

To find out more about following products, please visit our website.

	Pump Series	Submersible pump series On land pump series Special pump series
	Mixing and flow propeller	Mixing series Flow propeller series
	Aeration equipment series	Aerator series Disc diffusers Tube diffusers
	Blower Series	Maglev turbo blower Turbo blower Three-lobe Roots Blower blower series
	Sludge treatment equipment	Belt filter press Screw press Mud scraper Dissolved air flotation clarifier
	Intelligent series	EP6 IOT monitoring and mangement system Air quality management system RS-485 sensor
	Reactor and package equipment	Fenton reaction system MBR biofilm reactor Prefabricated pumping station Intelligent Compact Unit
	Consumables, reagents and related equipment	Biological rope PAC polyaluminum chloride PAM polyacrylamide Automatic dispensing dissolvers

GSD Business Philosophy

G-Green S-Safe D-De velopment



AIR TURBO BLOWER



Air turbo blower

Adopting advanced suspended gas film bearing technology, the rotor is supported by aerodynamic force to achieve non-contact and frictionless rotational motion between the rotor and stator. The air bearing bears the weight of the rotor while achieving stable rotation and minimal friction loss through the air film formed by high-speed gas flow, greatly reducing mechanical losses and noise, and improving the efficiency and service life of the machine.

Adopting advanced speed control technology and intelligent management system, it can accurately and stably output flow and pressure, suitable for various fields of gas transportation and material pneumatic transportation.

Application

Water treatment applications

- Oxygen supply and aeration in municipal sewage treatment
- Oxygen supply and aeration in various industrial wastewater treatment
- Oxygen supply and aeration in landfill leachate treatment



Other applications

- Cement building materials, thermal power generation flue gas desulfurization, food fermentation process ventilation, steel, aquaculture, biopharmaceuticals, textile printing and dyeing, pulp grade papermaking, glass fiber and other industries.



Cement

Thermal power

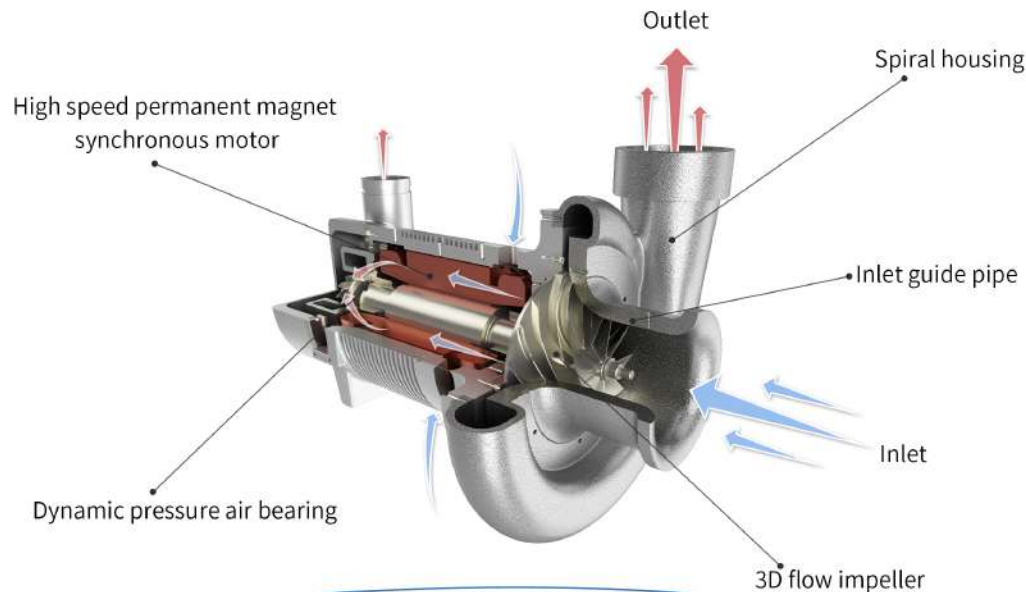
Food fermentation

Working principle

The air suspension blower mainly consists of an impeller, a volute, a diffuser, and other components. The impeller works on the gas, and in the flow channels of the impeller and diffuser, the centrifugal pressure boosting effect and the speed reducing and expanding effect are used to convert mechanical energy into gas pressure energy, thereby achieving an increase in gas pressure.



