

AIR MOTORS

RELIABLE POWER FOR
INDUSTRIAL APPLICATIONS



HIGH TORQUE



ENERGY
EFFICIENT



LOW
MAINTENANCE



COMPACT
DESIGN



BUILT FOR
PERFORMANCE



TRUSTED
QUALITY



GLOBAL
SUPPORT

Introduction

Teryair has been designing, manufacturing, and supplying high-quality pneumatic equipment to customers world-wide for the past 20 years.

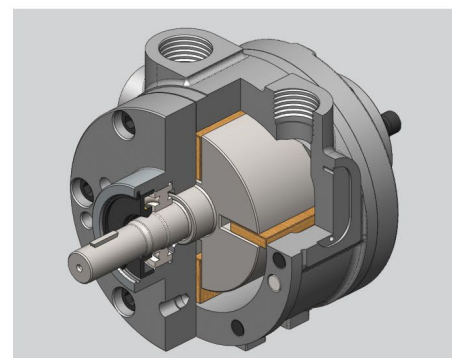
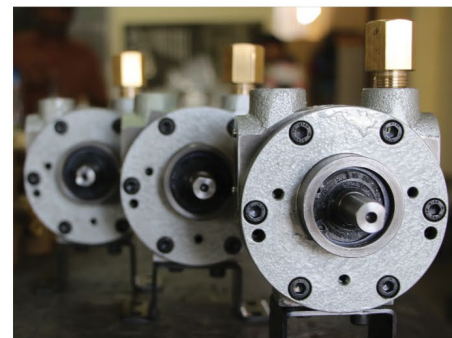
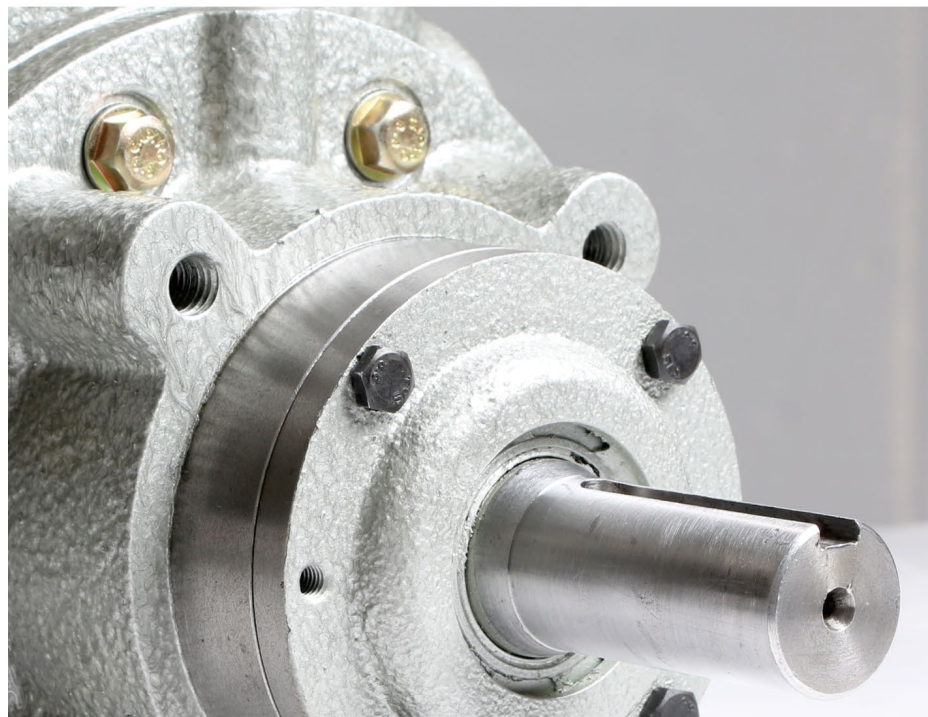
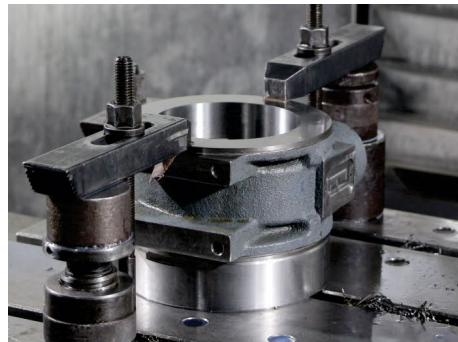
Teryair has an exceptional Air Motors manufacturing program. ATEX-certified and CE-approved, our air motors are exported and used in great numbers globally. Known for their durability, quality, and ease of maintenance they are highly sought after by the OEMs / machinery industry in Italy, South Korea, Australia, and the United States.

They are competitively priced to meet the needs of our customers. Our ISO-certified manufacturing facility at Vasai houses a test setup designed to test air consumption, power output, and torque at varying RPMs of the motors. Teryair motors are preferred over electric and hydraulic motors due to their compact size, superior features, and wide range of applications.

This brochure details Vane and Piston Air motors in numerous HP ratings. Teryair Motors come in a broad range of mounting and threading options to meet local regulations in most countries.

Our expertise lies in air motor mechanics and pneumatic engineering. The sole focus of our design team is to develop viable solutions to problems. Using CAD, our design engineers evaluate client objectives to design and prototype solutions. All design revisions and technical product details are well-documented.

At Teryair, we strive to provide the latest and best products using quality concepts and advanced manufacturing techniques. A global standard for equipment, our products are renowned for their durability and reliability. With a motor for all your requirements, we guarantee a delightful experience.



Why Air Motors

Special Advantages



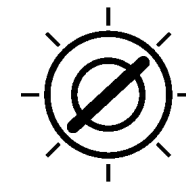
Instant stop / start and easy to reverse

The motors start and stop instantly, reducing latency. On reversible motors, a simple valve can immediately reverse motor direction.



No damage on overload

The air motors automatically stall when overloaded, avoiding damage and energy loss. The engine resumes when the stalling condition is removed.



Easy throttling and smooth control

The motor's speed, power, and torque can be easily regulated by controlling the input air pressure.



Easy maintenance

We offer repair kits for all models. It is easy to repair worn vanes and bearings.



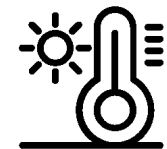
High power - to - weight ratio

Air motors are more compact and lighter than electric motors.



ATEX

All Teryair motors are ATEX-certified and comply with ATEX directive 2014/34/EU.



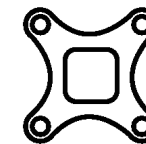
Self-regulating cooling system

The air inside the motor expands as it runs so the motors always run at optimum temperatures even in hot environments.



CE

All Teryair motors are CE-certified and comply with EU Directive 2006/42/EU on Machinery Safety.



Variety of mounting options

Foot, Flange, Hub, IEC, and Nema options are available.

Advantages over Electric Motors

- Overload Safe – Can run to stall without damage
- Overload-Proof Design for continuous reliability
- Low Installation Cost with simple setup
- Explosion-Proof – ideal for hazardous areas
- Resistant to Dust, Gas & Moisture
- Lightweight & Compact for easy integration
- High Power Density in a small footprint
- Variable Speed & Torque Control via air pressure/flow
- Suitable for Sterile Environments

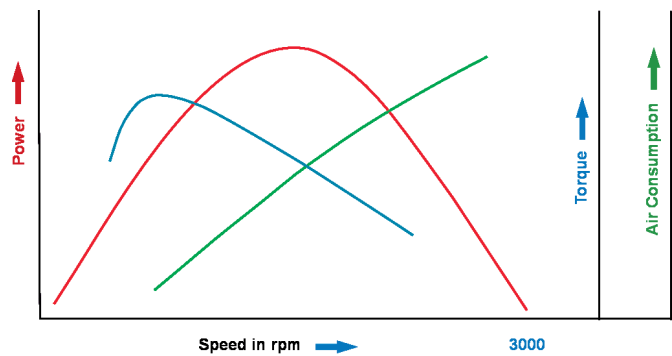
How to read an Air Motor Curve

In contrast to Electric motors, Horsepower and Torque are developed rapidly, which is desirable for many applications. Air motors typically operate at higher speeds than Electric motors.

