

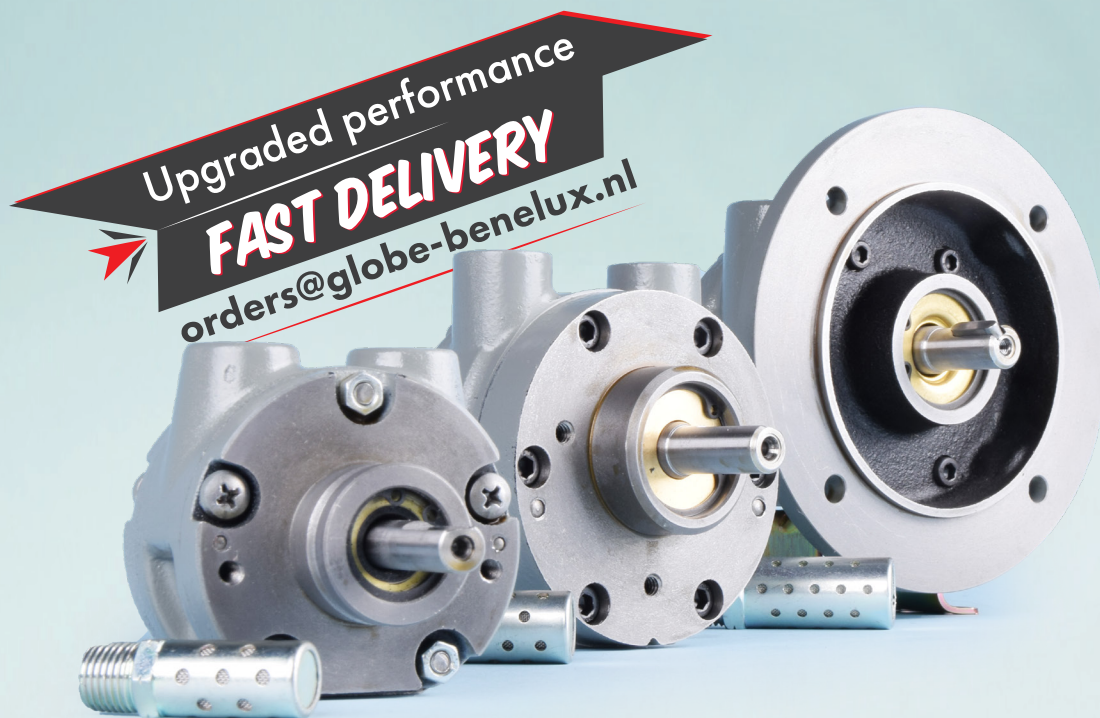


GLOBE AIRMOTORS B.V.

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Brochure

GLOBE Non-Lubricated Vane Air Motor



globe-airmotors.com

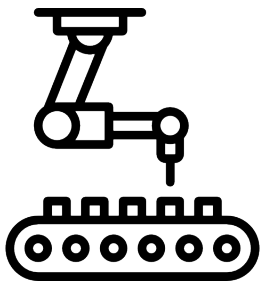
The GLOBE Non-Lubricated Vane Air Motors

The vane air motor is the most widely used design of air motor. They are available in a broad range of power and can operate in any position. Thanks to our unique and simple construction, this air motor is maintenance-friendly, easy to use and offers a long service life. Because of their design, these air motors are intrinsically safe, self-cooling and therefore very suitable for use in situations with explosion hazard and / or extreme conditions such as moisture and high temperatures. In addition, they are lighter and smaller than electric motors and when compared with piston air motor of similar power. Our Vane Air Motors are delivered as standard in accordance with ATEX.

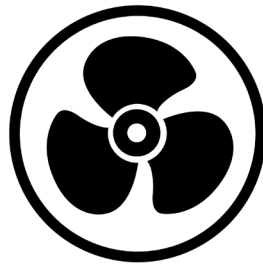
The air motors can be supplied in combination with a gearbox for higher torques and lower speeds. Custom built solutions are possible due to our own design and production department. All standard motors are available from stock.