Core component structure



Advantage



Energy saving

Integrated high-speed permanent magnet synchronous motor, high-efficiency three-dimensional flow impeller, air bearing, and blower adjusted according to load. In operation, it can save 30%-50% energy compared to traditional fans.



Small size

Integrated design, with a volume of only 1/3-1/5 of traditional blowers, simple installation, no foundation required, and can be directly placed and installed.



Oil free

Adopting advanced air bearings, no friction, no need for oil lubrication.



Long lifespan

No friction, with a lifespan greater than 20 years.



Easy to maintenance

Just follow the system prompts and regularly clean the filter cotton.



Low noise

Low noise centrifugal impeller design, without mechanical vibration, with a noise level below 80 decibels.

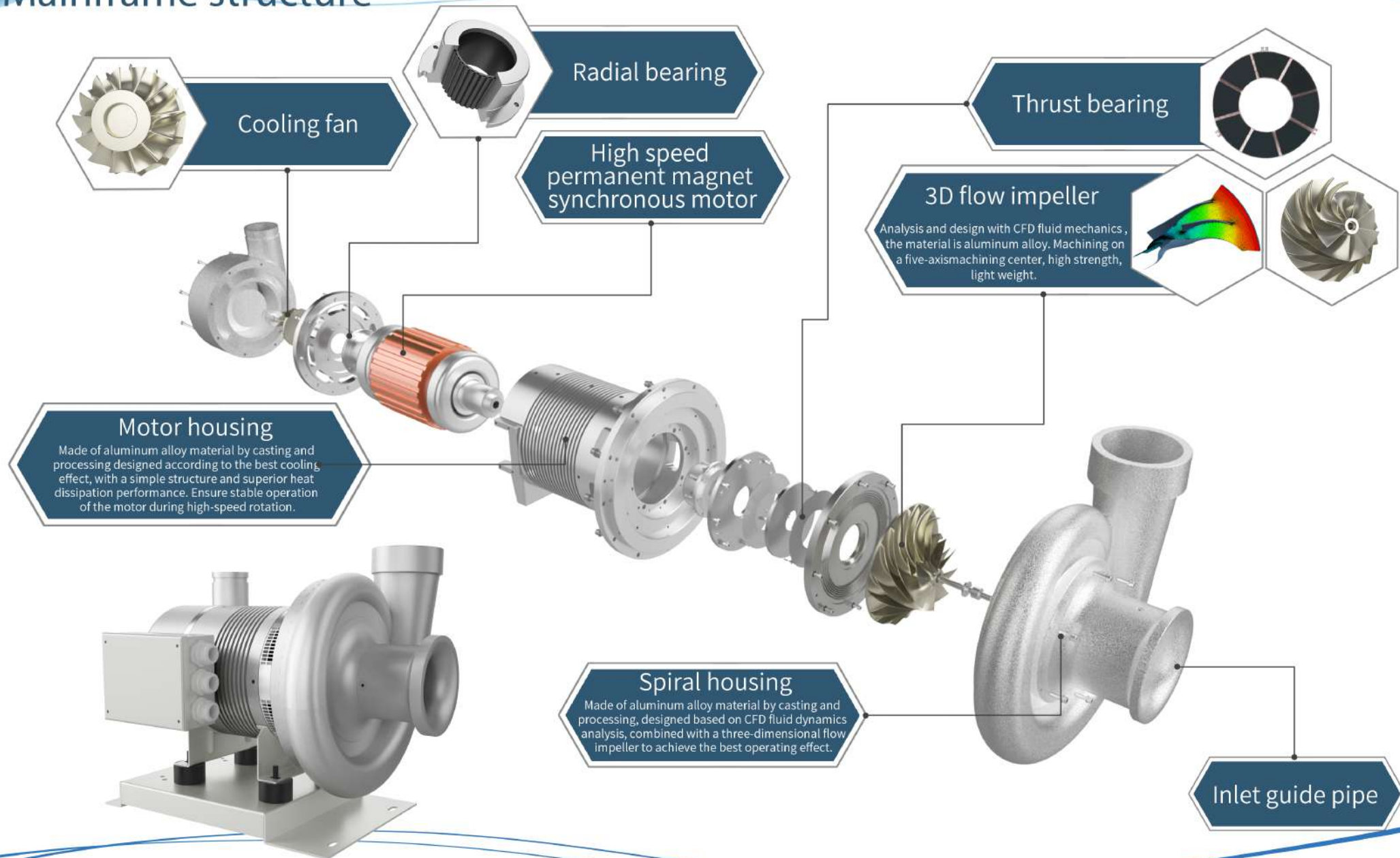


Cloud based intelligent control

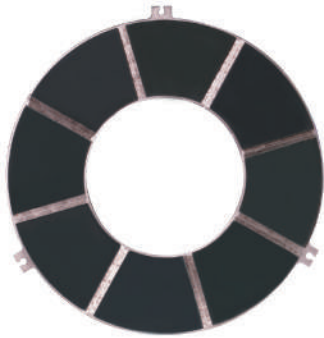
Manage both mobile and PC users simultaneously. It can remotely retrieve all data for unified management and analysis.



Mainframe structure



Air bearing



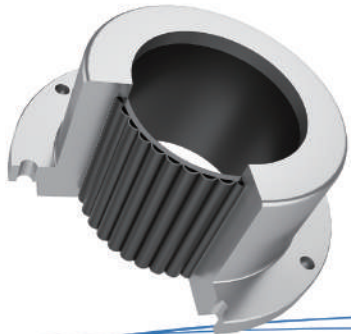
Air suspension bearings are non-contact bearings, and there is physical contact between the front shaft and the bearing when the dynamic pressure bearing is started. When the shaft and the bearing are started, the relative movement of the shaft and the bearing brings gas into the convergence area between the sliding surface and forms a pressure gas film. When the shaft is rotating, the air flow (velocity energy) around the shaft is converted into pressure. An air cushion with sufficient buoyancy is formed between the shaft and the bearing to suspend the shaft and lubricate it.