The relation between Power, Torque and Air-consumption is best understood when these values are plotted against motor rotational speed.

The graph below is a typical representation of motor performance used by most manufacturers. In addition to providing an understanding of the motor's characteristics, the graphs are extremely useful for selecting (sizing) the correct air motor.

Power, Torque and Air-consumption



Power Curve

Maximum power is generated at half the motor's free speed, in this case, 1500 rpm. As depicted by the red curve, if the motor is operated at slower speeds, the power decreases.

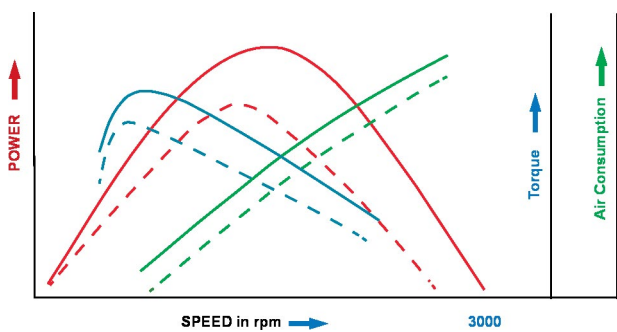
Torque Curve

The torque of an air motor increases with increasing load, but beyond about 15% (or 450rpm in this case) of free speed, torque drops sharply; this is the motor's stall point.

Air Consumption Curve

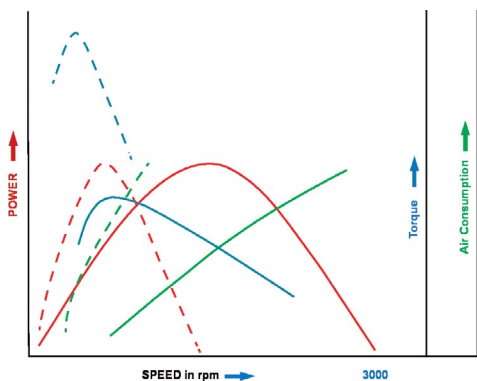
This green curve demonstrates that it is rational to operate these air motors between 15 and 50 per cent of their free speed, as air consumption increases steadily with speed.

Effect of reducing input pressure



When input pressure is modulated, less power and torque are generated and less air is consumed, as depicted by the dotted lines in the graph above. This allows these Air motors to be easily adjusted to meet optimal load conditions.

Effect of Gearing



When increased torque is required, a Gearbox can be added to multiply torque output while reducing output speed proportionally. The effect of gearing is depicted in the graph above. The torque increases and the speed decreases, but the total power

Selection of Air Motors

Teryair Vane motors are not designed to operate at free speeds for extended periods. This will result in excessive wear and tear.

Depending on the load (HP-torque etc.), one should select motors that are capable of handling the required load at half the free speed. Available air pressure is also an important factor. Air motors generate power proportional to the supplied air pressure and volume. To account for variables such as lower air pressures, starting loads, and overloads, it is recommended to select a larger size. All Teryair motor graphs depict predicted outputs at different supply pressures.

Teryair Vane motors should not be installed in configurations where the axial load or radial load on the shaft exceeds permissible limits. This results in abnormal shaft loading and premature seizing of the rotors. Find the maximum allowable figures alongside the graphs of each motor size later in this catalogue.

Lastly, ensure that you are supplying clean and filtered compressed air; a Filter - Regulator - Lubricator is recommended and should be mounted as close as possible to the motor. Teryair is ready to help you with your motor application. Over the years, with our experience in almost every application, we can assist you in picking the right motor.

Air Motor Nomenclature

Air motors get their name from their ability to expand the air inside them when performing mechanical work. They are among the most durable and adaptable power units

available to design engineers. Their advantages and characteristics make them the preferred power source for industrial applications.

X	X	X	X	X	X	X	X	X
Size	Motor Type	Mounting	Lubricated or Lube-Free	Material of Construction	Explosion Proof	Threading on Inlet and Outlet	Direction of Rotation	No of Vanes
1	VM-Vane Type Motor	L- Face Type	O - Lube Free	L - SG Iron	EX	R- NPT	C - Clockwise	4
2		S- Foot Type		S - Stainless Steel		G - BSPT	A - Anticlockwise	6
4		T - Hub		H - SGI Housing with Aluminum End Plates		P - BSPP	R - Reversible	8
6		D - IEC Flange Type						
8		N - NEMA Flange Type						
16								

For example

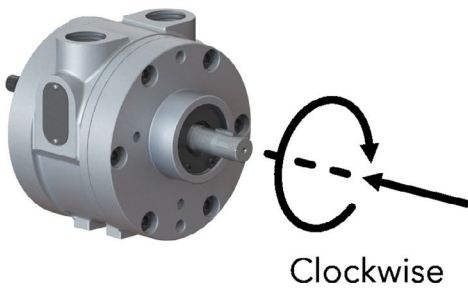
- 4VMLOEXRR4 is a size 4, Vane type, Face Mounted, SG Iron MOC. Explosion Proof, NPT Threading, Reversible with 4 Vanes
- 4VMLOEXGR8 is a Size 4, Vane type, Face Mounted, SG Iron MOC, Explosion Proof, BSPT Threading, Reversible with 8 Vanes
- 1VMTOLEXRA4 is a Size 1, Vane type, Hub Mounted, SG Iron MOC, Explosion Proof, NPT Threading, Anti-clockwise with 4 Vanes
- 2VMTOHEXRR4 is a Size 2, Vane type, Hub Mounted, SG Iron Hsg. with Aluminium End Plates, Explosion Proof, NPT Threading, reversible with 4 Vanes

Ex Code

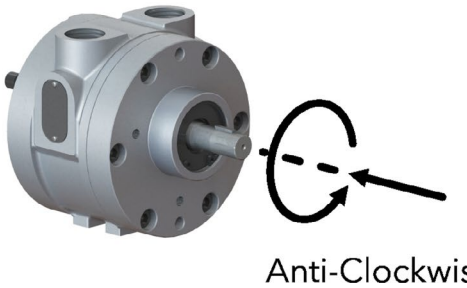
Model : 1VM Series, 2VM Series, 4VM Series, 6VM Series.
Ex II 2 GD Ex h IIC T6 Gb
Ex II 2 GD Ex h IIIC T85°C Db

Model : 8VM Series, and 16VM Series
Ex II 2GD Ex h IIC T4 Gb
Ex II 2GD Ex h IIIC T135°C Db

Amb. Temp (+1° C to +40° C)



Clockwise nomenclature is clockwise when seen from front of motor



Anti Clockwise nomenclature is anti clockwise when seen from front of motor

Teryair Manufacturing Program

Air Motors - Vane Motors VM Series

The Teryair VM Series is a compact, cost-effective selection of motors ranging from 0.45HP to 9.5HP. There are six versions available in different power levels. The VM Series features lubricated and lube-free variants and numerous other options such as

A note about Gearbox pairing with Teryair Motors -

Teryair motors are compatible with myriad standard gearboxes, allowing for a wide range of speeds and torques. Standard mountings are available for Teryair motors that match those of standard gearboxes.

lube-free and numerous other options such as 4 or 8 vanes, NPT or BSPT, SG Iron or SS, clockwise, anticlockwise, and reverse rotations.

In summary, Teryair's VM series provides a wide range of options for machine designers. A simple nomenclature system, which is explained in the preceding page, makes it easy to place an order.

