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HVAC&R Industry Solution



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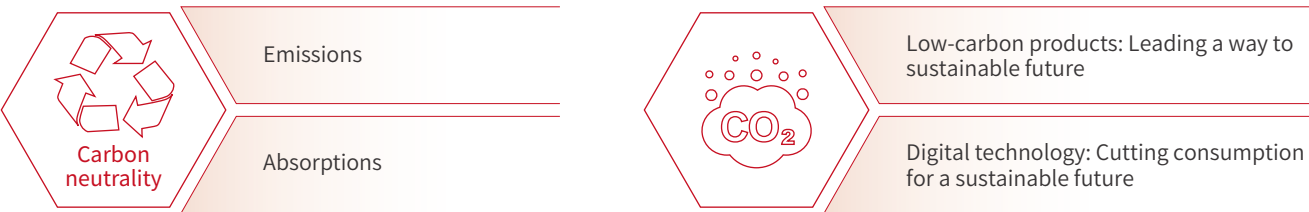
If you need to consult the relevant content of the brochure, please pay attention to Wolong's official Wechat, follow the menu bar "Contact us" to find "consultation customer service", Wolong's experts will provide you services online.



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
- **Electrification – technology innovation**
E-mobility motor & drive system
Steam turbine driven to electricity driven:
high-speed PM DD system
- **Renewable energy**
Photovoltaic energy storage system solutions
IGBT hydrogen production solution
PM wind turbine and drive control system solutions
- **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**

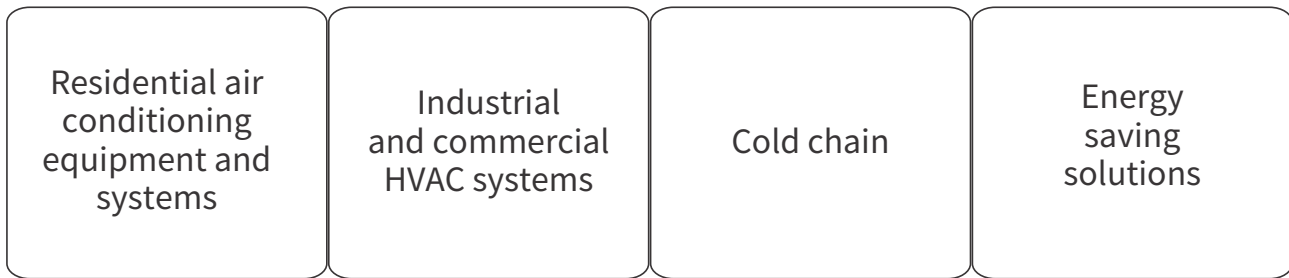
Wolong is committed to providing green, energy-saving and efficient power to the world, makes better living and contribute to the goals of reducing CO₂ emissions and carbon neutrality.

