



AIR MOTOR

Lubrication Free

Axial load capacity

Multi-function integrated



**ELLEM INDUSTRIAL
(SHANGHAI) CO.,LTD**

Introduction

Ellem Industrial (Shanghai) Co., Ltd (hereinafter referred to as "Ellem") is an industrial equipment specialist manufacturer, mainly engaged in R&D, Design and Production of the pneumatic products (such as air motors, air stirrer) and its automation system. Ellem is dedicated to provide excellent solutions for industries such as industrial equipment, energy, electricity, transportation, steel, mining, shipbuilding, etc. We support customers to achieve a safe, reliable, energy-efficient, low carbon emission, and environmental friendly equipment system. By providing high quality products and guaranteeing the availability of spare parts, Ellem satisfies all of our customers' demands. Our goal is to build the best brand of pneumatic equipment in the country, while at the same time elevate the most advanced pneumatic products from China to the global stage.

Ellem obtains a number of research & development achievements and patents in pneumatic automatic control and drive systems by: incorporating more than ten years of domestic and global experiences in the field of pneumatic automation. To our products; integrating today's most advanced industrial design concepts and processing technology; and working closely with the authoritative research institutes and universities in the field of pneumatic automation. Ellem has excellent administration and technology teams in sales, production, and customer service. Aside from providing our users with the most reliable products, Ellem is also capable of providing suitable on-site solutions and services when they are most needed. High quality products, meticulous and professional attitude, and customer-oriented service are what earned Ellem the customers' continuous support and trust.

As we grow, Ellem continues to build upon the acquired technology and experiences to arrive at a breakthrough in the traditional domestic market, while at the same time develops brand new markets for pneumatic products.

The development of Ellem Industrial has always been a clear path because of the followings: constantly challenge ourselves while maintain a professional attitude; entrust in our fast growing team to transform the product improvement from quantitative to qualitative; and never stop in modifying ourselves or in future innovations.



Certificates of Registration



ISO9001

0260

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● General Introduction of Air Motor

■ Reasons for choosing air motor

1. It achieves infinitely variable speeds and torques through air pressure or flow control. Thereby, expensive controller is not needed.
2. It is capable of instant starting, stopping and reversing.
3. The air motor will not overheat or burn out even in situation of overloaded or when the rotor is stalled.
4. Air motor operates safely under hazardous conditions without the risk of electrical discharge or hydraulic oil leakage. It is absolutely an explosion-proof equipment.
5. The cool running characteristics minimize the impacts from high temperature, humid or dusty environment.
6. It has simple design, yet sturdy structure and low malfunction rate.
7. It has compact shape, light weight, and high power output.

■ How to choose air motor

1. Operating pressure:

The output data in the air motor's technical specification list were obtained under standard working pressure (0.62Mpa). The actual output when operating an air motor varies, depending on the air pressure of the site. A particular air motor may obtain different output speed, torque, or output power within its capacity by adjusting the pressure, or the air supply and exhaust. When an air motor is operating under air pressure below 0.25Mpa, its performance may be unstable. It is recommended to choose an air motor based on 70% of its technical specification to ensure the air motor has additional output power for possible overload when launching or operating.

2. The maximum output power:

In general, the air motor reaches its maximum output power when the motor rotational speed is around 50% of its idle speed.

3. Rotational speed

When selecting the air motor, you should consider the rotational speed when the motor is in operation instead

4. Operating torque:

The next important technical parameter is operating torque. Both speed and torque are necessary to determine the power of the motor. When selecting the motor, you also must pay attention to the difference between the stall torque and operating torque.

5. The relationship between output power, rotational speed and torque:

The starting torque should be approximately 75% of stall torque.

The operating torque and output power, in any speed, should be close to the air motor performance curve; or you can use the following formula calculate the torque: $\text{torque (Nm)} = \text{power (KW)} * 9550 / \text{speed (RPM)}$

6. Air supply system

Once an air motor is chosen, the most important thing is to make sure that the air motor has a constant supply of compressed air when operating so that the flow and pressure are guaranteed. Because the pipe of the air system may depreciate, the figure on the pressure indicator of the air compressor does not represent the actual pressure achieved by an operating air motor. The exhaust restrictor can also affect the operation of the air motor, which is often the cause for malfunction.

7. Replacing the usage of the electric motor:

Besides the Direct Current Series-Wound motor, the electric motor performance curve and pneumatic motor are completely different, so their torque and speed curve are not compatible.