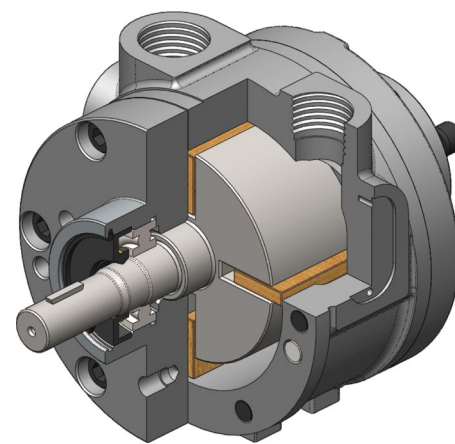
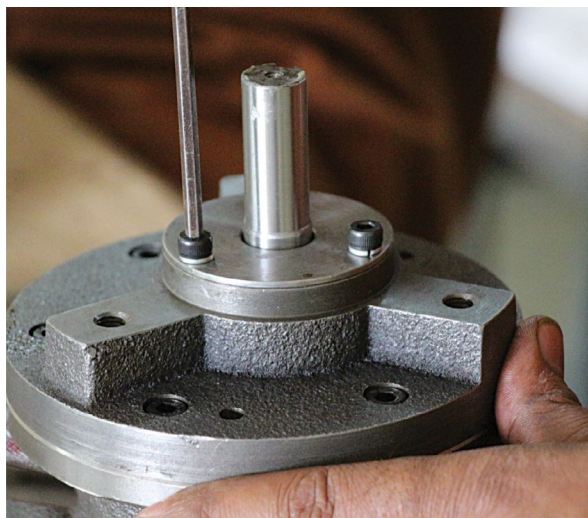
Alternatively, we can build the system for you and provide ready-to-use geared motors. Our technical staff at Teryair is standing by to assist you in choosing the correct gearbox for your application.

Special variants are available, ask for details

- Unidirectional or reversible VM Motors
- 8 Vane VM Motors for high start torques
- Lube Free VM Motors
- Stainless Steel SS316L Motors

Future motors under development at Teryair

- Compact, lightweight air motors with planetary gearboxes in-built.
- Motors with built-in pneumatic braking systems.



A cut away of a typical Vane Motor

Air Motors from Teryair areas of application

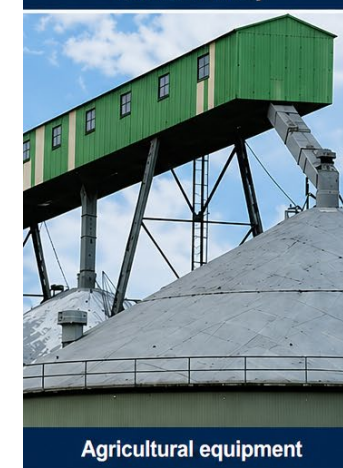
Teryair offers a comprehensive range of rust-free and oil-free air vane motors, with power outputs ranging from 0.33 kW (0.45 HP) to 7.10 kW (9.5 HP). These motors are available in multiple configurations, including threaded spindle (non-reversible) and keyed spindle (reversible) designs, ensuring flexibility for diverse operational requirements. Customized solutions can also be developed to meet specific application needs.

Designed for durability, Teryair air motors perform reliably in challenging environments. They are resistant to dust, moisture, and temperature variations, and are

available in ATEX-certified versions for safe operation in hazardous areas.

Teryair air motors are suitable for a wide range of industries, including mechanical engineering, automotive, packaging, paper & printing, petrochemical, agriculture, and food processing, among others.

Compared to electric motors, air motors offer several key advantages such as safe operation in explosive environments, compact design, variable speed control, and overload protection—making them an ideal and often essential choice for demanding industrial applications.

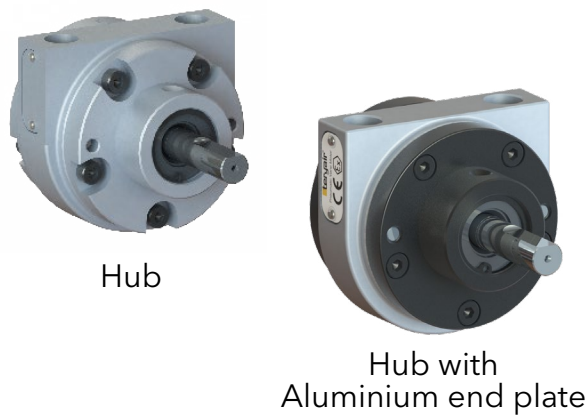


Engineered for Performance. Designed for Every Application.

Teryair air motors deliver reliable, efficient, and durable performance even in harsh environments. With oil-free, rust-resistant design and ATEX options, they are ideal for a wide range of industrial applications.

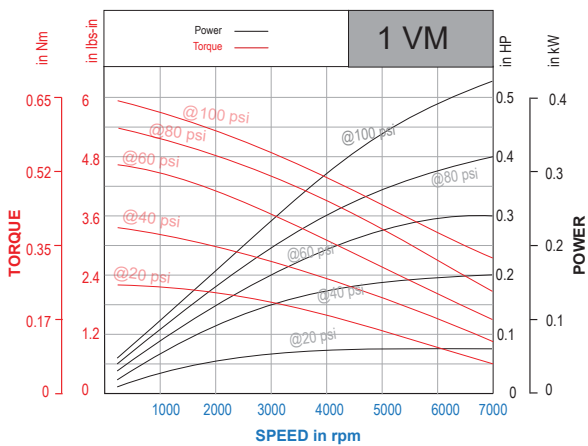
Technical Data

1VM ATEX Pneumatic Vane Motor



Note: These performance figures apply to a 4 vane model with an unrestricted exhaust.

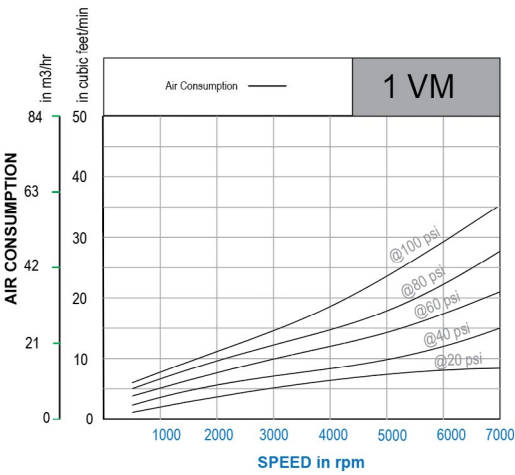
Power & Torque Graph



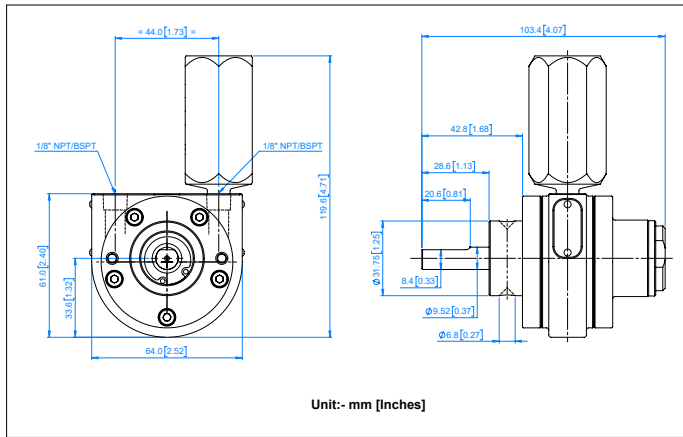
Performance

Max. output power	0.33kW (0.45hp)
Speed at max power	7000 RPM
Maximun torque	0.65Nm (5.75lb-in)
Air consumption at max. power	35.1m3/hr (20.5cfm)
Ambient safe operating temperature	
• Non explosive zone	0°C to 120°C
• Explosive zone	Up to 40°C
Max. allowable operating speed in any direction	7000 RPM
Working pressure	7kg/cm ² (100 psi)

