Seemtek

Tailoring Solutions for Fan Industry

Achelous

Backward Curved Centrifugal Fan

SMT49C2410E-31

Professional Fan
Solutions Provided

Introduction of SEEMTEK

About Seemtek

Seemtek is derived from 'seem' and 'tech,' suggesting the company's philosophy of making high-tech solutions appear simple and intuitive. Just as the name implies, Seemtek designs fans and motors that blend seamlessly into various environments while delivering advanced performance.

These products, like the EC fans, embody the balance of simplicity and technology, providing energy-efficient solutions that adapt effortlessly to different applications, from HVAC systems to industrial use.

Mission
Committed to providing the most tailored fan solutions and products.

Vision
To be the leading brand in external rotor fan technology.

Value
Reliability, Value, Innovation.

About Our Slogan

We don't just provide products, our goal is to achieve our customers' objectives by offering comprehensive services, from Fan system design to Product delivery and Service. By helping customer engineers solve problems and enhance product performance, Seemtek creates value for its clients. This approach aligns perfectly with our mission: Tailoring Solutions for Fan Industry.

Content

01 Product Features

*High static pressure

*Energy-efficient

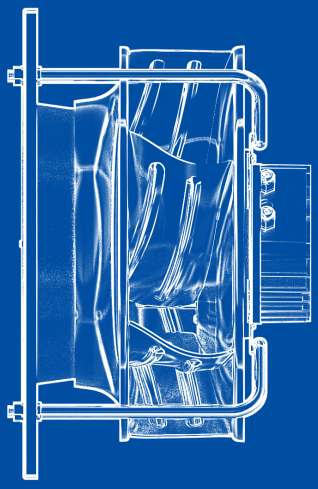
*Low noise

*Flexible and precise control

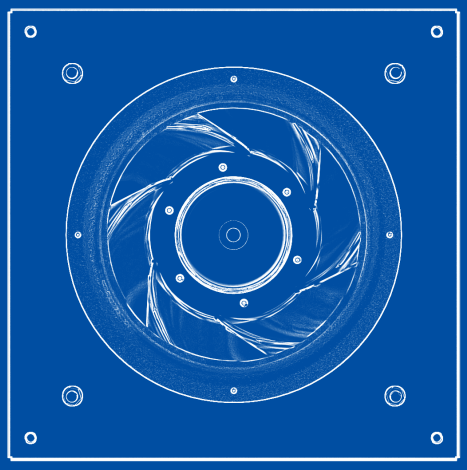
*Wide air volume range

Strict Product Quality Requirements

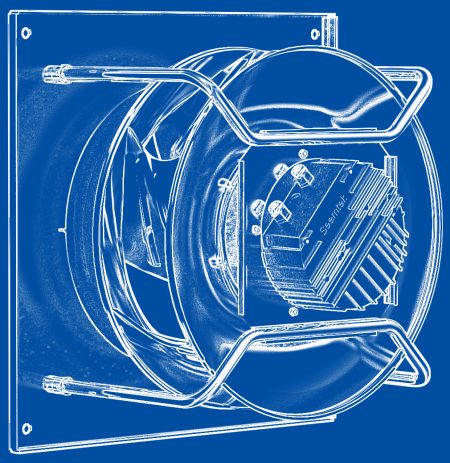
Standardized manufacturing processes are adopted to ensure product consistency during production, and all products undergo 100% electrical performance testing before leaving the factory.



* Side View



* Front View



* Rear View

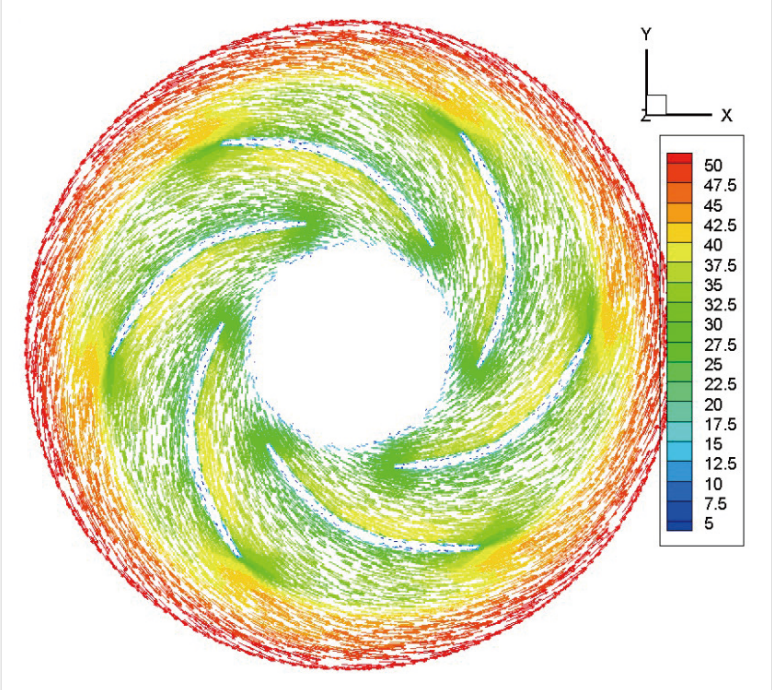
High Static Pressure

Three-Dimensional Blade Design

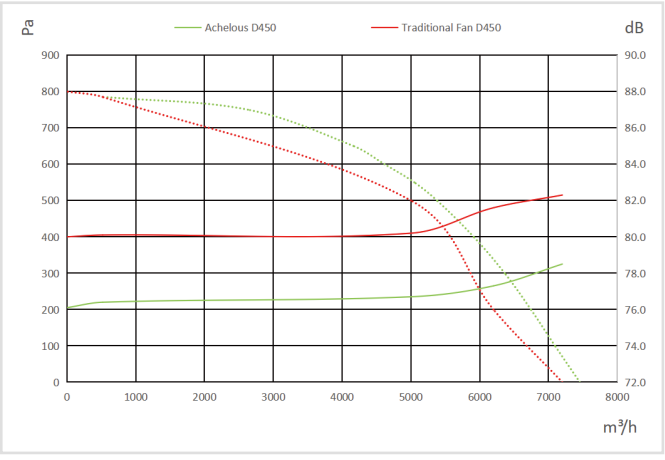
The centrifugal fan's three-dimensional blades are optimized by using the outlet boundary layer thickness as the optimization target, allowing the impeller to effectively generate high static pressure at high rotational speeds.

The impact on the blade leading edge and the separation at the blade trailing edge are both reduced to varying degrees, thereby decreasing internal flow losses within the impeller and improving efficiency.

The reduced blade count design helps maintain good flow separation under high flow conditions, further minimizing flow losses.



Low Noise

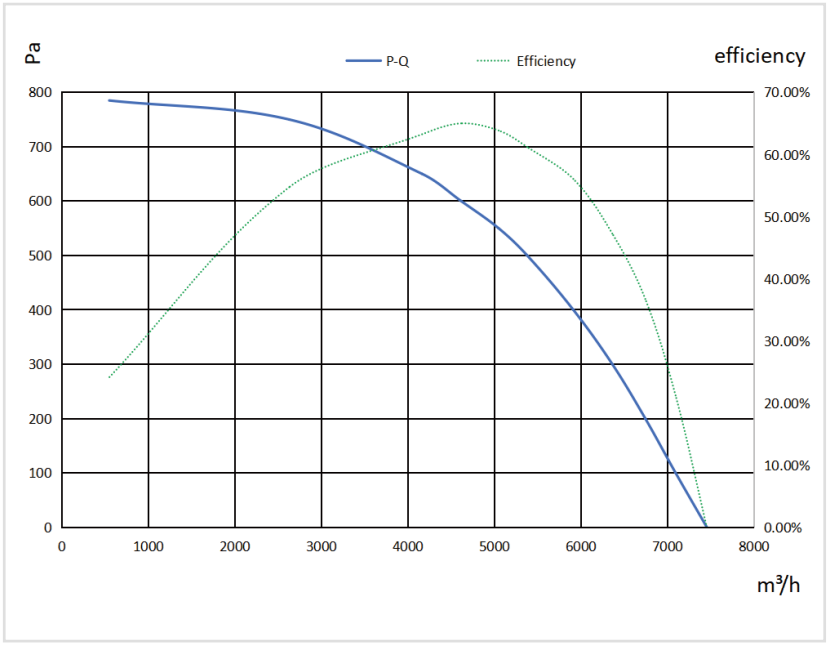


High-Efficiency Flow Path

The impeller is made of high-strength aluminum-magnesium alloy, ensuring minimal axial and radial runout, reducing imbalance, and effectively controlling vibration.

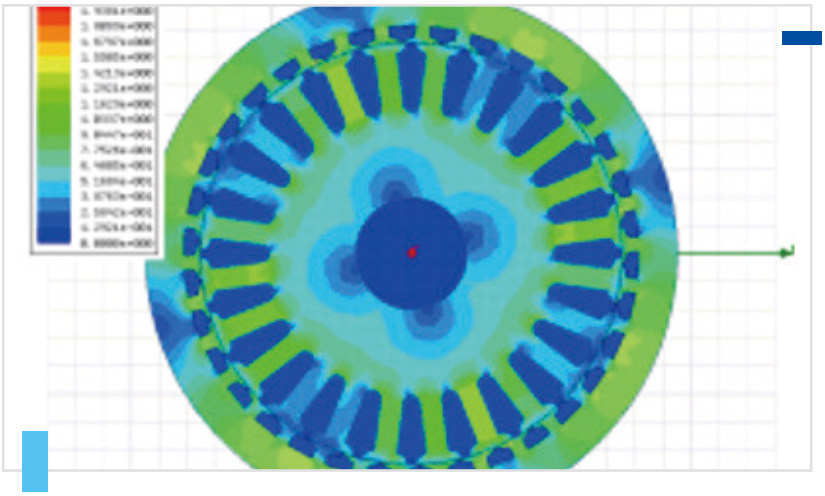
The optimized conical-arc-shaped collector effectively enhances intake efficiency by adjusting the expansion and contraction angles. At the same time, the integrated installation ensures the optimal position of the collector's invasion into the impeller front plate, reducing vortex noise.

Energy Efficient



Advanced Electromagnetic Design

Using the electromagnetic simulation software Ansoft Maxwell and the electromagnetic system is designed and developed through a forward design process.The fully insulated motor shaft solution ensures no electromagnetic corrosion.



High efficiency

We adopt advanced EC technology, enabling the motor to maintain high efficiency under various operating conditions, significantly reducing energy consumption and helping users save on long-term operating costs.

Fast response

The motor has excellent speed control capabilities, allowing it to quickly adapt to load changes and ensure stable operation in different working environments.

Precise control

The precise control algorithms enable the motor to maintain consistent performance in constant airflow and constant speed applications, enhancing overall system reliability.

Strict quality control

We implement rigorous quality control standards throughout the production process, from raw material selection to final product testing, ensuring that each motor meets high-performance and quality standards.

Durability design

The motor is designed with high-temperature and corrosion-resistant materials, ensuring stable operation even in harsh environments, extending its service life.

Long-term performance validation

Through multiple rounds of durability testing and practical application verification, the long-term stability of the motor is fully ensured, reducing maintenance frequency.

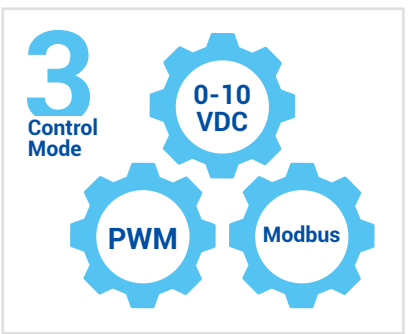
Flexible & Precise Control

0.1V Control Accuracy

Using Altium Designer for control system development, the vector control method is employed.

By decomposing current into excitation and torque components through coordinate transformation, excellent control precision and response speed are achieved. The sensorless full-speed range control solution for fans ensures stable control even in harsh environments.

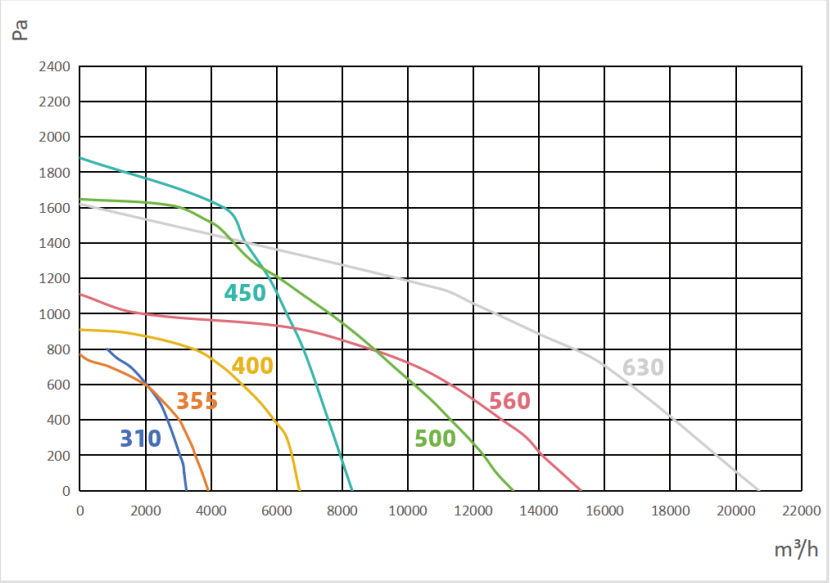
Additionally, it features MODBUS/ VSP speed control, allowing precise fan control and feedback via the RS485 protocol, and can be directly integrated with centralized controllers or BMS systems.



Nine circuit protection measures are in place to prevent potential risks. For AHU duct negative pressure leading to fan reverse rotation, reverse airflow startup is also supported.

Wide Air Volume Range

Schematic Diagram of the Wide Airflow Curve for Each Model of Achelous



Fan Wall Combination

Impeller sizes ranging from 310 to 630mm are available to fit different installation spaces, and standard mounting brackets can be selected for quick and convenient installation.

Can be combined into a fan wall to achieve greater airflow.

EC/DC/AC motors can be selected to match different equipment power requirements.

Customizable to meet specific application needs, such as C5 corrosion protection, IP56 protection rating, and operation at temperatures as low as -40°C.

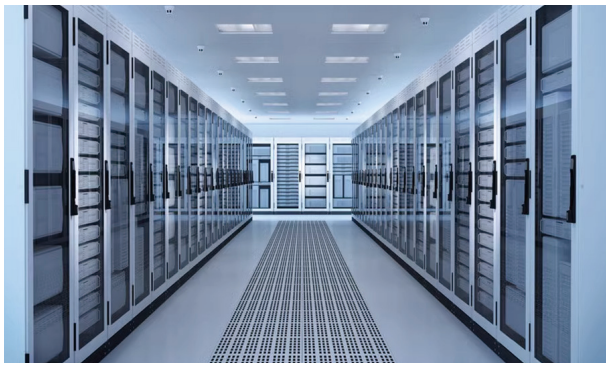
02 Product Applications

AHU

With a maximum static pressure of 2300 Pa, the fan satisfies the high-resistance demands of AHU applications. A single fan can deliver up to 6 kW of power and a maximum airflow of 23,000 m³/h. Additionally, for industrial applications, a fan wall combination option is available, providing flexible solutions to meet diverse application requirements.