8. Maximum speed:

The air motor should be in idle load for a prolonged period of time. The performance curves in this product catalogue only refer to the maximum speed achieved in theory; but in general, it is not recommended to operate the air motor in such condition

◎ The Benefits and Features of High Quality Ellem M series Air Motor

■ Material of the Shell

The shells of all our standard model air motors in this catalogue are made of cast iron. However, Ellem can provide air motor with stainless steel shell according to customer's on-site condition.

■ Lubrication Free

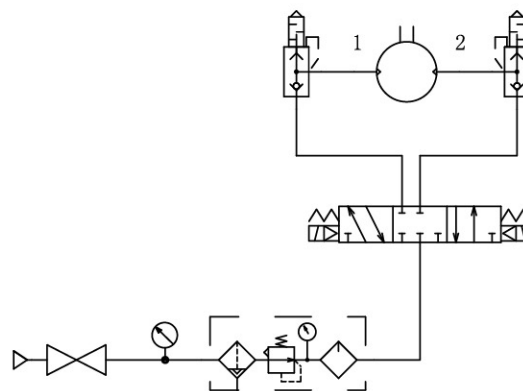
The vanes of the M Series Air Motor are made of a special lubrication-free material. However, to optimize the performance and longevity of the products, it is strongly recommended to use FRL (Filter/ Regulator/ Lubricator) in the air supply system.

■ Functions

All the air motors and air decelerating motors in this catalogue are available separately or for mix and match with the clutch, brake, or reversing valve functions. Ellem can also match the control system of the customer's on-site system to make the air motor's operation simpler and more reliable.

■ Air Path Installation

1. A quick exhaust valve should be mounted on the air outlet of the air motor, so the air will exhaust smoothly when M series air motor achieves reciprocation.
2. The pipe diameter of the air supply system should be determined in order to meet the air consumption at the maximum power of the air motor. If the pipe is too long, the pipe diameter should be increased correspondingly.
3. Below is a simple air motor reciprocation control diagram.



■ Operating Ambient Temperature

The operating ambient temperature of the standard model air motors in this catalogue is $-30^{\circ}\text{C} \sim 65^{\circ}\text{C}$. ELLEM can also provide special air motors for a lower or higher operating ambient temperature.

■ Axial Load Capacity

M series air motors adopt ELLEM's constructional design patent, which is available to bear the axial impact force and load.

■ Notes

All the specifications of air motor in this catalogue are measured under standard air pressure of 0.62Mpa.