Air Consumption Graph



Dimensional Data - Hub Mounting-1VM

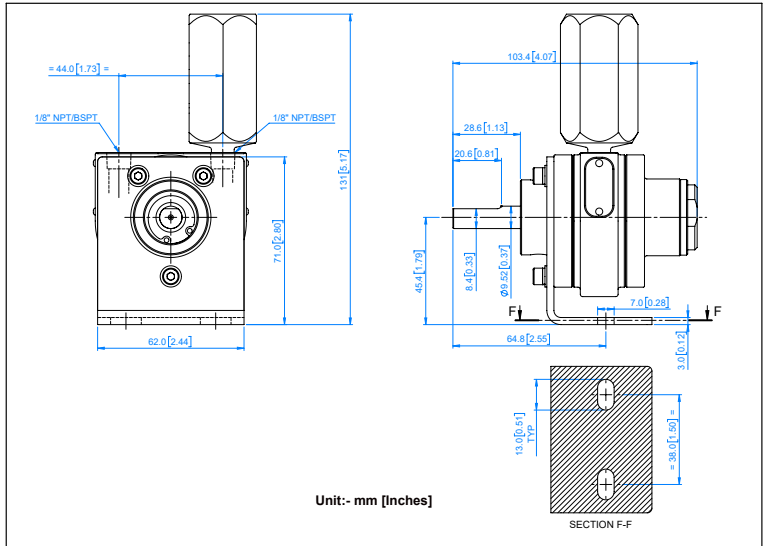


Muffler for 1VM Series

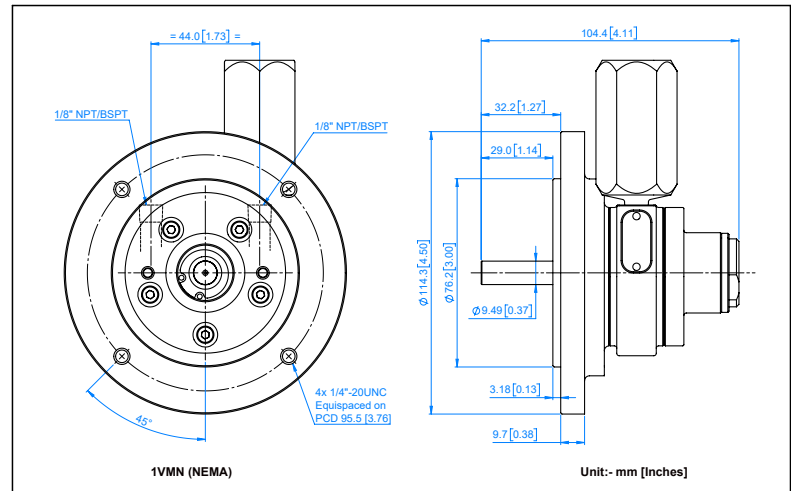
Part No	Description	Thread Connection
8119801	Muffler NPT	1/8" NPT
8119802	Muffler BSPT	1/8" BSPT



Dimensional Data - Foot Mounting-1VM



Dimensional Data - NEMA Mounting-1VM



Explosion Proof
All Teryair air motors are ATEX approved and safe for use in explosive atmosphere.
Codes
Ex II 2GD Ex h IIC T6 Gb
Ex II 2GD Ex h IIIC T850C Db



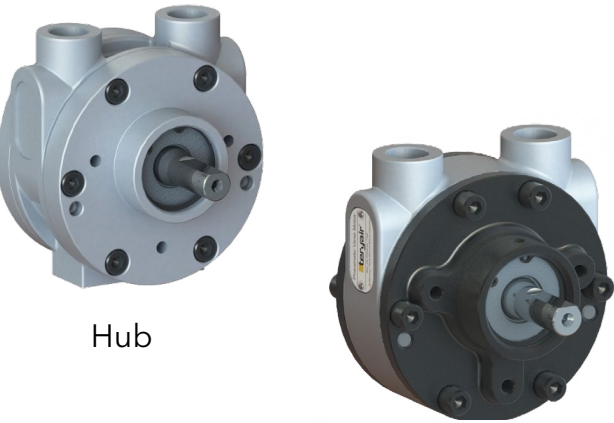
Approvals and Certifications
All Teryair air motors are CE marked and manufactured under an ISO 9001:2015 Quality system - SGS.



Added Features
Cool running
Variable speeds
Load to stall
Instantly reversible
Available as lube free
Available with ss construction
available with SS + Lube Free

Technical Data

2VM ATEX Pneumatic Vane Motor



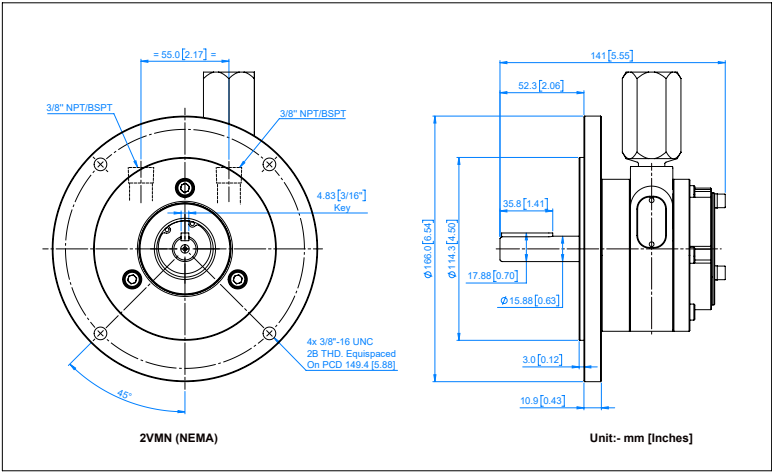
Hub with
Aluminium end plate

Note: These performance figures apply to a 4 vane model with an unrestricted exhaust.

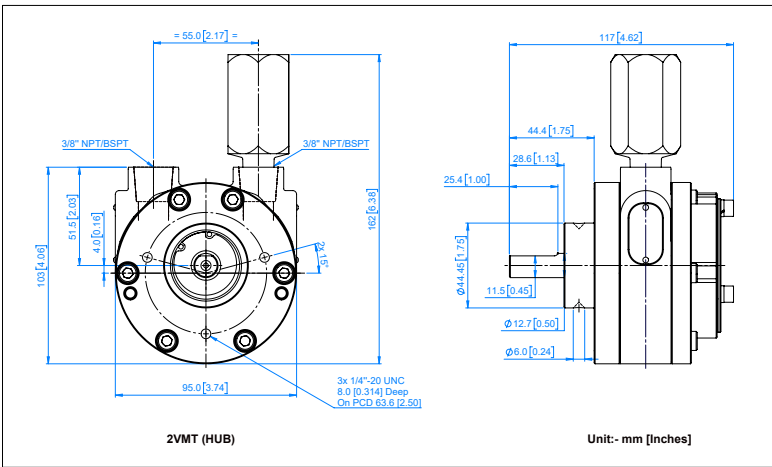
Performance

Max output power	0.68kW (0.91hp)
Speed at max power	3000 RPM
Maximun torque	3.05Nm (26.99lb-in)
Air consumption at max. power	49.5m³/hr (30cfm)
Ambient Safe Operating Temperature	
• Non explosive zone	0°C to 120°C
• Explosive zone	Up to 40°C
Max. allowable operating speed in any direction	3000 RPM
Working pressure	7kg/cm² (100 psi)

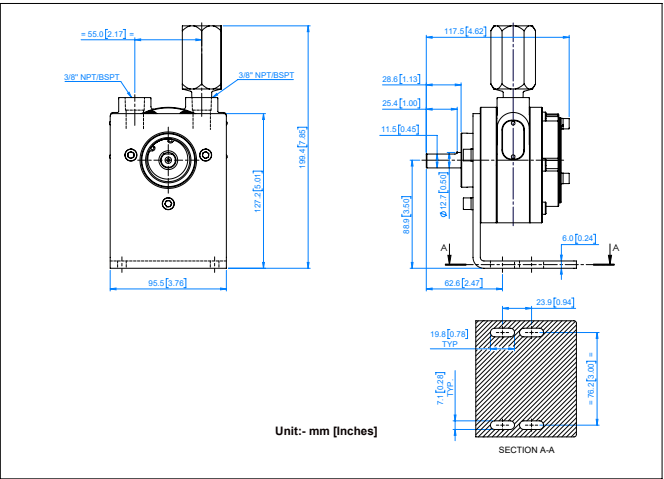
Dimensional Data - NEMA Mounting-2VM



Dimensional Data - Hub Mounting-2VM



Dimensional Data - Foot Mounting-2VM

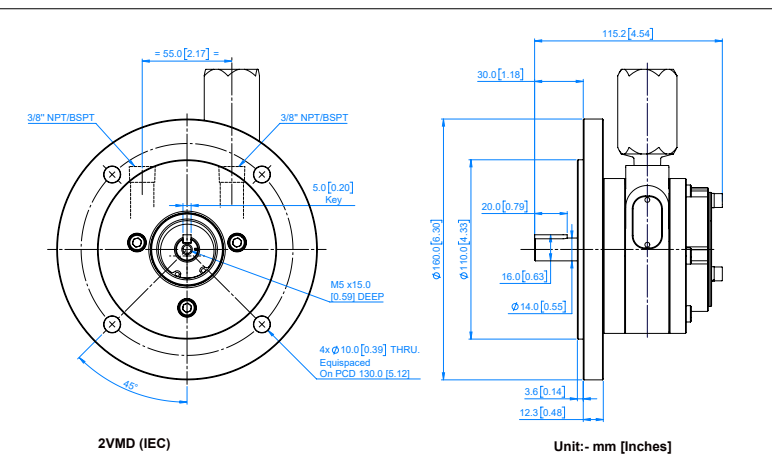


Muffler for 2VM Series

Part No	Description	Thread Connection
8039803	Muffler NPT	3/8" NPT
8039804	Muffler BSPT	3/8" BSPT



