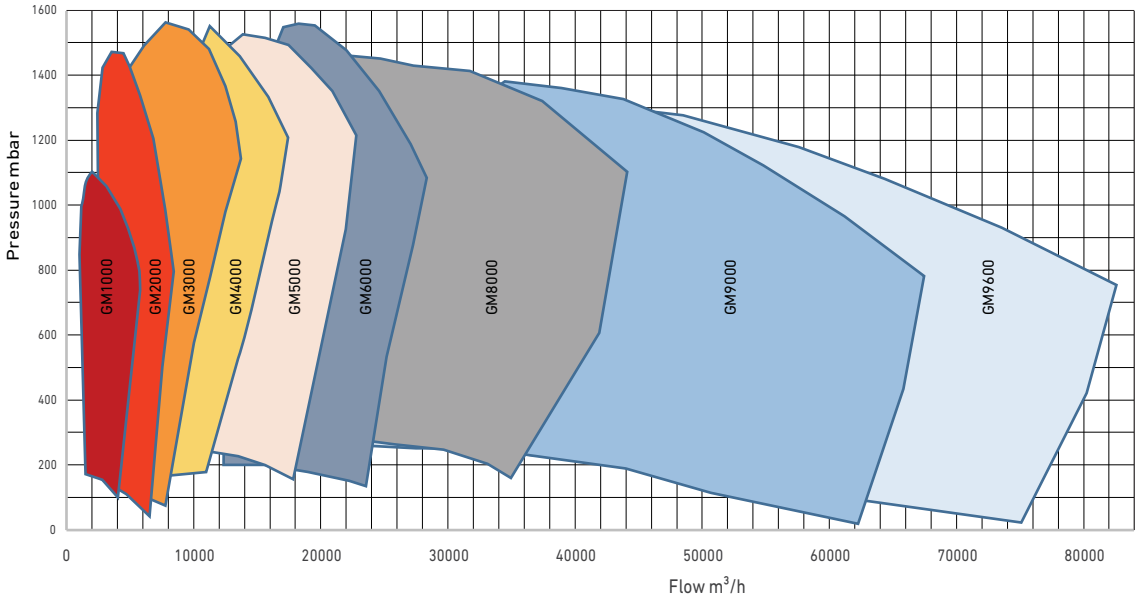
NOTE: Working conditions Patm:101.3Kpa T:20℃ Rh:36%



Performance range

Multi-stage centrifugal fan adopts the design and manufacturing technology synchronized with the international standard, and at the same time, the design of the model takes into full consideration the pursuit of high pressure and high efficiency in the current application field.

