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WOLONG

Power your future

HVAC&R Industry Solution

Wolong Electric Group Co.,Ltd.

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If you need to consult the relevant content of the brochure, please pay attention to Wolong' s official Wechat, follow the menu bar "Contact us" to find "consultation customer service", Wolong' s experts will provide you services online.

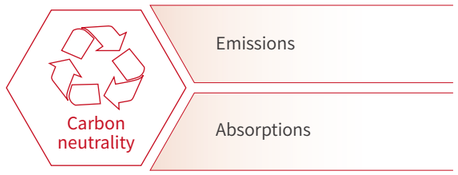
WOLONG

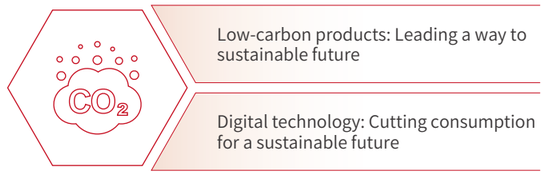
Power your future

Company Profile

Sustainability Conception and Actions of Wolong

At present, all major economies in the world subscribe to the goal of "carbon neutrality". As a leading global industrial company in electric motors and drive control solutions, Wolong is taking proactive action to help the global customers achieve carbon neutrality through our service and techniques such as electric drive solutions, electrification innovation technology, renewable energy solution and full life-cycle service.





- **Improve motor & drive efficiency**

  Ultra-efficient ASYNC motor and PM SYN motor
  Ultra-efficiency drive control system

- **Renewable energy**

  Photovoltaic energy storage system solutions
  IGBT hydrogen production solution
  PM wind turbine and drive control system solutions

- **Electrification – technology innovation**

  E-mobility motor & drive system
  Steam turbine driven to electricity driven:
  high-speed PM DD system

- **Full lifecycle service**

  iMotor full lifecycle service solution
  Future Factory(Industry 4.0) solution
  System energy-saving solutions

Mission and Vision

- **Mission - Drive the future with science and technology, provide inexhaustible power for the world**

  Wolong is committed to providing green, energy-saving and efficient power to the world, makes better living and contribute to the goals of reducing CO_2 emissions and carbon neutrality.

- **Vision - Global Motor No.1**

  Wolong's vision is to become global No.1 of the motor industry, not only in terms of scale and performance, but also leadership in R&D capability and management level.

Business Scope

Residential air conditioning equipment and systems	Industrial and commercial HVAC systems	Cold chain	Energy saving solutions

History of Development

A new journey

2021 Determine strategic development plan on carbon neutraliy and digitalization

Leaping

2004 Joint venture with Panasonic, Japan

2011 Acquisition of ATB, the 3rd largest motor manufacturer in Europe

Future enterprise growth curve

Stable growth in motor business

Rapid expansion in renewable energy business

Vigorously develop system solutions & full life-cycle service

Globalization

2015 Acquisition of CNE, largest explosion explosion-proof motor manufacturer in China

2018 Acquisition of GE industrial motors, enter North America market

2018 Setup Vietnam factory, layout Southeast Asia market

Starting up

1984 Incorporation Company was formed and commenced opeations

2002 Wolong Techonology's shares were issued (Ticker:600580 (SHA))

Wolong's Global Presence

Founded in 1984 and headquartered in Shaoxing, Zhejiang, Wolong, a world-leading industrial group, is dedicated to a safe, efficient, intelligent and green electric drive system solutions to customers in the world.

With the mission of “Drive the future with science and technology, providing inexhaustible and efficient power for the world, our company specialized in high-efficiency power dirve system ensuring effective energy utilization. Through the extensive application of innovative materials, technology and process, the company has achieved significant improvement in enhancing efficiency of electric drive system. Continuing technological innovation in smart energy system, we find widespread application in the industrial, agriculture, manufacturing, energy production, mining, construction and transportaion. This development contributes crucially to the green transportation, promoting energy saving and emission reduction across various industries and helps customers to achieve CO_2 reduction and carbon neutrality.