Dimensional Data - IEC Mounting-2VM



Explosion Proof
All Teryair air motors are ATEX approved and safe for use in explosive atmosphere.
Codes
Ex II 2GD Ex h IIC T6 Gb
Ex II 2GD Ex h IIC T850C Db



Approvals and Certifications
All Teryair air motors are CE marked and manufactured under an ISO 9001:2015 Quality system - SGS.



Added Features
Cool running
Variable speeds
Load to stall
Instantly reversible
Available as lube free
Available with ss construction
available with SS + Lube Free

Technical Data

4VM ATEX Pneumatic Vane Motor



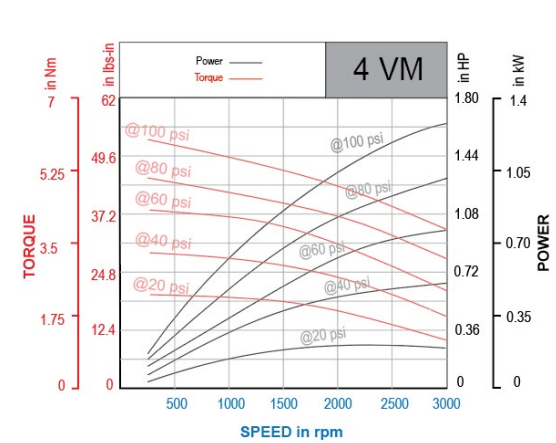
Face



Face with Aluminium end plate

Note: These performance figures apply to a 4 vane model with an unrestricted exhaust.

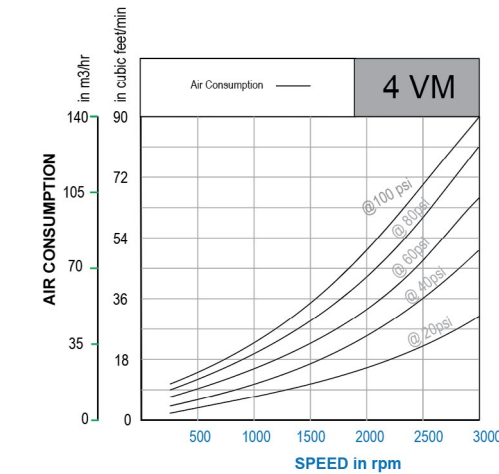
Power & Torque Graph



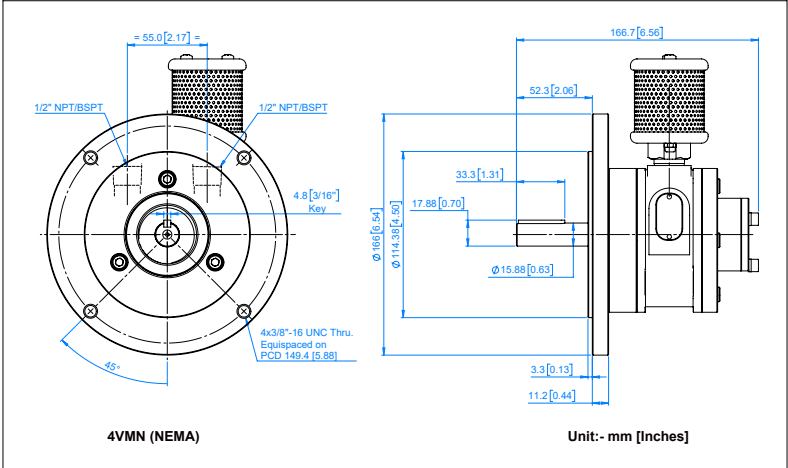
Performance

Max. output power	1.3kW (1.7hp)
Speed at max power	3000 RPM
Maximun torque	6.3Nm (56lb-In)
Air consumption at max. power	132.5m³/hr (78cfm)
Ambient safe operating temperature	
• Non explosive zone	0°C to 120°C
• Explosive zone	Up to 40°C
Max. allowable operating speed in any direction	3000 RPM
Working pressure	7kg/cm² (100 psi)

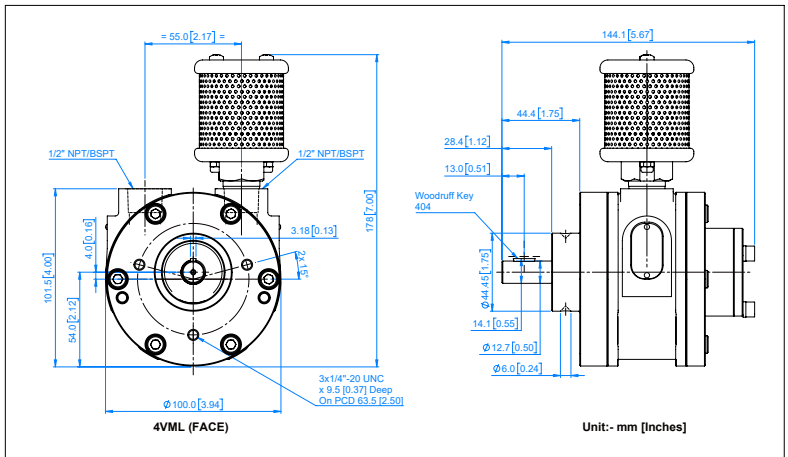
Air Consumption Graph



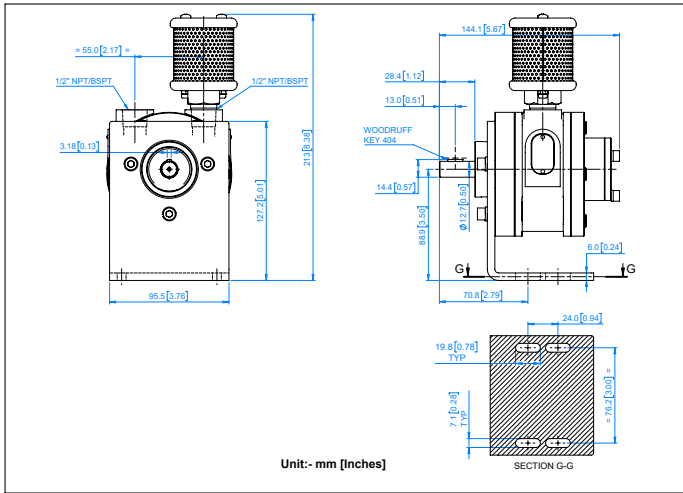
Dimensional Data - NEMA Mounting-4VM



Dimensional Data - Face Mounting-4VM



Dimensional Data - Foot Mounting-4VM

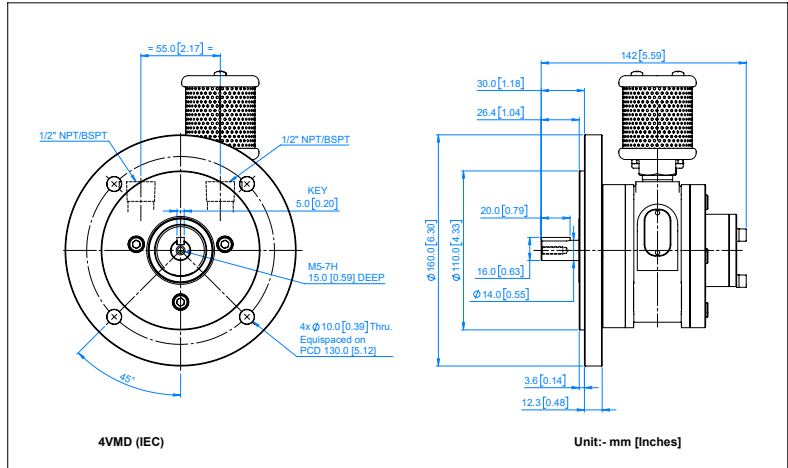


Muffler for 4VM Series

Part No	Description	Thread Connection
8059801	Muffler NPT	1/2" NPT
8059802	Muffler BSPT	1/2" BSPT