Applications

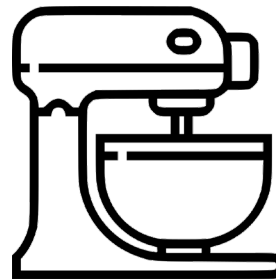
Vane air motors are used in numerous applications, most suitable for light to medium duty operation at higher direct shaft speeds. Most typical vane air motor applications are:



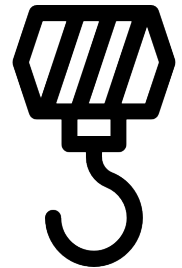
- Conveyor belts
- Packing machines
- Turntables



- After coolers
- Fans



- Mixing equipment



- Hoists
- Winches





Standard with ATEX Certification

The GLOBE Vane Air Motors are delivered as standard with ATEX. Our ATEX certificates are according to the following (harmonized) standards:

EN-ISO80079-36:2016

EN-ISO80079-37:2016

The motors are marked with the following EX marking:

    II 2G Ex h IIC T4 Gb
II 2D Ex h IIIC T135°C Db
-20° ≤ Ta ≤ + 60°C

In which:

II	Equipment group II for use above ground
2G	Category 2G for use in Zone 1 or 2
2D	Category 2D for use in Zone 21 or 22
Ex h	Protection by constructional safety "c" Gas
IIC	group IIC
IIIC	Dust group IIIC
T4	Temperature class T4
T5	Temperature class T5
T100°C	Maximum surface temperature 100°C
T135°C	Maximum surface temperature 135°C
Gb	Equipment protection level Gb
Db	Equipment protection level Db
Ta	Ambient temperature range

Advantages of a GLOBE Vane Air Motor

Vane air motors offer a unique form of drive and incorporate advantages not found in other prime movers. They are instantly reversible when operated with a simple control valve. The speed and torque are variable and controlled with a simple and inexpensive flow control valve and/or pressure regulator. Vane air motors are suitable for running on natural sweet gas and other gasses and controllable over a wide speed range. With no shock start up, the life span of your equipment will improve. Lastly, the high variety of mounting interfaces makes them easy to install.



Modular design

The vane motors can be expanded as desired with various accessories such as brakes, (control) valves and gearboxes.



Suitable for every operating condition

Our vane motors are safe to use in environments with high temperatures or humidity. Standard with ATEX Certification for extreme conditions in hazardous areas.



Robust

Our GLOBE Vane Air Motors can be overloaded or blocked for a long time without damage.

The GLOBE Vane Motors are compact and lightweight compared to equivalent electric and piston motors. Thanks to the unique and simple design, the GLOBE vane motors have less wear and tear. This ensures a longer life with less maintenance. The power and speed are easily adjusted by pressure and air flow. Our pneumatic motors can endure overload for a long amount of time and can even be blocked completely without damage to the motor.

GLOBE Vane Motors have a high starting torque, high efficiency and a superior power to weight ratio. Circular operation is possible even with a low number of revolutions. The motor can operate in two directions and is reversible in just a portion of a rotation. Permanent burdening in standstill is allowed. The GLOBE Vane Motors are insensitive to outside dirt and moist. All vanemotors are explosion-proof and are supplied with ATEX certification. Our vane motors can operate in all positions with a variable motorspeed.

Advantages of Non-Lubricated Vane Motors



New improved vanes:
higher efficiency



Easy and minimum
maintenance



No air line lubrication:
clean and hygienic operation



High reliability &
long service life

Non Lubricated Vane Air Motors don't need oil in operation, making them perfect for hygienic applications. The absence of oil will result in a cleaner surrounding area. Oilless operation also means that surrounding equipment can't come in contact with contaminating aerosols.

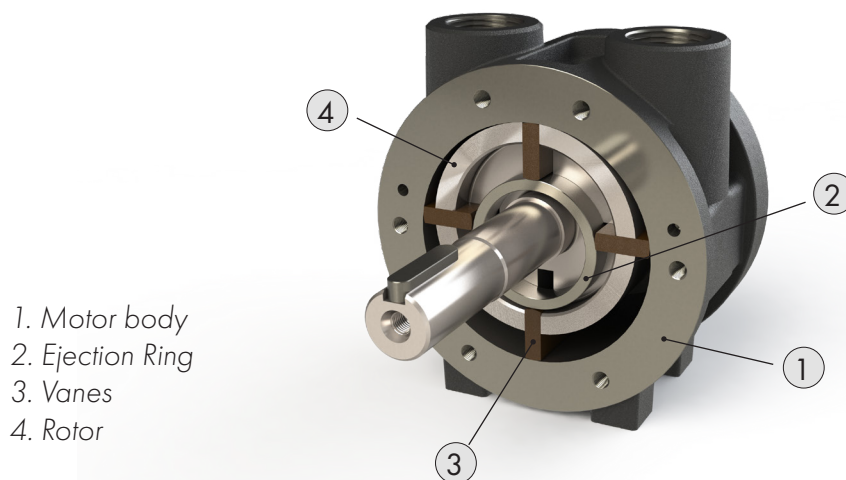
Working Principle

No pins or springs

The GLOBE construction is based on the principle of roller bearings. In this construction, the vanes are held together by the outer ring (the motor body, shown as 1 in the figure below) and the inner ring (the ejection ring, shown as 2 in the figure below). Two ejection rings are placed centrally from the motor body on the front and back side of the rotor, keeping the vanes (3) in place.