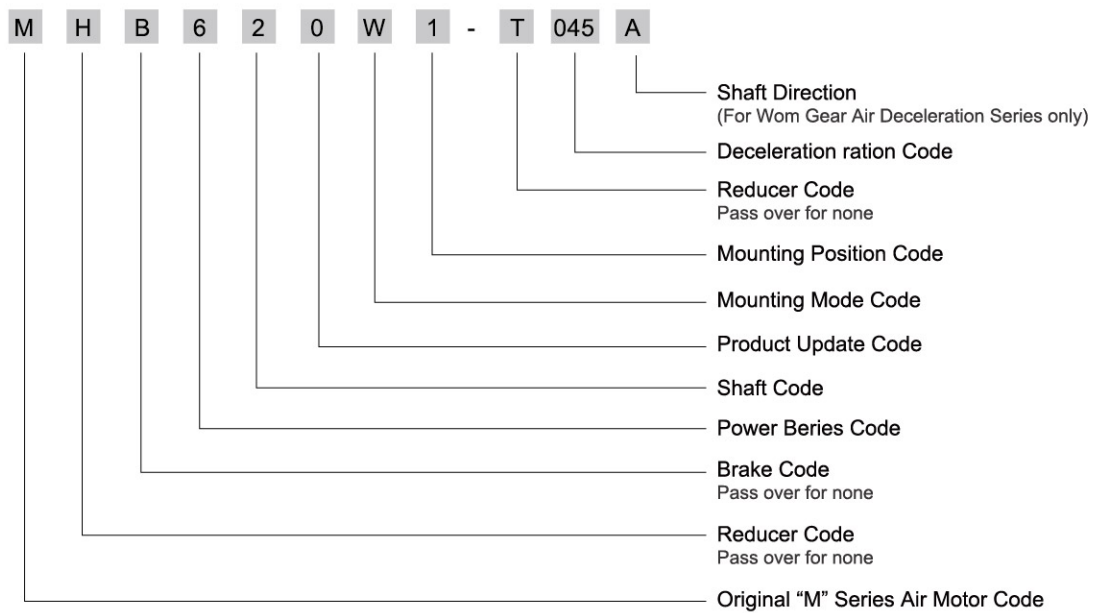
***M** series Multi-Vane Air Motor*



Specifications

Model	Max. Power (KW)	Speed at Max. Power (RPM)	Free Speed (RPM)	Starting Torque(Nm)	Stall Torque (Nm)	Air Consumption at Max. Power (m³/m)	Weight(KG)
M1	0.37	6000	12500	0.6	0.81	1.2	0.8
M2	0.66	3000	8070	2.3	3.1	1.4	3.4
M4	1.1	3000	7900	3.5	5.6	1.9	3.7
M6	2.7	3000	7900	7.2	11.8	3.4	7.4
M8	3.6	2500	7000	13.6	19	4.3	13.4
M10	4.7	3000	7000	15	22	5.6	13.4
M12	7	2000	5000	34	43	7.9	33

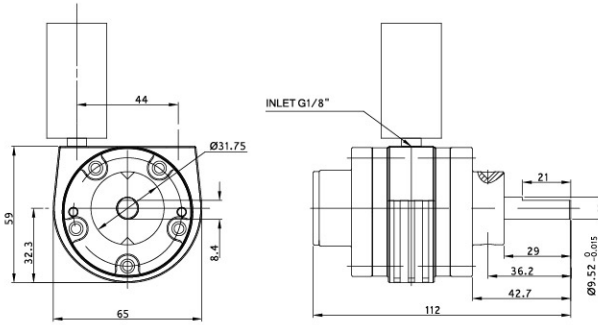
Model Number Representation



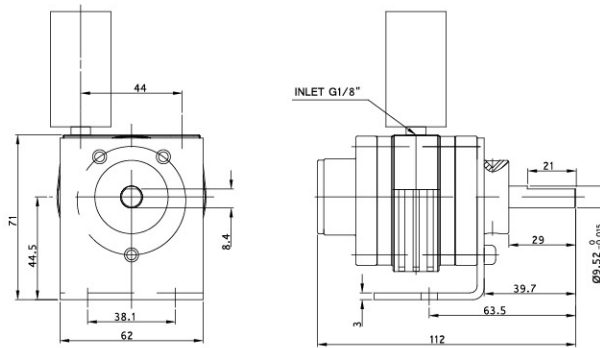
M1 Series Multi-Vane Air Motor



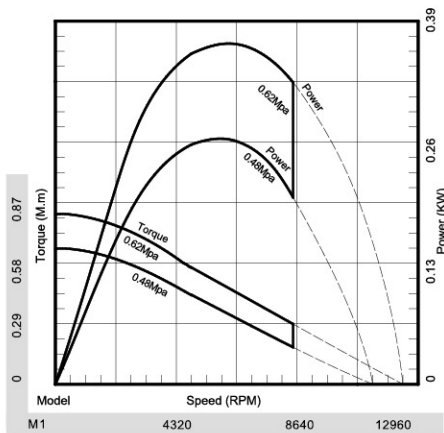
M100N Dimension Drawing



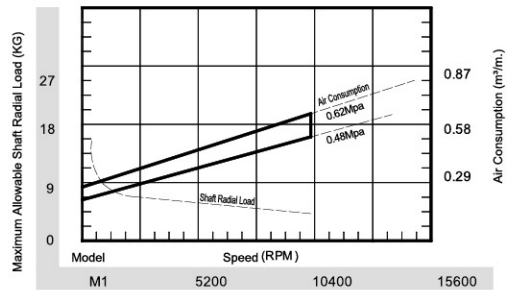
M100W Dimension Drawing



Performance Curve of Power, Torque and Speed



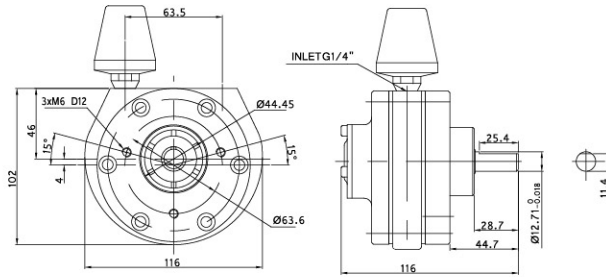
Performance Curve of Radial Load, Air Consumption and Speed