Features:

- High operating speed, no heat phenomenon
- No lubricating oil, no environmental pollution, low maintenance cost
- Corrugated spring coil type, good design, stable structure
- Air film thickness 5-20um, low energy loss, and high operating efficiency



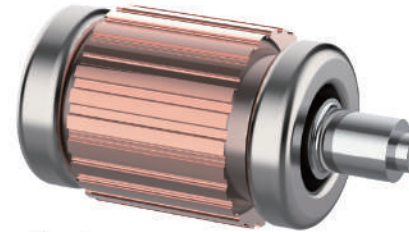
The coating uses advanced surface treatment techniques such as physical vapor deposition (PVD) or chemical vapor deposition (CVD). Common materials are molybdenum disulfide (MoS₂), boron nitride (BN), silicon carbide (SiC). Suitable for different working conditions.



The special coating of air bearing has the following performance feature:

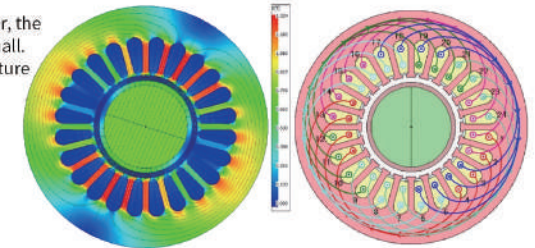
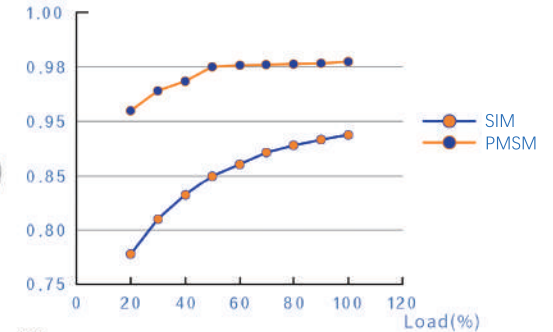
- Reduce friction and wear to improve service life and efficiency
- Improve corrosion resistance and prolong service life
- Improve fatigue resistance and reduce fault risk
- Improve temperature stability and reduce fault risk

High speed permanent magnet synchronous motor



Features:

- High speed, up to 400000 rpm.
- The motor efficiency can reach 98%, non-rated conditions also have high efficiency.
- the motor shaft is directly connected with the impeller, the transmission loss is small, the moment of inertia is small.
- the use of permanent magnet material, high temperature demagnetization ability.
- High power density, small size, reliable operation.
- The running vibration is less than 2mm/s, low noise.
- one casting, finishing shell, high strength, good heat dissipation.