AHU Refurbishment

The energy loss, high maintenance costs, and potential stability issues associated with traditional belt-driven fans in AHUs can be effectively addressed through our fan wall retrofit solution. Compared to conventional forward belt-driven fans, the upgraded fan wall can improve efficiency by 20% to 50%.



Data Center

To meet the airflow and efficiency requirements of data centers, a 630 medium static pressure high-efficiency fan series has been specifically developed. This series is designed to provide optimal performance, balancing airflow demands with energy efficiency, making it ideal for data center applications.

Commercial & Industrial Ventilation

As the demands for commercial and industrial environments increase, the performance requirements for HVAC equipment have become more stringent. Our fans must be able to achieve precise control of temperature and humidity with 100% accuracy. Additionally, there is growing concern about fan energy consumption, maintenance costs, and noise pollution.

FFU

For FFU (Fan Filter Unit) applications, which require high efficiency, low noise, and stable group control in medium to low static pressure environments, two highly efficient fan models, 420 and 456, have been specifically developed. These models are tailored to meet the unique demands of FFU systems, ensuring optimal performance in such scenarios.

03 Production Capacity

About Our Persistence

Serving the market with green products through innovative design and continual improvement in manufacturing processes and customer service has always been of prime importance and a key factor in maintaining Seemtek's position at the forefront of the EC motor and fan market. Whether it's one of the standard products or a custom design, Seemtek is ready to working with you for the optimal solutions.

20+ Years Experience

Verified by 3000+ Clients in 150+ Countries

30+ R&D Engineers

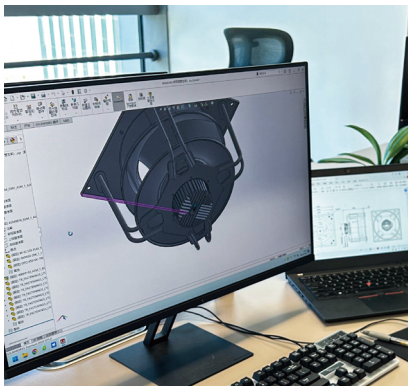
Driving Cutting-edge Innovation with Expertise

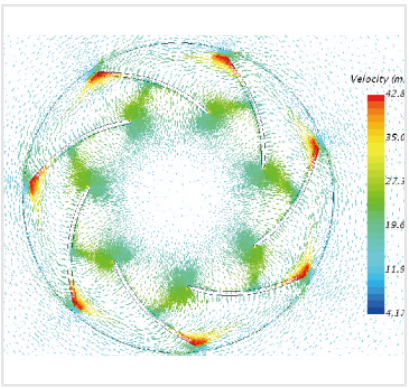
11 Test Producers

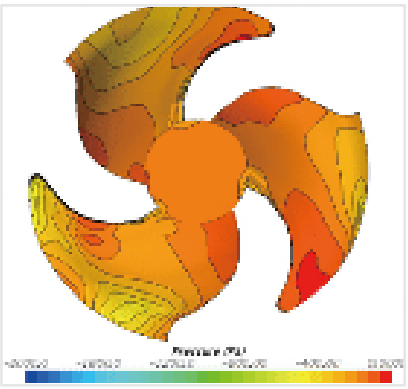
Comprehensive Quality Assurance Through Rigorous Testing

R&D Capability

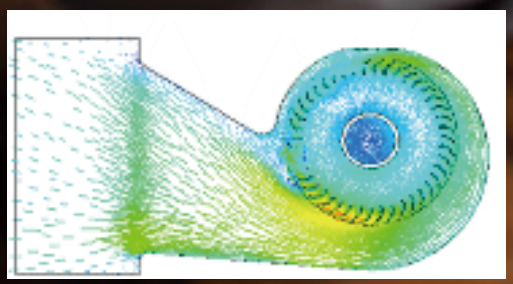
Through 20 years focused on electromagnetic technology and fluid design, Seemtek has always firmly believed that research and innovation are crucial to its competitiveness, which is why it focuses on constantly building and enhancing its R&D division.

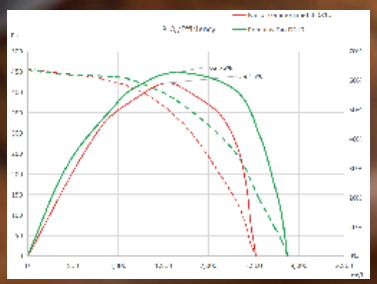


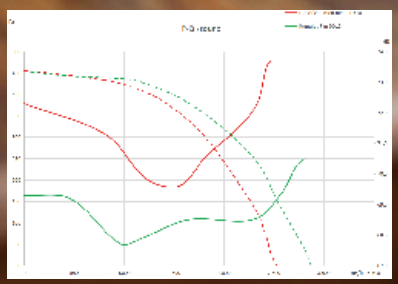




We now have an R&D team of over 30 members. From initial demands to final results, our R&D team always remain by our customers' side, helping them find the most effective solutions to elevate the value of their equipment.







Based on two decades of experience in the fan industry, we have found that appropriate fan selection brings tremendous value to the entire machinery or electromechanical system, and can offer our clients optimal fan selection advice to maximize the effectiveness of their equipment.

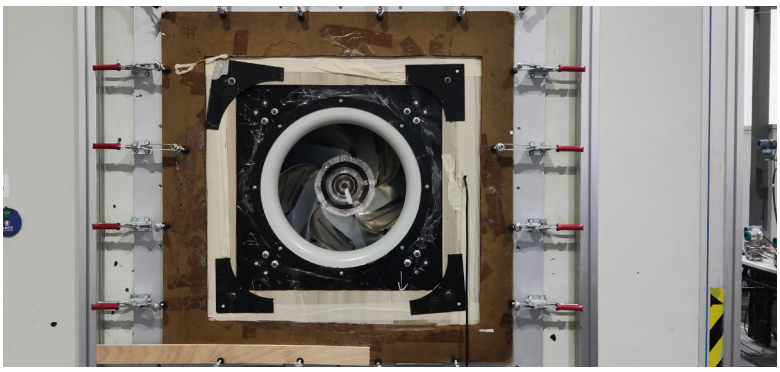
Reliability Testing

Noise Test

This test verifies the low noise performance of the fan at high speeds and high static pressure, analyzing noise through FFT noise spectrum analysis. The optimized flow path and blade design effectively reduce noise levels, improving the overall comfort of the operating environment. It minimizes the transmission of low-frequency noise over long distances in ventilation ducts.

Airflow Test

This test measures the airflow output and fan efficiency under different speeds and static pressure resistance. The optimized impeller design and three-dimensional blade structure of the Achelous fan ensure efficient airflow output and adaptability to various working conditions.



ConstantTemperature & Humidity Test

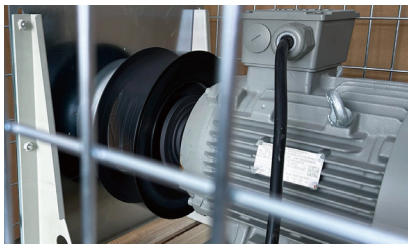
This test validates the fan's performance stability in environments with varying temperature and humidity, particularly in corrosion and moisture-resistant conditions. A 21-day continuous operation at 75°C and 95% humidity is used to verify the fan's long-term stability.

Salt Mist Test

Salt mist test assesses the corrosion resistance of the Achelous fan, especially under C5-grade corrosion conditions. It ensures long-term performance in salty environments, providing protective measures for aluminum-magnesium alloy impellers against corrosion.

Temperature Shock Test

This test evaluates the operational stability of the fan under rapid temperature changes. The high-temperature materials and precise control system of the Achelous fan ensure that performance is not affected by thermal expansion and contraction under extreme temperature variations.



High-Speed Lifespan Test

This test focuses on verifying the strength and stability of the Achelous fan's impeller under long-term high-speed operation and ensures that the impeller remains free from deformation or damage under high-speed conditions, ensuring the fan's safety and reliability, especially in applications requiring high-efficiency airflow output.

Outdoor Lifespan Test

This test validates the fan's durability in harsh outdoor environments. The Achelous fan's IP55/IP56 protection rating, along with its high-temperature and corrosion-resistant design, ensures reliable long-term operation outdoors.

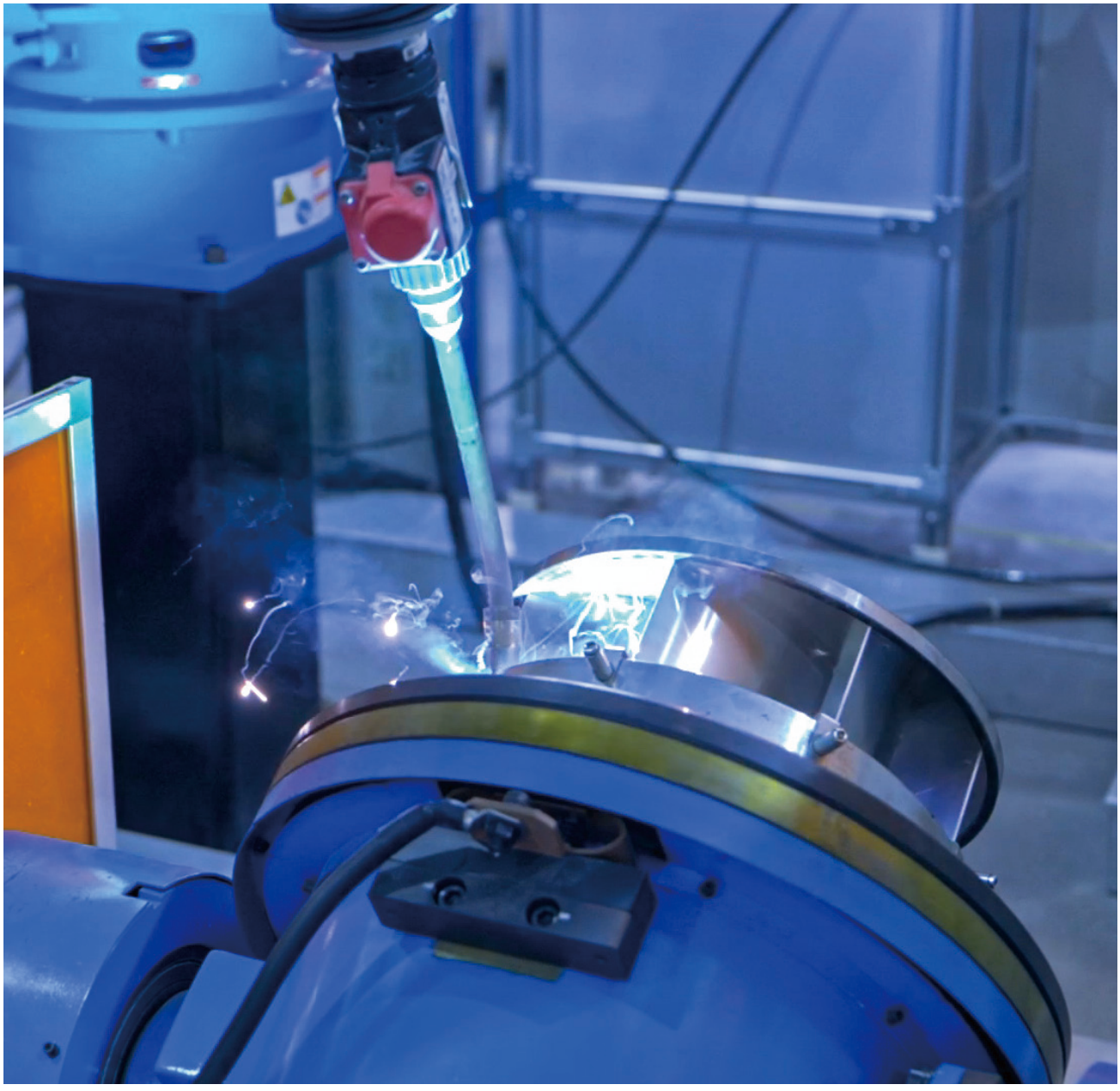
Indoor Lifespan Test

This test evaluates the long-term lifespan of the fan in standard indoor environments, ensuring that the Achelous fan has a long life with low maintenance requirements. The test is particularly focused on its performance in common applications such as AHU and FFU systems.

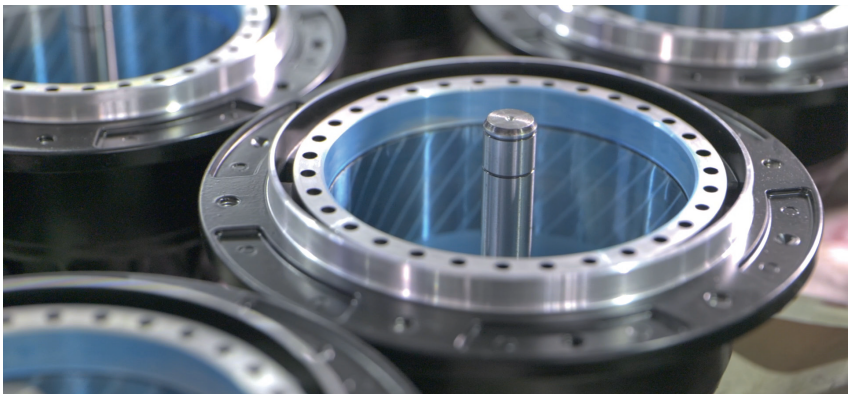
High Temperature Test

This test validates the reliable operation of the Achelous fan in high-temperature environments, especially under high static pressure and efficient electromagnetic design conditions. It ensures the stability of the impeller material at extreme temperatures, extending the fan's lifespan.

Factory Workshop



Seemtek currently has various fully automated production lines in use, producing millions of high-performance axial fans and centrifugal fans every year. These production lines ensure the highest quality and efficiency, meeting the rigorous demands of our global customers. With the expertise and dedication of our skilled workforce and advanced manufacturing techniques allows us to deliver superior products that set industry standards for performance and reliability.



