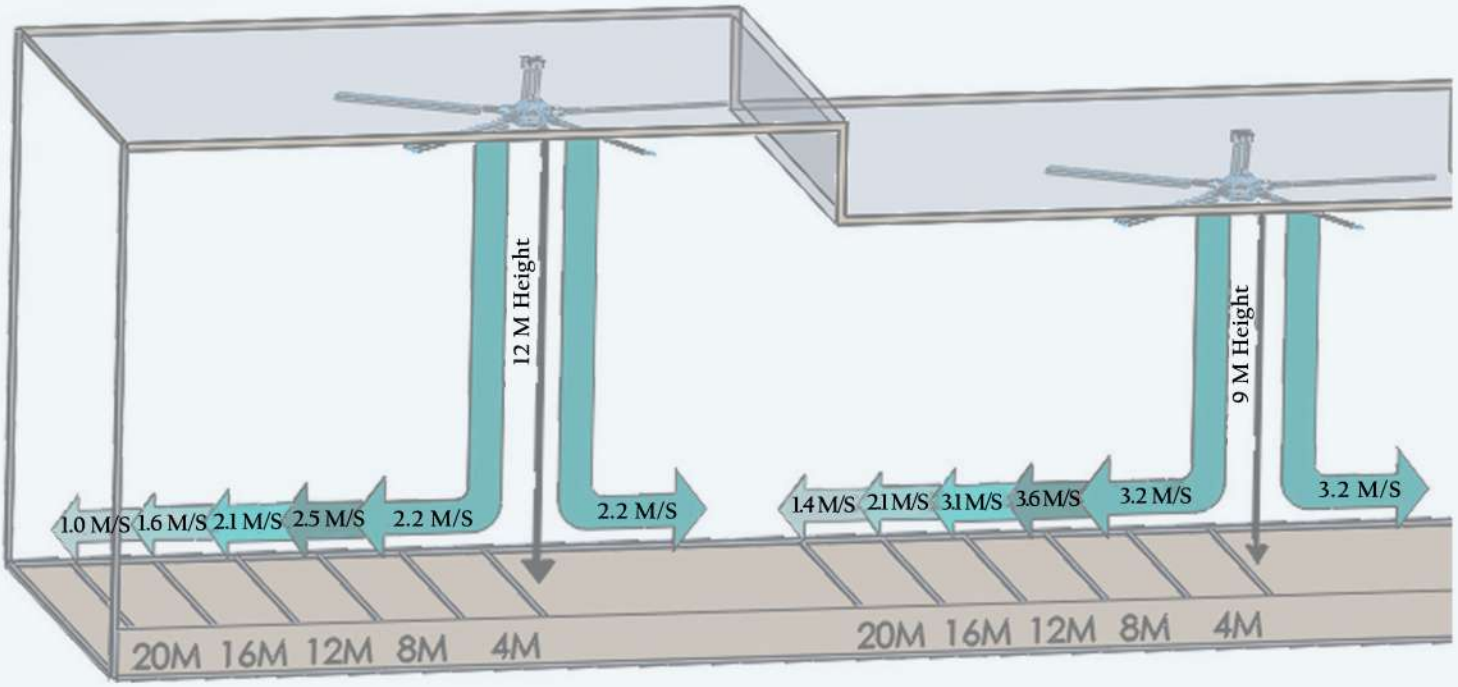
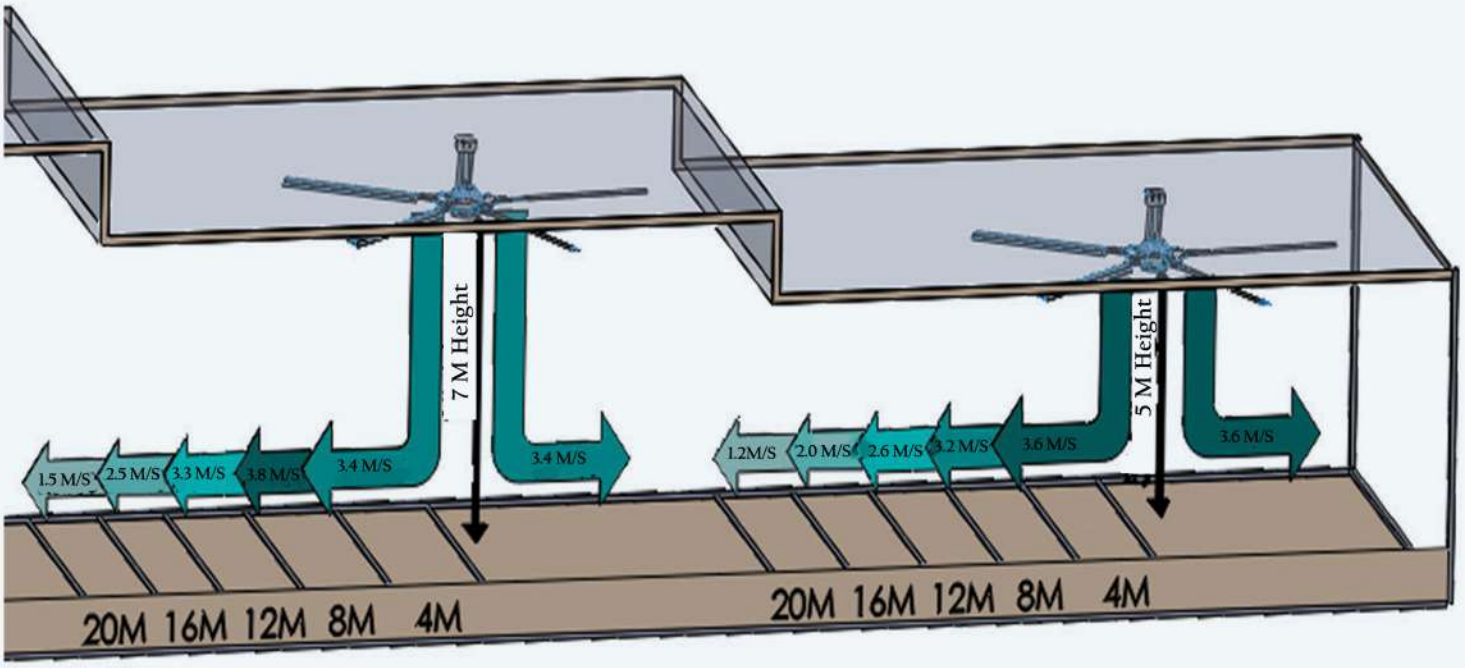
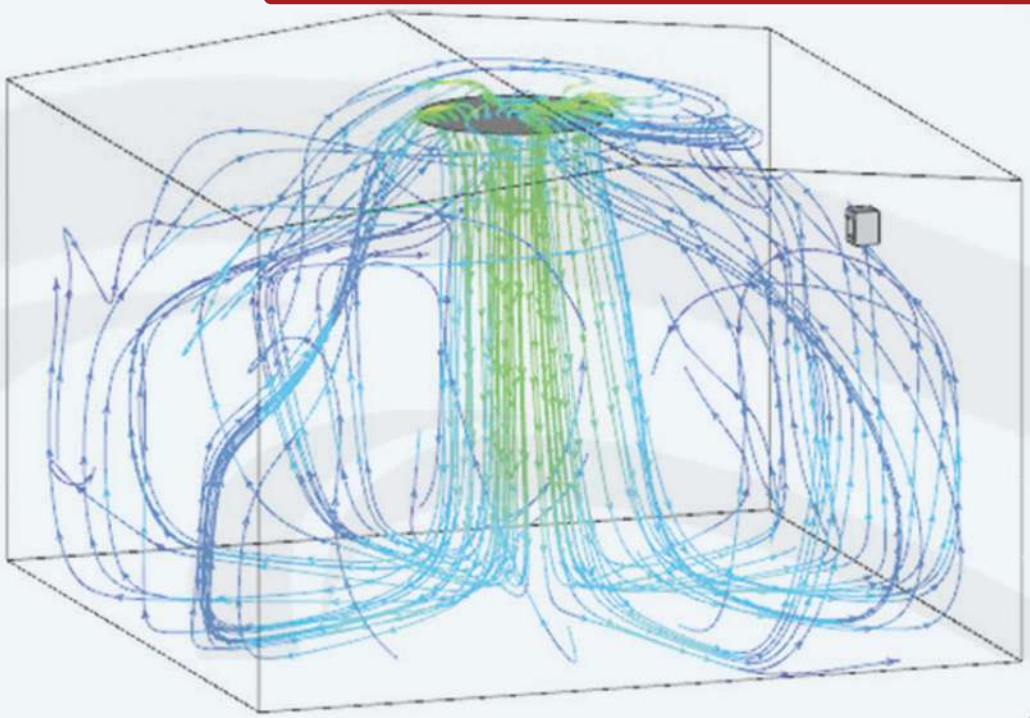
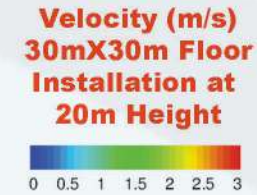
Air Velocity as a Function of Height for 24' Fan Diameter