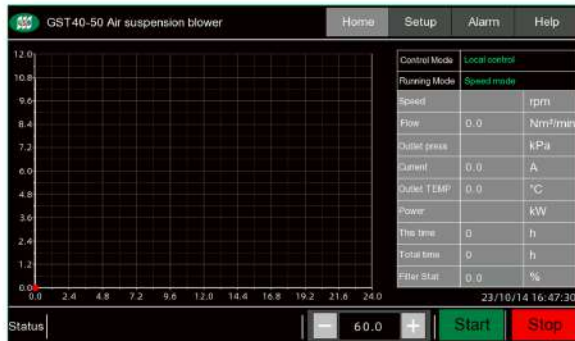
High frequency vector converter

Features:

- High speed high-frequency vector
- Efficiency is greater than 97%
- Low starting current
- Speed torque control is accurate
- Multiple ways to communicate
- Wide operating temperature range

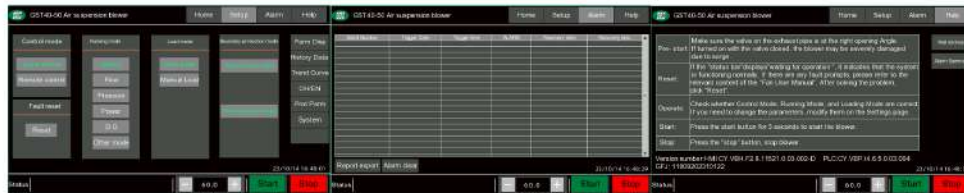


Control system



Real time monitoring of equipment operation status, including inlet and outlet pressure, inlet and outlet temperature, inlet pressure difference, vibration, current and voltage, motor temperature, etc. By analyzing monitoring data, intelligent adjustment of unit operation status is achieved to maintain safe and efficient operation conditions;

The cloud intelligent control system can be remotely monitored and controlled in variety of ways. Through a dedicated APP, the running status of the device can be monitored in real time on mobile devices.



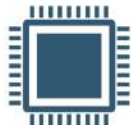
Wireless remote monitoring

PLC + GPRS/3G/4G is used to realize remote real-time monitoring of turbo blower operation status and intelligent regulation.



Interface

Monitor equipment status in real time, display equipment operating conditions, historical trend curve, alarm information, and support query and parameter setting.



Drive system

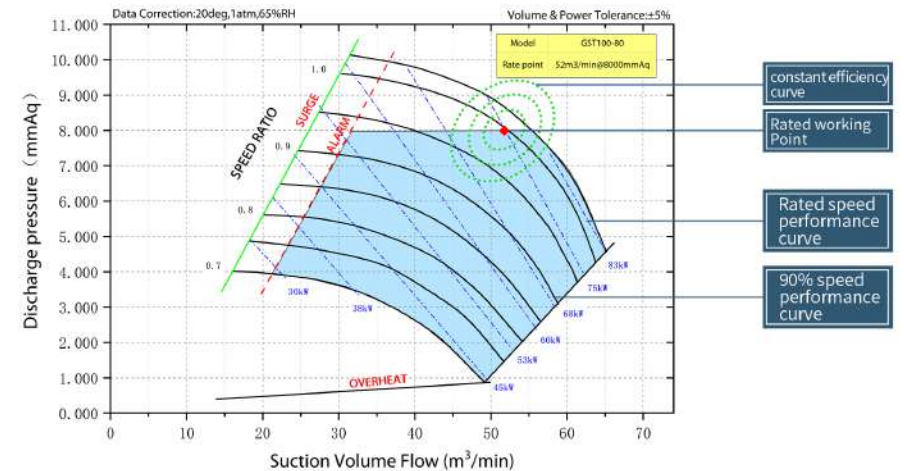
Equipped with high performance inverter, adjust the air volume of the turbo blower according to the working conditions. Communicate with PLC in real time to realize the monitoring and control of the inverter and deal with the fault in time.



Control system

Adopt stable and reliable PLC, control turbo blower operation and logic control, real-time acquisition and processing data support a variety of communication protocols, easy to connect with the user control system.

Performance curve explanation



- Operating range of blower

In theory, the blower can operate reliably at any point between its rated speed, minimum speed, surge boundary, and right boundary. In the selection, only need to ensure that the actual conditions (pressure, flow) in this range can be stable operation.