04 Product Catalog

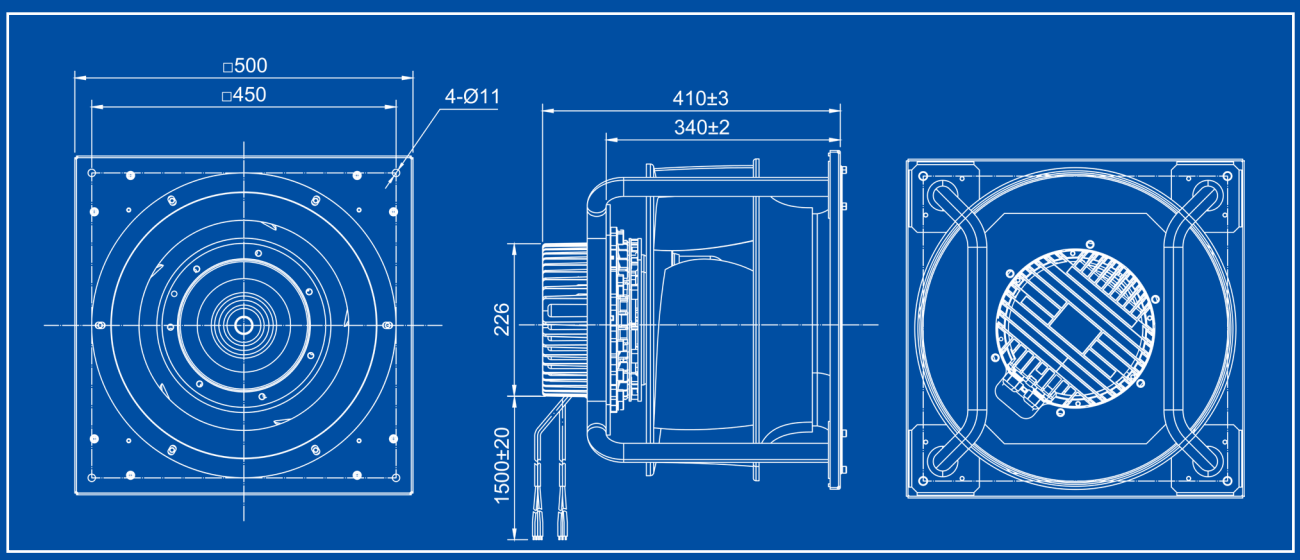
The Detailed Parameters of Achelous

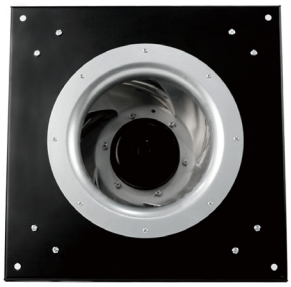
Superior product performance

With professional aerodynamics and electromagnetic design, coupled with industry-proven control and drive technologies, we ensure that each product achieves excellent performance.

Achelous

Backward Curved Centrifugal Fan



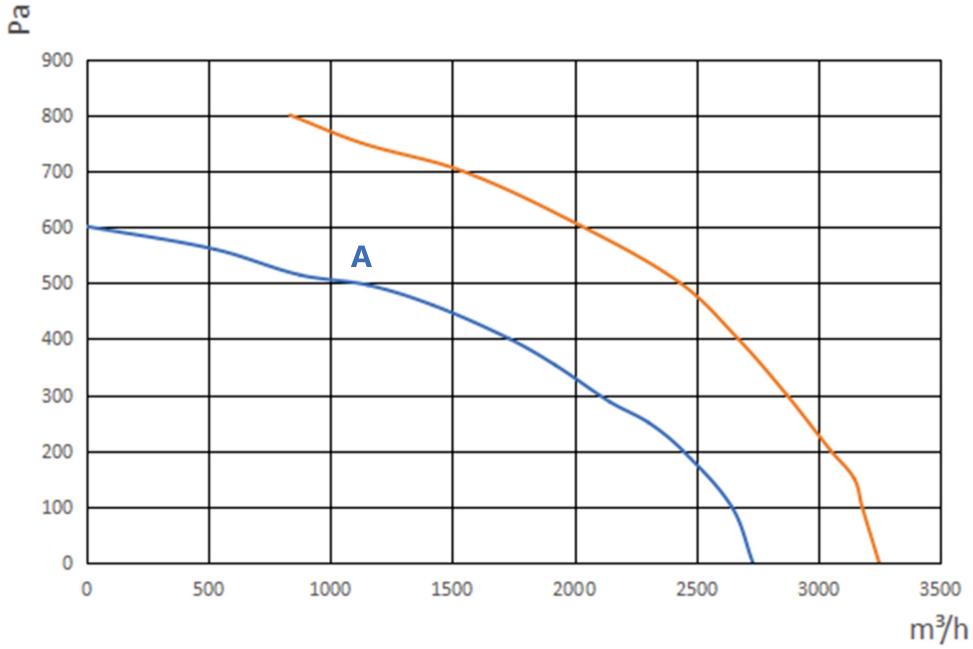


Impeller Material: Aluminum alloy 5052
Direction of Rotation: Clockwise, seen on rotor
Speed Control: 0-10VDC/PWM
Type of Protection: Ip54
Operation Mode: S1
Bearing: Maintenance-free ball bearings
Ambient Temperature: - 25 °C ~ +60 °C

Technical Parameters

Model No.	Rated Voltage VAC	Rated Current A	Rated Power W	Speed RPM	Air Flow m³/h	Air Pressure Pa	Insulation	Noise Level dBA	Curve
B3E-2A310-Y2-09	230	2.53	320	2150	2732	601	Class F	71	A
K3E-2A310-Y2-09	230	2.53	320	2150	2732	601	Class F	71	
B3E-2A310-Y2-10	230	4.13	500	2580	3250	800	Class F	74	B
K3E-2A310-Y2-10	230	4.13	500	2580	3250	800	Class F	74	

Performance Curve



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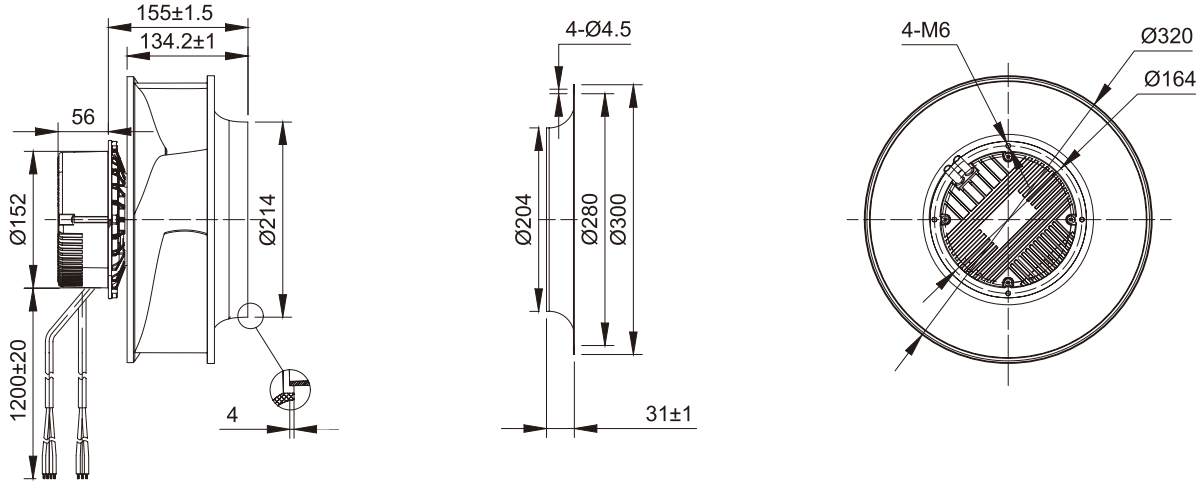

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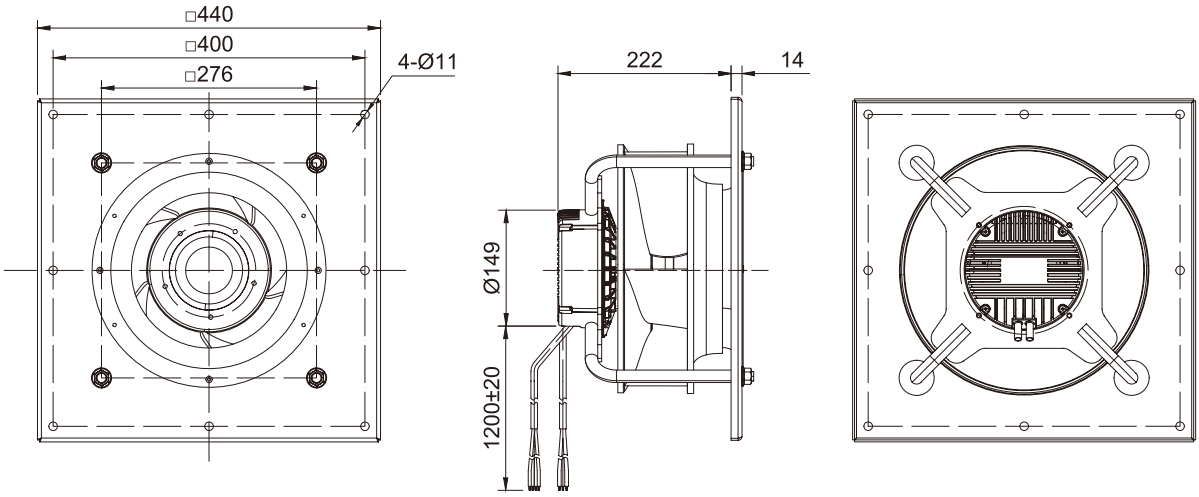

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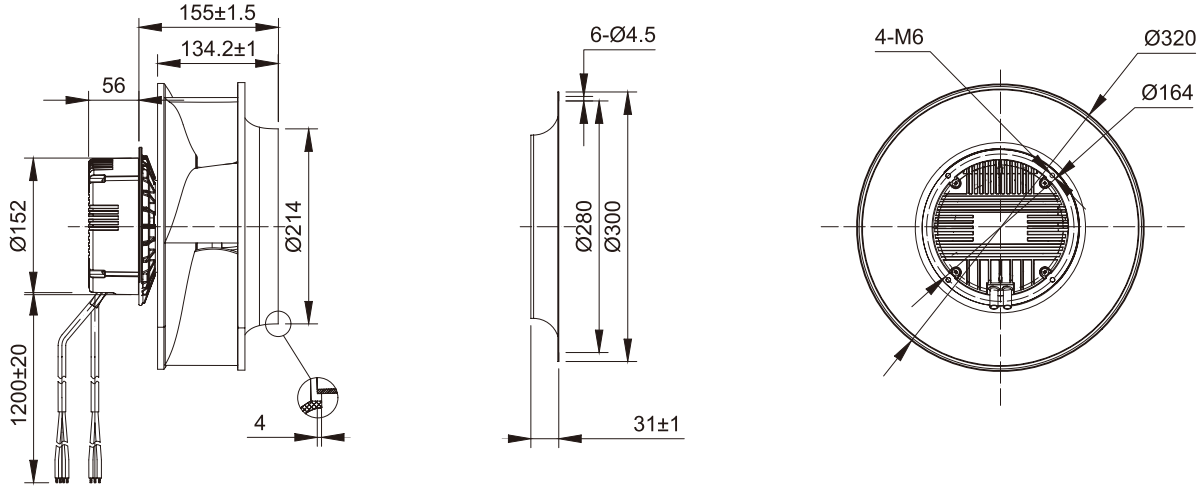

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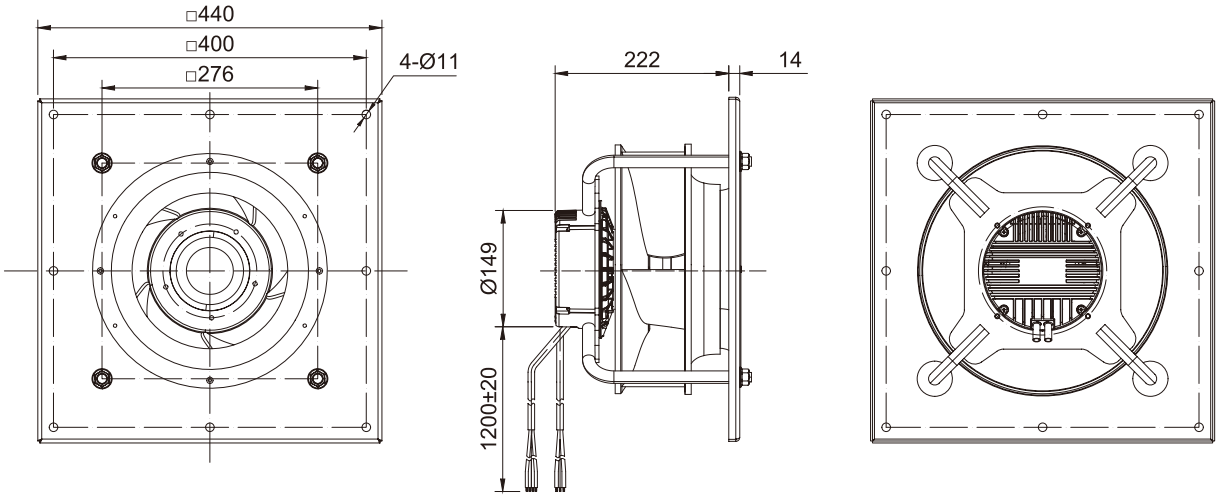

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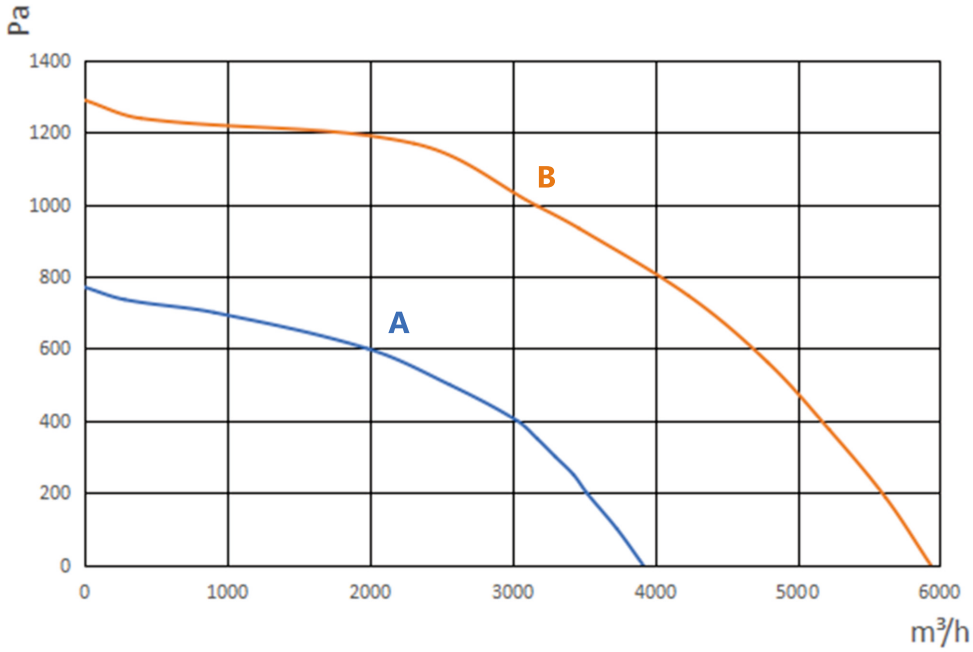
B3E-2A355-Y2-11	230	5.04	610	2050	3915	770	Class F	73	A
K3E-2A355-Y2-11	230	5.04	610	2050	3915	770	Class F	73	
B3E-3A355-Y3-08	380	1.91	1120	2700	5934	1289	Class F	75	B
K3E-3A355-Y3-08	380	1.91	1120	2700	5934	1289	Class F	75	