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

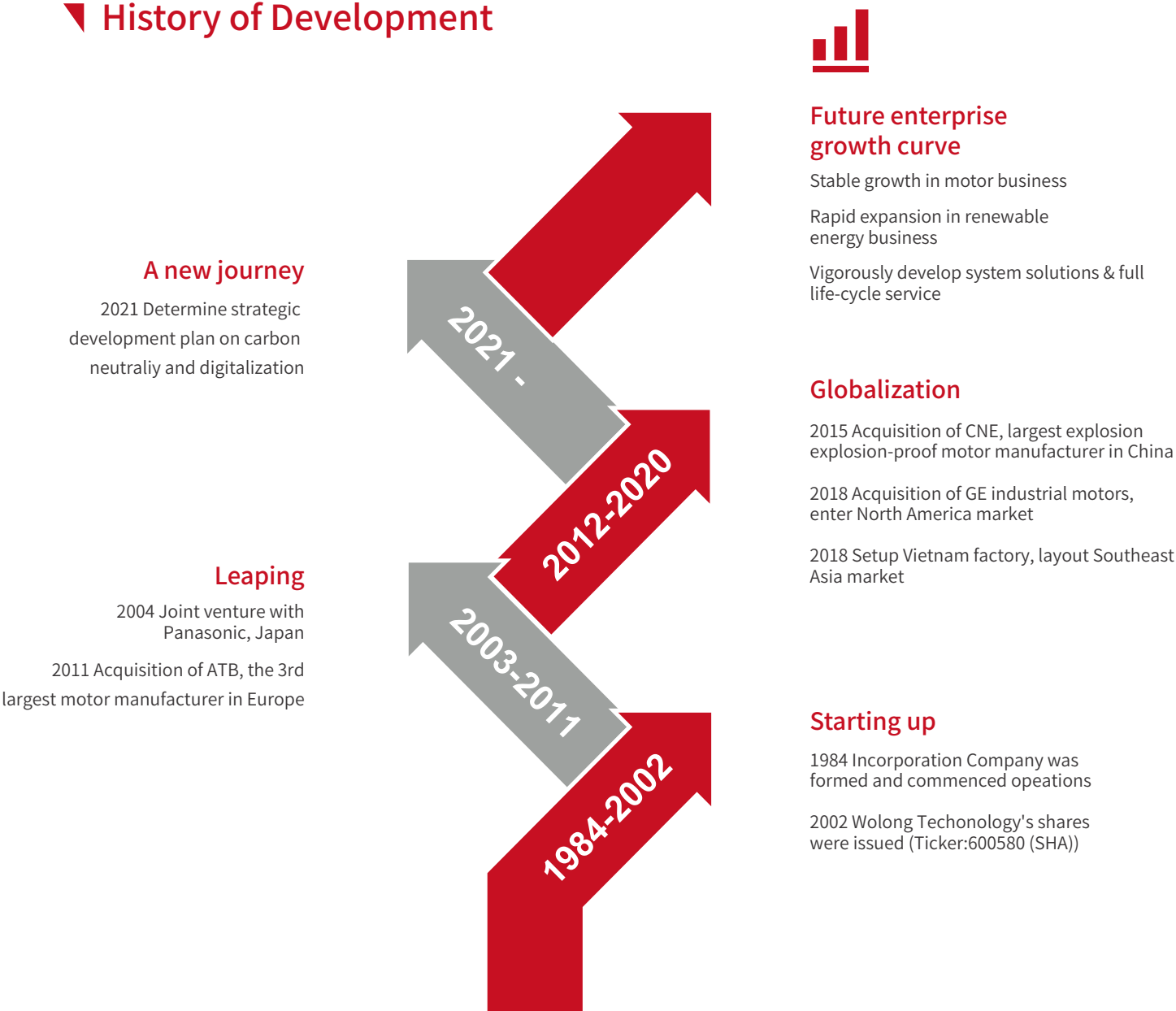
Wolong's vision is to become global No.1 of the motor industry, not only in terms of scale and performance, but also leadership in R&D capability and management level.



▼ Business Scope



▼ History of Development



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 drive 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 CO₂ reduction and carbon neutrality.