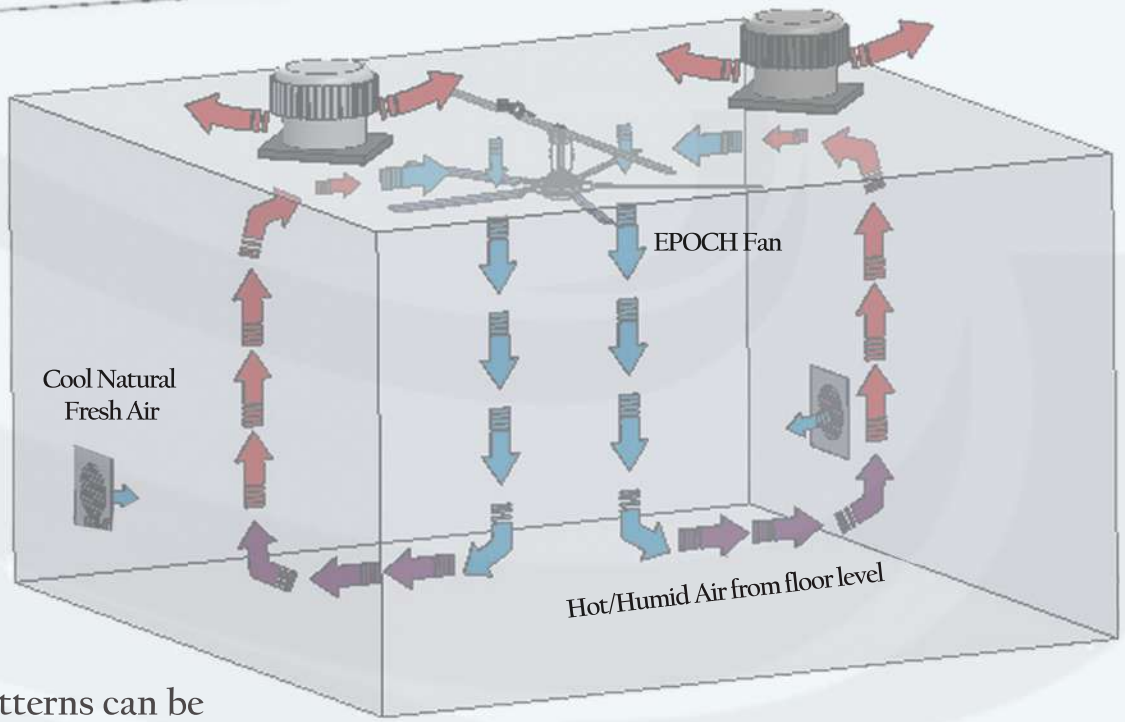




Air Flow Patterns for HVLS Fans







Air Flow Patterns can be smartly modified by introducing smaller HVAC elements as shown above

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Technical Specifications (1.0)

