龍鐵科技有限公司
LOONGTECH TECHNOLOGY CO., LTD.

TURBO VACUUM PUMP

High Efficiency | Low Consumption | Low Carbon

Advanced Technology, High Efficiency, and Energy Savings

As global demands for energy conservation, emission reduction, and environmental protection become increasingly stringent. The primary focus is energy savings, which require not only reducing energy consumption but also improving production efficiency and minimizing waste emissions. Consequently, precise and rapid control of process equipment for energy efficiency has become a critical factor in achieving sustainable, green processes.

LOONGTECH Technology has extensive experience in the development and application of gas supply and exhaust systems across various industries, including wastewater treatment, aquaculture, pneumatic conveying system for bulk materials, chillers for HVAC, electro-plating solution treatment, and vacuum dehydration. Thanks to high reputation and a solid customer base across Taiwan, Southeast Asia, and India, LOONGTECH Technology has established a track record of excellence in providing reliable and efficient solutions.

Based on this, we have also developed a high-efficiency and energy-saving magnetic levitation chiller (heat pump) for refrigeration and heating application as well as air-source and heat-source heat pumps. They can even simultaneously provide hot water and air-conditioning for factories. In terms of overall energy efficiency (like COP), they are far superior to seperated units/systems.

To meet the growing demand for energy conservation, LOONGTECH Technology has developed advanced systems through strong technical cooperation alliance, including but not limited to magnetic levitation blowers and vacuum pumps. These systems feature permanent magnet synchronous motors, active magnetic levitation bearings, and are directly or indirectly coupled with high-efficiency centrifugal impellers. Integrated with optimal control systems, they offer high turndown ratio and flexible adjustments, fulfilling the diverse needs of various applications.

With a strong entrepreneurial philosophy focused on quality, service, and innovation, LOONGTECH Technology offers cutting-edge maglev technology to provide customers with high-efficiency and energy-saving solutions for air supply, vacuum, gas delivery, and HVAC.
These systems are designed to maximize energy efficiency, making LOONGTECH Technology the ideal partner for companies looking to promote green processes, energy conservation, and carbon reduction—ultimately enhancing market competitiveness.

Turbo Vacuum Pump

- It adopts the overall skid-mounted structure design, which is convenient for transportation, hoisting and installation.
- It has the advantages of intelligent operation, integrated design, compact structure, high reliability, low vibration, low noise, low energy consumption, and low investment cost.
- The vacuum control point is adjustable from maximum load to part load.

Permanent Magnet High Speed Motor

- Energy Efficiency is over 95%
- Motor speed is from 15,000-30,000RPM
- The advanced motor stator adopts water-cooling and oil-cooling technology to achieve the best double cooling effect.
- Frequency conversion speed regulation, high efficiency, simple structure, high power density and high reliability.

Impeller

- Single-stage centrifugal or bipolar centrifugal
- Semi-open impeller
- Stainless steel or Titanium alloy,Strong corrosion resistance
- Five axis Numerial-Control machining, three-dimensional detection and flaw detection, hard oxidation and anti-corrosion treatment to ensure the accuracy and quality of the impeller.

PLC System

Match the actual production demand of the paper machine to the maximum according to the actual production status of the paper machine.

Key data are showed on the PLC screen and center control office.

Main Advantage

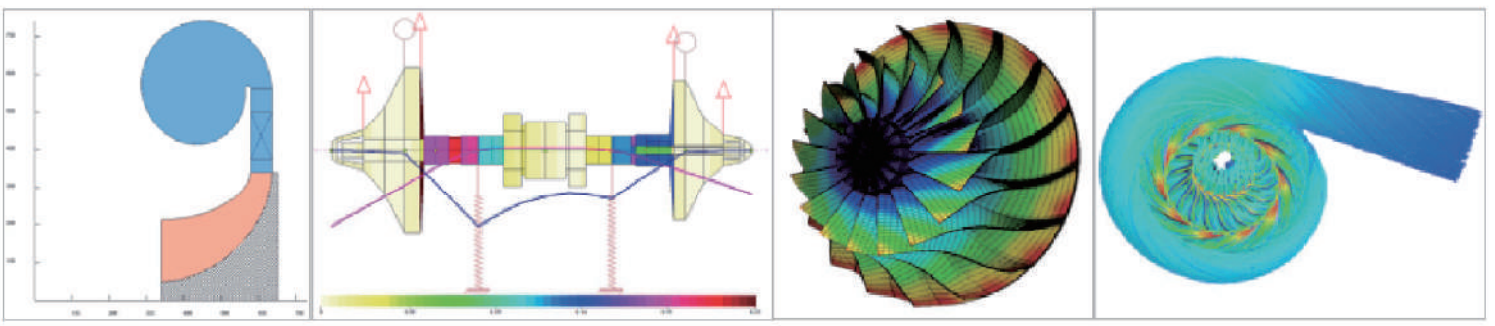
- Intellectualization
- Easy to operate
- Remote control
- Real time monitoring