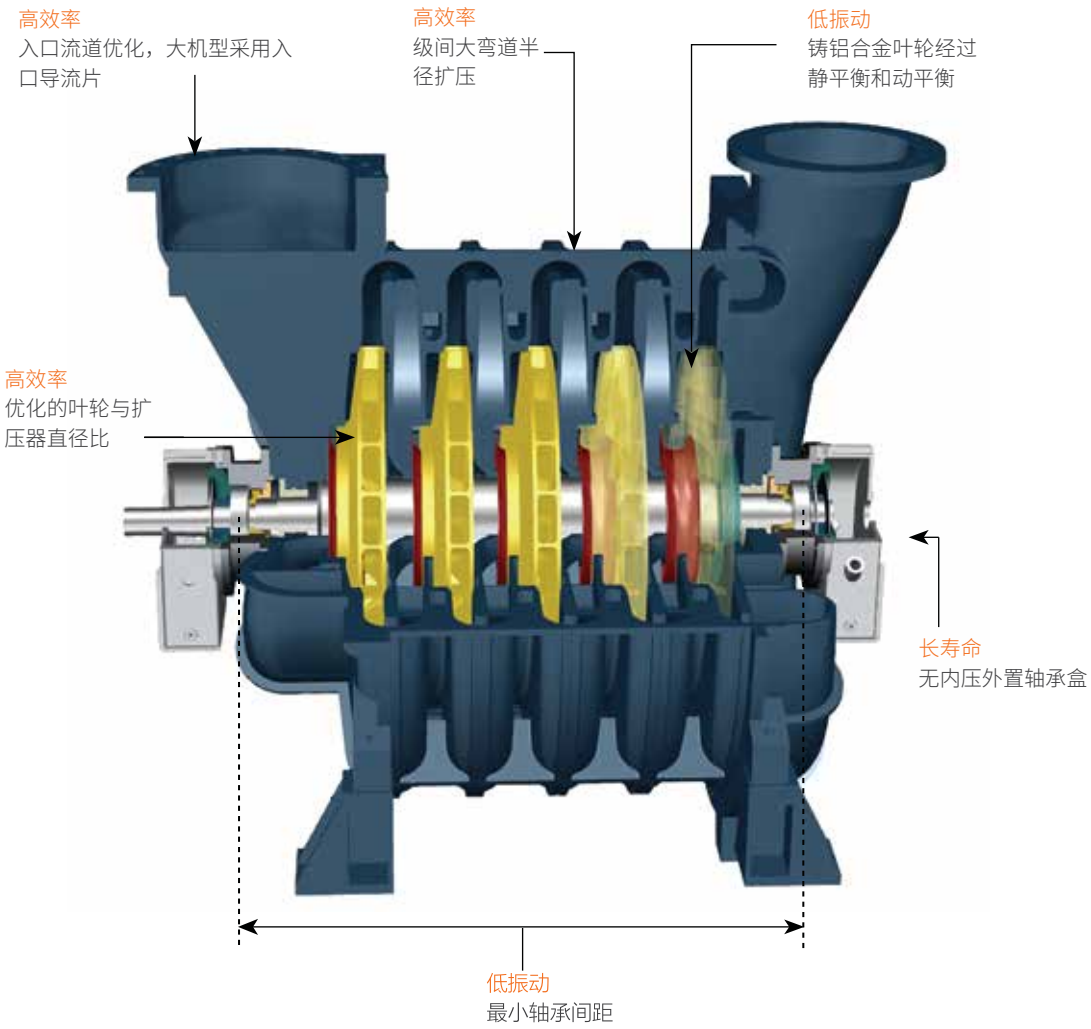
Fan flow range 200~80,000m³/h, pressure 100~1500mbarg, vacuum up to 500mbara.

Multi-stage centrifugal fans bring economy, quietness and reliability to the customer, with characteristic flow versus pressure curves that allow more than 50% of the flow adjustment range without wheezing.

主机设计和工艺特征

主机

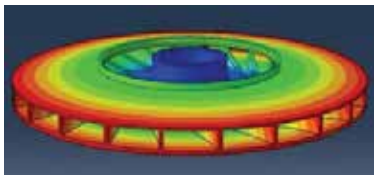
采用垂直剖分铸铁外壳，通过一根主轴将多级叶轮串起来，双支撑结构。



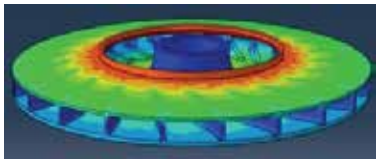


High efficiency impeller

The impeller is a new type of high-efficiency impeller designed with the latest achievements of modern fluid dynamics, while its structural reliability is optimized by the simulation of professional finite element analysis software, adopting high-precision molds, aluminum alloy integrated casting molding, and finally completed by precision machining and dynamic balance test. Compared with the traditional welded carbon steel impeller, this impeller is characterized by light weight, high efficiency, even mass distribution, high dimensional accuracy and less manufacturing defects.