Performance Curve



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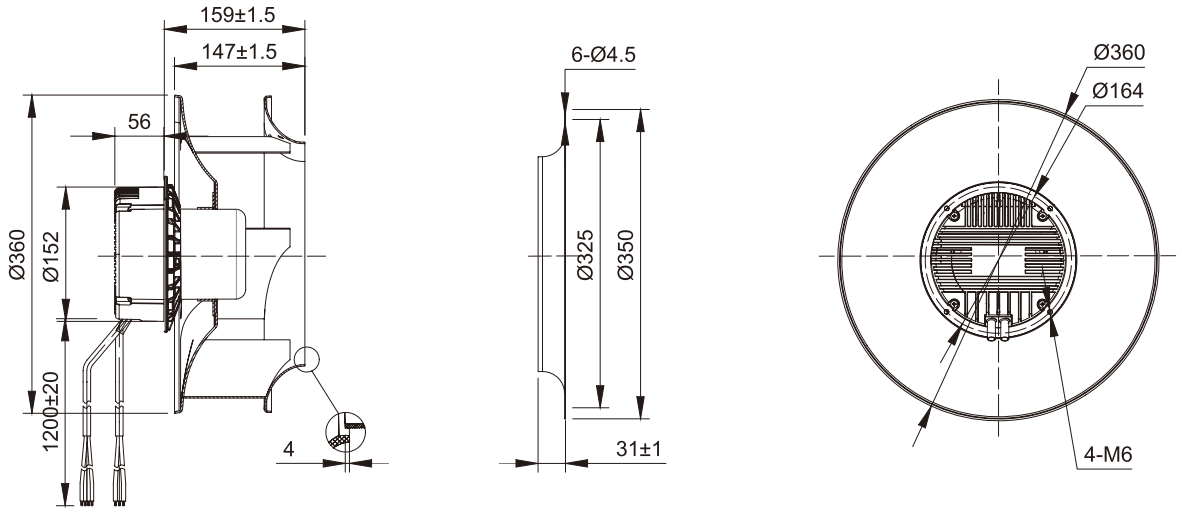

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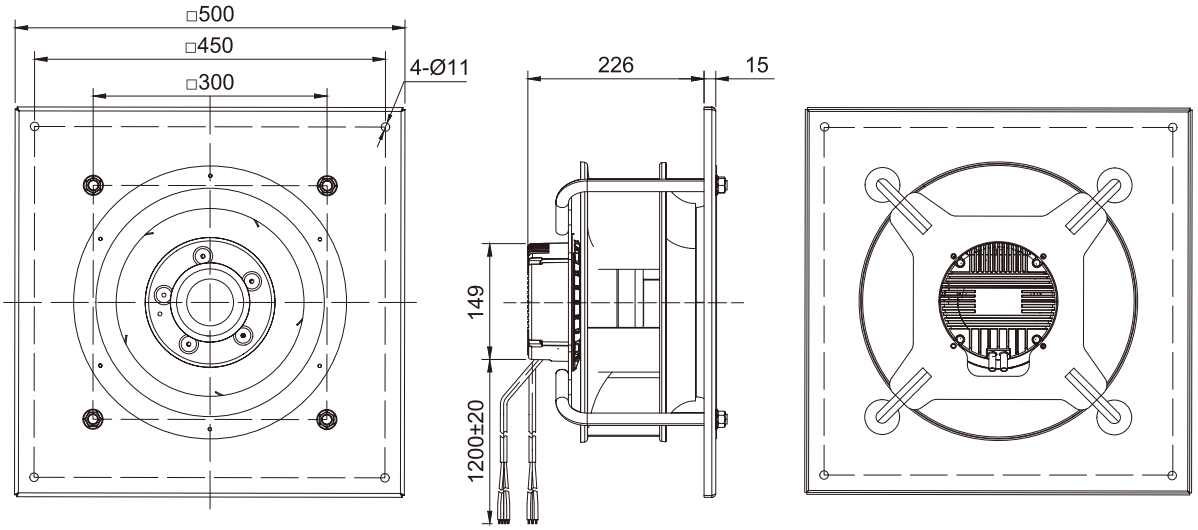
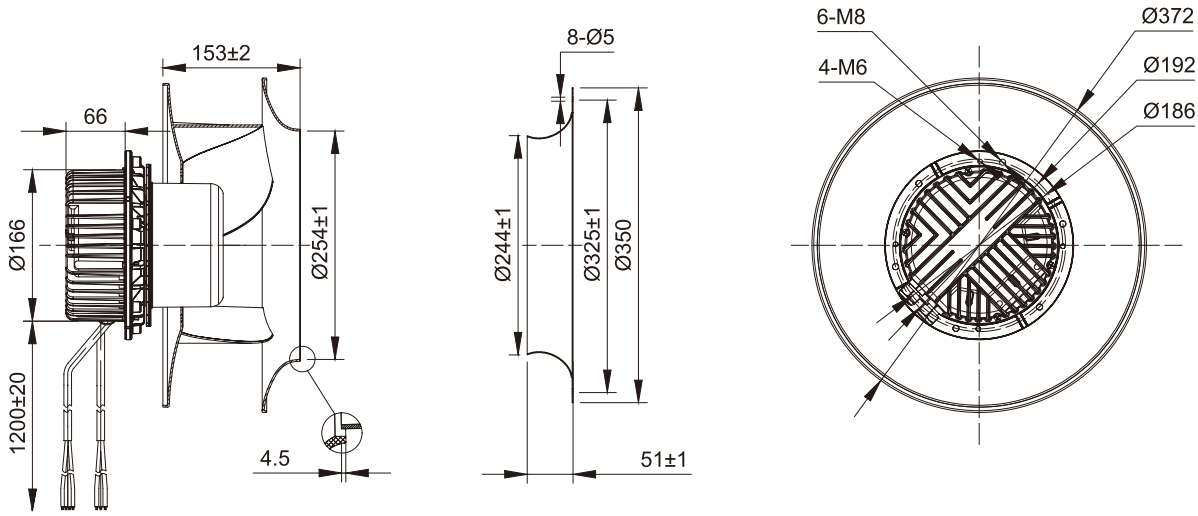


B3E-3A355-Y3-08



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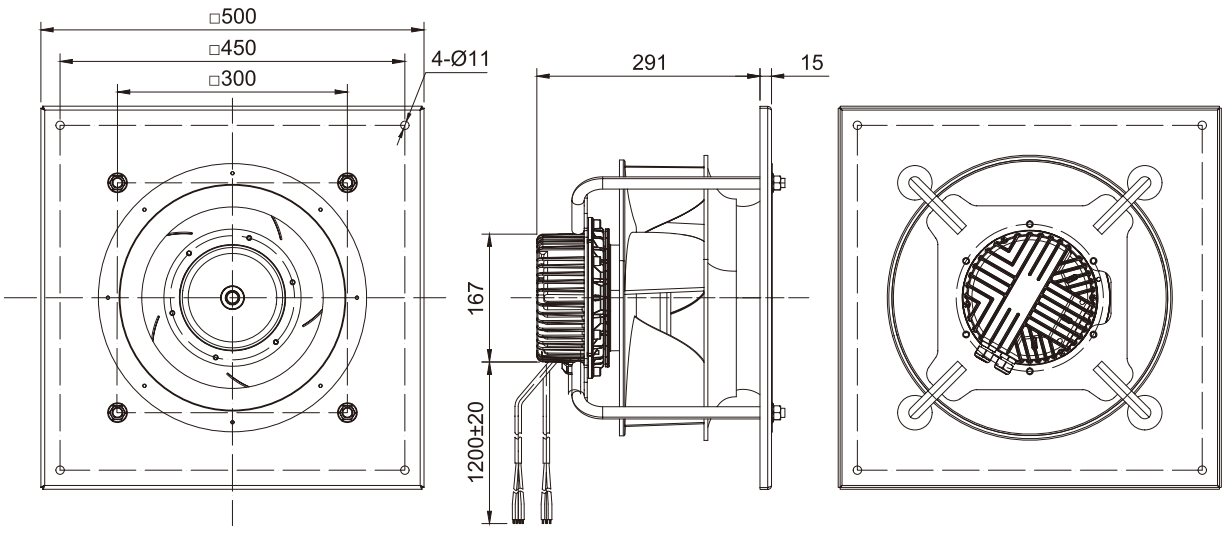

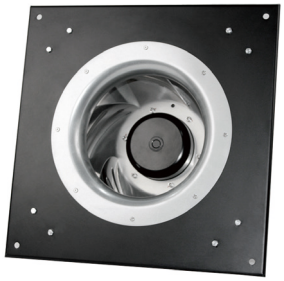

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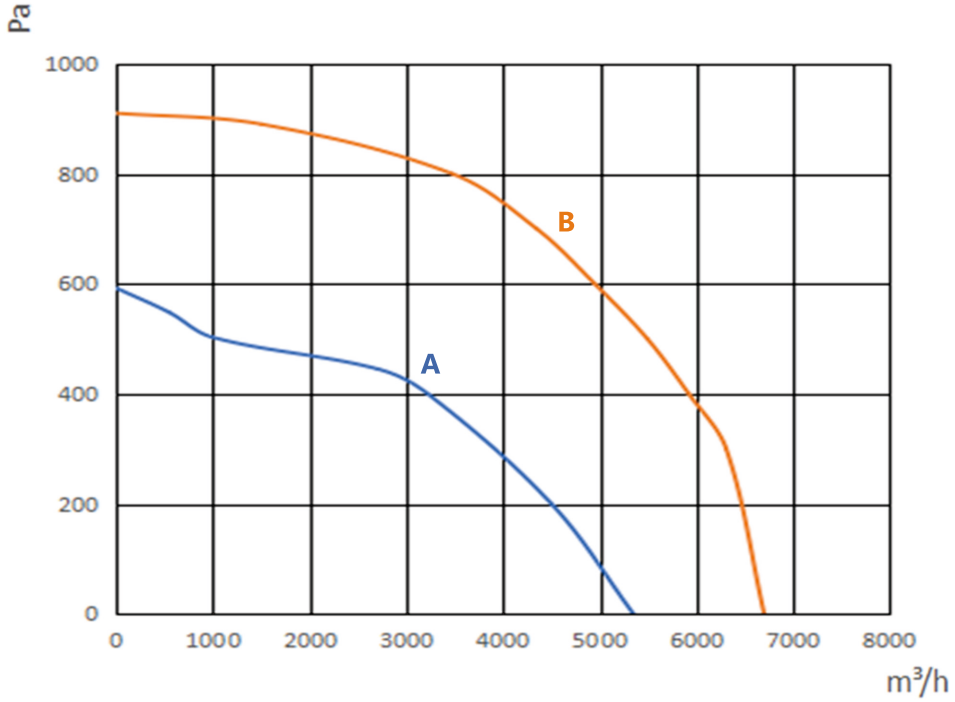
B3E-2A400-Y2-12	230	4.13	590	1520	5348	592	Class F	73	A
B3E-3A400-Y3-13	380	2.69	1330	2060	6700	910	Class F	75	B

Performance Curve



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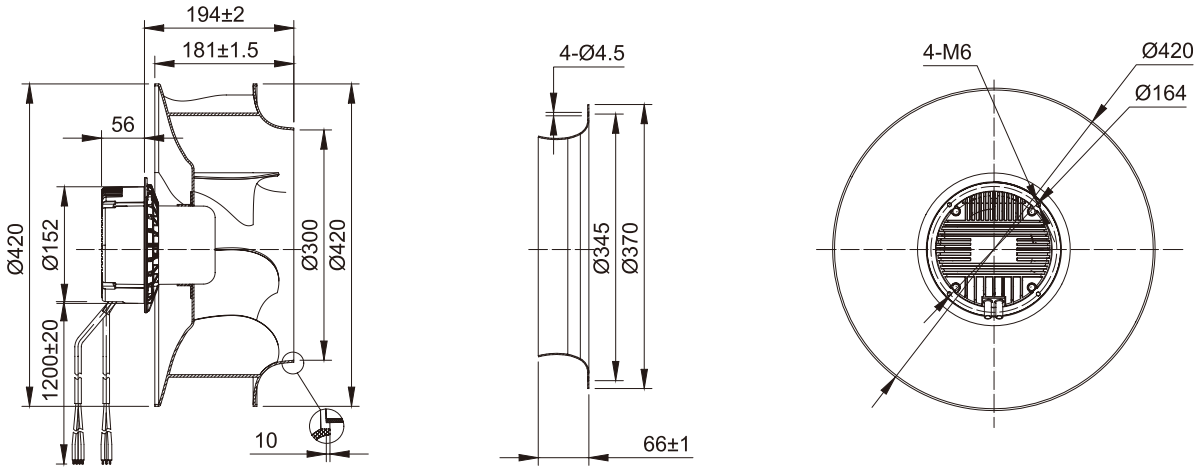

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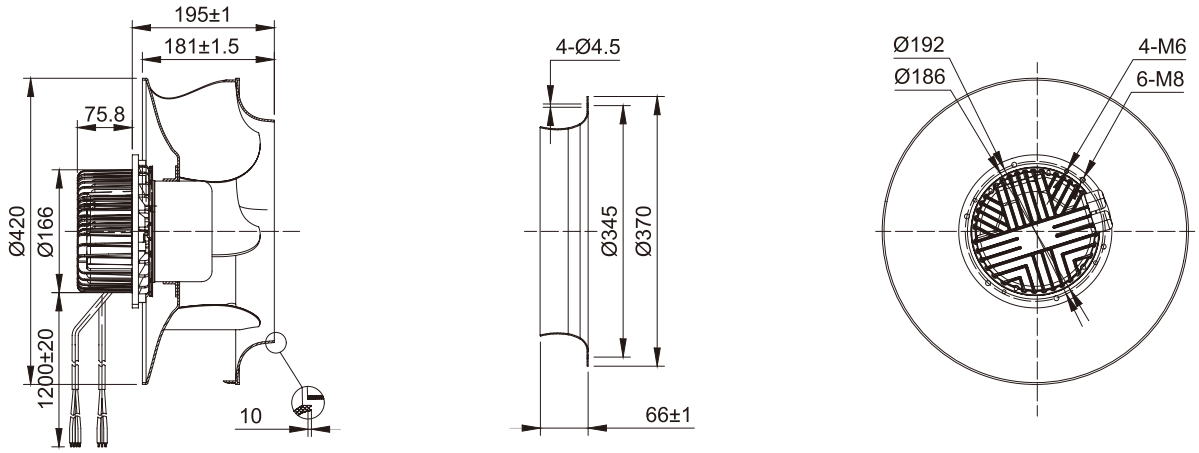