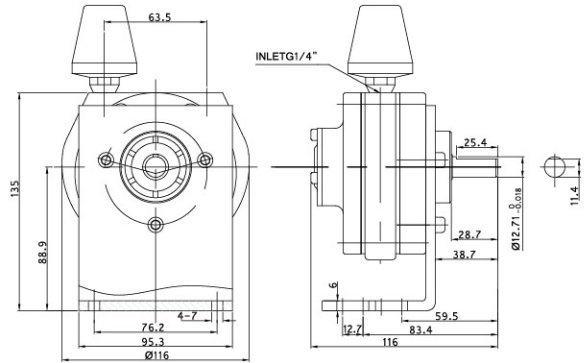
M2 Series Multi-Vane Air Motor



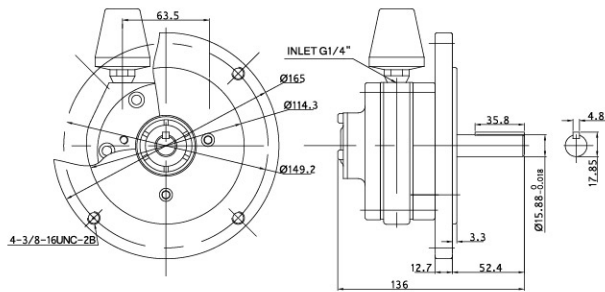
M210N Dimension Drawing



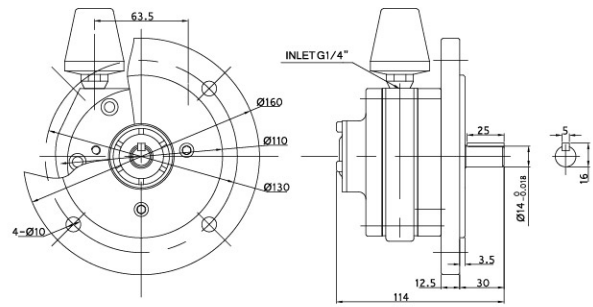
M210W Dimension Drawing



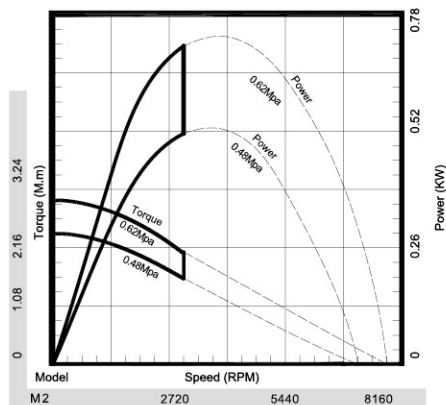
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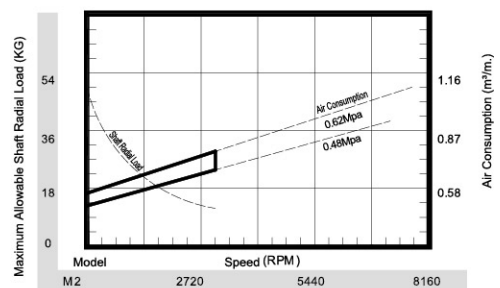
M220F Dimension Drawing



Performance Curve of Power, Torque and Speed



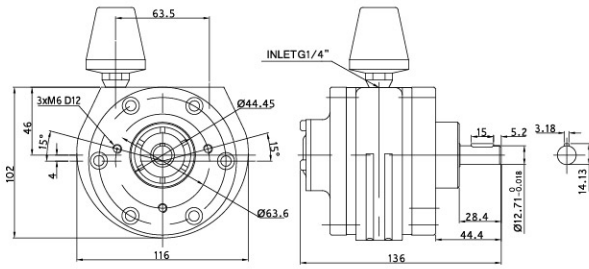
Performance Curve of Radial Load, Air Consumption and Speed