1984
Company established

5.2 Billion USD
Total assets

18000
Employees

5
R&D centers

70
Product series

6.71 Billion USD
Sales renevue in 2022

18
Industries

42
Global manufacturing plants

Family of Brands

WOLONG — Power your future
LAURENCE SCOTT — a WOLONG company
ATB — a WOLONG company
MORLEY — a WOLONG company
SCHORCH — a WOLONG company
POWER — a WOLONG company
OLI — a WOLONG company
BROOK CROMPTON — a WOLONG company
a WOLONG company
omlat — a WOLONG company
SR — a WOLONG company
imotorlinx — a WOLONG company

Scope of Business

01 Residential Air Conditioning Equipment and Systems

- Residential Heating
- Residential Air Conditioner
- Residential Air Purification

02 Industrial and Commercial HVAC Systems

- Light Commercial Air Conditioning (LCAC)
- Central Air Conditioning System
- Cleanroom FFU/EFU
- Modern Agriculture

03 Cold Chain

- Residential Refrigeration
- Industrial and Commercial Refrigeration

04 Energy Saving Solutions

- HVAC Energy saving Retrofit

Residential Heating

Air Source Heat Pump | Ground Source Heat Pump | Water Source Heat Pump

AC Motors

AC series: 95/120/140

Power: 15W-500W

Poles: 4P/6P/8P

Voltage: AC 100V～240V

Product Parameters:

Series	Rated Voltage	Frequency	Poles	Rated Power	Rotating Speed Range	Efficiency
ϕ95	AC 100V ～240V	50/60Hz	4P/6P	15-75W	750~1600 rpm	＞42%
ϕ120		50/60Hz	4P/6P/8P	25-120W		
ϕ140		50/60Hz	4P/6P	100-500W		

BLDC Motors

BLDC series: S51/S56/S70/S90/S110

Power: 30W-1200W

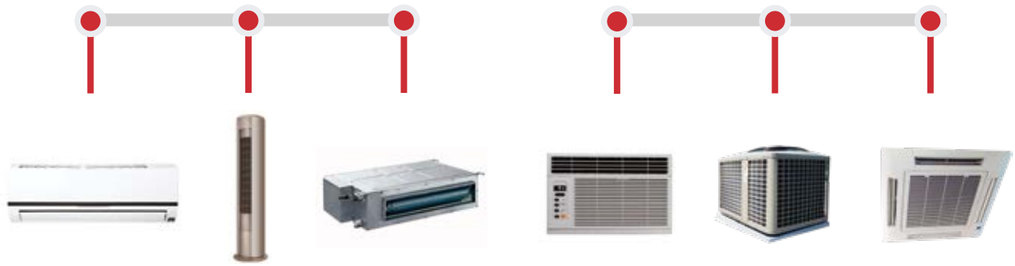
Poles: 8P/10P

Voltages: DC 220-380V

Product Parameters:

Series	Rated Voltage	Frequency	Poles	Rated Power	Rotating Speed Range	Efficiency
S51	DC 140~380V	/	8P/10P	30-70W	200~2000 rpm	＞70%
S56				30-90W		
S70				60-350W		
S90				350-600W		
S110				600-1200W		

Residential Air Conditioning



Wall-mounted Air Conditioner | Vertical floor Standing Air Conditioner | Fan Coil Unit | Window-type Air Conditioner | Building Unit | Central Air Conditioning

AC Motors

AC series: 88/95/120/140

Power: 5W-500W

Poles: 4P/6P/8P

Voltage: AC 100V～240

Product Parameters:

Series	Rated Voltage	Frequency	Poles	Rated Power	Rotating Speed Range	Efficiency
ϕ88	AC 100V ～240V	50/60Hz	4P	5-40W	750~1600 rpm	＞42%
ϕ95			4P/6P	15-75W		
ϕ120			6P/8P	25-120W		
ϕ140			4P/6P	100-500W		

BLDC Motors

BLDC series: S46/S51/S56/S70/S90/S110

Power: 5W-1200W

Poles: 8P/10P

Voltage: DC 140-380V

Product Parameters:

Series	Rated Voltage	Frequency	Poles	Rated Power	Rotating Speed Range	Efficiency
S46	DC 140-380V	/	8P/10P	5-30W	200~2000 rpm	＞70%
S51				30-70W		
S56						
S70				60-350W		
S90				350-600W		
S110				600-1200W		