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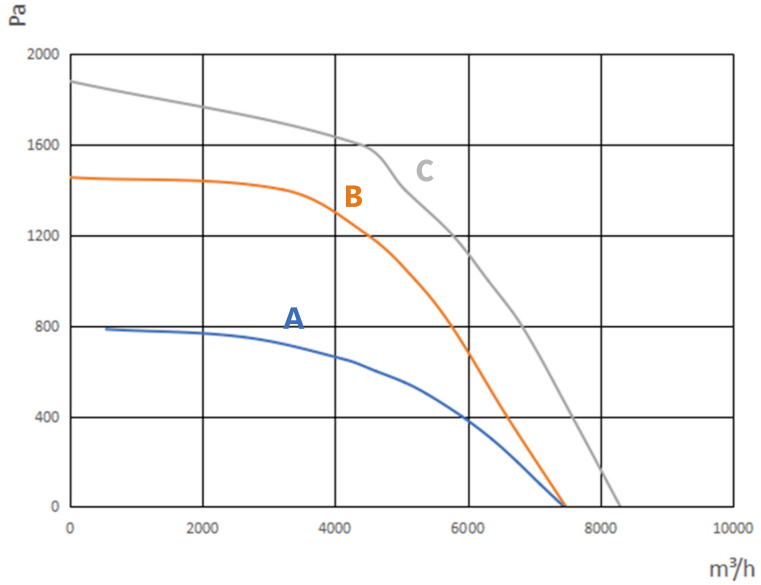
Direction of Rotation: Clockwise, seen on rotor
Speed Control: 0-10VDC/PWM
Type of Protection: Ip54
Operation Mode: S1
Bearing: Maintenance-free ball bearings
Ambient Temperature: - 25 °C ~ +60 °C

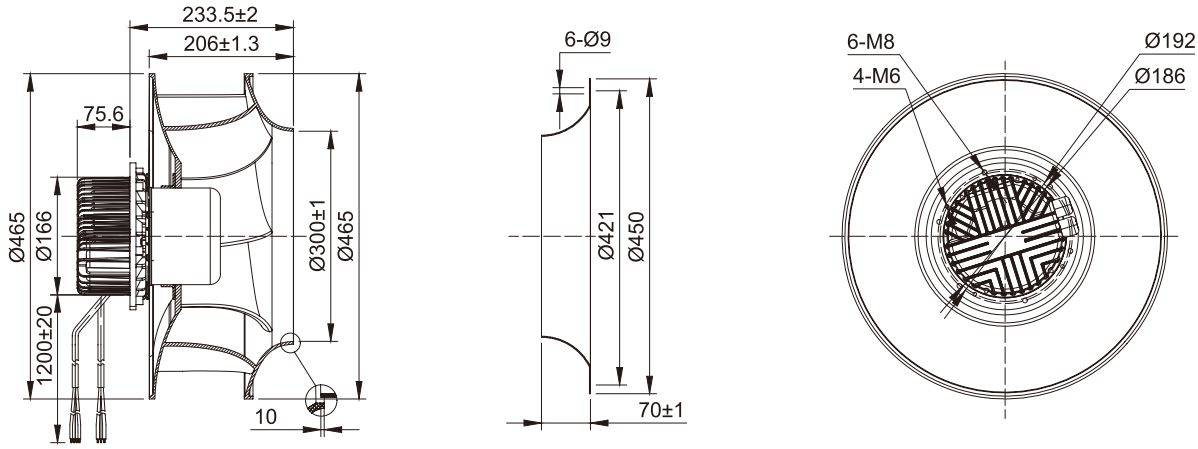
Technical Parameters

Model No.	Rated Voltage VAC	Rated Current A	Rated Power W	Speed RPM	Air Flow m^3/h	Air Pressure Pa	Insulation	Noise Level dBA	Curve
B3E-3A450-Y3-01	380	2.73	1350	1720	7455	785	Class F	79	A
K3E-3A450-Y3-01	380	2.73	1350	1720	7455	785	Class F	79	
B3E-3A450-Y8-14	380	5.40	2655	2405	7483	1456	Class F	80	B
K3E-3A450-Y8-14	380	5.40	2655	2405	7483	1456	Class F	80	
B3E-3A450-Y8-15	380	7.10	3590	2746	8304	1881	Class F	83	C
K3E-3A450-Y8-15	380	7.10	3590	2746	8304	1881	Class F	83	

Performance Curve



B3E-3A450-Y3-01



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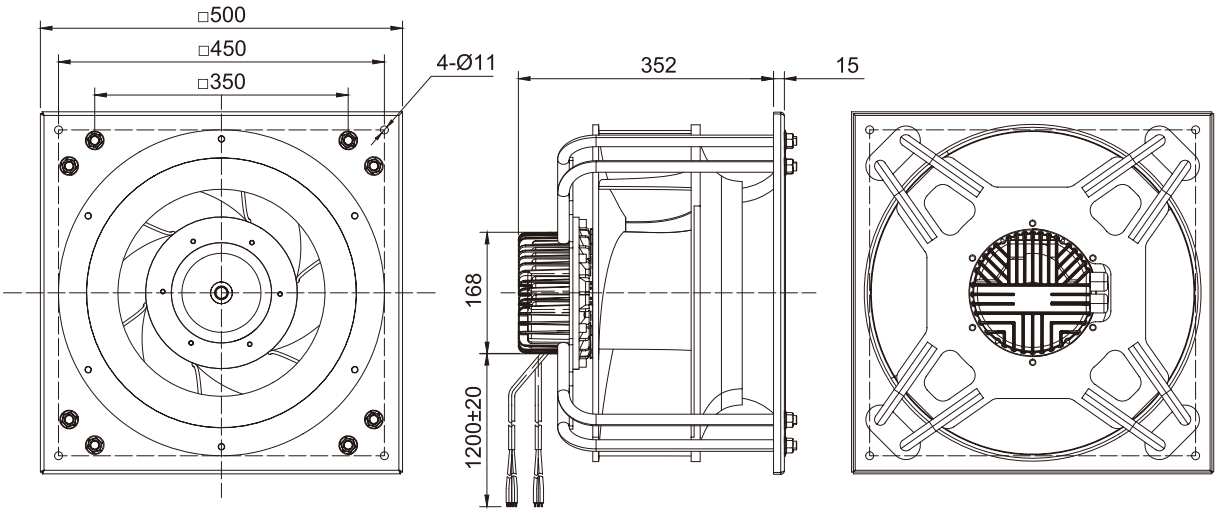

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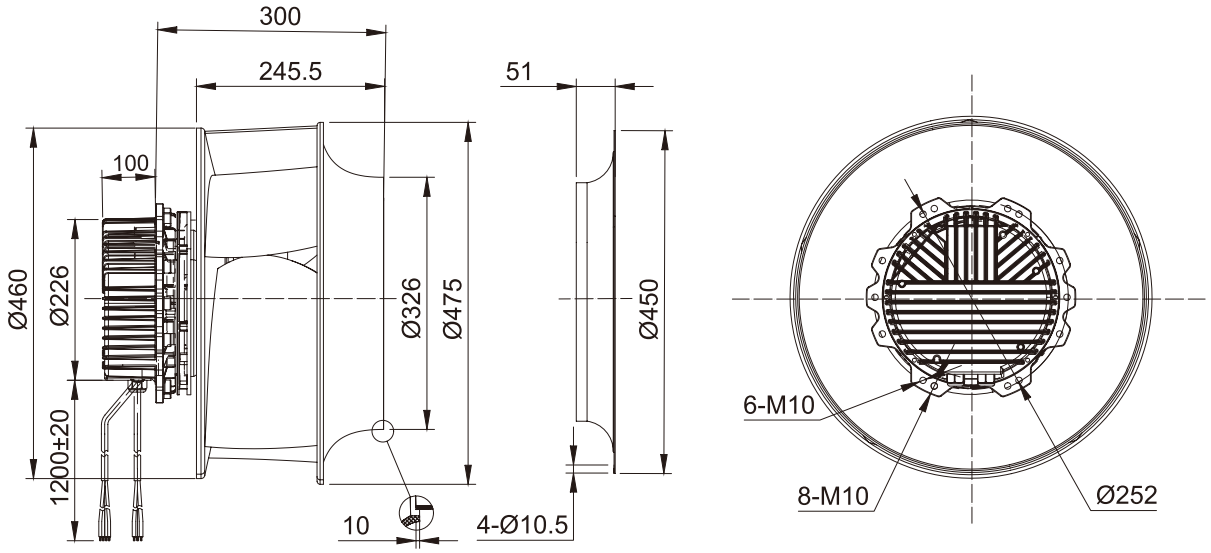

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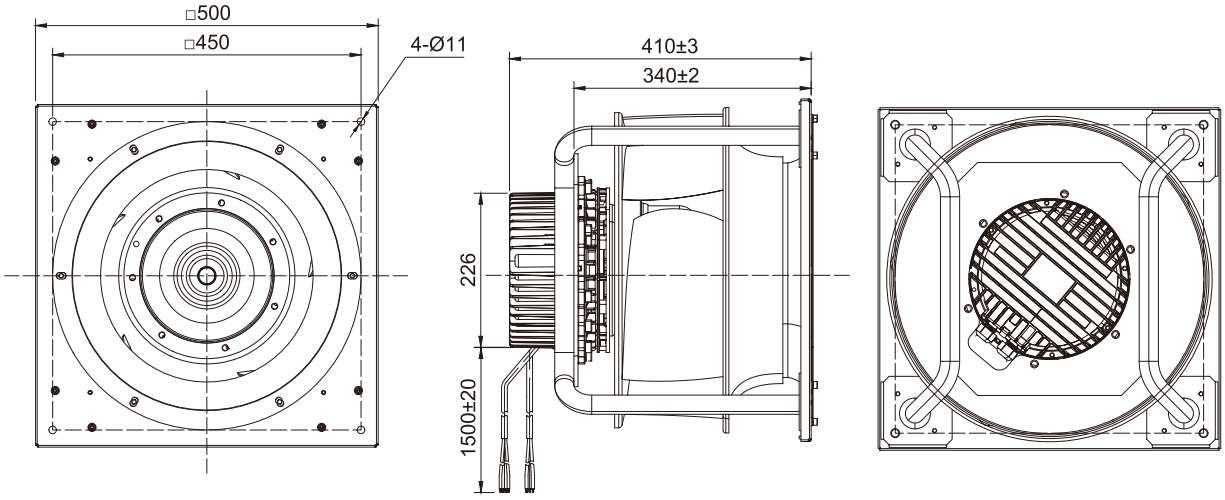

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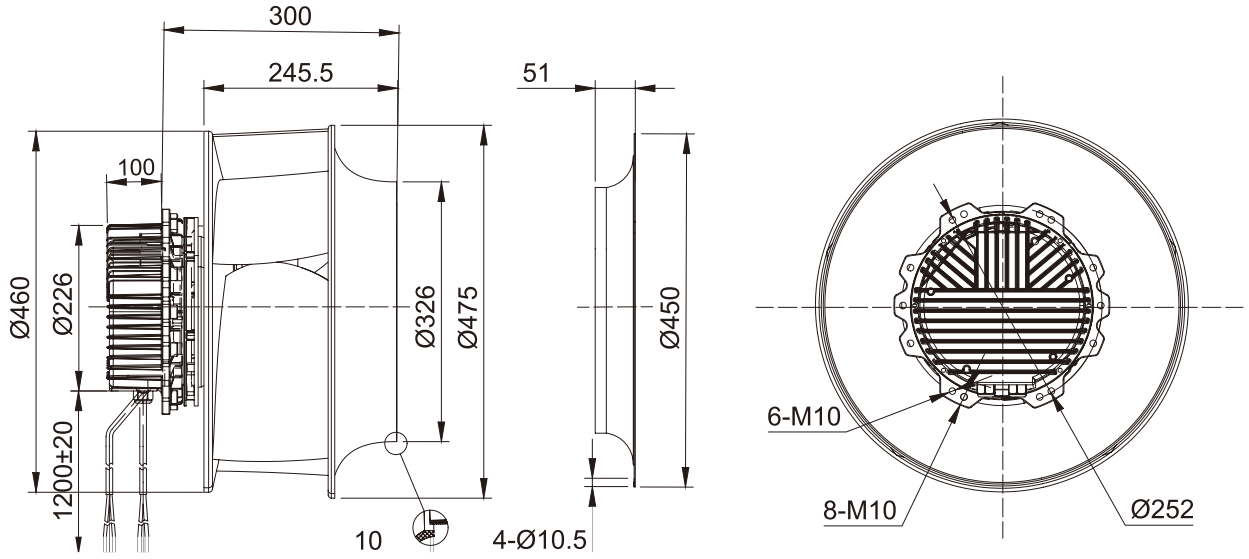

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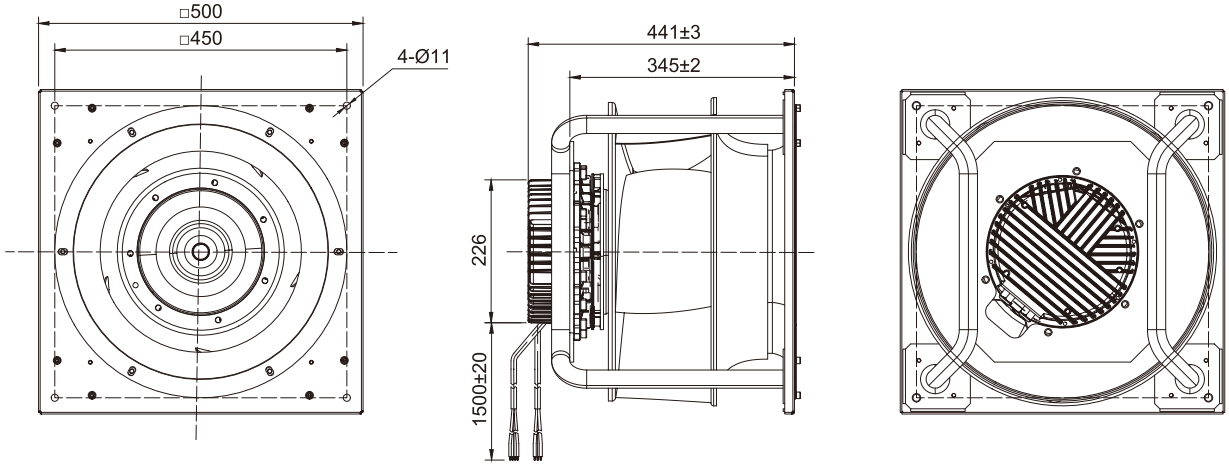
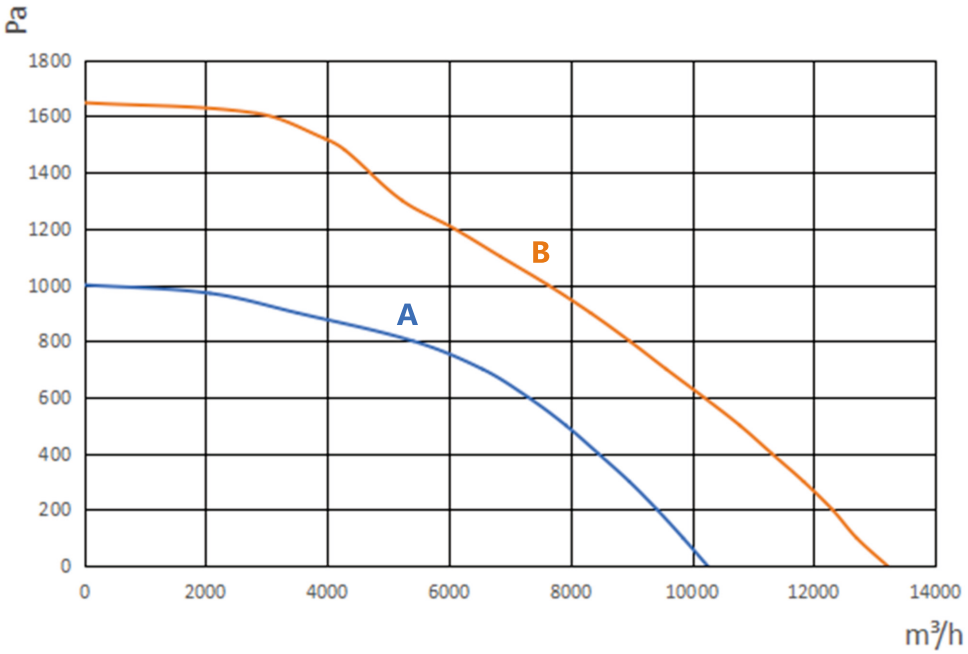