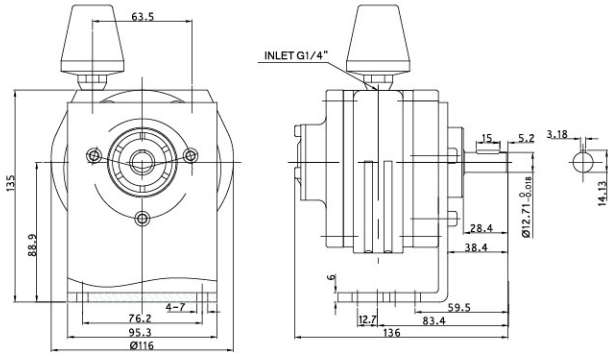
M4 Series Multi-Vane Air Motor



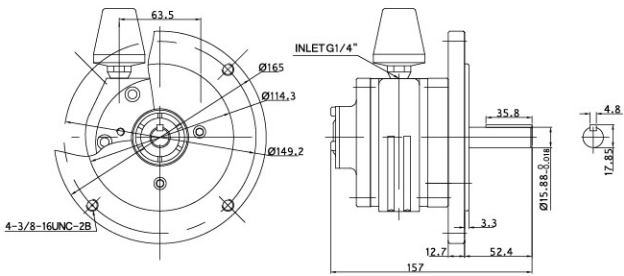
M410N Dimension Drawing



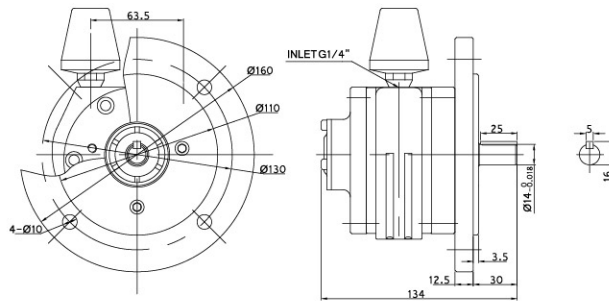
M410W Dimension Drawing



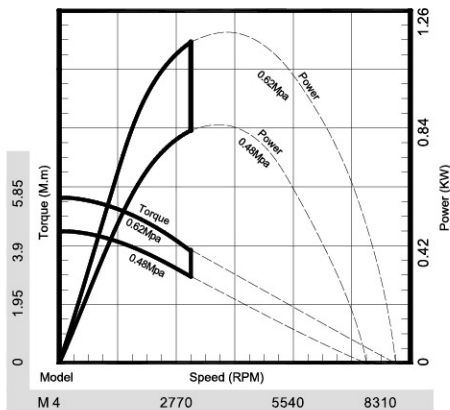
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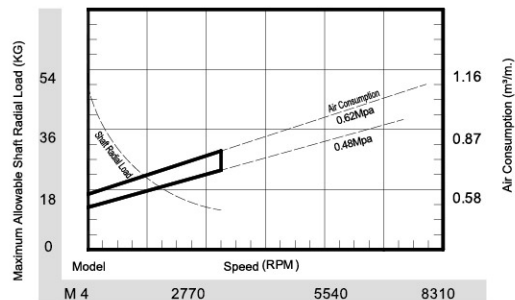
M420F Dimension Drawing



Performance Curve of Power, Torque and Speed



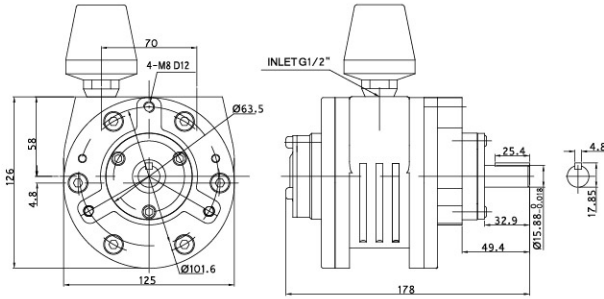
Performance Curve of Radial Load, Air Consumption and Speed