Residential Air Purification

Air Purifier　　Fresh Air System　　Humidifier

AC Motors

AC series: 88/95
Power: 5W-75W
Poles: 4P/6P
Voltage: AC 100V～240V

Product Parameters:

Series	Rated Voltage	Frequency	Poles	Rated Power	Rotating Speed Range	Efficiency
ϕ88	AC 100V ～240V	50/60Hz	4P	5-40W	750～ 1600rpm	＞42%
ϕ95			4P/6P	15-70W		

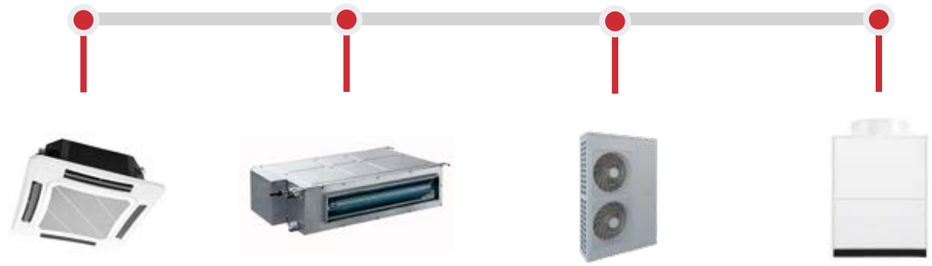
BLDC Motors

BLDC series: S46/S51/S56
Power: 5W-70W
Poles: 8P/10P
Voltage: DC 140-380V

Product Parameters:

Series	Rated Voltage	Frequency	Poles	Rated Power	Rotating Speed Range	Efficiency
S46	DC 140-380V	/	8P/10P	5-30W	200～ 2000rpm	＞70%
S51				30-70W		
S56						

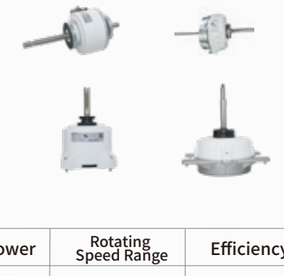
Light Commercial Air Conditioning (LCAC)



VRV Indoor Unit　　VRF Indoor Unit　　VRV Outdoor Unit　　VRF Outdoor Unit

BLDC Motors

BLDC series: S70/S90/S110
Power: 60W-1200W
Poles: 8P/10P
Voltage: DC 220~380V



Product Parameters:

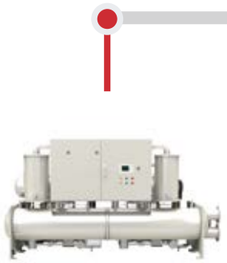
Series	Rated Voltage	Frequency	Poles	Rated Power	Rotating Speed Range	Efficiency
S70	DC 220～380V	/	8P/10P	60-250W	200~ 2000rpm	＞70%
S90				250-600W		
S110				600-1200W		

Split horse-power ECM

Frame size: NEMA42/48
Power: 1/4 HP~1 HP
Rotating speed: 200~2000 RPM
Voltage: AC 115V 208~230V
Certification: UL Class F
Multiple installation type

Efficiency Above 80%, IE4
Life span Demagnetizing protection structure design, can work 30000 hours continuously under rated load
Output Maximize torque power output up to 130%
Control A variety of speed control options to meet different customer needs, speed accuracy up to ±1rpm

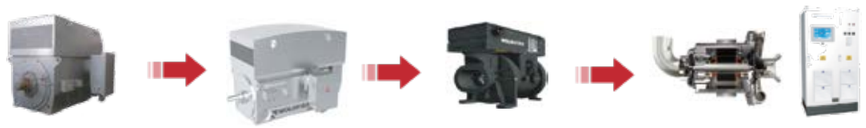
Central Air Conditioning System-Chiller



Screw Chiller

Centrifugal Chiller

- **Chiller compressor development trend: high-speed, permanent magnetization and the use of magnetic bearings**



General Induction Motor | High Efficiency Induction Motor | Permanent Magnet Synchronous VFD Motor | Permanent Magnet Synchronous VFD Motor+magnetic bearing

Product Parameters:

Chiller Compressor	Motor Type	Voltage	Poles	Power Range
Open-type Centrifugal Refrigeration Compressor	Three Phase Induction Motor YKK/YXKK	6-10kV	2-12P	160~6300kW
Semi-enclosed Screw Refrigeration Compressor	Three Phase Induction Motor	380/400/460/660/690V	2P	22～400kW
	Permanent Magnet Synchronous VFD Motor		4P/6P/8P	30～400kW
Semi-enclosed Centrifugal Refrigeration Compressor	Three Phase Induction Motor	380/400/460/660/690V	2P	250～900kW
		3/6/10/13.8kV		300～1500kW
	VFD Three Phase Induction Motor	380/400/460V		250～500kW
	Three Phase Induction Motor with Copper Rotor	380/400/460/660/690V		250～900kW
	Permanent Magnet Synchronous VFD Motor	380/420V	4P	300~600kW
Magnetic Suspension Centrifugal Refrigeration Compressor	Permanent Magnet Synchronous VFD Motor +magnetic bearing	/	/	650kW

Central Air Conditioning System-Air Cooled Screw/Modular Machine

Air Cooled Modular Machine

Air Cooled Screw Machine

- **EC Axial Fan Solution:**
  Compared with AC fans, significant energy saving effect due to high efficiency

AC Axial Fan | EC Axial Fan

Product Parameters:

Impeller Diameter (mm)	Rated Voltage (V)	Frequency (Hz)	Max. Rotating Speed (rpm)	Max. Input Power (kW)	Max. Static Pressure (Pa)	Max. Discharge (m^3/h)
450	1~200-277	50/60	1400	0.4	150	6000
500	1~200-277	50/60	1400	0.5	180	7300
560	1~200-277	50/60	1260	0.7	160	9500
630	1~200-277	50/60	1020	0.9	180	10500
710	3~380-480	50/60	960	1.0	140	14500
800	3~380-480	50/60	960	2.0	200	24000
910	3~380-480	50/60	960	2.8	270	28000

Product Parameter Comparison between EC and AC:

Motor Specification	Motor Type	Rotating Speed (rpm)	Output Torque (Nm)	Input Power (W)	Output Power (W)	Effici-ency	Power Factor
1.15kW 1400rpm	AC	1309	8.4	1778	1150	64.3%	0.784
	EC112	1309	8.4	1283	1150	89.6%	0.94

High Efficiency Motor Replacement Solution

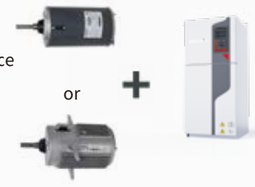
- **Integration of EC motor and control instead of AC motor + VFD, to achieve space and cost reduction**

NEMA56 Three Phase Induction Motor

EC Motor

AC Motor+VFD

Motor+VFD
Larger Installation Space
High Cost
Low Efficiency



EC Motor

- Variable Speed
- Integrated
- Special Design
- High Protection
- High Efficiency
- High Reliability
- Artificial Intelligence Control
- Mass Production

Application Air Conditioning, Ventilation, Transmission Technology, Refrigeration, Heat Pumps, Agricultural, Industrial Ventilation

Product Advantages Improve Efficiency, and save up to 25%-30% cost

Output Power 1-5HP

- Frame Sizes: NEMA56, IE112, IE132
- Voltage Type Requirement: 3Ph 380 ~ 480VAC, 50/60HZ
- Power Factor: ⩾0.9
- Output Power: 1-5HP
- Rotating Speed Range: 200-2200RPM
- Efficiency: System Efficiency⩾IE4

Central Air Conditioning System- AHU

Air Handling Unit (AHU)

- **High Efficiency Motor Replacement Solution:**

IE2 General Induction Motor
(No longer supply according to national regulations)

IE3/IE4 High Efficiency Induction Motor

IE4/IE5 Permanent Magnet Synchronous Motor

IE5 PM Synchronous Frequency All-in-one Machine

Product Parameters

Motor Series	Efficiency	Frame Sizes	Power Range
WE series High Efficiency Induction Motor	IE3/IE4/IE5	71-355	0.18~375kW
WEPM series Permanent Magnet Synchronous Motor + VFD	IE4/IE5	Aluminum casted: 56~160 Iron casted: 80~315	Aluminum casted: 0.25~55kW Iron casted: 1.1~315kW
WIDM100 series Permanent Magnet Synchronous Frequency All-in-one Machine	IE5	80-132	0.75~18.5kW
EMR series Permanent Magnet Auxiliary Synchronous Reluctance Machine	IE4	184-215	2.2/3.7/ 5.5/7.5kW