Family of Brands



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



● AC Motors

AC series: 95/120/140

Poles: 4P/6P/8P

Power: 15W-500W

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

Poles: 8P/10P

Power: 30W-1200W

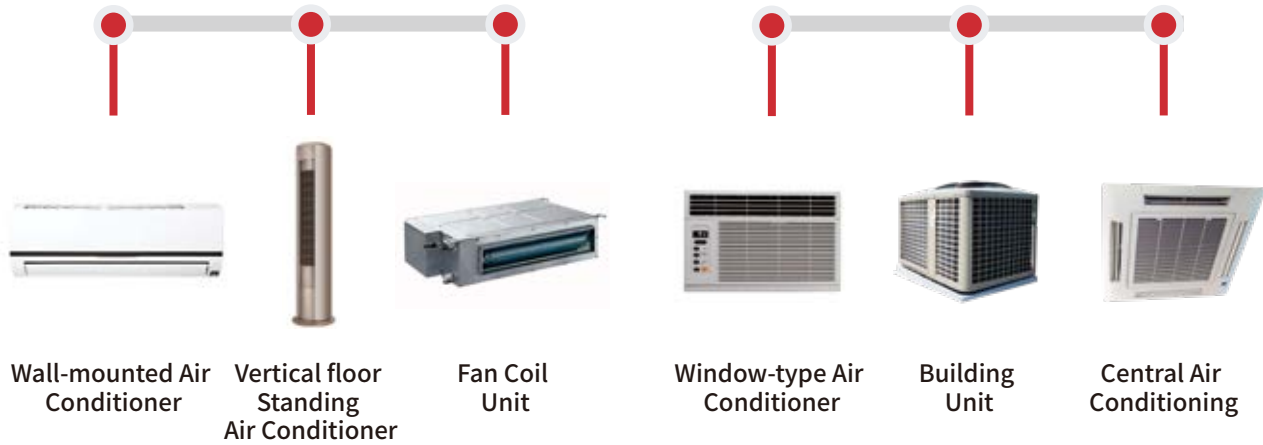
Voltages: DC 220-380V



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



● AC Motors

AC series: 88/95/120/140

Poles: 4P/6P/8P

Power: 5W-500W

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

Poles: 8P/10P

Power: 5W-1200W

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				60-350W		
S70				350-600W		
S90				600-1200W		
S110						

▼ Residential Air Purification



● 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

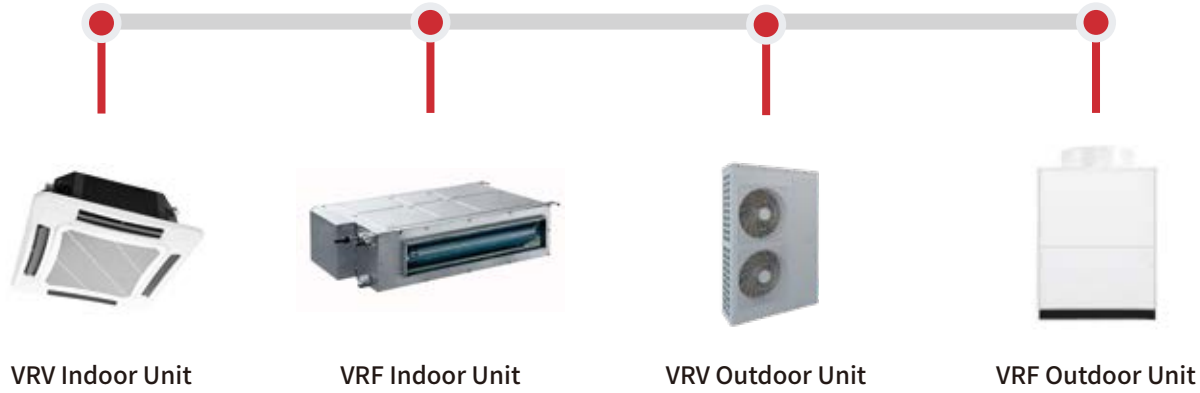
BLDC series: S46/S51/S56
Power: 5W-70W
Poles: 8P/10P
Voltage: DC 140-380V



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)



● 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 ± 1 rpm



▼ 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		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 (m³/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)	Efficiency	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