- Constant speed mode

The speed is constant, when the outlet pressure changes, the working point will move along the constant speed curve, the pressure and flow will change;

Suitable for pressure and flow irregular and wide range of adjustment conditions.

- Constant power mode

The power is constant, the speed changes, the pressure and flow change, the adjustment range is limited.

Suitable for customers with limited power consumption and low pressure and flow requirements.

- Constant pressure mode

The pressure is constant, the speed changes to change the size of the flow rate, the working point moves to the horizontal direction, and the adjustment range is between the surge boundary and the blocking boundary under the pressure;

Suitable for constant pressure and variable flow conditions.

- Constant flow mode

Constant flow rate, speed change to change the size of the outlet pressure.

It is suitable for constant flow demand and pressure change.

- Dissolved oxygen operating mode

According to the dissolved oxygen in the biochemical tank, keep the dissolved oxygen concentration unchanged. When the dissolved oxygen content is lower than the set lower limit, increase the air volume; Conversely, when the dissolved oxygen content is higher than the set upper limit, the air volume is reduced.

It is suitable for improving the activity of the sludge in the biochemical tank, so that the biochemical tank can quickly decompose the harmful substances in the sewage.

- Surge line

When the working point is located on the left side of the surge line, the blower will surge, resulting in abnormal operation. Therefore, the centrifugal blower must have a surge protection function.

- Surge protection (warning line)

Before the blower approaches the surge state, the blower can be automatically adjusted to avoid entering the surge area and achieve surge protection.

Overall structure

1. BOV (blow off valve)

The blow off valve automatically opens when the blower starts and stops, ensuring that the operating point of the blower is not in the surge zone and ensuring the safe operation of the blower

2.Filter

Filter density: F9
Filtering accuracy: PM2.5
Filtration efficiency above 90%

3. Motor cooling air duct

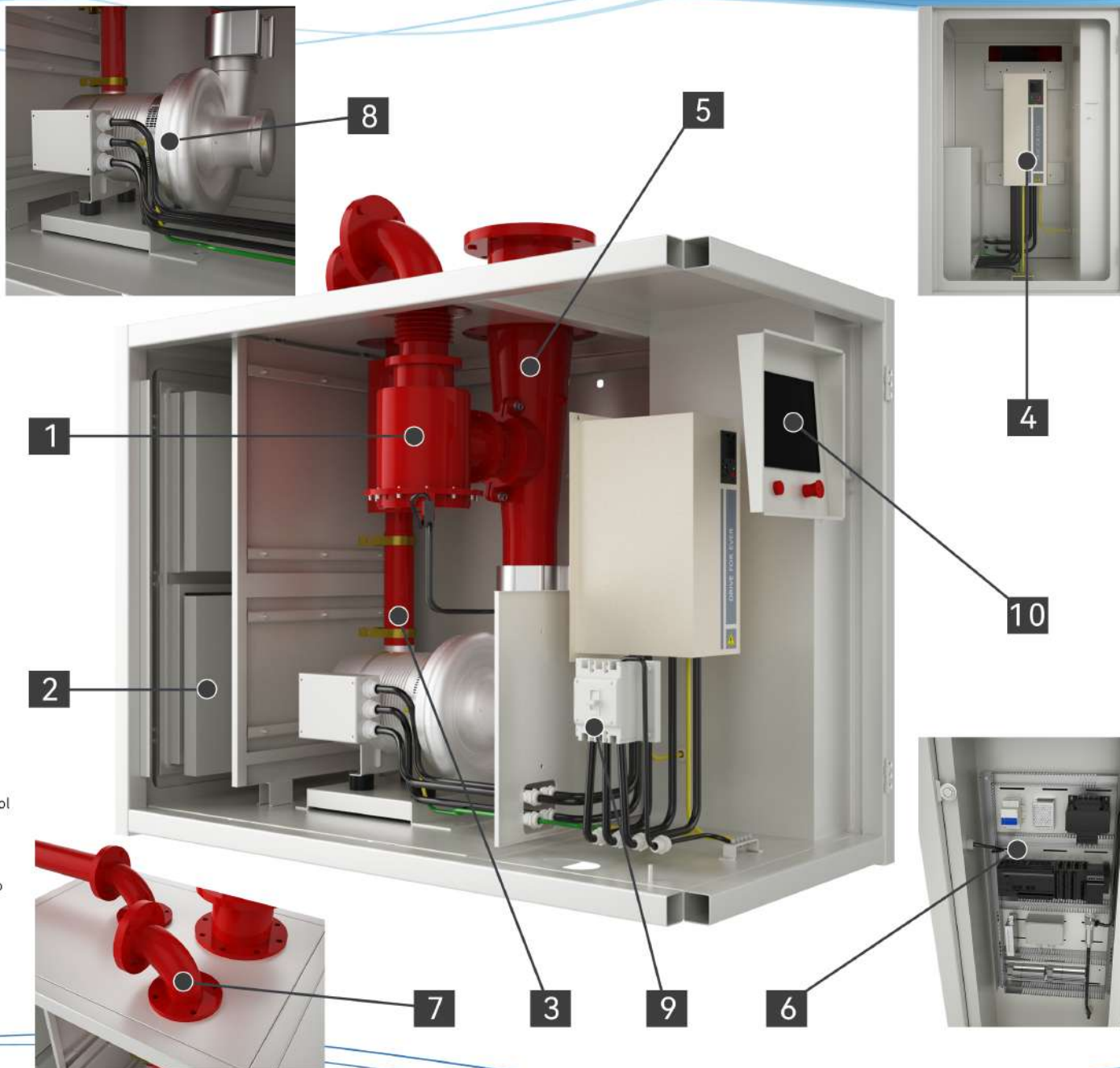
Quickly discharge the heat generated inside the motor, improve the cooling effect. It must be connected to the outdoor. Pipe wrapping is recommended.