Dimensional Data - IEC Mounting-4VM



Explosion Proof
All Teryair air motors are ATEX approved and safe for use in explosive atmosphere.
Codes
Ex II 2GD Ex h IIC T6 Gb
Ex II 2GD Ex h IIIC T850C Db



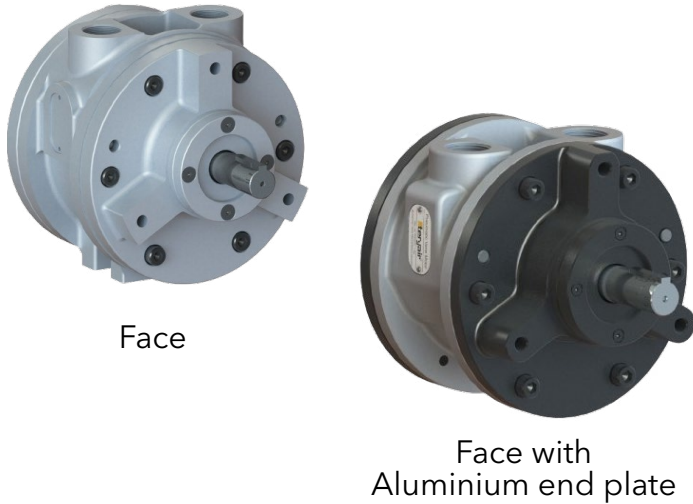
Approvals and Certifications
All Teryair air motors are CE marked and manufactured under an ISO 9001:2015 Quality system - SGS.



Added Features
Cool running
Variable speeds
Load to stall
Instantly reversible
Available as lube free
Available with ss construction
available with SS + Lube Free

Technical Data

6VM ATEX Pneumatic Vane Motor

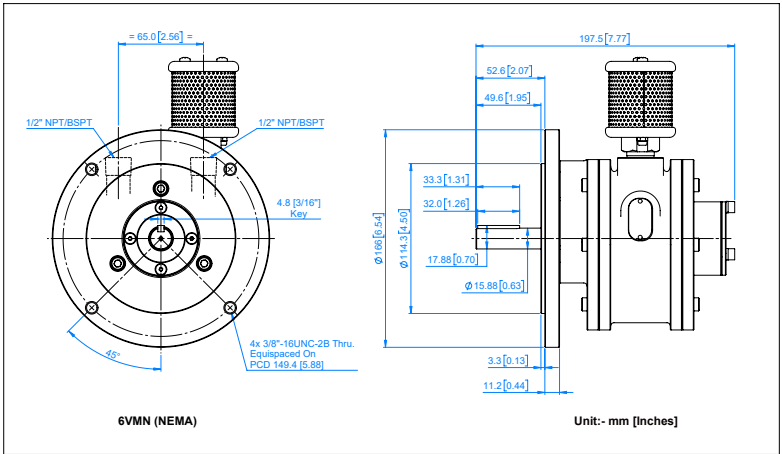


Note: These performance figures apply to a 4 vane model with an unrestricted exhaust.

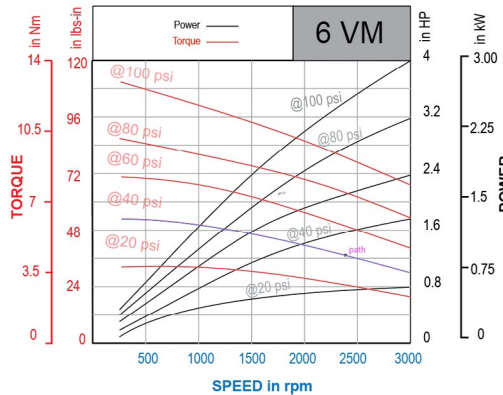
Performance

Max. output power	3kW (4hp)
Speed at max power	3000 RPM
Maximum torque	13Nm (115lb-In)
Air consumption at max. power	228m³/hr (134cfm)
Ambient safe operating temperature	
• Non explosive zone	0°C to 120°C
• Explosive zone	Up to 40°C
Max. allowable operating speed in any direction	3000 RPM
Working pressure	7kg/cm² (100 psi)

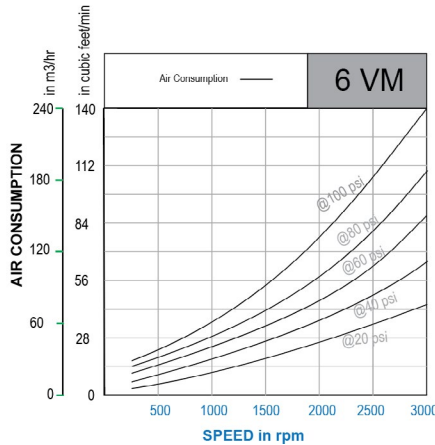
Dimensional Data - NEMA Mounting-6VM



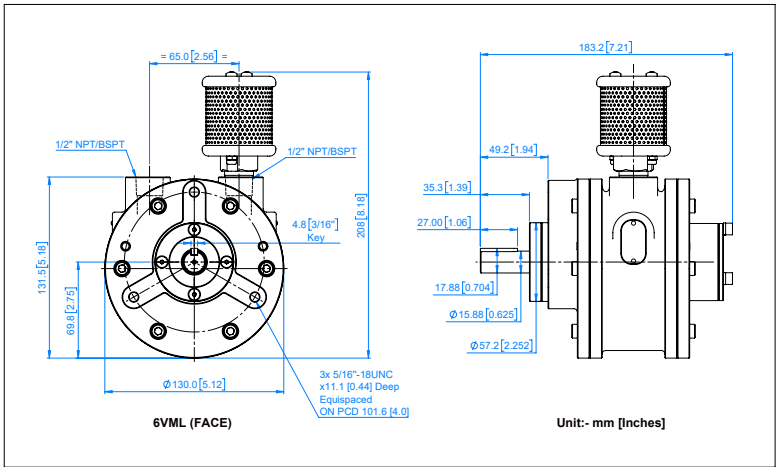
Power & Torque Graph



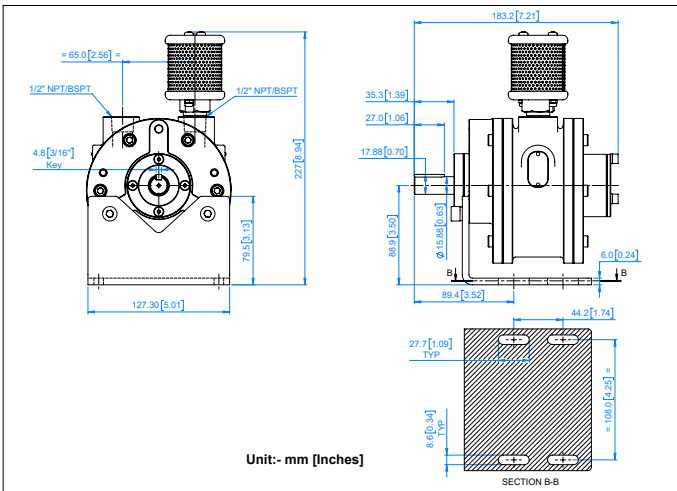
Air Consumption Graph



Dimensional Data - Face Mounting-6VM



Dimensional Data - Foot Mounting-6VM

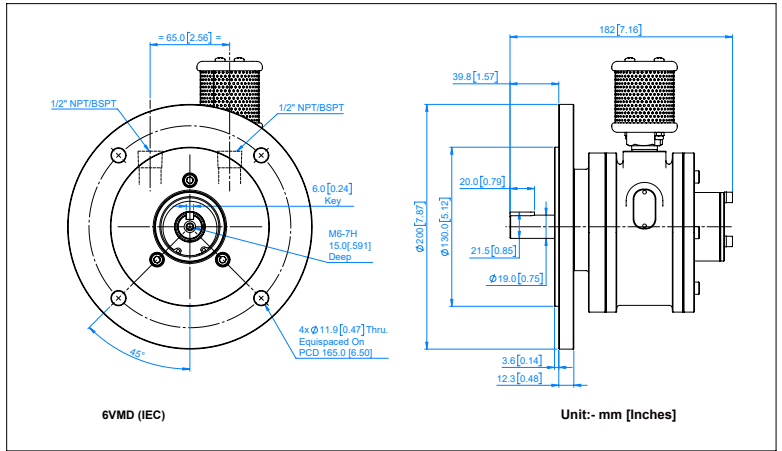


Muffler for 6VM Series

Part No	Description	Thread Connection
8059801	Muffler NPT	1/2" NPT
8059802	Muffler BSPT	1/2" BSPT