Lubricant system

Main System

Key Technologies

- The advanced Concepts NREC turbomachinery professional design software is used for aerodynamic design, and the full-cycle CFD calculation and optimization of flow-through parts are carried out to achieve the best flow performance.
- TLT bearing analysis software is used for bearing design and rotor dynamics analysis, the unit runs stably and reliably.
- Perform finite element analysis and optimization of strength, stiffness, and mode for critical parts such as impellers, and conduct coupling analysis of fluid-solid-thermal multi-physics fields to ensure safe operation.



Key Components

Volute

- The advanced fluid analysis method is designed to conform to the flow law of Air. The volute is made of high-strength casting iron.

Rotor

- Modular design impeller, semi-open ternary flow backward curved structure, integral milling.

Bearing

- The high-speed rotor bearing has high stability and reliability, and has a compact and simple structure.
- Split horizontally, easy to disassemble and inspect.

Advantages

High Efficiency

The advanced full ternary air dynamic design ensures that the efficiency of the vacuum pump can reach up to 85.6%.

High Stability

The unit control system with independent intellectual property rights ensures the stable operation of the vacuum pump.

Real-time tracking monitoring (bearing temperature, vibration, displacement, oil filter pressure) ensures high reliability of the vacuum pump.

Low Vibration

Minium vibration, overall skid-mounted structure, easy to install.

Technical Specification

Series	Motor Type	Power KW	Flow M^3/MIN	Vacuum Degree KPA
A	Gearbox	132-200kw	130-250	-20 ~ -55
A	Gearbox	220-315kw	200-350	-20 ~ -65
A	Gearbox	355-560kw	360-650	-20 ~ -70
A	Gearbox	630kw-800kw	600-850	-20 ~ -70
B	High Speed Motor	90-185kw	130-250	-20 ~ -55
B	High Speed Motor	200-355kw	200-370	-20 ~ -65
B	High Speed Motor	400-560kw	400-650	-20 ~ -70
B	High Speed Motor	630kw-710kw	600-850	-20 ~ -70

Pump Comparison

Item	Roots /Water Cycle Pump	Gearbox	High Speed Direct Connection Motor
Power	65%-70%	78%-85%	83%-88.6%
Vibration	Big	Small	Small (rotor vibration within 25 microns)
Noise	>110 db	90-100 db	75-85 db
Maintenance	6 months	2 years, easy maintenance	3 years, easy maintenance
Litfe	10-15 years	20 years whole manchine	20 years whole manchine
Air Control	Fixed	Frequency converter	Frequency converter regulation and adjustable diffuser
Size	Big	Medium	Small
Performance	The rotating shaft can be worn and the efficiency decreases	Good maintenance and repair ensure the long-term stable operation of the machine	Good maintenance and repair ensure the long-term stable operation of the machine
Spare parts replace cycle		Asynchronous motor, easy to get spare parts and good stability	Customized motor, long spare part chaning period
Reliability	Medium	Reliable and stable	Reliable and stable

Reduce Energy Consumption for Customer

Yuen Foong Yu Qingshui Plant in Taiwan, Toscotec tissue machine, width 3650mm, speed 1560 m/min