The rotor (4) is placed in an eccentric position from the motor body. With the GLOBE construction, the vanes have circular tips so the ejection ring is kept perfectly in the center of the motor body. Because the contact between the vanes and the motor body is spread over an arc, there is almost no clearance and wear of the vanes is low, giving the vanes a much longer life.

The ejection ring ensures that the vanes are constantly in contact with the motor body to avoid air leakage and loss of power. This provides the motor of a high positive start, also when the motor hasn't been used for a long time. Breakdown of the motor hardly occurs due to the GLOBE construction. This results in a **long lifetime** and an improvement of the motors **reliability**.



The GLOBE blade ejection system guarantees the blade position on start up, preventing free air flow from port to port and ensuring the motor produces its rated starting torque. The ejection ring design removes the requirement for pins or springs, the result is **low vane wear** and a **high motor reliability**.

UPGRADED PERFORMANCES

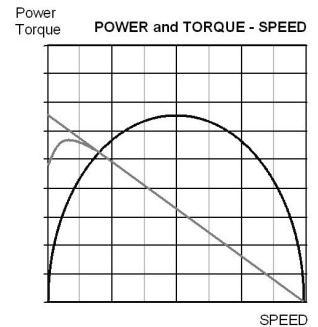
Our Non Lubricated Vane Air Motors are now even better! Upgrade your air motor today and choose the renewed GLOBE Non Lubricated Vane Air Motor! We have upgraded our Non Lubricated Vane Air Motors with new vanes, making them even stronger and more economical. On top of the new improved vanes, GLOBE Vane Motors have a high starting torque, high efficiency and a superior power to weight ratio. Breakdown of the motor hardly occurs due to the unique GLOBE construction. This results in a long lifetime and an improvement of the motors reliability.

Important information when buying a vane air motor

Air line restrictions on the inlet side of the motor will result in performance loss. Therefore it is important to make sure that the desired air pressure is available at the motor during operation. The pressure reading at the compressor or pressure regulator may be different than the pressure available at the motor. Performance loss can also occur by an exhaust restriction generating back pressure on the outlet side of the motor. An insufficient sized silencer, valve or coupling is usually the cause. For every type of vane air motor we sell, we have the correct accessories available at GLOBE. If you combine your air motor with GLOBE accessories, you are ensured of a long service life.

Power and torque

The output power of a vane motor varies as a function of speed and torque. The relationship when the air supply is not externally regulated is shown in the graphs on the right. A typical characteristic of vane air motors is the variable starting torque for a given input pressure; a result of the varying vane position at start up. This variation is different for every type of vane air motor. For applications with starting load, the minimum starting torque produced should be used in calculations. For lower speed operation with a high torque requirement, a large variety of gearboxes and combinations are available

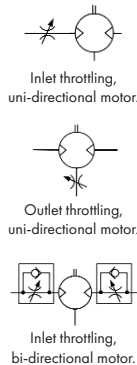
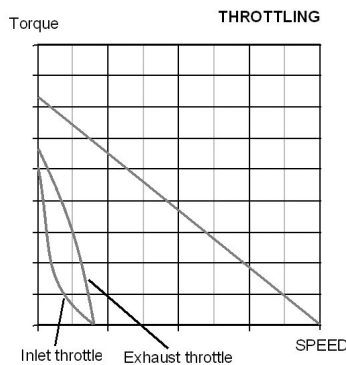


Controlling Speed, Torque and Power

The GLOBE Vane Air Motors are easy to control and one of the toughest and versatile type of motors available. The performance is dependent on the inlet pressure. When the inlet pressure is constant, the torque/speed output of the GLOBE Vane Air Motors will have a linear relation, as shown in the graphs below. By regulating the air supply, the output of the vane air motor can be altered. Regulating the air supply can be done with two methods: throttling and pressure regulation.