EC Fan Series Solution

EC Fan Series Solution

Belt Volute Centrifugal Fan +VFD

EC Fan Series

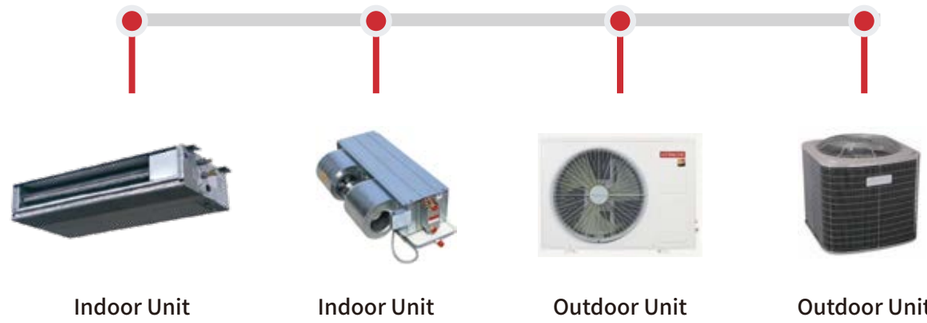
Advantages for EC Fan Series:

- Effectively shorten AHU fan section, even air distribution
- High system efficiency, energy saving
- High system reliability due to redundant operation
- Maintenance-free design, low operating and maintenance costs
- Intelligent drive control products can achieve remote control
- Modular design, suitable for energy saving retrofit projects

Product Parameters:

Impeller Diameter (mm)	Impeller Material	Rated Voltage (V)	Frequency (Hz)	Max. Rotating Speed (rpm)	Max. Input Power (kW)	Max. Static Pressure (Pa)	Max. Discharge (m^3/h)
450	Aluminium alloy	3~380-480	50/60	2500	6.0	2200	14000
500				2150	6.0	1800	17200
560				1760	6.0	1500	22000

Fan Coil Unit



Indoor Unit | Indoor Unit | Outdoor Unit | Outdoor Unit

AC Motors

AC series: 95/120/140

Power: 15W-500W

Poles: 4P/6P/8P

Voltage: AC 100V～240V

Product Parameters:

Series	Rated Voltage	Frequency	Poles	Rated Power	Rotating speed range	Efficiency
ϕ95	AC 100V ～240V	50/60Hz	4P/6P	15-75W	750~1600 rpm	＞42%
ϕ120		50/60Hz	6P/8P	25-120W		
ϕ140		50/60Hz	4P/6P	100-500W		

BLDC Motors

BLDC series: S70/S90/S110

Power: 60-1200W

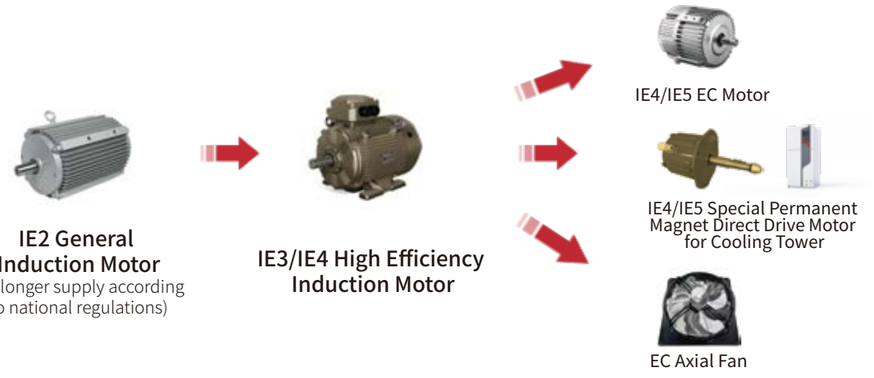
Poles: 8P/10P

Voltages: DC 140-540V

Product Parameters:

Series	Rated Voltage	Frequency	Poles	Rated Power	Rotating speed range	Efficiency
S70	DC 140-540V	/	8P/10P	60～350W	200～2000 rpm	＞70%
S90				350～600W		
S110				600～1200W		

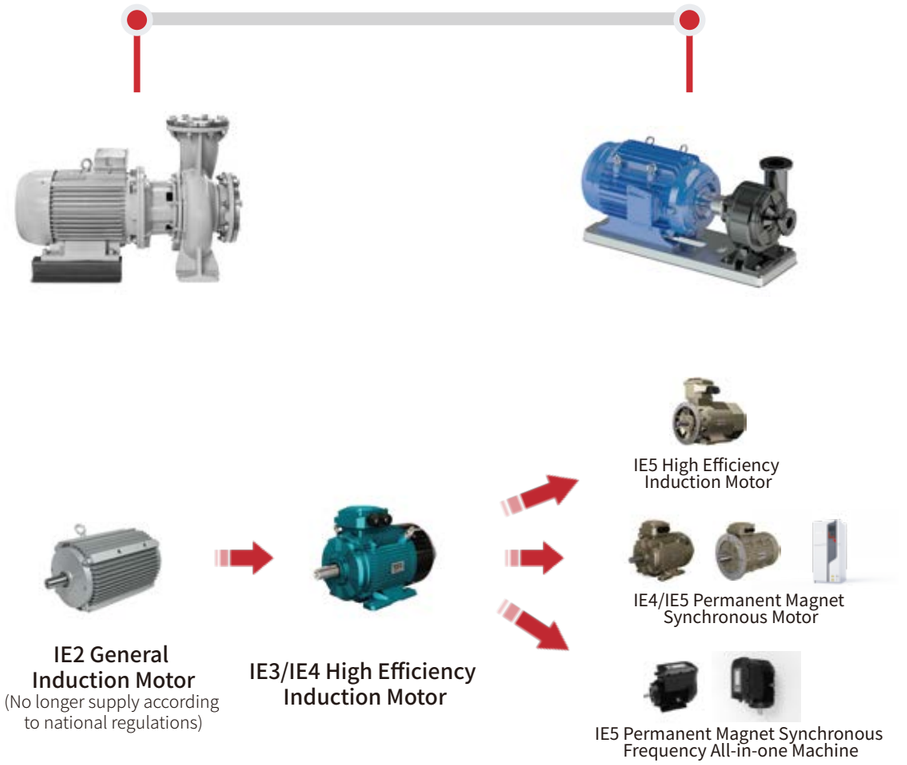
Central Air Conditioning System- Cooling Tower



Product Parameters:

Motor Series	Efficiency	Frame Sizes	Power Range
TYCPL Special Permanent Magnet Direct Drive Motor for Cooling Tower	IE4/IE5	180~355	4.0~75kW
EC Motor	IE4/IE5	EC112/132/160	0.75~7.5kW
EC Axial Fan	/	EC48/56/112/132	0.375~3kW

Central Air Conditioning System- Circulating Pump



Product Parameters:

Motor Series	Efficiency	Frame Sizes	Power Range
WE series High Efficiency Three Phase Induction Motor	IE3/IE4	71-355	0.18~375kW
YE5 series Three Phase Induction Motor	IE5	80-355	0.18~315kW
WEPM series Permanent Magnet Synchronous Motor + VFD	IE4/IE5	Aluminum casted: 56~160 Iron casted: 80~315	Aluminum casted: 0.18~45kW Iron casted: 0.75~315kW
WEPM series Multistage Pump Permanent Magnet Synchronous Motor	IE4/IE5	Aluminum casted: 71~160 Iron casted: 180	Aluminum casted: 0.75~37kW Iron casted: 45kW
WIDM100 series Permanent Magnet Synchronous Frequency All-in-one Machine	IE5	80-132	0.75~18.5kW

Cleanroom FFU/EFU

Product Parameters:

Impeller Diameter (mm)	Impeller Material	Motor Platform	Rated Voltage (V)	Frequency (Hz)	Rotating Speed (rpm)	Max. Input Power (kW)	Max. Static Pressure (Pa)	Max. Discharge (m^3/h)
310	Aluminium Alloy	EEM084	1~200-277	50/60	2400	0.50	620	2700
355					1930		650	3800
400					1500		460	4000
400	Composite Material				1500		450	4800
450	Aluminium Alloy				1500		450	5000
470					1250		500	4800