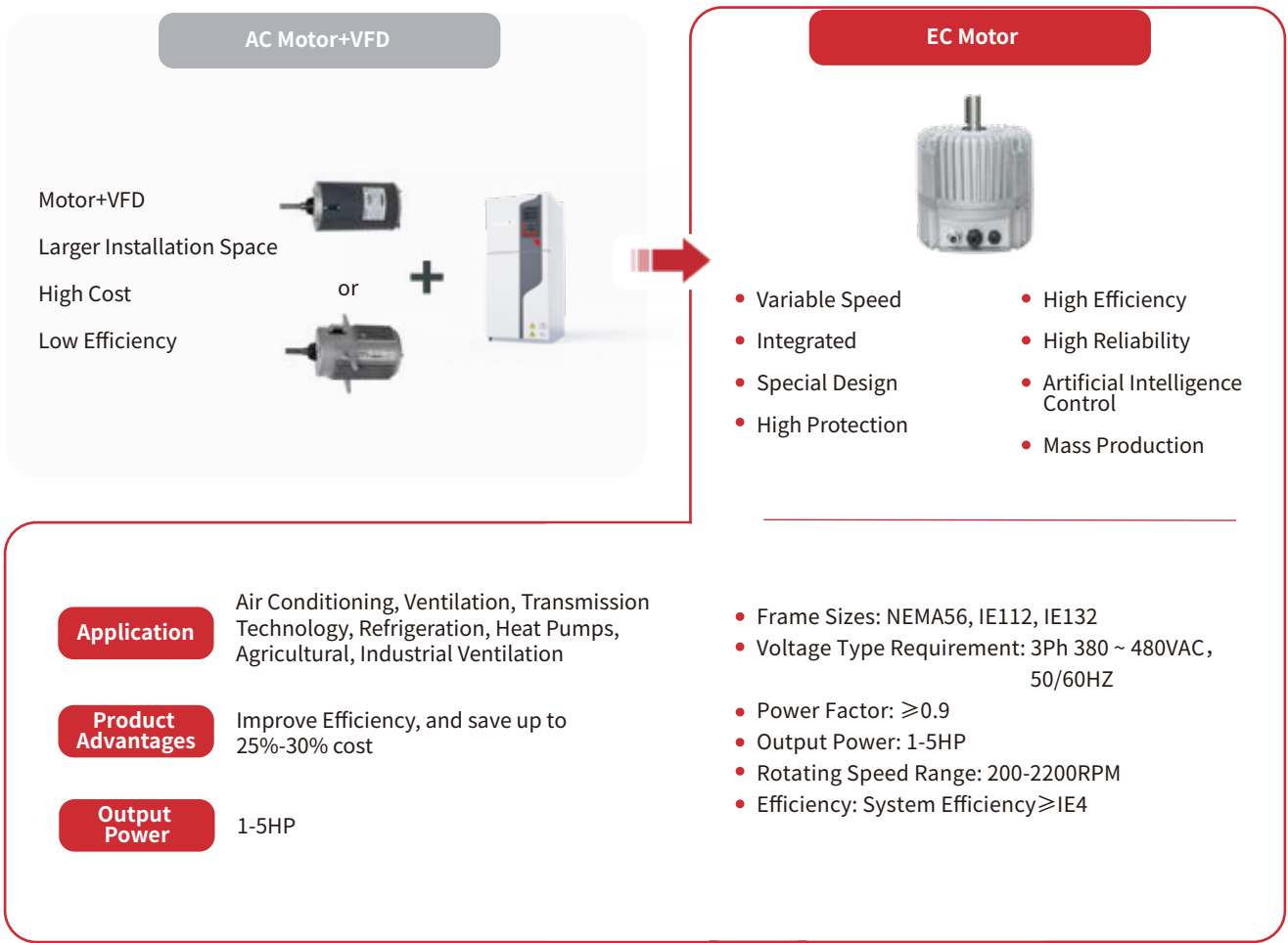
- Integration of EC motor and control instead of AC motor + VFD, to achieve space and cost reduction



NEMA56 Three Phase Induction Motor



EC Motor

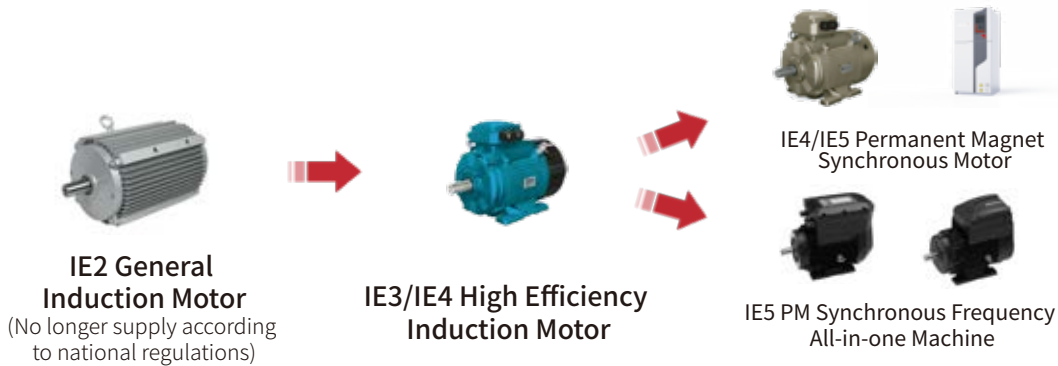


Central Air Conditioning System- AHU



Air Handling Unit (AHU)