Dimensional Data - IEC Mounting-6VM



Ex Explosion Proof
All Teryair air motors are ATEX approved and safe for use in explosive atmosphere.
Codes
Ex II 2GD Ex h IIC T6 Gb
Ex II 2GD Ex h IIIC T850C Db

CE Approvals and Certifications
All Teryair air motors are CE marked and manufactured under an ISO 9001:2015 Quality system - SGS.

Added Features
Cool running
Variable speeds
Load to stall
Instantly reversible
Available as lube free
Available with ss construction
available with SS + Lube Free

Technical Data

8VM ATEX Pneumatic Vane Motor



Face



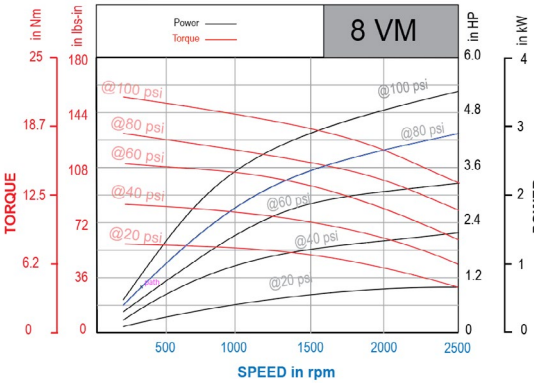
Face with Aluminium end plate

Note: These performance figures apply to a 4 vane model with an unrestricted exhaust.

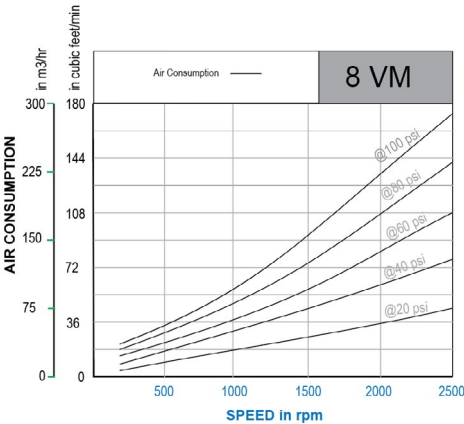
Performance

Max. output power	3.9kW (5.25hp)
Speed at max power	2500 RPM
Maximun torque	21Nm (185lb-In)
Air consumption at max. power	293m³/hr (175cfm)
Ambient safe operating temperature	
• Non explosive zone	0°C to 120°C
• Explosive zone	Up to 40°C
Max. allowable operating speed in any direction	2500 RPM
Working pressure	7kg/cm² (100 psi)

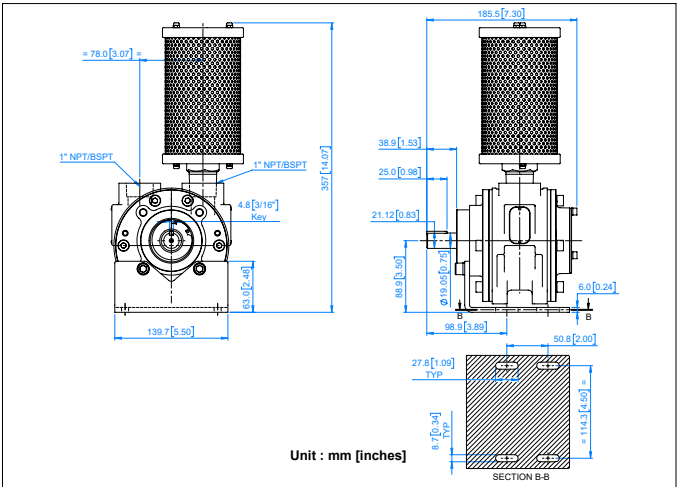
Power & Torque Graph



Air Consumption Graph



Dimensional Data - Foot Mounting-8VM

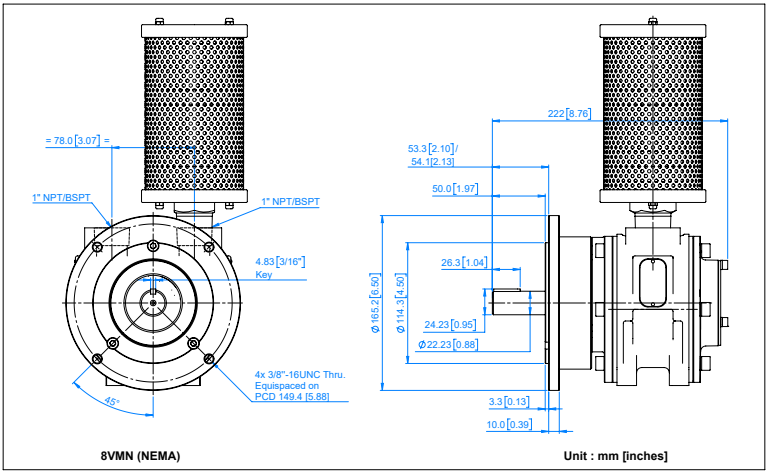


Muffler for 8VM Series

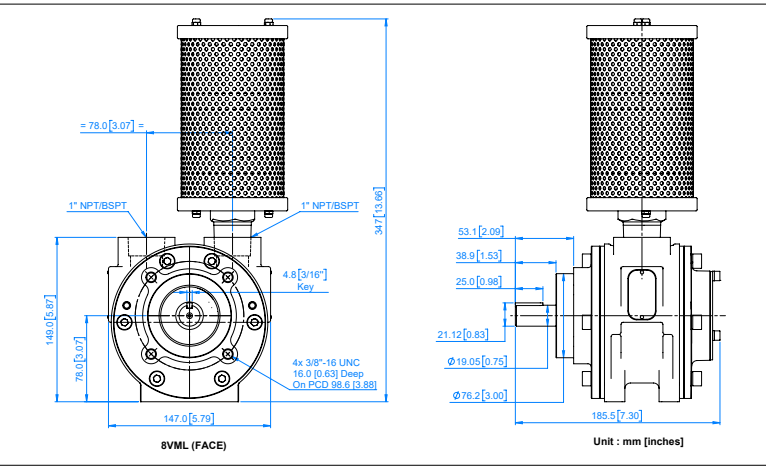
Part No	Description	Thread Connection
8069801	Muffler NPT	1" NPT
8069802	Muffler BSPT	1" BSPT



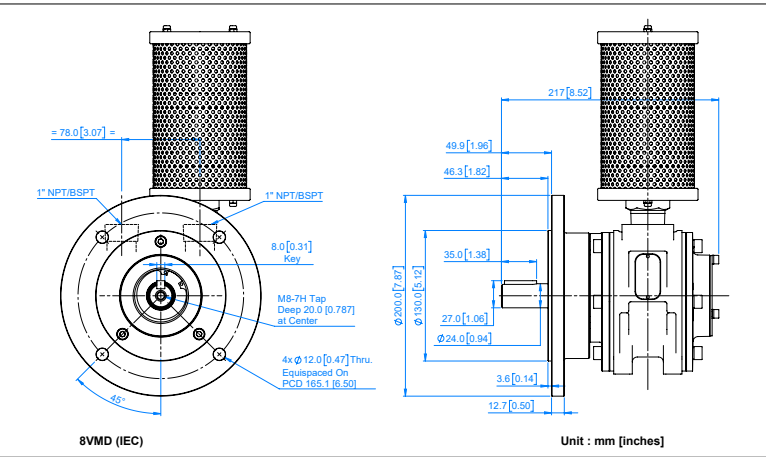
Dimensional Data - NEMA Mounting-8VM



Dimensional Data - Face Mounting-8VM



Dimensional Data - IEC Mounting-8VM



Explosion Proof
All Teryair air motors are ATEX approved and safe for use in explosive atmosphere.
Codes
Ex II 2GD Ex h IIC T6 Gb
Ex II 2GD Ex h IIIC T850C Db