Customer Case

- **Case 1:**
  A Semiconductor Company in Xiamen

Cleanroom Ceiling

Cleanroom Section

	Compared with AC Fan	Compared with EC Fan of a Designated Brand
ATB EC Fan Energy Consumption Reduction	**40%**	**5%**
ATB EC Fan Annual Saving of Electricity (kWh)	**1,660,000**	**124,000**
ATB EC Fan Annual Saving of Carbon (Ton)	**1,307**	**98**

- **Case 2:**
  A Circuit Board Company in Xiamen

Cleanroom Ceiling

Cleanroom Section

	Compared with AC Fan	Compared with EC Fan of a Designated Brand
ATB EC Fan Energy Consumption Reduction	**45%**	**3%**
ATB EC Fan Annual Saving of Electricity (kWh)	**12,200,000**	**450,000**
ATB EC Fan Annual Saving of Carbon (Ton)	**9,572**	**352**

Modern Agriculture

Product Features:

- High protection design, IP66;
- Impellor adopts PA6 composite material, wheel adopts aluminum -magnesium alloy material, higher corrosion resistant;
- Speed 0~100% continuous adjustable, speed signal 0-10V/PWM/RS485;
- Working environment temperature:-25～60℃
- Digital products to achieve intelligent operation

Product Parameters:

Typical Type	Voltage (V)	Frequency (Hz)	Input Power (kW)	Rotating Speed (rpm)	Air volume(m^3/h) @ Static Pressure(Pa)
FAS350R/IEA1S00X-S	1~220-240	50/60	0.25	1450	1800m^3/h@100Pa
FAS450R/IEA1S00X-S	1~220-240	50/60	0.28	1450	2000m^3/h@120Pa
FAS550R/IEA1S00X-S	1~220-240	50/60	0.35	1450	3500m^3/h@120Pa
FAS710R/IEC1T00X-S	3~380-480	50/60	1.8	1450	10500m^3/h@200Pa
FAS910R/IEC1T00X-S	3~380-480	50/60	3.0	1450	20000m^3/h@200Pa

Customer Case

- **A Chicken Farm of a Well-known Agriculture and Animal Husbandry Group**

  Replaced by Wolong ATB EC Fan

Air Volume Comparison between Wolong ATB EC Fan and original AC Fan:

Static pressure in the farm (pa)	Individual EC Fan air volume (m^3/h)	Individual AC Fan air volume (m^3/h)	Individual Fan air volume increase (m^3/h)
-44	19336	18603	733
-25	29620	26201	3419
-9	32137	29514	2623

Electricity Consumption Comparison between Wolong ATB EC Fan and original AC Fan:

Fan Brand	Number of Fans	Run Time (h)	Electricity Consumption (kWh)
Wolong ATB	6	1	6
Original AC Fan Brand	6	1	9.2

Customer Case

- **A Pig Farm of a Well-known Agriculture and Animal Husbandry Group**

  Customized EC motor, fan structure, controller communication instruction

AC/EC910　　AC/EC710　　AC/EC550　　AC/EC450

Energy Consumption Comparison between Wolong ATB EC Fan and original AC Fan:

No.	Fan Series	Original AC Fan				Wolong ATB EC Fan				Annual Run Time (h)	AC Fan	EC Fan	Energy Saving Rate
		Voltage (V)	Air Volume (m^3/h)	Static Pressure (Pa)	Motor Input Power(W)	Voltage (V)	Air Volume (m^3/h)	Static pressure (Pa)	Motor Input Power(W)		Annual Power Comsumption (kWH)		
1	450	230	2993	75	369	230	4053	70	203	8760	3232	1778	44.99%
2	550	230	5200	75	387	230	5300	70	261	8760	3390	2286	32.56%
3	710	380	12000	120	1200	380	12302	120	892	8760	10512	7814	25.67%

Residential Refrigeration

- **Refrigeration Compressor BLDC Series**

  DC series: V/BD

  Power: 30W-1200W　　**Voltage:** DC 140~310V

Product Parameters:

Series	Rated Voltage	Frequency	Poles	Rated Power	Rotating Speed Range	Efficiency
V2	DC 140~310V	/	4P	20~500W	1000~ 4200rpm	75~93%
BDM	DC 12~36V			20~50W		75~92%
BDN						

Commercial and Industrial (C&I)

AC Induction Motor for Refrigerated Truck Condensation Evaporation

Frame Size: IEC112

Power: 7.2HP

Voltage: 380-400V

Frequency: 50Hz, 60Hz

Ingress Protection: IP55

Poles: 4 poles

Application

Evaporator and condenser fan motor for land refrigerated trucks and Marine refrigerated containers

Specification

0.1~15HP,
380-400V,
IP55

Features

Customized to meet:
700-hour salt spray test by land transport;
1500 hours salt spray test by sea

Commercial and Industrial (C&I)

Commercial Refrigeration Compressor Motor

Diameter: Φ148

Power: 7.5KW

Voltage: 200-400V

Efficiency: 92%

Axle Hole: Φ25

Poles: 4 poles

Application

Cold storage cold chain, refrigeration equipment compressor

Specification

7~30HP,
200V-400V

Features

Customized to meet:
High reliability, high efficiency and low noise

HVAC Energy Saving Retrofit

Wolong Energy Saving is dedicated to the energy saving retrofit of the air handling unit, water pump system and cooling tower system module in the HVAC system, replacing old equipment with Wolong efficient intelligent EC fan and efficient driving system.

01.

Air Handling Unit

Air conditioner fan, new/exhaust fan

Cleanroom FFU

02.

Water Pump System

Stage I: Air conditioning/refrigeration system circulation pump, chilled water pump

Stage II: Primary and secondary water supply, process water supply, etc.

03.

Cooling Tower System

Cooling towers have cross-flow tower and counter-flow tower

They are replaced and retrofitted through EC fan or permanent magnet direct drive + algorithm

HVAC Energy Saving Retrofit

- **Retrofit Target**

30%	Modular energy saving rate
15%	Whole plant energy saving rate
3YEARS	Payback period
3WEEKS	Delivery period

- **Technical Advantages**

Permanent Magnet Direct Drive

Core Algorithm

Intelligent Drive Control

Internet of Things

- **Retrofit Service Advantages**

01	02	03	04
Streamline processes with a packaged solution	Unattended operations significantly reduce labor, operation and maintenance costs	Remote monitoring reduces downtime	Empowering enterprises to attain dual carbon goals

Customer Case

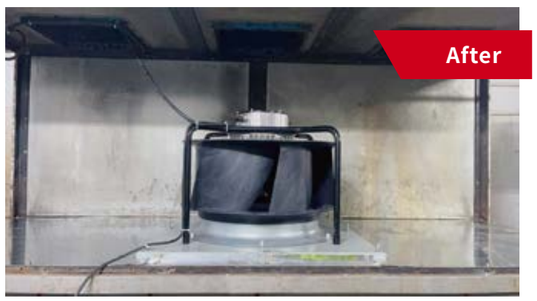
Case 1:
World Top 500, World' s Top Printing Enterprise

Retrofit Module: Air Handing Unit

Project Introduction: We conducted research, energy audits, program evaluations, and a trial operation within one week. Wolong Energy Saving Team steamlined the approach and swiftly and professionally retrofitted the system by replacing three centrifugal fans with one efficient intelligent EC fan. This strategic upgrade enhances efficiency, promising energy savings by 78.8%. The team's service process was comprehensive and fast-response and responsible.

78.8%

Energy Saving Rate



Customer Case

Case 2:
China Top 500, Top LCD Panel Manufacturer

Retrofit Module: Cooling Tower

Project Introduction: Compared to the original equipment fan, the Wolong EC axial flow fan has a lower rated power, comparable air volume, and offers simpler, more convenient installation, seamless speed control, intelligent management, and high energy efficiency.

Contrasting the input electrical power of the fans before and after the retrofit, 12 ATB EC900 axial flow fans exhibit a significant advantage in actual energy consumption and operational performance compared to one original belt-driven axial flow fan. The operational power of the equipment decreases from 35.83 to 14.48 kW, achieving an impressive energy savings rate of 59.6%.

59.6%

Energy Saving Rate