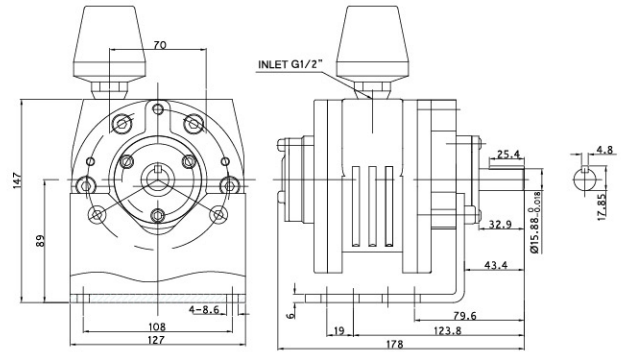
M6 Series Multi-Vane Air Motor



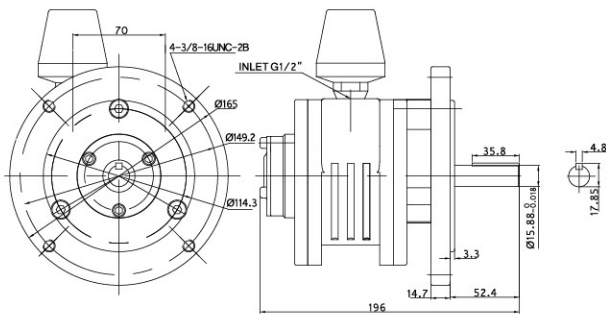
M630N Dimension Drawing



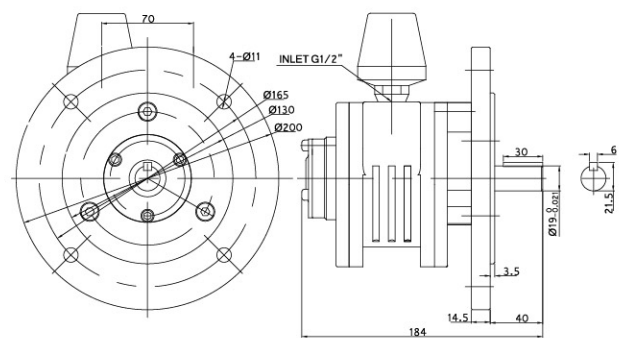
M630W Dimension Drawing



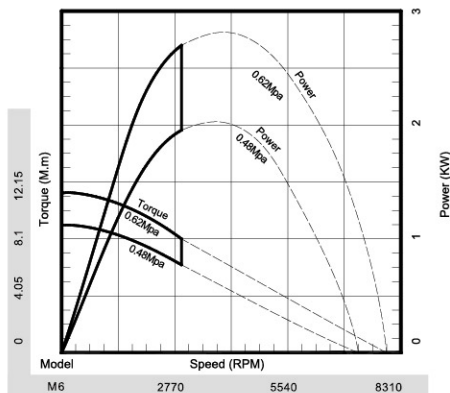
M630F Dimension Drawing



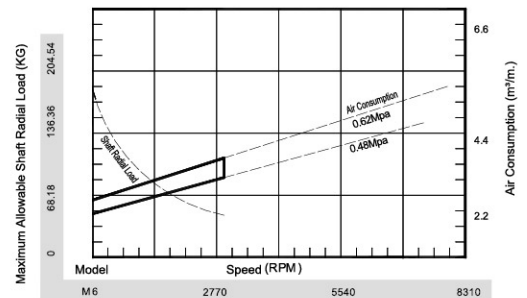
M640F Dimension Drawing



Performance Curve of Power, Torque and Speed



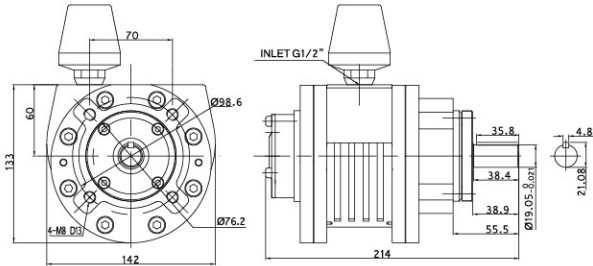
Performance Curve of Radial Load, Air Consumption and Speed