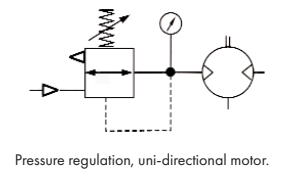
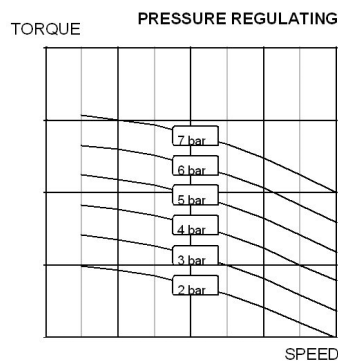
Throttling

The air flow is controlled by placing a flow control valve at the inlet port or the outlet port of the air motor. Throttling will reduce the maximum speed of the motor but will hardly affect the starting performance; the air pressure is unaffected at low flow conditions i.e. starting. Note the difference in the graph between throttling on the inlet port and outlet port.

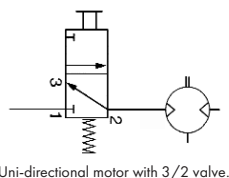


Pressure regulator

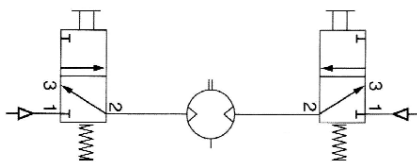
The speed and power can also be reduced by installing a pressure regulator on the incoming air supply. The pressure regulator reduces the air pressure to the motor. A pressure regulator must be fitted in the air supply line. By using a pressure regulator the torque on the output shaft will be affected, starting torque and/or power is best controlled with this method.



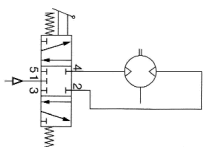
When both the speed and the torque are to be controlled the best configuration is to use a pressure regulator in the line to the motor and a flow control valve in the inlet port. This way every point in the torque-speed graph can be set accurately.



Uni-directional motor with 3/2 valve.



Bi-directional motor with two 3/2 valves.



Bi-directional motor with 5/3 valve.

Controlling the direction

The GLOBE vane air motors can be used both as a uni-directional and as a bi-directional air motor. When the air motor is used in a non-reversible application, it is sufficient to use a 2/2 or a 3/2 valve. For the reversible motor you can use either a 5/3 or two 3/2 valve to gain directional control.

Many accessories available

Our Vane Air Motors can be completed with many accessories. For an air motor, clean air is very important. That's why we can supply everything you need to make sure your GLOBE Vane Air Motor will maintain its maximum efficiency. Combine your air motor with a gearbox, control valve or brake to fit your needs. We also supply silencers which are a must-have for every air motor. We always recommend to combine a GLOBE Vane Air Motor with GLOBE Accessories to prevent loss of power or motor malfunctions. If you order your GLOBE Air Motor with our accessories, we can have it delivered to you completely assembled.



Also available in stainless steel

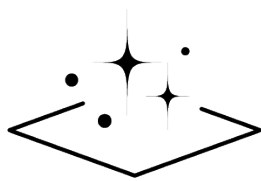
The GLOBE Vane Air Motors are available in various types and sizes, but are also available in stainless steel (INOX). The external parts of the vane motor are made of stainless steel. This makes it corrosion resistant and very suitable for hygienic applications. Stainless steel vane motors are commonly used in the food industry, in mixing applications and the chemical industry.

Also available with gearbox

The GLOBE Vane Air Motors can be controlled over a very wide speed range, but the output characteristics are not always ideal for your specific application. By mounting a gearbox to the air motor, specific speed and torque ranges can be selected. Our vane air motors are available with planetary, coaxial or worm gearbox. Check the available gearboxes for your desired vane air motor on its page in this brochure.



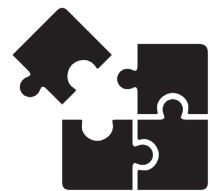
Standard with
ATEX



Available in
Stainless Steel (INOX)



Available with
gearbox



Many accessories
available

We can supply a Non Lubricated Vane Air Motor for every application and situation. Available in Stainless Steel and standard with ATEX Certification for safe operation in hazardous conditions. Combine your GLOBE Non Lubricated Vane Air Motor with a gearbox, brake and our many accessories to benefit the most from your GLOBE air motor!