- High Efficiency Motor Replacement Solution:



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:

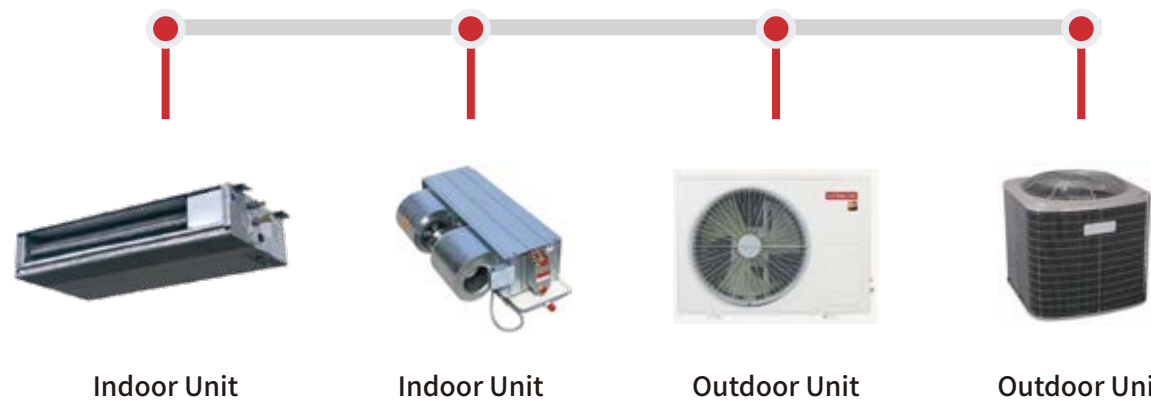
- Effectively shorten AHU fan section, even air distribution
- High system efficiency, energy saving
- High system reliability due to redundant operation
- Maintenance-free design, low operating and maintenance costs
- Intelligent drive control products can achieve remote control
- Modular design, suitable 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 (m³/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