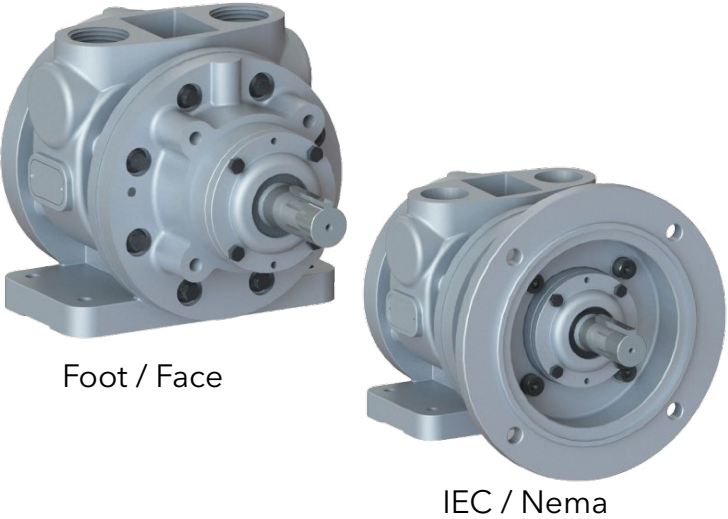
Approvals and Certifications
All Teryair air motors are CE marked and manufactured under an ISO 9001:2015 Quality system - SGS.



Added Features
Cool running
Variable speeds
Load to stall
Instantly reversible
Available as lube free
Available with ss construction
available with SS + Lube Free

Technical Data

16VM ATEX Pneumatic Vane Motor

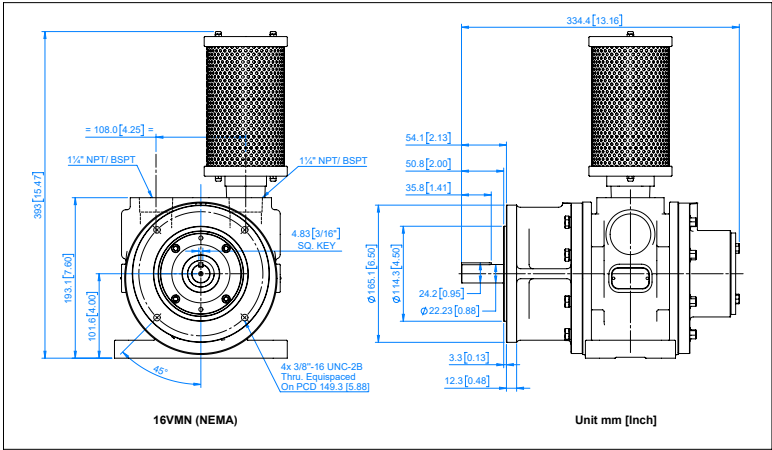


Note: These performance figures apply to a 4 vane model with an unrestricted exhaust.

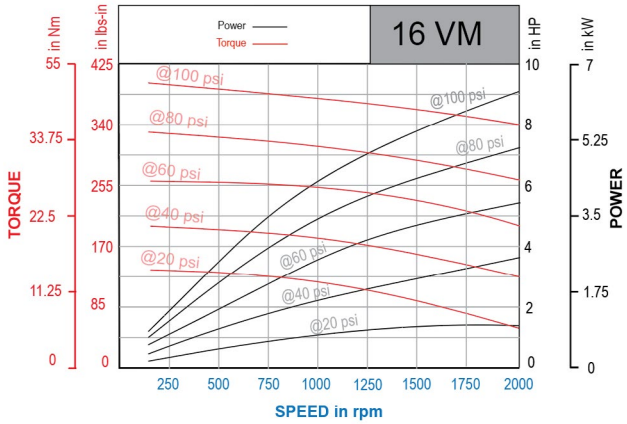
Performance

Max. output power	7.1kW (9.5hp)
Speed at max power	2000 RPM
Maximun torque	43Nm (380lb-In)
Air consumption at max. power	475m³/hr (275cfm)
Ambient safe operating temperature	
• Non explosive zone	0°C to 120°C
• Explosive zone	Up to 40°C
Max. allowable operating speed in any direction	2000 RPM
Working pressure	7kg/cm² (100 psi)

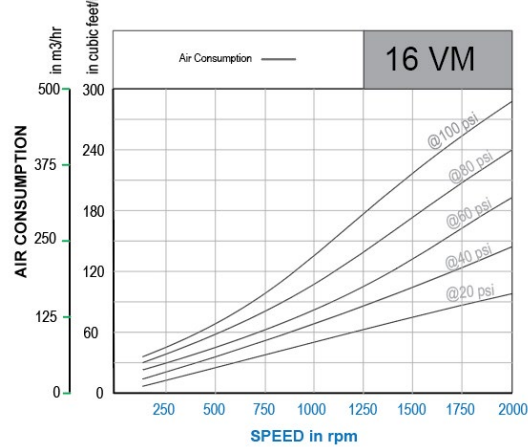
Dimensional Data - NEMA Mounting-16VM



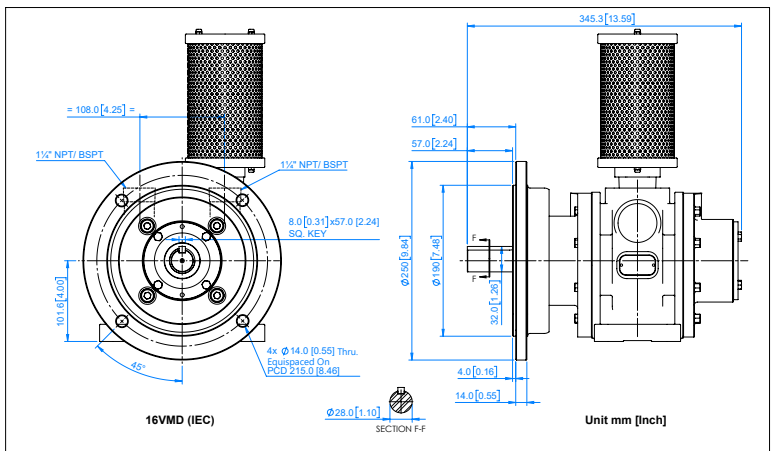
Power & Torque Graph



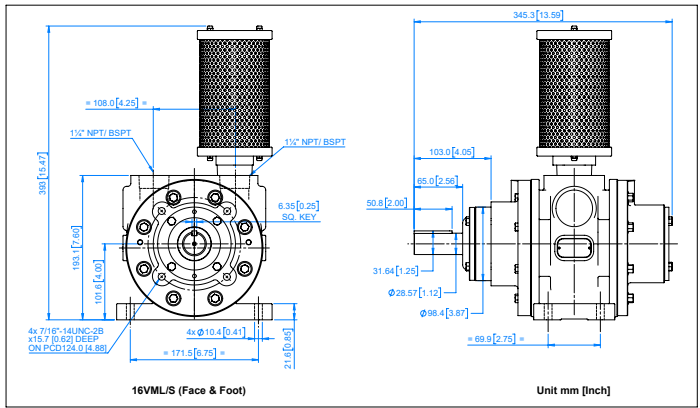
Air Consumption Graph



Dimensional Data - IEC Mounting-16VM



Dimensional Data - Face & Foot Mounting-16VM



Muffler for 16VM Series

Part No	Description	Thread Connection
6374030	Muffler NPT	1-1/4" NPT
8105004	Muffler BSPT	1-1/4" BSPT



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Added Features
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