Motor Selection

To be able to select the right air motor for your application, you will need at least two of the three following variables:

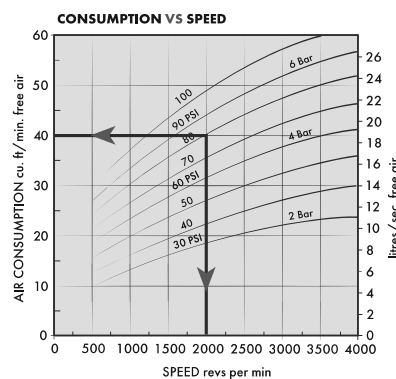
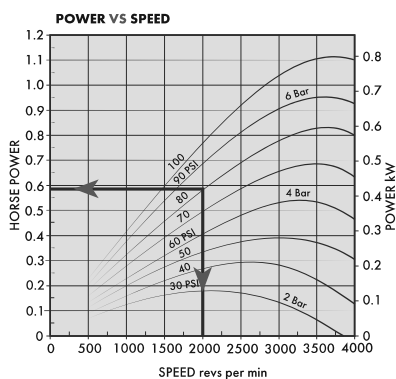
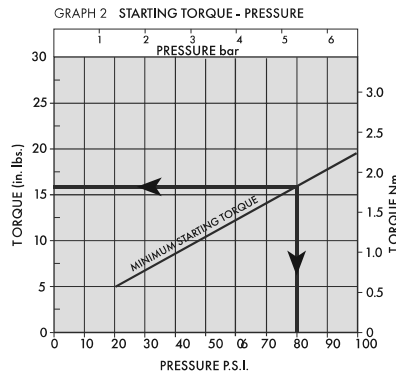
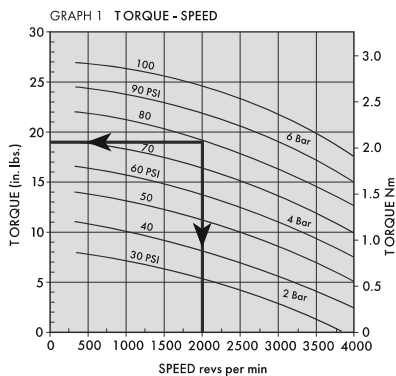
- Operating speed
- Torque
- Power

This will establish the so called 'working point' and will make selecting the right air motor easy. Once the working point has been established, the right air motor can be selected using the graphs included in the specifications of our vane air motors. Vane air motors have a wide operating range, so it is possible that multiple air motors fit your desired operating speed and torque.

Where motors are not required to start under load, such as fan drives, selection may be made using either Graph 1 or Graph 3 using the required running torque or power only. For applications where the motor starts under load, such as hoists, winches or track drives, the starting torque in Graph 2 must also be considered.

Our vane air motors can be combined with brakes and gearboxes, to achieve higher torques at lower speeds. Our specialist can always help you find the perfect air motor for your application. If you have questions about your motor selection, don't hesitate to contact us. We are happy to help you find the right solution for your application!

info@globe-benelux.nl



Example of the performance graphs for the V2 Vane Air Motor

How to use this catalogue

To help you decide which GLOBE Vane Air Motor is best suited for your application, this catalogue provides you all the information you need. For every type of vane air motor, we have the following information available:

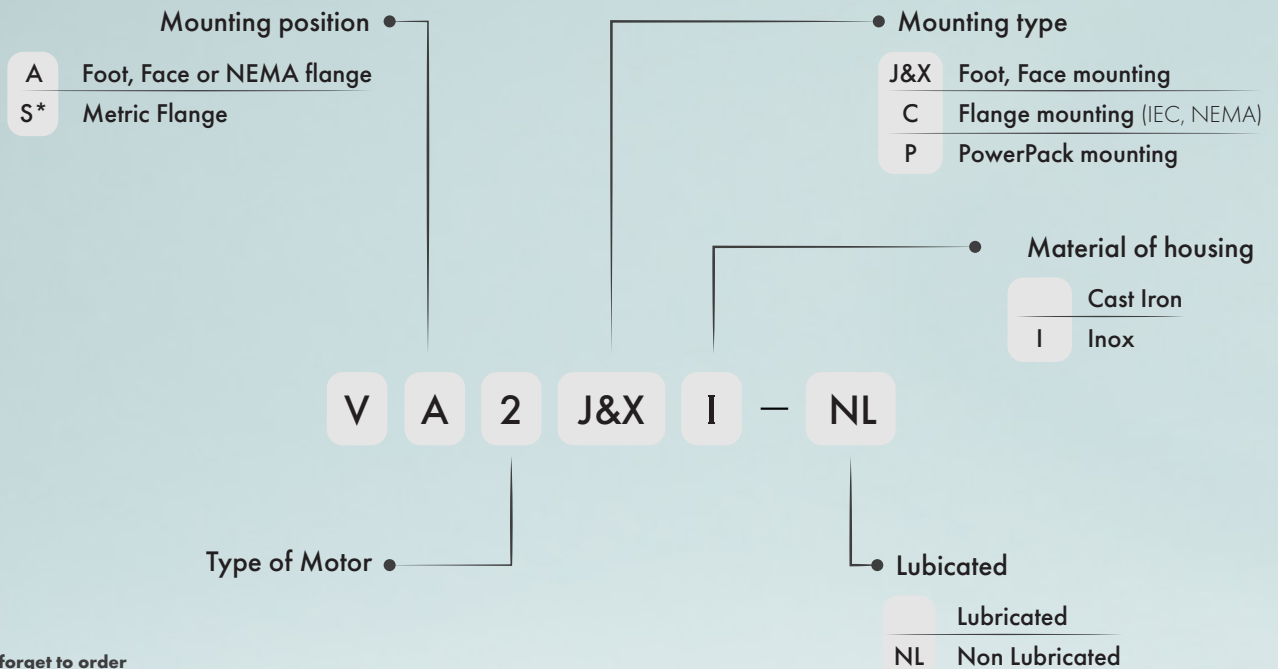
- Essential specifications and options
- Performance graphs