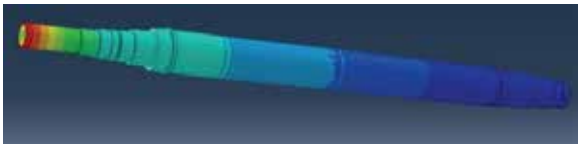
Impeller deformation cloud diagram



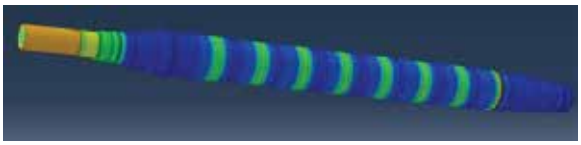
Impeller stress distribution diagram

Cast Iron Housing

Precision mold casting of the casing adopts a vertical split structure, the design of the intermediate casing is fully considered interchangeability, the number of stages of the fan can be flexibly selected according to the needs. Compared with the traditional fan non-standard casing, the standardized fan casing greatly shortens the mass production time and improves the quality accuracy. At the same time, optimized diffusers and returners ensure sufficient pressure rise and minimal return losses.



Shaft deformation cloud diagram



Shaft stress distribution diagram

Wear-resistant bearings

All models use high-strength imported brand wear-resistant bearings with a design life of 100,000 hours.

Precision spindle

For rotating power machinery, spindle reliability is very important. Blowers are built with finish-machined A45 spindles, and larger models have one-piece forged spindles.



Powerless thin oil lubrication

Aluminum alloy air-cooled oil box, uninterrupted automatic oil supply, this constant bath constant oil level lubrication system can ensure that the bearings 24 hours a day continuous heavy-duty operation without failure, no oil pump, no cooling water.

Cooling fan

A standard cooling fan external to the bearing on the outlet side of the fan ensures normal bearing temperatures even in extremely hot summer weather and high pressure, high vacuum applications.

Balancing disk

Medium-sized models and above use balancing discs to offset part of the axial force, ensuring smooth rotor operation and prolonging bearing life.

High Precision Seals

The shaft ends of all models adopt high-precision labyrinth seals plus carbon ring seals or sparse teeth seals to minimize external gas leakage, while labyrinth seals are used between stages to prevent internal leakage and improve efficiency. Ensure that the medium is 100% oil-free.



Exhaust direction

According to the needs of the project, the user can freely choose the exhaust direction of the fan, a total of 12 o'clock, 3 o'clock, 9 o'clock three directions can be freely selected. Even at the customer's site, the direction can still be adjusted.

Driving method

Users can choose from a variety of drive methods such as direct motor connection, direct gear box connection or belt drive.

Variable frequency drive regulation

Inverter drive regulation is a revolutionary advancement for this type of fan. The inverter direct-connected multistage centrifugal fan does not require a gearbox to adjust the fan speed to the ideal state to meet different working conditions. At the same time, inverter regulation is the most energy-efficient way of regulating powered machinery.

MultiSmart Intelligent Control System

Excellent control system is an indispensable part of the fan, is to ensure the stable operation of the fan to ensure that the MultiSmart intelligent control system, including the local control cabinet (LCP), variable frequency starting cabinet (VFD), the central control panel (MCP), etc. MultiSmart intelligent multi-stage centrifugal control system can be adapted to different process requirements, such as water treatment, flue gas desulfurization, sulfur recovery and gas supply. flue gas desulfurization, sulfur recovery and gas supply, etc.

Local Control Panel (LCP)