Impeller Material: Aluminum alloy 5052
Direction of Rotation: Clockwise, seen on rotor
Speed Control: 0-10VDC/PWM
Type of Protection: Ip54
Operation Mode: S1
Bearing: Maintenance-free ball bearings
Ambient Temperature: - 25 °C ~ +60 °C

Technical Parameters

Model No.	Rated Voltage VAC	Rated Current A	Rated Power W	Speed RPM	Air Flow m³/h	Air Pressure Pa	Insulation	Noise Level dBA	Curve
B3E-3A500-Y8-03	380	5.27	2300	1700	10225	1000	Class F	84	A
K3E-3A500-Y8-03	380	5.27	2300	1700	10225	1000	Class F	84	
B3E-3A500-Y8-02	380	8.10	4000	2200	13213	1648	Class F	87	B
K3E-3A500-Y8-02	380	8.10	4000	2200	13213	1648	Class F	87	

Performance Curve



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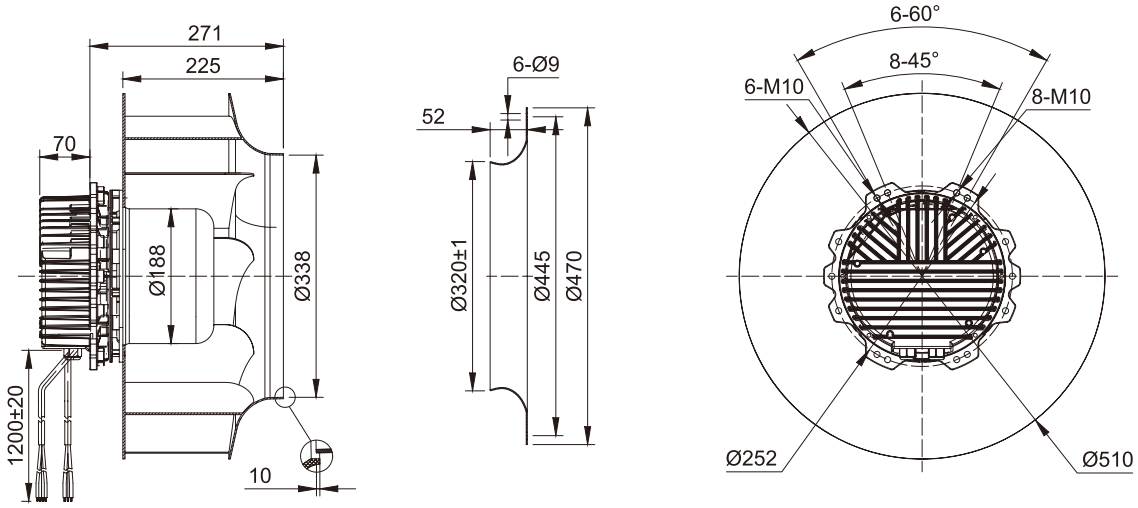

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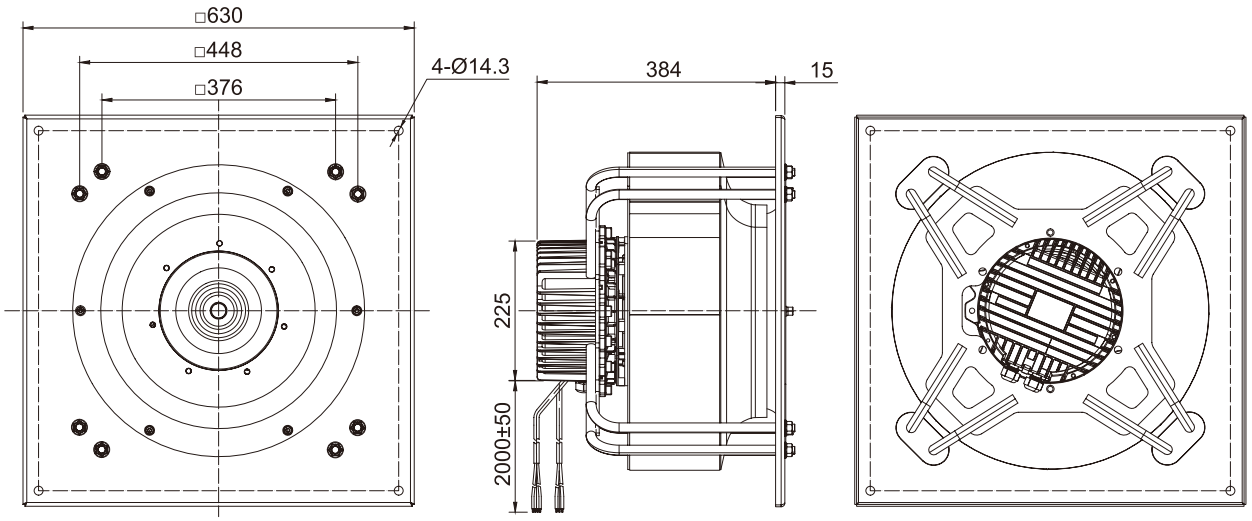

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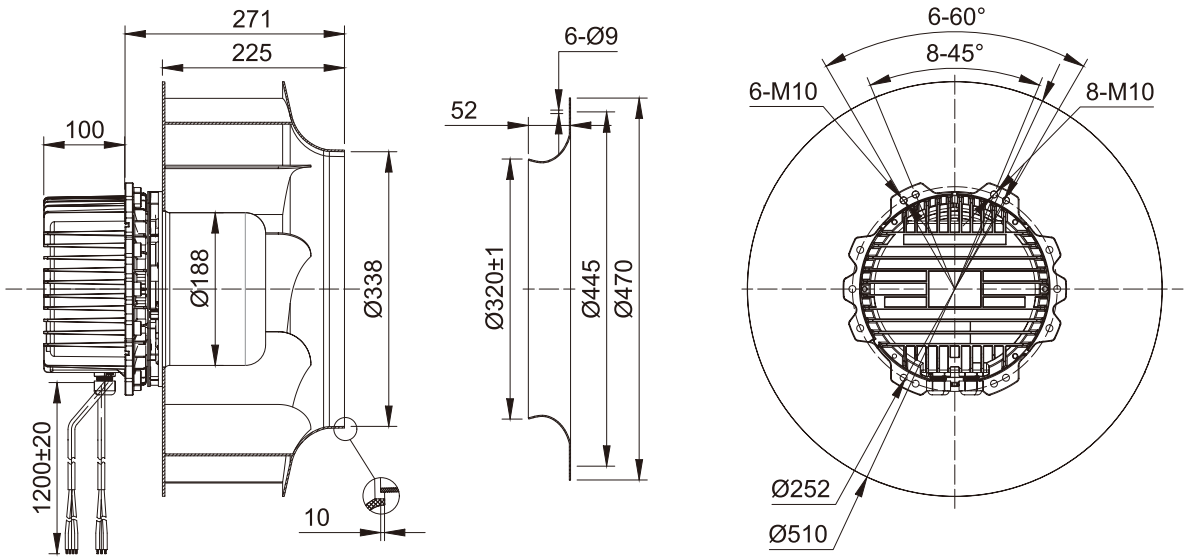

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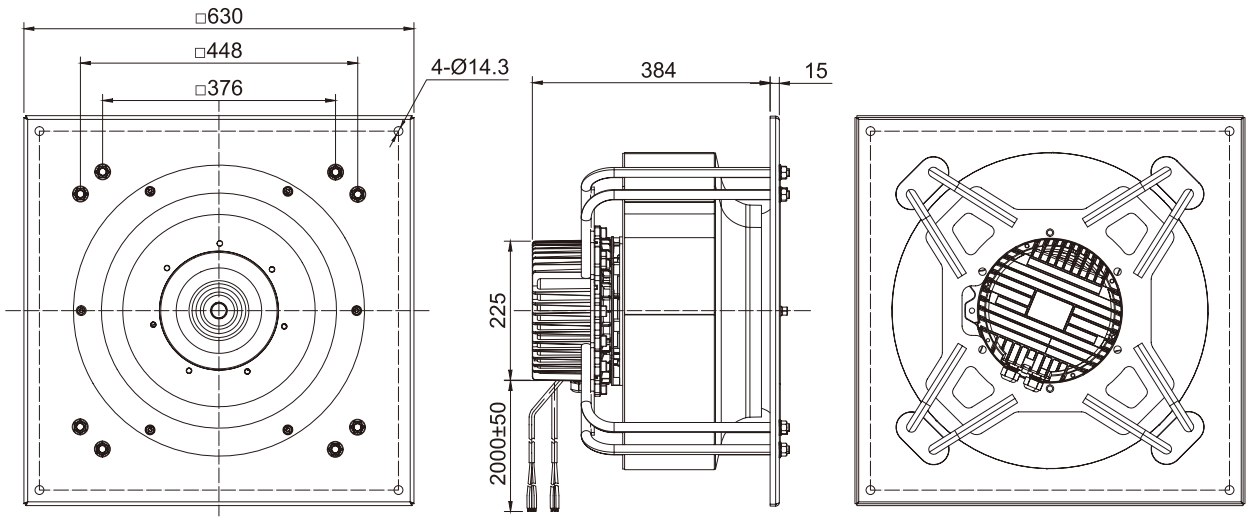
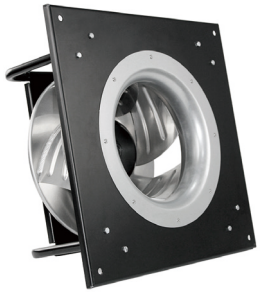


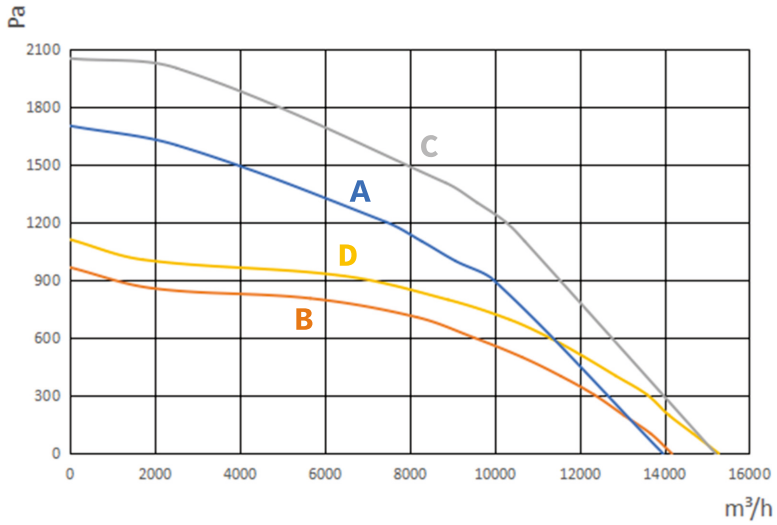


Impeller Material: Aluminum alloy 5052
Direction of Rotation: Clockwise, seen on rotor
Speed Control: 0-10VDC/PWM
Type of Protection: Ip54
Operation Mode: S1
Bearing: Maintenance-free ball bearings
Ambient Temperature: - 25 °C ~ +60 °C

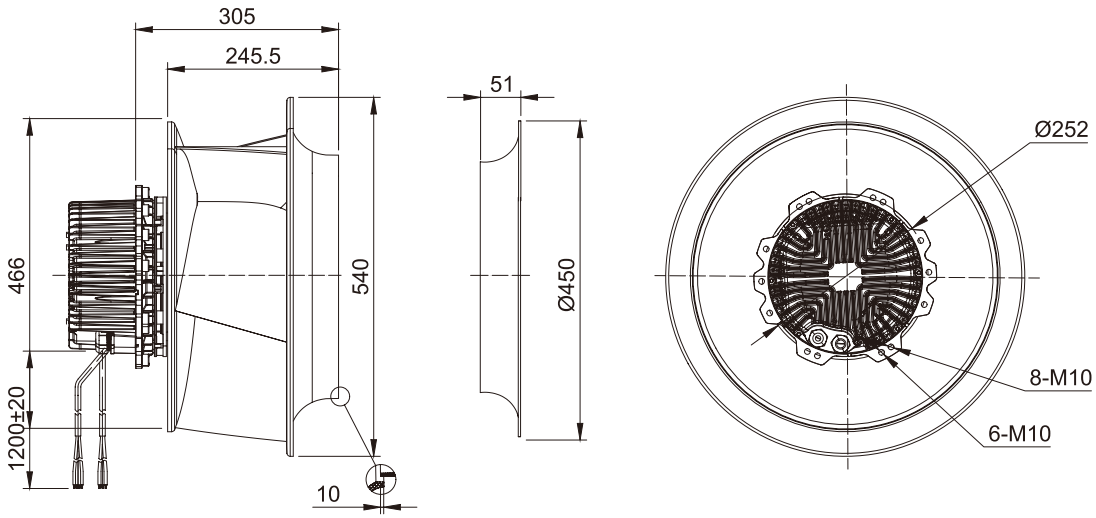
Technical Parameters

Model No.	Rated Voltage VAC	Rated Current A	Rated Power W	Speed RPM	Air Flow m^3/h	Air Pressure Pa	Insulation	Noise Level dBA	Curve
B3E-3A560-Y8-17	380	7.10	3977	2250	13964	1700	Class F	92	A
K3E-3A560-Y8-17	380	7.10	3977	2250	13964	1700	Class F	92	
B3E-3A560-Y8-05	380	5.27	2600	1500	14171	965	Class F	82	B
K3E-3A560-Y8-05	380	5.27	2600	1500	14171	965	Class F	82	
B3E-3A560-Y8-16	380	9.00	5350	2550	15202	2000	Class F	95	C
K3E-3A560-Y8-16	380	9.00	5350	2550	15202	2000	Class F	95	
B3E-3A560-Y8-04	380	7.70	3600	1620	15275	1110	Class F	86	D
K3E-3A560-Y8-04	380	7.70	3600	1620	15275	1110	Class F	86	