This catalogue concludes with an overview with all available accessories for our vane air motor. These accessories are selected to help you maintain your air motors maximum efficiency and service life. Do not hesitate to contact our specialists for more information or assistance, we are always happy to help!

info@globe-benelux.nl

Ordering code

Select easily with the ordering code your version and order it at our sales team. Do you have special wishes? For example ATEX Certified, oil free, different mountings, gearboxes, brakes etc. You name it and we make it possible. Contact us for your wishes and we will be happy to engineer a proposal to suit your requirements.



Don't forget to order your GLOBE Silencer!

Order your
VANE AIR MOTOR:
orders@globe-benelux.nl

All our Vane Air Motors are delivered with the ATEX Certificate:

-20° ≤ Ta ≤ +60°C

* The VS types are only available with mouting type C (for example VS8C).

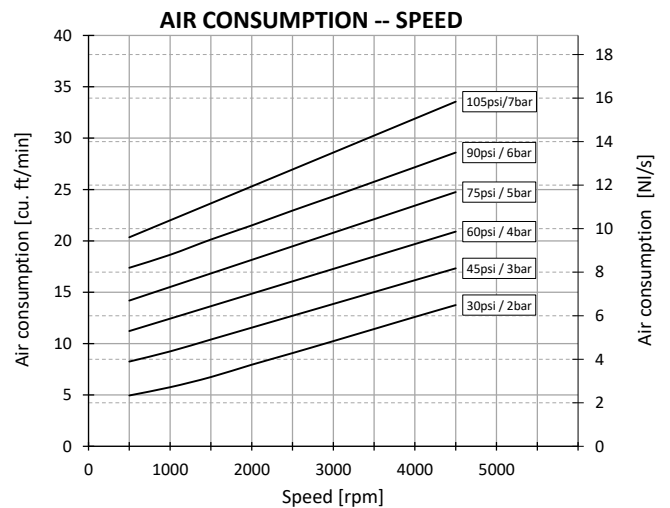
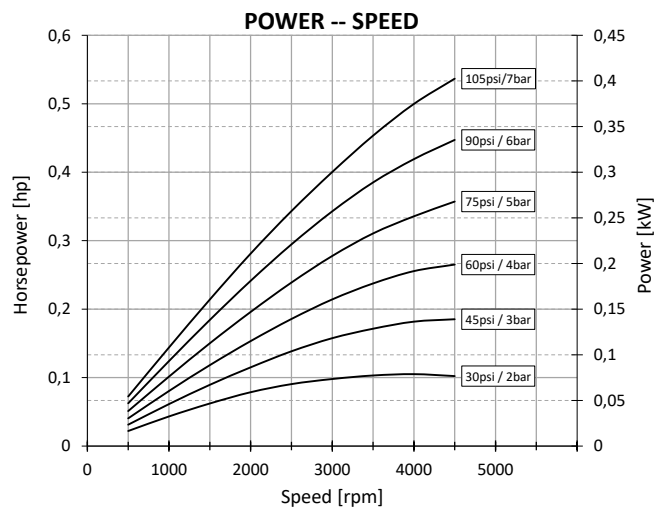
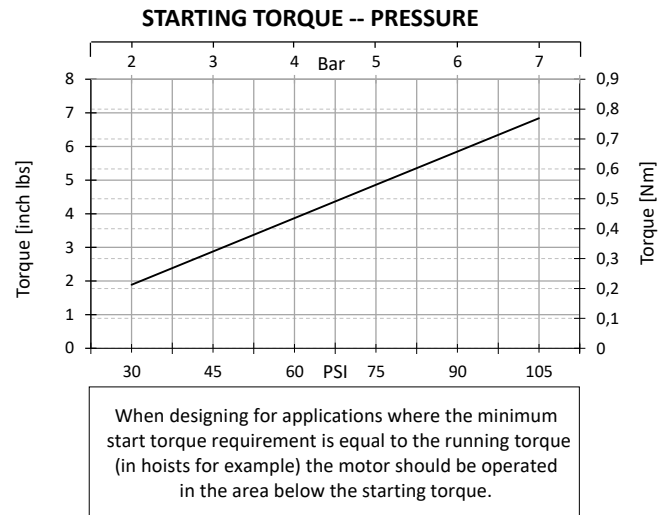
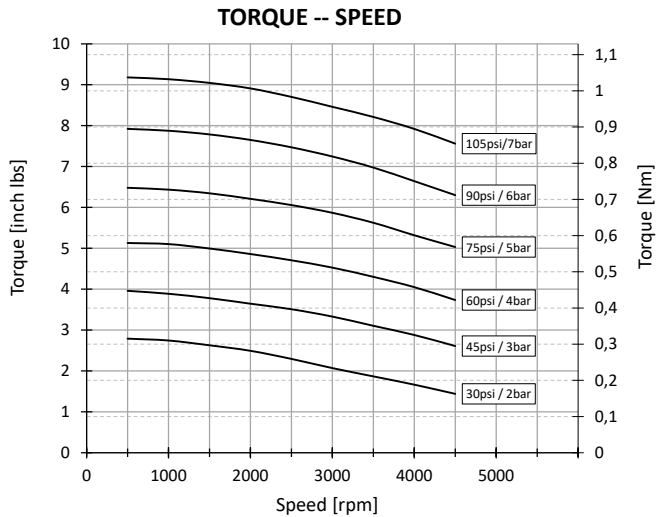
Performance specifications