Motor Platform	Epoch 1.0			
Fan Diameter	6 Ft. (1.8m)	8 Ft. (2.4m)	10 Ft. (3m)	12 Ft. (3.7m)
No. of Blades	5			
Blade Profile	Airfoil Design			
Blade Material	Anodized/6061-T6 Aluminum			
Blade Struts	Clear Zinc/High Tensile Steel			
Blade Width	187.53mm			
Blade Thickness	2mm			
Blade End Winglets	Nylon			
Coverage Radius in Feet	28	30	32	35
Space between Fans in Feet	56	60	64	70
Minimum Space from wall in Feet	12	12	15	18
Technology	UPF (Unity Power Factor Correction) & PMSM (Permanent Magnet Synchronous motor)			
Motor	Epoch 1.0 Platorm by Falco/Direct Drive PMSM Motor			
Max Speed RPM (Revolutions PerMinute)	230	190	160	130
Power Usage at Max RPM	1.1 kW (1.5 hp)			
Torque	0 to 50 Nm			
Standard Power	200 to 264VAC, 1 Phase, 50 or 60 Hz			
Coverage	4,000 Sq.ft. (371 Sq.m)	5,000 Sq.ft. (464 Sq.m)	6,000 Sq.ft. (557 Sq.m)	7,000 Sq.ft. (650 Sq.m)
Air flow (Cubic Ft/Min)	350,000 to 400,000	350,000 to 400,001	350,000 to 400,002	3400,000 to 450,000
Approx. Fan Weight(Kgs./lbs.)	355/121	59/130	63/138	67/147
Sound	‹35dB			
Height from Floor in mtrs	4 to 5	4 to 5	4 to 5	5 to 6
Operating units- Available Options	Wireless - Smart phone Anroid Apps, Type (ModBus) -Touch Screen LCD (Mod Bus), Connection - Wired /Wireless (ANT+/BLE)			
Safety	Safety Guy wire for motor & for each blade Designed for UL507 Safety System for Fans Designed for UL1004 Safety System for Motors Designed for UL60730-2-9 and UL508C Safety System for Drives Fan Mechanical Safety System incorporates Automotive Grade Hub and Guy Wires			

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Technical Specifications (2.0 and 3.0)

Motor Platform	Epoch 2.0					
Fan Diameter	14 Ft. (4.3m)	16 Ft. (4.9m)	18 Ft. (5.5m)	20 Ft. (6.1m)	22 Ft. (6.7m)	23.1 /24 Ft. (7.1/7.3m)
No. of Blades	5					
Blade Profile	Airfoil Design					
Blade Material	Anodized/6061-T6 Aluminum					
Blade Struts	Clear Zinc/High Tensile Steel					
Blade Width	187.53mm					
Blade Thickness	2mm					
Blade End Winglets	Nylon					
Coverage Radius in Feet	40	45	47	52.5	55.5	57.5
Space between Fans in Feet	80	90	94	105	111	115
Minimum Space from wall in Feet	21	24	27	30	33	36
Technology	UPF (Unity Power Factor Correction) & PMSM (Permanent Magnet Synchronous motor)					
Motor	Epoch 2.0 or 3.0 Platorm by Falco/Direct Drive PMSM Motor					
Max Speed RPM (Revolutions PerMinute)	120	95	75	60	55	52 (2.0)/62 (3.0)
Power Usage at Max RPM	1.1 kW (1.5 hp)					1.1 kW (1.5 hp) Standard/ 1.5kW (2.0 hp) (3.0)
Torque	0 to 140 Nm					0 to 140 Nm Standard/ 170Nm Optional (3.0)
Standard Power	200 to 264VAC, 1 Phase, 50 or 60 Hz					
Coverage	8,000 Sq.ft. (743 Sq.m)	12,000 Sq.ft. (1,114 Sq.m)	15,000 Sq.ft. (1,393 Sq.m)	18,000 Sq.ft. (1,672 Sq.m)	23,000 Sq.ft. (2,136 Sq.m)	25,000 Sq.ft.(2,323 Sq.m) & 30,000 sq.ft(2,787 Sq.m)
Air flow (Cubic Ft/Min)	400,000 to 450,000	400,000 to 450,000	450,000 to 500,000	450,000 to 500,000	450,000 to 500,000	500,000 to 550,000
Approx. Fan Weight(Kgs./lbs.)	68/159	72/158	76/167	80/176	84/185	88/194 & 99/218
Sound	‹ 35dB					
Height from Floor in mtrs	6 to 7	7 to 8	7to 8	8 to 9	10 to 11	11 to 12
Operating units- Available Options	Wireless - Smart phone Anroid Apps, Type (ModBus) - Touch Screen LCD (Mod Bus), Connection - Wired /Wireless (ANT+/BLE)					
Safety	Safety Guy wire for motor & for each blade Fan Mechanical Safety System incorporates Automotive Grade Hub and Guy Wires All fans meet the applicable requirements of EU Council Directive 2014/35/EU and the European Standards EN60335-1:2012 & EN60335-2-80: 2003/A2:2009; UL507: 2017 Ed.10 Electric Fans ETL Listed; CSA 22.2#113:2015 Ed.10+U1 Fans and Ventilators ETL Listed.					