4. Frequency converter

The special drive control algorithm makes the motor run stably, with low power consumption, small starting current and accurate speed control

5. Cone silencer

Reduce the flow rate in the air and outlet pipe to minimize outlet turbulence.



GSD GREEN SAFE DEVELOPMENT

6. Control system

Adjust the speed, temperature, pressure and other parameters of the blower as needed to accurate control and adjustment of the blower performance

7. Blow off elbow

8. Main body

100% oil-free and maintenance-free bearing, cash air cooling technology, motor efficiency can reach more than 97%, high efficiency and energy saving, the overall structure is simple, high reliability

9.Cable entrance

10.Touch Screen

Intelligent touch screen control panel, can display flow, power, speed, outlet pressure, temperature and other information, to achieve a variety of operation modes.

Installation diagram of blower room

Specification

Environmental Parameter

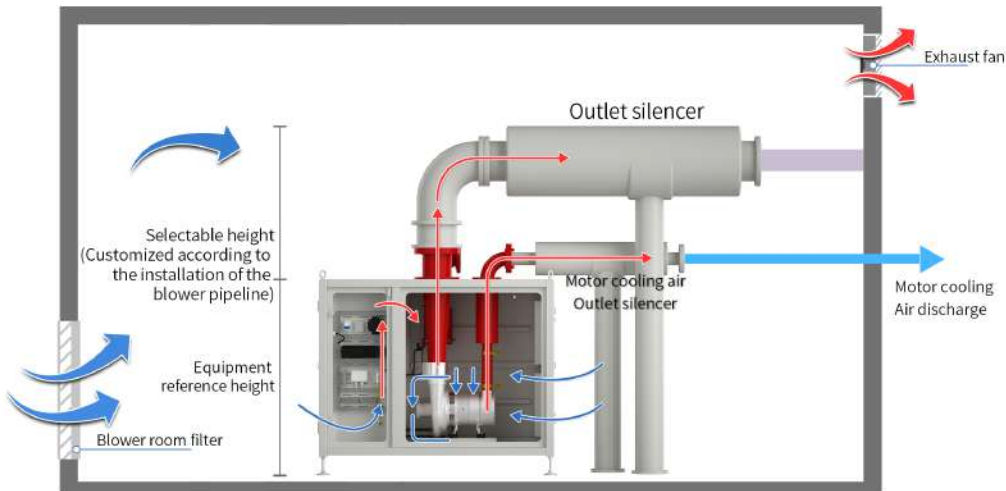
Permitted chemical vapors according to IEC 60721-3-3 class 3C2	Ave/Max (mg /m ³)
Sulfur dioxide (SO ₂)	03/1.0
Hydrogen sulfide (H ₂ S)	01/0.5
Chlorine(Cl)	0.1/0.3
Hydrogen chloride(HCl)	0.1/0.5
Hydrogen fluoride(HF)	0.01/0.03
Ammonia(NH ₃)	1.0/3.0
Ozone(O ₃)	0.05/0.1
Nitrogen dioxide(NO ₂)	0.5/1.0