Vane Motor	Max. Power		Torque at max power		Stall torque		Min. starting torque		Max. speed of rotation
	Kw.	H.P.	Nm.	lbs.	Nm.	lbs.	Nm.	lbs.	
V1-NL	0.40	0.54	0,85	7,56 inch lbs	0,98	8,64 inch lbs.	0,79	7,02 inch lbs.	4500 RPM
V2-NL	0,72	0.97	2,30	20,39 inch lbs	3,05	27 inch lbs	2,03	18 inch lbs	3000 RPM
V4-NL	1,59	2.13	5,06	4,50 ft.lbs	6,10	4,50 ft.lbs	4,27	3,22 ft.lbs	3000 RPM
V6-NL	2,73	3,66	11,59	8,55 ft.lbs	12,69	9,36 ft.lbs	7,69	5,67 ft.lbs	2250 RPM
V8-NL	4,17	5.59	17,7	13.5 ft lbs	20,14	14.85 ft lbs	15,38	11,34 ft lbs	2250 RPM
V10-NL	7,25	9.72	38,44	28.35 ft lbs	41.49	30.60 ft lbs	33,56	24,75 ft lbs	1600 RPM
V12-NL	9,48	12.71	67,05	49,45 ft.lbs	98,85	72,90 ft.lbs.	64,80	47,79 ft.lbs	1350 RPM

Performance V1-NL

Performance specifications

Vane Motor	Max. Power		Torque at max pauer		Stall torque		Min. starting torque		Max. speed of rotation
	Kw.	H.P.	Nm.	lbs.	Nm.	lbs.	Nm.	lbs.	
V1-NL	0.40	0.54	0,85	7,56 inch lbs	0,98	8,64 inch lbs.	0,79	7,02 inch lbs.	4500 RPM



Air quality and filtration:

Use 5 micron filtration. The air has to be dry to prevent corrosion inside the motor when it is not in use. Advisable is to use an air dryer with set point of 20 degrees Celsius below lowest ambient temperature.