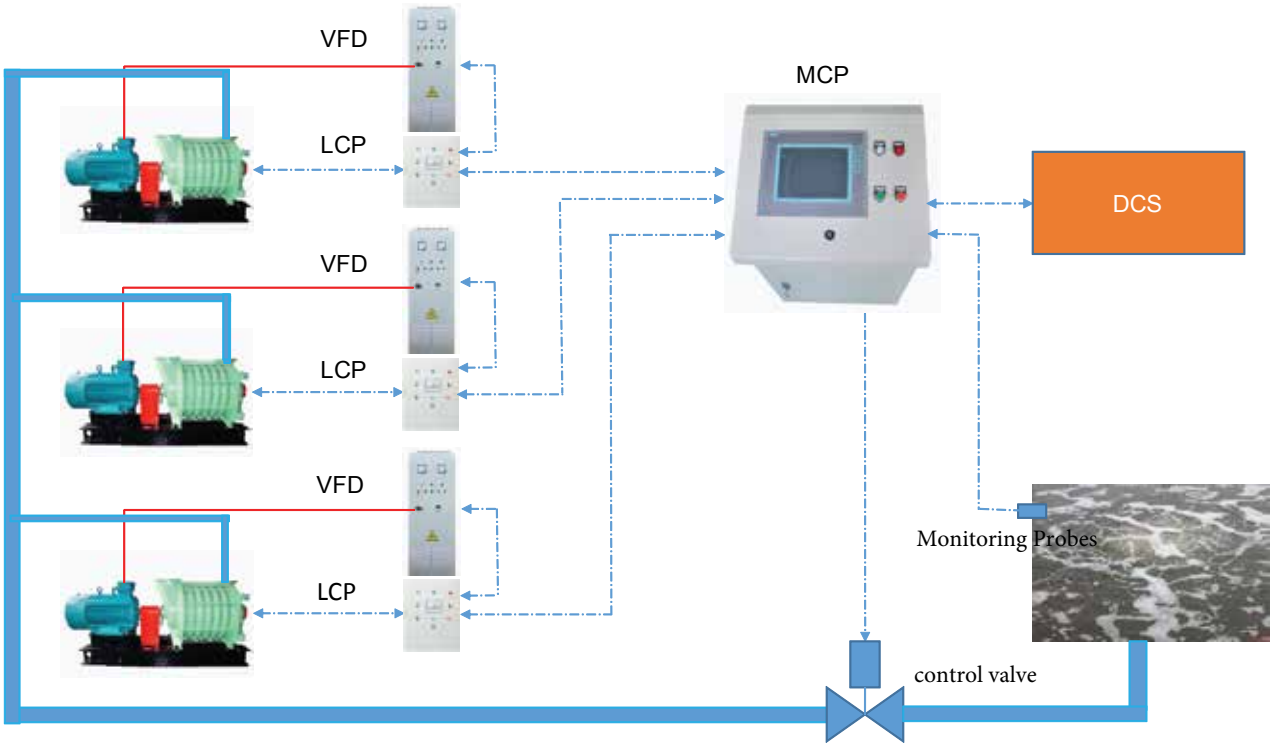
Each blower is equipped with a separate Local Control Panel (LCP). The main functions of the LCP include control of startup, stopping, operation and fault monitoring, and shutdown in the event of a fault.
The LCP has a good man-machine operation interface, and all parameter settings, displays, etc. are accomplished through the operation panel.
According to the customer's needs, each LCP can be equipped with a standard PLC interface, which can communicate with the central control panel (MCP) or the factory control center (DCS) through the standard industrial communication protocol.

MS100	MS200	MS300
Basic Functions PLC control Surge control Fan bearing temperature monitoring Motor current monitoring Motor overload protection	Basic Functions PLC control LCD Display Surge monitoring and control Real-time flow monitoring and display Flow rate adjustment: inlet butterfly valve Fan bearing temperature monitoring Motor bearing and three-phase winding temperature monitoring Exhaust pressure monitoring Inlet temperature monitoring Motor overload protection	Basic Functions PLC control LCD display Surge monitoring and control Real-time flow monitoring and display Flow rate adjustment: frequency conversion speed control Fan bearing temperature monitoring Motor bearing and three-phase winding temperature monitoring Exhaust pressure monitoring Inlet temperature monitoring Motor overload protection

Centralized control panel (MCP)

The MultiSmart Central Control Panel (MCP) allows centralized control of multiple multi-stage centrifugal blowers, enabling fully automated and efficient operational control of the entire blower system and monitoring of process requirements.

MCP100	MCP200
Basic Functions PLC control Touch screen Multi-unit management Pipe network system pressure/ flow monitoring and adjustment DCS communication	Basic Functions PLC Control Touch screen Multi-unit management Pipe network system pressure/flow monitoring and regulation DCS communication Maximum opening valve control Dissolved oxygen monitoring and control



Schematic diagram of a typical wastewater treatment control system