Construction Material

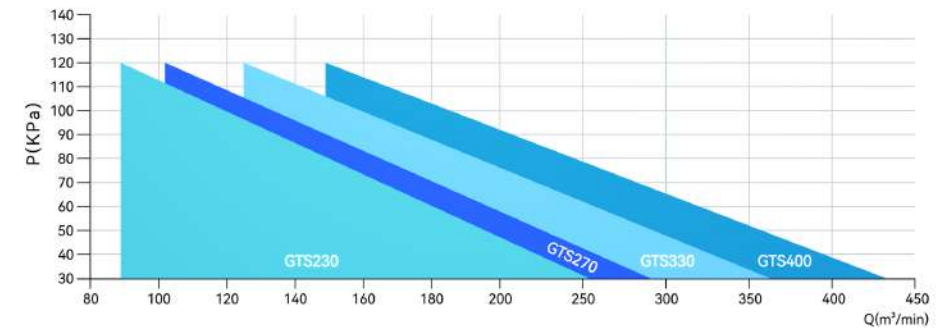
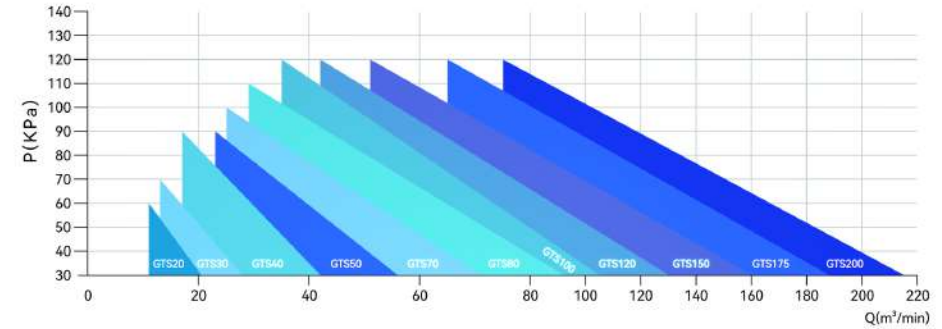
Enclosure	Cold-rolled steel plate SS400 & electrostatic powder coating surface
Impeller	AL7075-T6 (Standard)
Shaft	Titanium alloy
Bearing	Inconel
Spiral housing	AC4C

Technical Specification

Temperature	-10°C-40°C
Humidity	0-95%
Input Power	380~480V 50/60Hz 3Phase
Vibration	≤ 2mm/sec
Noise	≤ 85dB at 1m from blower(±2dB)
Balance Grade	G2.5 (ISO1940)
Enclosure Protection Class	IP52(Standard)
Communication	RS-485 (Modbus-RTU Protocol) Ethernet (Modbus-TCP Protocol) Hard-wire
Bearing	Convex air foil bearing
Seal	Labyrinth seal
Motor	PMSM, H Cass, IP54
Compressor	Centrifugal, Single Stage
Drive Connection	Direct Drive
Flange Connection	KS /JIS /DIN /ANSI



GST series performance curves



Performance parameters



Model	GST	Air turbo blower
	70	Power(HP)
	60	Pressure(kPa)