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3-Blade EPOCH HVLS

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Technical Specifications (3-Blade Fans)

Motor Platform	Epoch 1.0 and 2.0					
Fan Diameter	14 Ft. (4.3m)	16 Ft. (4.9m)	18 Ft. (5.5m)	20 Ft. (6.1m)	22 Ft. (6.7m)	24 Ft. (7.3m)
No. of Blades	3					
Blade Profile	Airfoil Design					
Blade Material	Anodized/6061-T6 Aluminum					
Blade Struts	Clear Zinc/High Tensile Steel					
Blade Width	187.53mm					
Blade Thickness	2mm					
Blade End Winglets	Nylon					
Coverage Radius in Feet	53	55	63	70	72	74
Space between Fans in Feet	42	48	54	60	66	72
Minimum Space from wall in Feet	21	24	27	30	33	36
Technology	UPF (Unity Power Factor Correction) & PMSM (Permanent Magnet Synchronous motor)					
Motor	Epoch 1.0 & 2.0 Platorm by Falco/Direct Drive PMSM Motor					
Max Speed RPM (Revolutions PerMinute)	118	91	87	81	69	63
Power Usage at Max RPM (W)	‹ 600	‹ 600	‹ 800	‹ 800	‹ 800	‹ 800
Torque	0 to 90 Nm					
Standard Power	180 to 277VAC, 1 Phase, 50 or 60 Hz					
Coverage	8,900 Sq.ft. (827 Sq.m)	9,600 Sq.ft. (892 Sq.m)	12,600 Sq.ft. (1,170Sq.m)	15,400 Sq.ft. (1,430 Sq.m)	16,400 Sq.ft. (1,523 Sq.m)	17,000 Sq.ft (1,578 Sq.m)
Air flow (Cubic Ft/Min)	240,000 to 270,000	240,000 to 270,000	270,000 to 300,000	270,000 to 300,000	270,000 to 300,000	300,000 to 330,000
Approx. Fan Weight(Kgs./lbs.)	66/145	69/152	71/156	73/161	76/167	78/172
Sound	‹35dB					
Approx. Height from Floor (ft)	18	21	23	26	29	31
Operating units- Available Options	Wireless - Smart phone Anroid Apps, Type (ModBus) - Touch Screen LCD (Mod Bus), Connection - Wired /Wireless (ANT+/BLE)					
Safety	Fan Mechanical Safety System incorporates Automotive Grade Hub and Guy Wires All fans meet the applicable requirements of EU Council Directive 2014/35/EU and the European Standards EN60335-1:2012 & EN60335-2-80: 2003/A2:2009; UL507: 2017 Ed.10 Electric Fans ETL Listed; CSA 22.2#113:2015 Ed.10+U1 Fans and Ventilators ETL Listed.					

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An Exciting Breakthrough in Direct Drive PMSM Motors and HVLS Fans

COMMERCIAL HVLS FAN

PRODUCT SPECIFICATIONS

HIGH VOLUME LOW SPEED FAN

Hx Series

Design Highlights

- Optimized **5**-Blade profile for low speed rotary airfoil application and near ground effect
- Wired Touch Screen or Wireless Controls Standard
- Reverse Capability
- Capability to shut down with the fire system
- Suitable for ceilings as low as 12 feet (3.7m)
- Less than 35 dBA
- IP 65 Rated
- Easy customization of fan to fit customers applications (powder coating options)
- Light weight
- Energy efficient
- Max Torque 30Nm
- Max CFM 180,000/1500 to 2000 sq. ft.

Fan Diameter

- ☐ 6 FT (1.8 M)
- ☐ 8 FT (2.4 M)
- ☐ 10 FT (3.0 M)
- ☐ 12 FT (3.7 M)
- ☐ 14 FT (4.3 M)

Fan Size	Energy Used	Motor	Hang Weight	RPM
6 FT	250W	400W	50 lbs (22.7 kg)	200
8 FT	250W	400W	54.5 lbs (24.7 kg)	165
10 FT	250W	400W	59 lbs (26.8 kg)	110
12 FT	250W	400W	63 lbs (28.6 kg)	80
14 FT	250W	400W	65 lbs (29.5 kg)	60

Energy used and RPM shown above based on max speed.