● 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

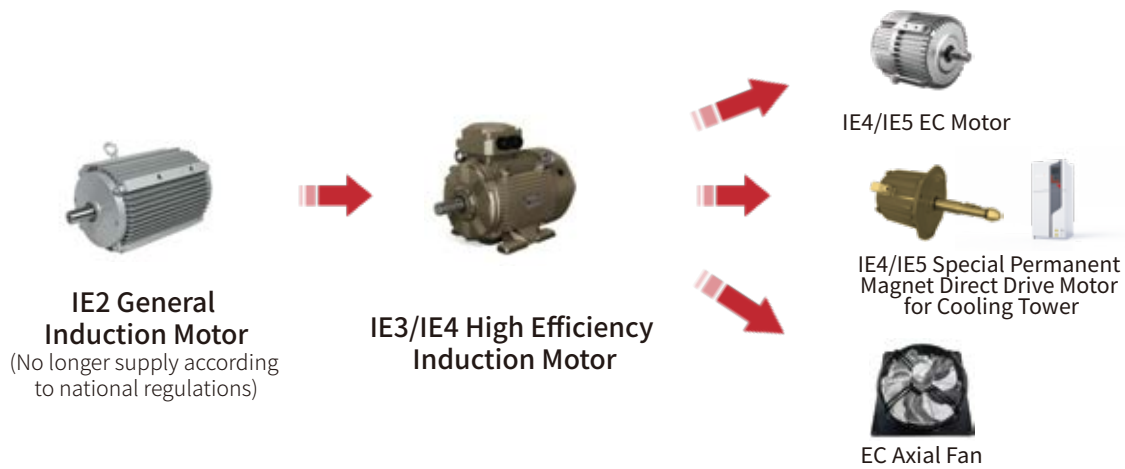
Voltages: DC 140-540V



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		

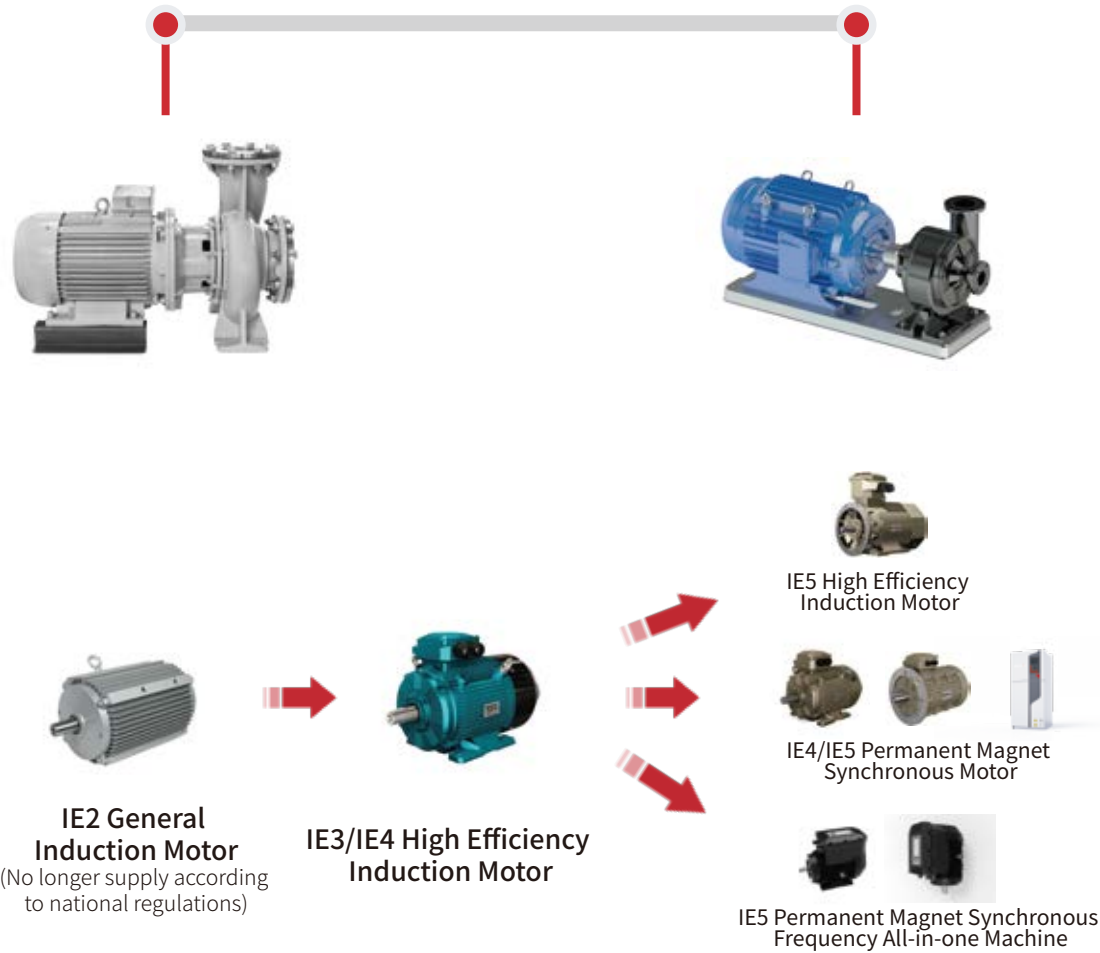
▼ Central Air Conditioning System- Cooling Tower



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 (m³/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°C
- Digital products to achieve intelligent operation



Product Parameters:

Typical Type	Voltage (V)	Frequency (Hz)	Input Power (kW)	Rotating Speed (rpm)	Air volume(m³/h) @ Static Pressure(Pa)
FAS350R/IEA1S00X-S	1~220-240	50/60	0.25	1450	1800m³/h@100Pa
FAS450R/IEA1S00X-S	1~220-240	50/60	0.28	1450	2000m³/h@120Pa
FAS550R/IEA1S00X-S	1~220-240	50/60	0.35	1450	3500m³/h@120Pa
FAS710R/IEC1T00X-S	3~380-480	50/60	1.8	1450	10500m³/h@200Pa
FAS910R/IEC1T00X-S	3~380-480	50/60	3.0	1450	20000m³/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 (m³/h)	Individual AC Fan air volume (m³/h)	Individual Fan air volume increase (m³/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