Performance Curve



B3E-3A560-Y8-17



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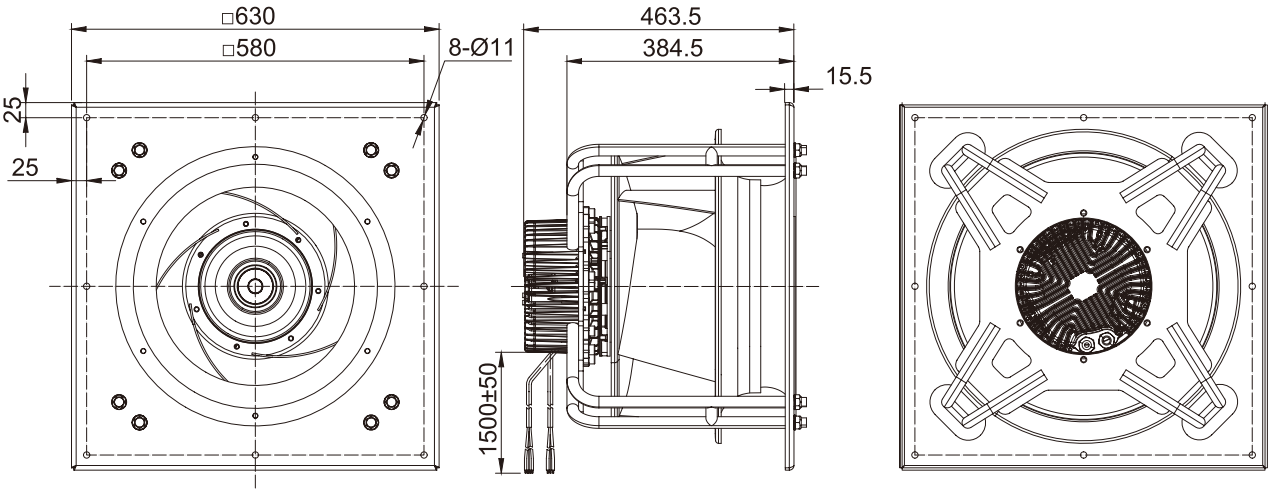

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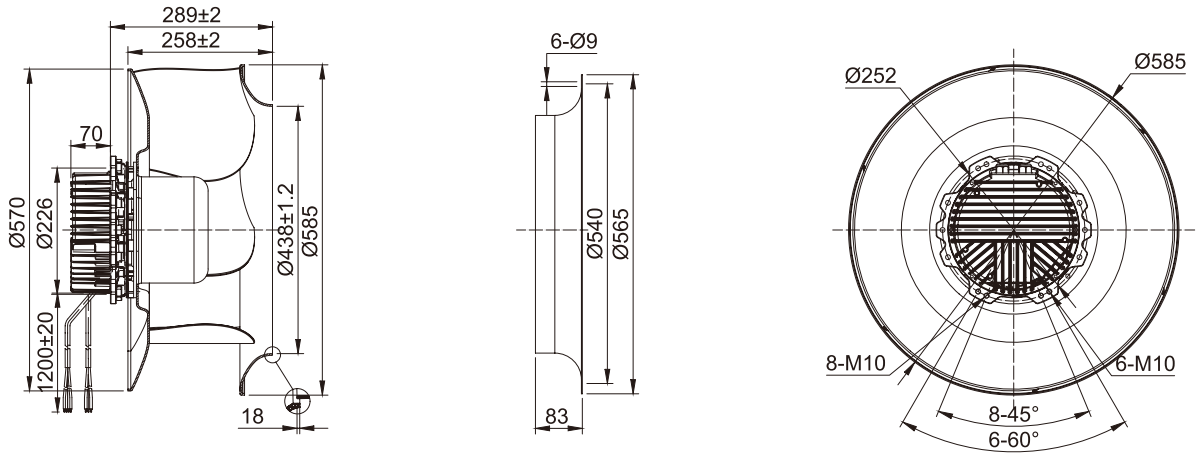

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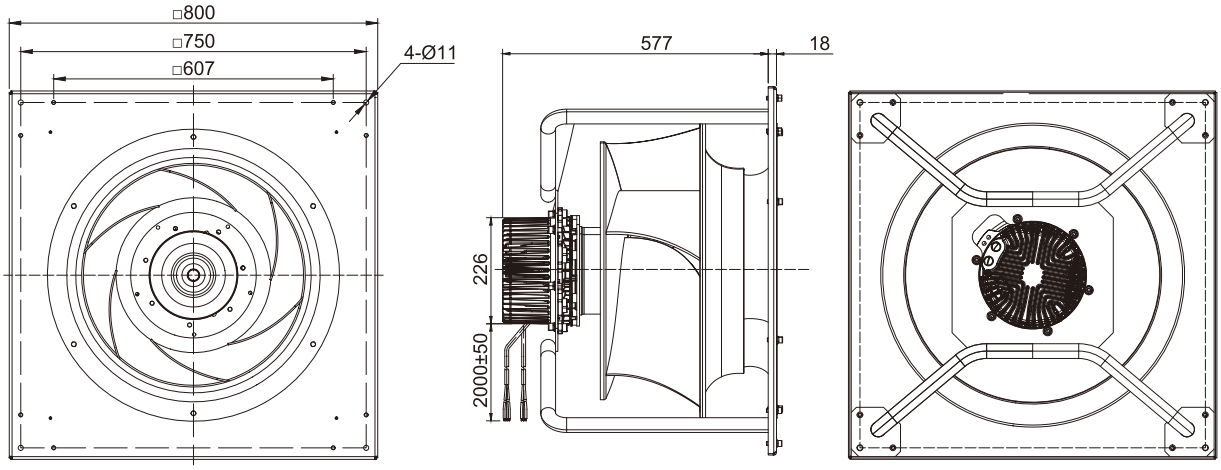

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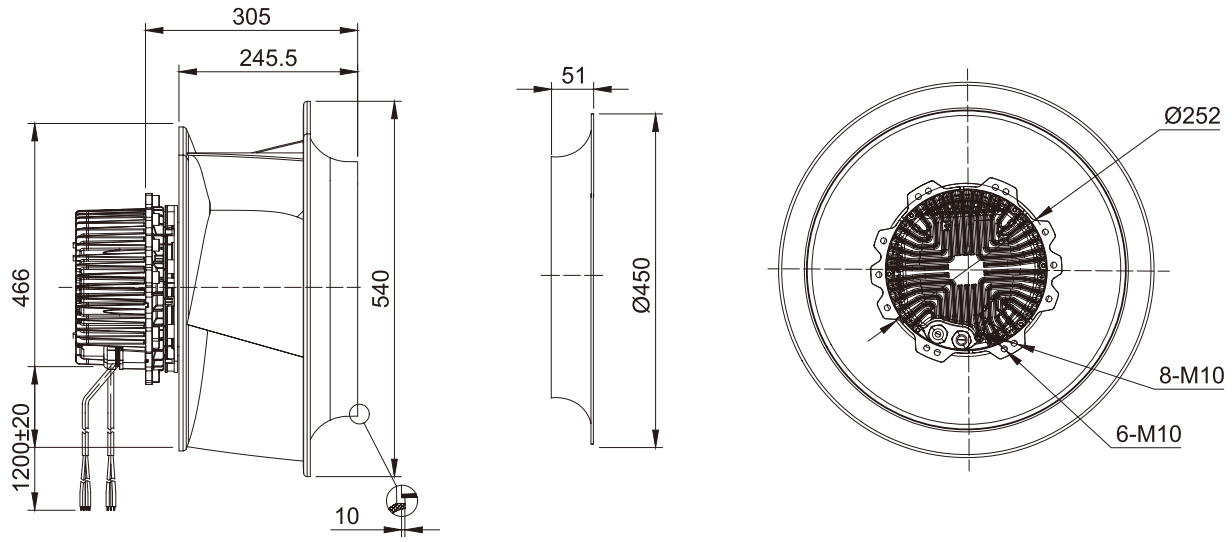
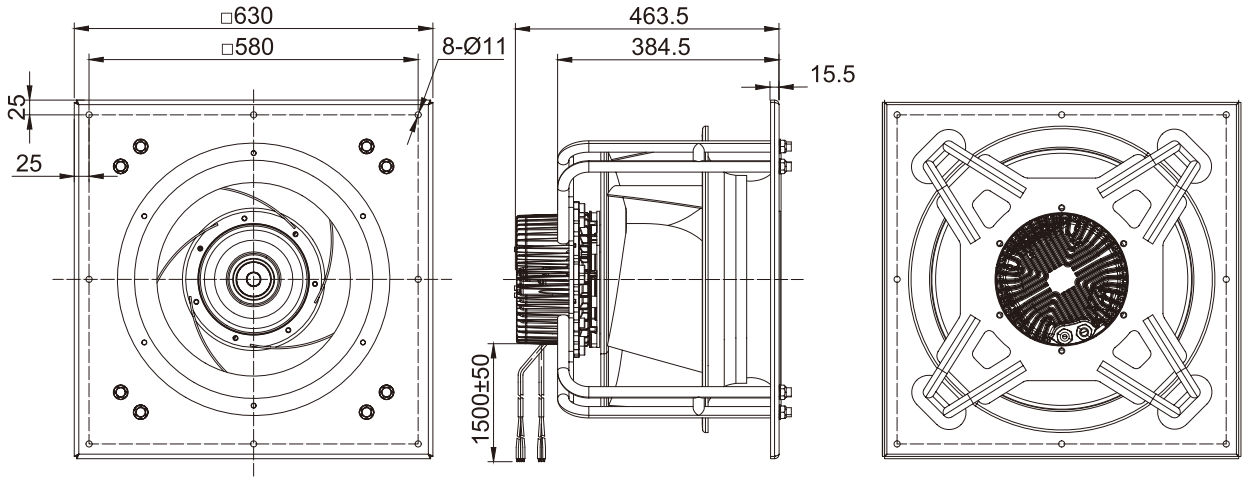


K3E-3A560-Y8-16



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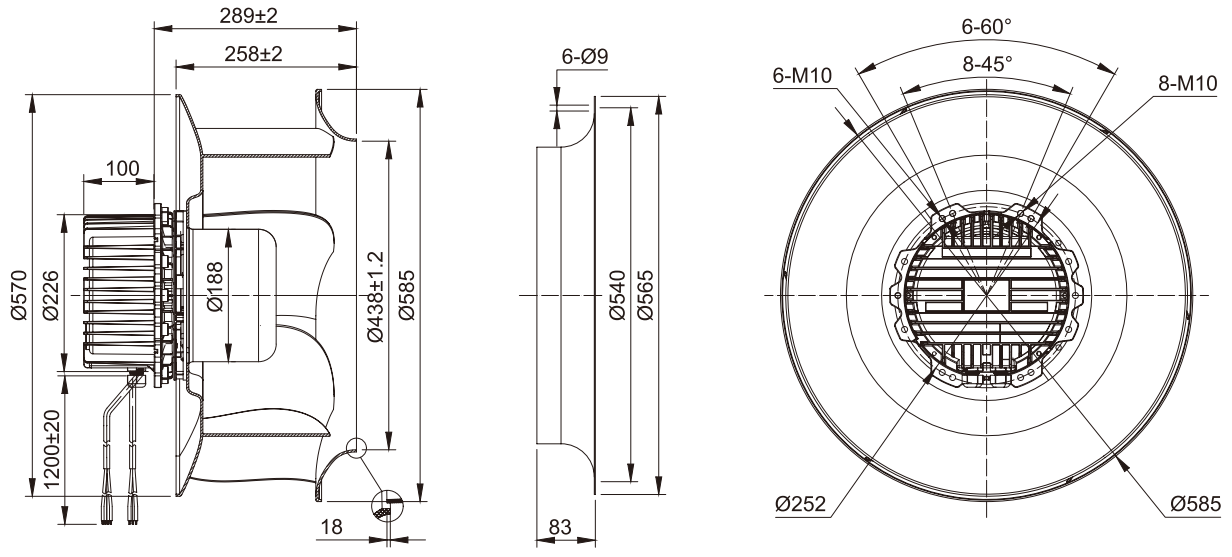

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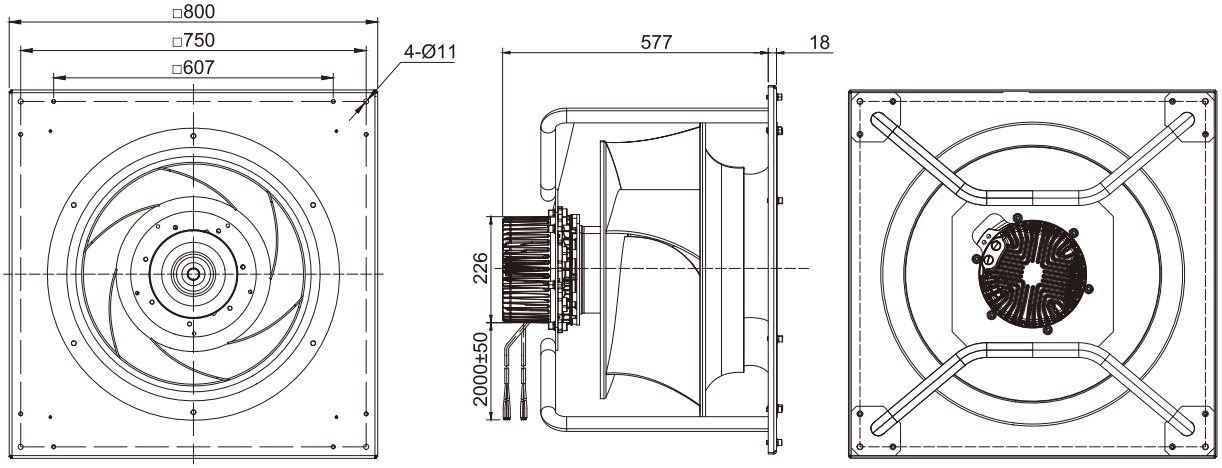
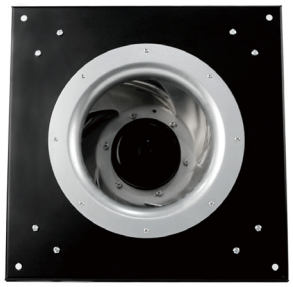