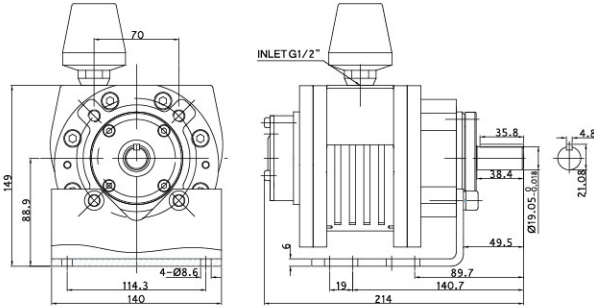
M8 Series Multi-Vane Air Motor



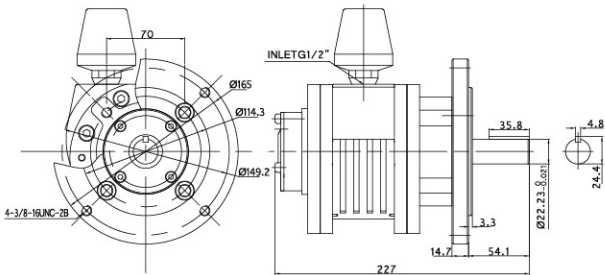
M850N Dimension Drawing



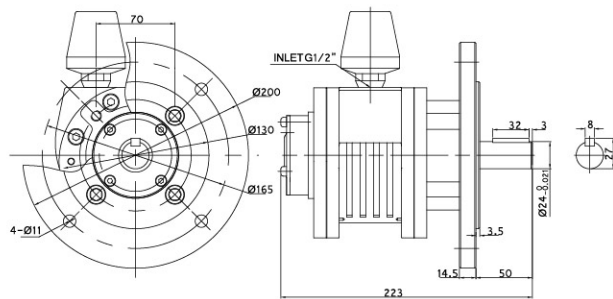
M850W Dimension Drawing



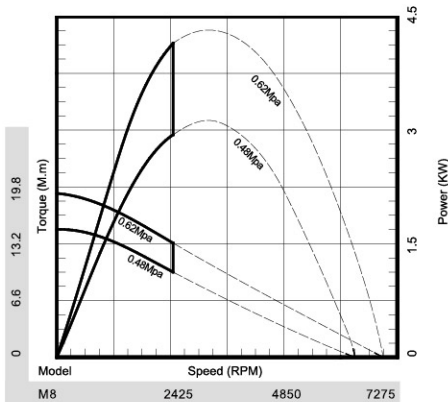
M870F Dimension Drawing



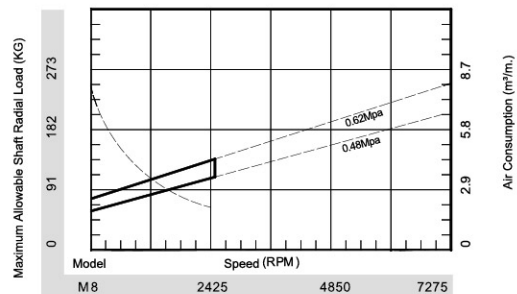
M860F Dimension Drawing



Performance Curve of Power, Torque and Speed



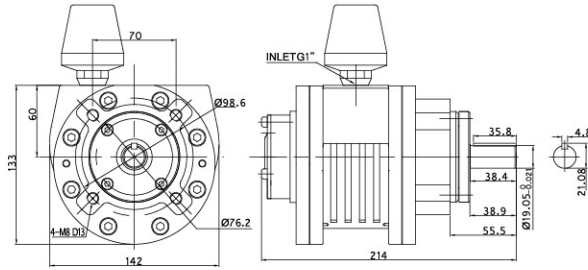
Performance Curve of Radial Load, Air Consumption and Speed