▼ 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

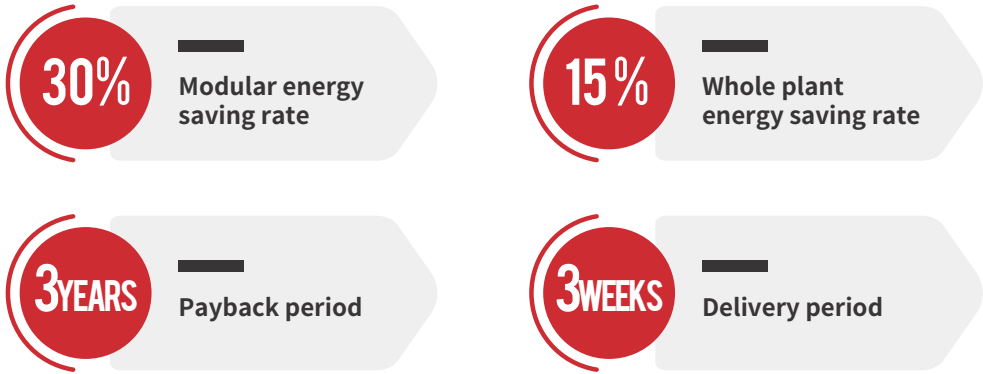
Cooling towers have cross-flow tower and counter-flow tower

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

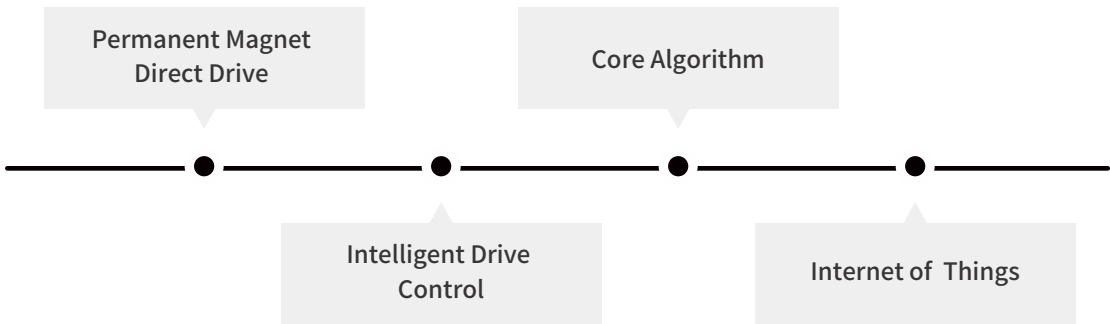


▼ HVAC Energy Saving Retrofit

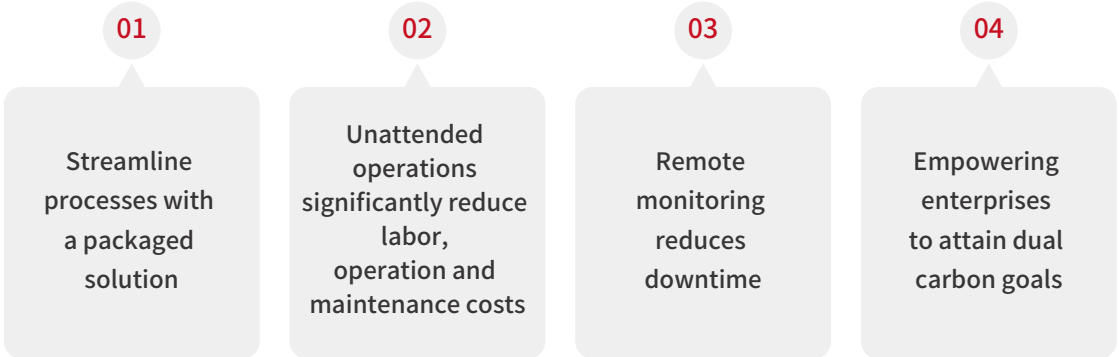
• Retrofit Target



• Technical Advantages



• Retrofit Service Advantages



Customer Case

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

Retrofit Module: Air Handling Unit

Project Introduction: We conducted research, energy audits, program evaluations, and a trial operation within one week. Wolong Energy Saving Team streamlined 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