Item	Value
Water ring Pump (Before)	200KW*2 units
Vacuum Pump (Current)	280KW，running at 132KW
Electricity Consumption Before (KWH/Ton)	99
Electricity Saving After Rebuilt (KWH/Ton)	57
Saving Percentage	58%
Annual electricity savings for customers	1,650,000RMB Or 227,800 USD

Electricity saving per ton of paper * 4 tons of paper produced per hour * Annual production7200 hours
Calculated at an average of 1 RMB per kilowatt hour for electricity

Successful applications at clients

Types of paper	cultural paper, special paper, wrapping paper, household paper, etc	Speed	80-2000m/min
Width	2640-6700mm	Paper machine type	fourdrinier wire, inclined wire, stacked wire, sandwich wire and crescent former

Successful Customer Applications

Lee&Man in Chongqing

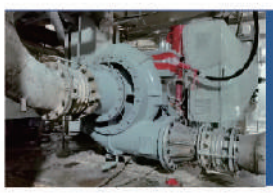
- Paper machine Valmet PM6, width 5600, speed 1800M
- Previously use 450kw water ring pump, and the actual operation is 455kw.
- Now use Turbo vacuum pump at 400kw and the actual operating power is 280kw
- Save 40% of energy

Chongzuo Lee&Man

- 46 paper machine, Baotuo BC 1600-3600, speed 1000M
- Now use 250kw turbo pump, the actual operation is 130kw

Shanghai Dongguan

- PM1 paper machine 2850/400 produces 40g, and the operating power is 77.6kw
- PM8 paper machine 3500/1700 with power of 200kw
- Replace water ring pumps and save more than 50% of energy



Jiangxi Lee&Man

- Baotuo paper machine width 2880, speed 1200
- Previously use roots blower, operating power 70kw
- Now use 40kw turbo pump, saving 42% of energy
- 6 Baotuo paper machines on site, equipped with 6 Shanggu Turbo vacuum pumps

Anhui Linping

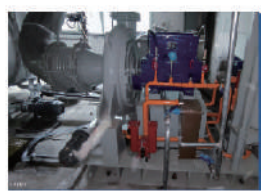
- Width 4800, Speed 600m/min
- Previously use 9 units of water ring pump 220kw*9
- Now use 3 units of 315kw and 1 unit of 560kw
- Save 35.8% of energy

Yuen FoongYu Paper Yangzhou Plant

- Paper machine PMP 2850/1600
- Previously use 400kw water ring pump before, with actual power consumption of 300kwh
- Now use turbo vacuum pump 200kw, actual operation 110kwh
- Save 65% of energy

Liaoning Yusen Paper

- Paper machine PMP3500/1600
- Previously Use 450kw gearbox turbo blower, consumes 250kwh
- Now use 280kw turbo vacuum pump with 180kwh power consumption
- Save 28% of energy



Wellmind Paper in Chongqing

- Acelli 2850/2000 paper machine
- Previously use 400kw water ring pump, actual power consumption of 280kwh
- Now use turbo vacuum pump 185kw, actual power consumption 140kw
- Save 50% of energy

Baoding Jifa

- Paper machine width 3600, speed 1300M
- Previously use 315kw water ring pump, the actual operation is 230kw
- Now use turbo vacuum pump at 110kw, the actual operating power is 80kw
- Save 65% of energy

Shandong Sunshine Prince Paper

- Specialty paper and cultural paper. Width 2800,speed 800m/min
- Previously use 7 water ring pumps of 1300kw and operating power of 950kw
- Now use 3 pumps of 315kw and the actual operating power of 560kw
- Save 50% of energy

BUSINESS ITEM

- MAGLEV TURBO BLOWER、ROOTS BLOWER
- FANS, BLOWERS, PUMPS
- DEDUSTING & PNEUMATIC CONVEYORS
- CNC TURNING LATHES & MACHINING CENTERS
- PIPING CONFIGURATION AND EQUIPMENT INSTALLATION ENGINEERING
- WASTE GAS TREATMENT ENGINEERING DESIGN AND CONSTRUCTION
- AQUACULTURE LIFE SUPPORT SYSTEM ENGINEERING DESIGN AND CONSTRUCTION
- WASTEWATER AND PURE WATER TREATMENT ENGINEERING DESIGN AND CONSTRUCTION

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