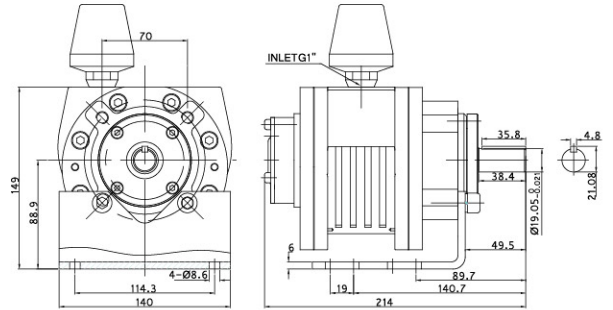
M10 Series Multi-Vane Air Motor



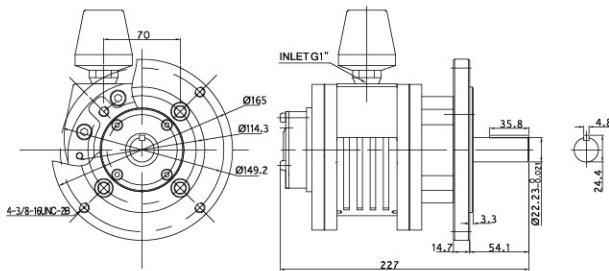
M1050N Dimension Drawing



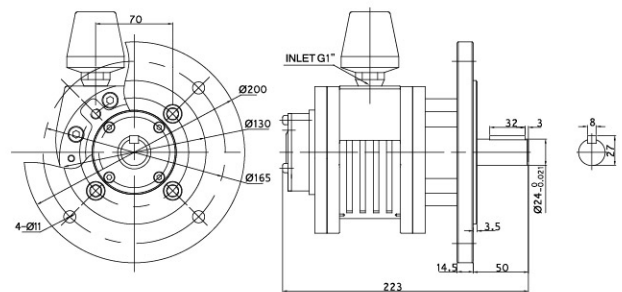
M1050W Dimension Drawing



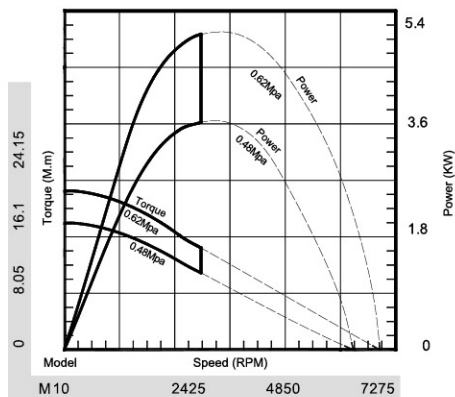
M1070F Dimension Drawing



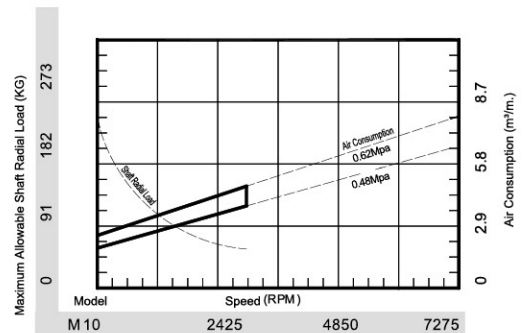
M1060F Dimension Drawing



Performance Curve of Power, Torque and Speed



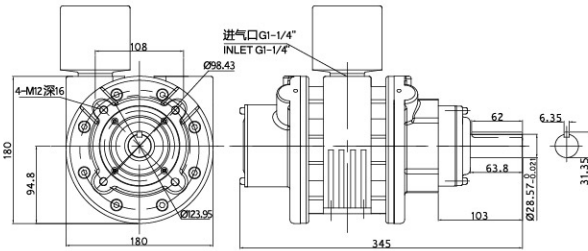
Performance Curve of Radial Load, Air Consumption and Speed



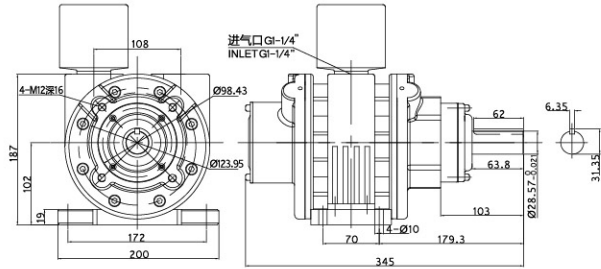
M12 Series Multi-Vane Air Motor



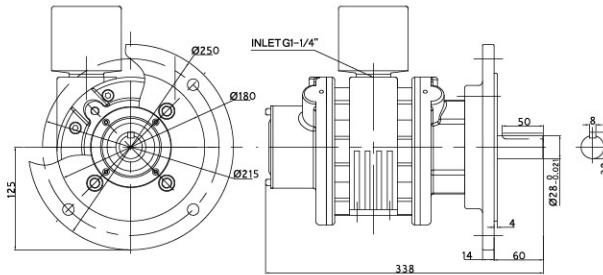
M1290N Dimension Drawing



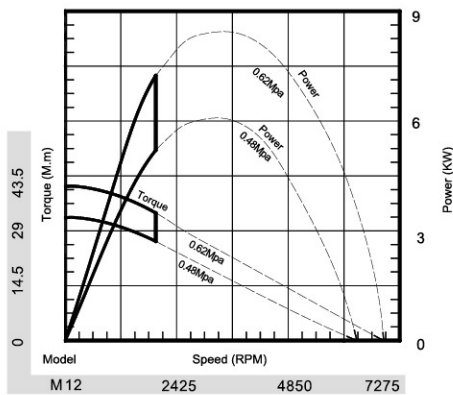
M1290W Dimension Drawing



M1280F Dimension Drawing



Performance Curve of Power, Torque and Speed



Performance Curve of Radial Load, Air Consumption and Speed