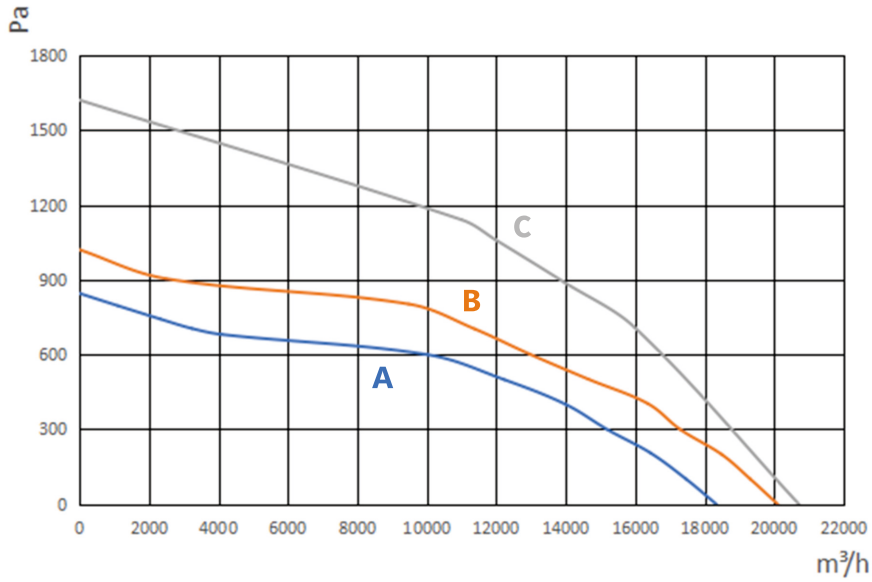


Impeller Material: Aluminum alloy 5052
Direction of Rotation: Clockwise, seen on rotor
Speed Control: 0-10VDC/PWM
Type of Protection: Ip54
Operation Mode: S1
Bearing: Maintenance-free ball bearings
Ambient Temperature: - 25 °C ~ +60 °C

Technical Parameters

Model No.	Rated Voltage VAC	Rated Current A	Rated Power W	Speed RPM	Air Flow m^3/h	Air Pressure Pa	Insulation	Noise Level dBA	Curve
B3E-3A630-Y8-06	380	5.60	2830	1260	18331	845	Class F	83	A
K3E-3A630-Y8-06	380	5.60	2830	1260	18331	845	Class F	83	
B3E-3A630-Y8-07	380	7.70	3800	1380	20098	1020	Class F	87	B
K3E-3A630-Y8-07	380	7.70	3800	1380	20098	1020	Class F	87	
B3E-3A630-Y8-18	380	9.90	5570	1770	20710	1620	Class F	85	C
K3E-3A630-Y8-18	380	9.90	5570	1770	20710	1620	Class F	85	

Performance Curve



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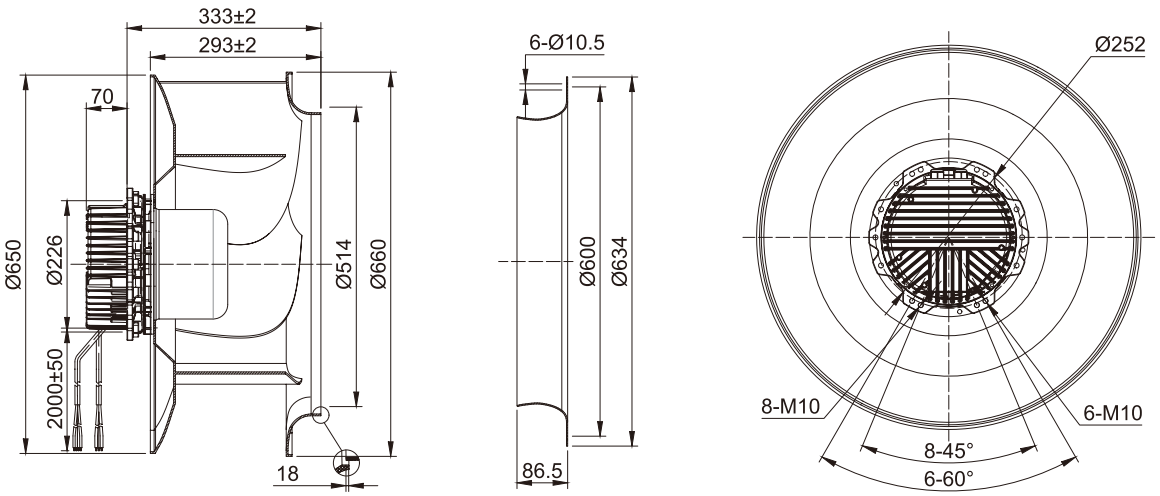

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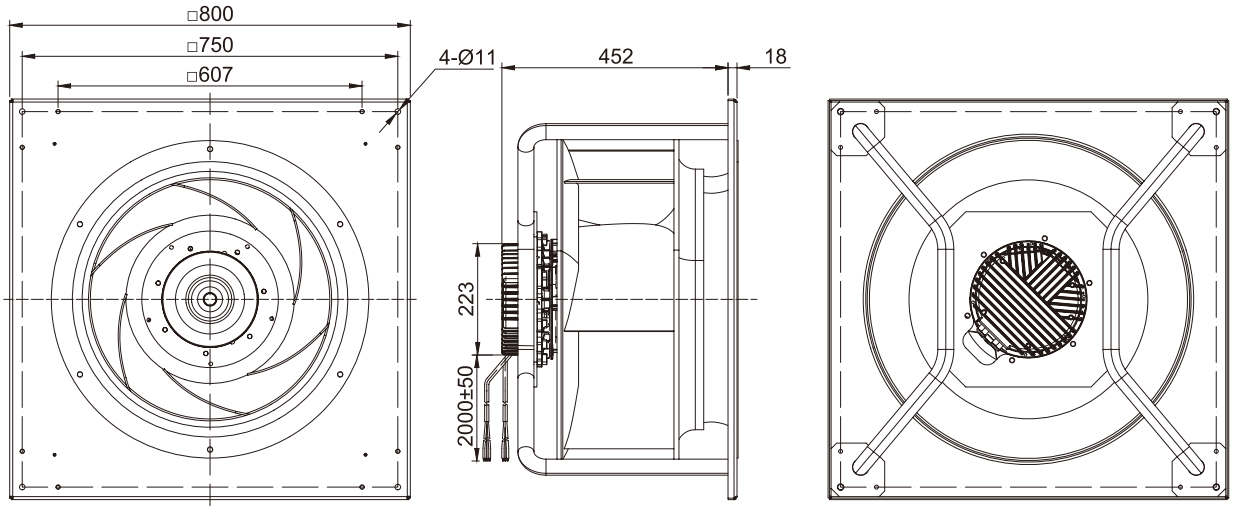

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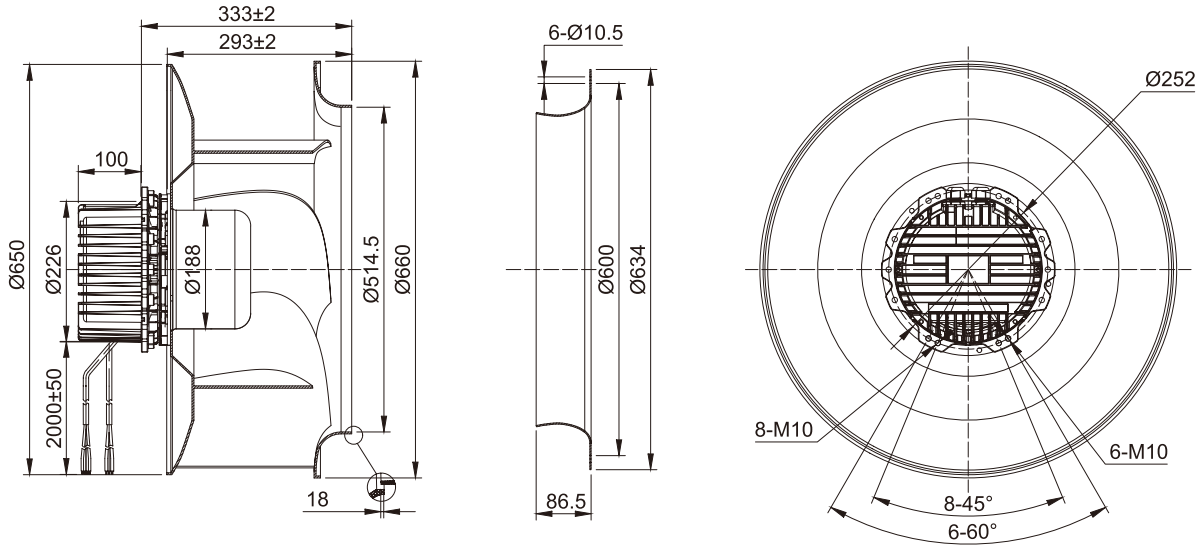

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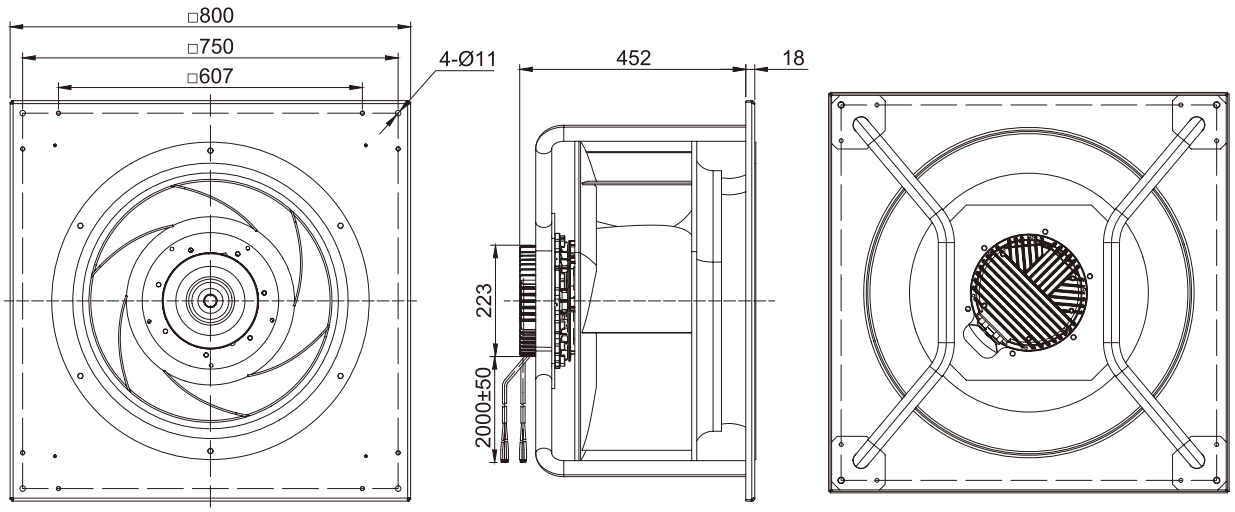

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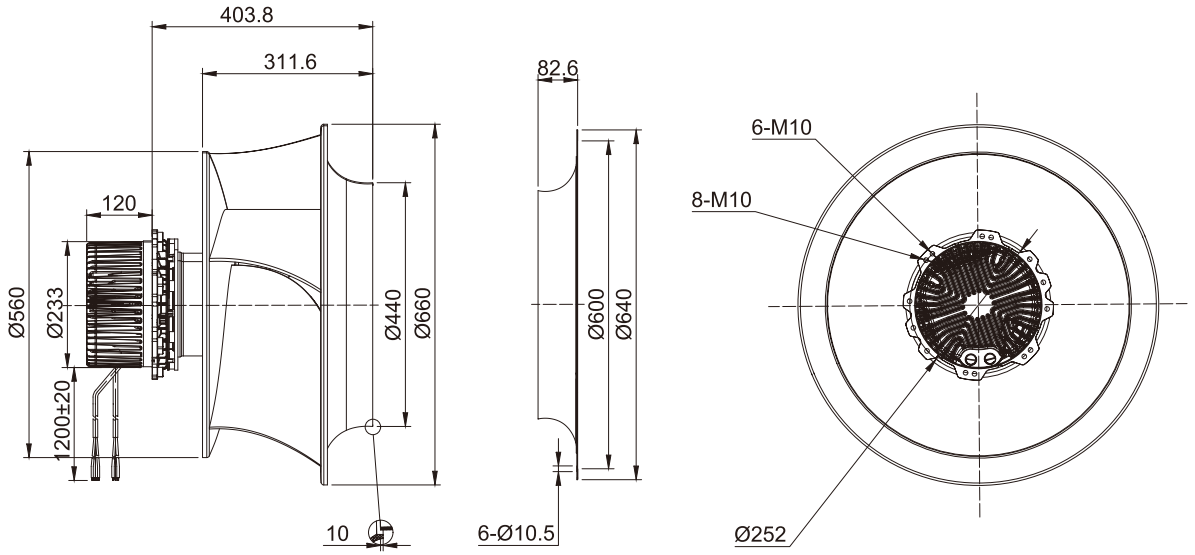

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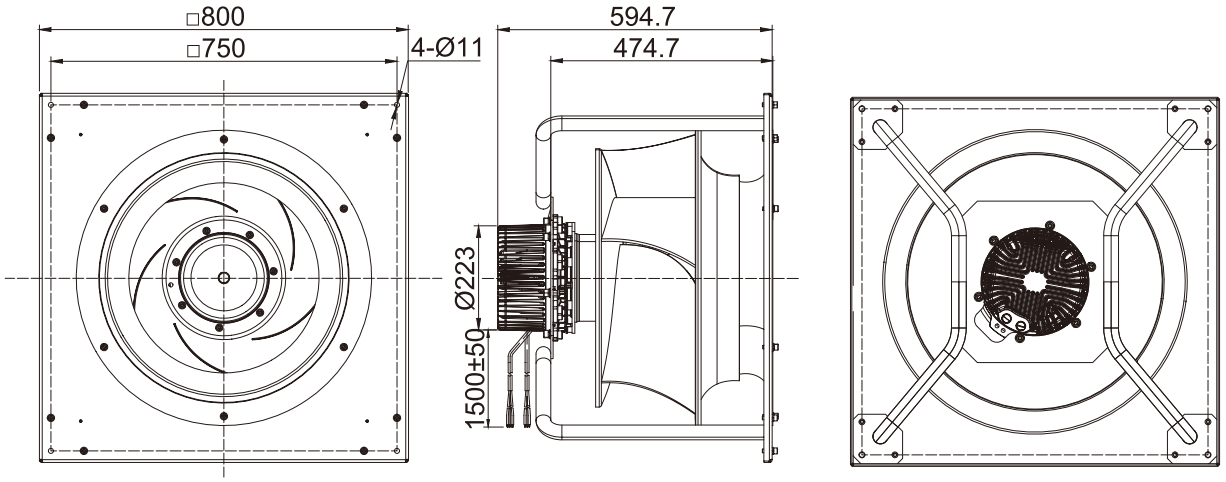

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