Model	GST20	GST30	GST40	GST50	GST70	GST80	GST100	GST120	GST150	GST175	GST200	GST230	GST270	GST330	GST400
	Flow (m ³ /min)														
Pressure (kPa)	30	20.5	28	42	56	71	86	105	130	160	188	215	254	291	433
	40	16	25	33	45	59	72	85	104	126	147	170	198	223	339
	50	13.2	20	29	40	50	62	73	89	108	129	150	172	192	302
	60	11	15	25	33	41	49	64	77	95	111	128	147	170	255
	70		13	21	30	37	43	56	67	85	95	120	130	149	227
	80			19	25	32	38	52	61	72	87	110	120	130	206
	90			17	23	28	34	46	54	65	80	96	110	120	186
	100					25	31	42	50	60	74	88	102	112	179
	110						29	38	45	55	70	81	95	109	161
	120							35	42	51	65	75	89	102	149
Overall power (kW)	15	20	30	40	50	60	75	90	110	130	150	175	200	250	300
Overall power (HP)	20	30	40	50	70	80	100	120	150	175	200	230	270	330	400
Overall dimensions (mm)	Length	1200			1400			1600			1700			1900	
	Width	600			750			900			1000			1200	
	Height	900			1100			1300			1400			1700	
Outlet pipe diameter	DN100			DN150			DN200			DN250			DN300		DN400
Weight (kg)	220	330	350	380	650	690	750	800	850	950	1000	1300	1400	1700	1780
Noise (dB)	75	78			80			85							
Cable specifications (mm ²)	3×10 +1×10	3×16 +1×10	3×25 +1×10	3×35 +1×16	3×50 +1×16	3×70 +1×25			3×95 +1×35		3×120 +1×35	3×150 +1×50	3×185 +1×50		3×240 +1×70

- Note: • Rated flow measurement conditions: 101.325kPa, 20 ° C, 65% RH;
• Noise testing conditions: The testing site shall be selected as a place without reflective conditions except for the ground, and the measurement shall be conducted at a distance of 1 meter from the blower;
• Pressure rating of outlet pipeline flange: PN10;
• Flow tolerance: ±5% .

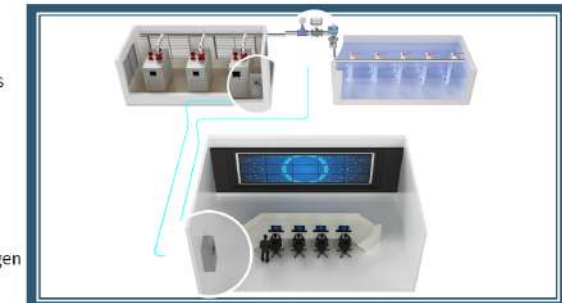
AOCS Aeration oxygen control system

Overview

AOCS precise digestion oxygen control system, according to the changes of the actual influent load of the sewage treatment plant and the needs of each control unit flow decomposition, using activated sludge measurement to reach the level of exploration, timely and accurate distribution and control of gas volume, in order to achieve the requirements of late aerobic control. A series of process optimization and equipment modules, including biological oxygen calculation, data processing and storage, technical and wind mechanism, air flow regulation and control, are an overall solution to achieve automation and lean aeration system. AOCS is suitable for A variety of activated sludge processes and improved processes, such as A, AAO, oxidation ditch, SBR, CAS5, etc.

Challenges faced by aeration in wastewater treatment plants

- High energy consumption of blower
- The control level of dissolved oxygen is low
- The traditional control mode has low efficiency
- Poor numerical linkage of equipment and instruments
- Lower energy consumption
- Lower air-water ratio
- Better water results
- More stable dissolved oxygen control effect
- Higher impact load resistance
- Faster response to dynamic changes in dissolved oxygen



In view of the characteristics of the sewage system with large impact load, large time delay and nonlinear, AOCS is based on the multi-parameter control mode of "feedforward + model + feedback", with the real-time accurate calculation of the required aerobic rate in the biochemical unit, and combined with the current calculation results, control the start and stop of the blower (group) or frequency conversion to adjust the air volume, and linkage with the electric regulating valve. The gas volume is distributed according to demand, and the dissolved oxygen of each aeration unit is controlled precisely.

Software composition

Biological oxygen demand calculation module

Data processing module

Blower adjustment module

Air diversion control module

Customer Value

Realize mobile control

The establishment linkage resource database of aeration system data-control, in-depth study of data value mobile terminal, can investigate the system operating status anytime and anywhere, improve the level of management decision-making

Achieve energy efficient operation

The model dynamically calculates the oxygen demand of each area, distributes air according to demand, the air saving rate reaches 15%~30%, and the energy saving rate of the blower reaches 5%~20%

Fully automatic operation

Using the "feedforward + model + feedback mode", it can automatically run in closed loop when part of the instrument data is distorted, and give appropriate correction

Achieve stable operation

Improve the ability to resist influent impact loads and improve the stability and compliance rate of effluent water quality