Available Options

- ☐ Mounting Down Tube _____ ft.
  Standard down tube 18 in.
- ☐ Networked Multi-Fan Controller
- ☐ Modbus (BMS)
- ☐ BACnet (BMS)

COMMERCIAL HVLS FAN

PRODUCT SPECIFICATIONS

HIGH VOLUME LOW SPEED FAN

CONSTRUCTION

General Components	
Hub Assembly	50,000 lbs. Yield High Tensile Steel
Motor Housing	.050 3003 Aluminum, Powder coated
Blades	6061-T6 Aluminum, Powder coated
Blade End Winglets	6061-T6 Aluminum, Powder coated

Safety Components	
Blade Attachment Retainers	50,000 lbs Yield High Tensile Steel

Mounting Hardware	
Standard Mount	Versatile 45° Mounting Bracket
Additional Drop Extensions (Optional)	Up to 15 FT - 1 FT increments

OPERATION

Source Voltage	
Standard Power	230V 1Ø

Motor
Gearless Direct Drive 5-Phase Patented PMSM Motor

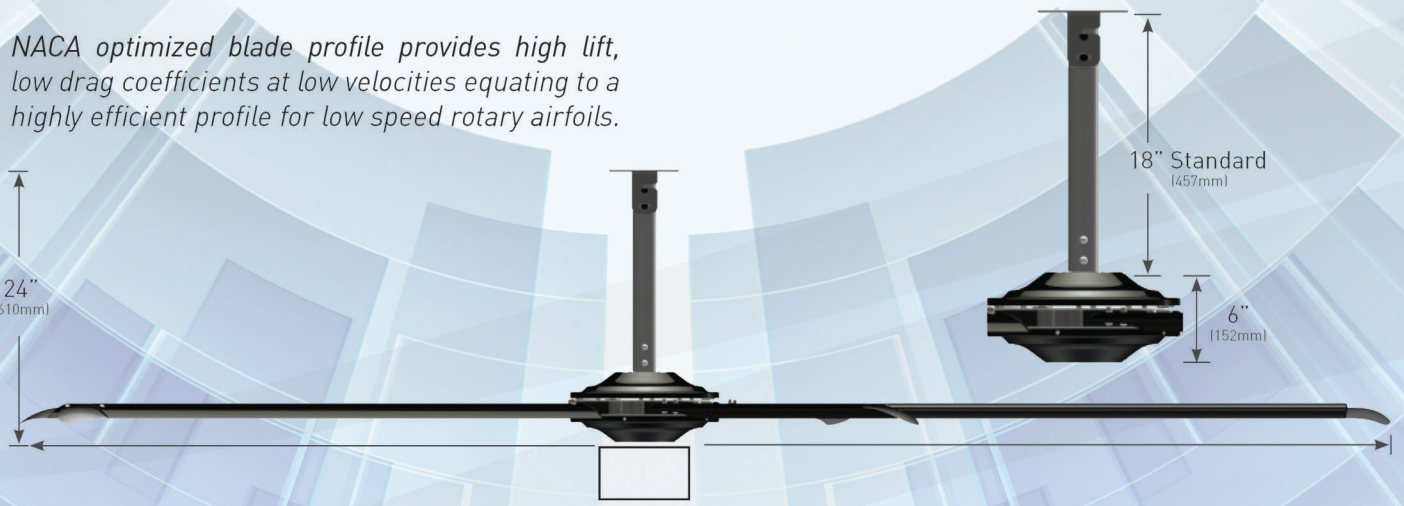
Controls Module
Manually Operated /Smart Phone App
Modbus/BACNET Option Available

Fan Controller
Wireless + Wired

Warranty
1 Year

Hx Series

NACA optimized blade profile provides high lift, low drag coefficients at low velocities equating to a highly efficient profile for low speed rotary airfoils.



EPOCH is a world class technology with extraordinary benefits for the industry

CE

CERTIFIED ISO 9001:2008 COMPANY

ETL LISTED

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UL507: 2017 Ed.10 Electric Fans ETL Listed;
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Falco eMotors Inc.

MADE IN INDIA

Designed in the USA & India

EPOCH HVLS Fans are Proudly Made in INDIA to the highest possible Quality and Workmanship and are Exported Worldwide

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