- » Silencer supplied with motor.
- » Motor is reversible.
- » Maximum temperature for ATEX applications
-20°C to +60°C (-4°F to +140°F)
- » Maximum temperature for non-ATEX applications
-20°C to +80°C (-4°F to +176°F)

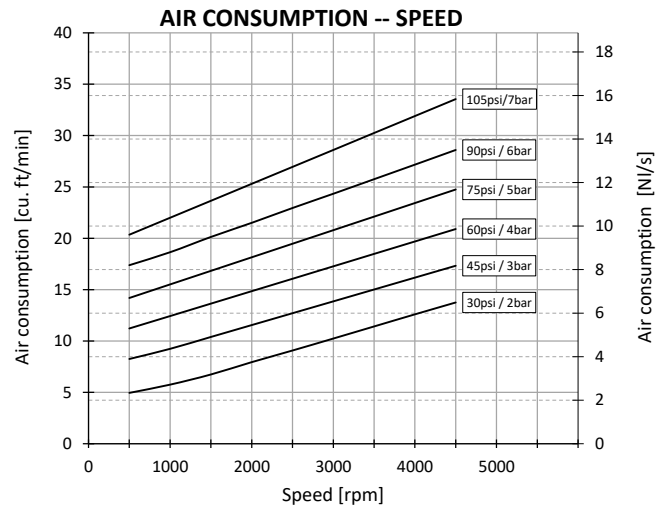
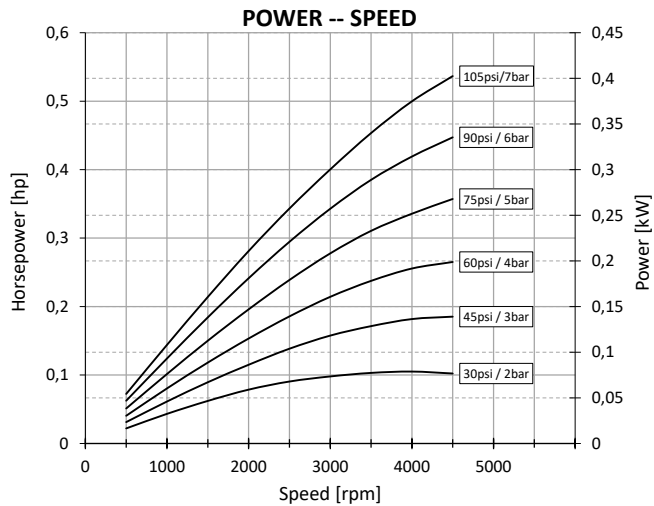
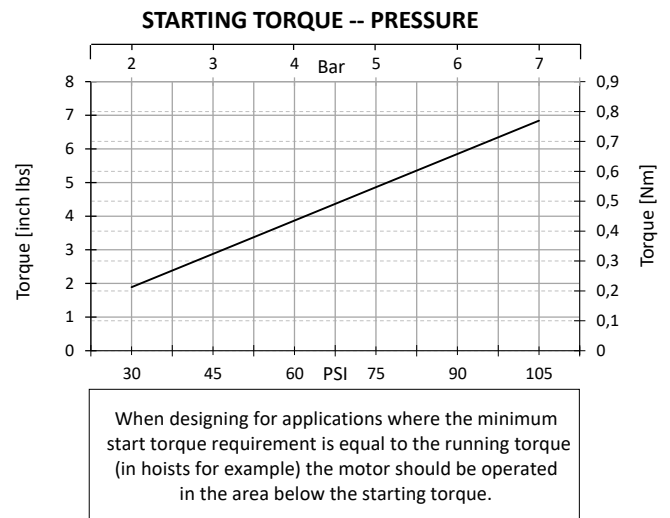
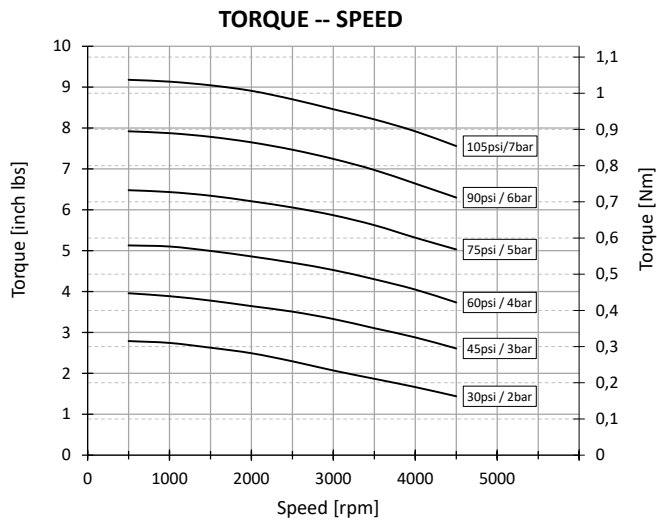
Maximum speed 4500 rpm | Contineous speed 3000 rpm

Life time depends highly on operational speed and air pressure. Continuous duty is best suited to non lubricated operation. Moisture in the air can cause corrosion problems during rest periods.

Performance V2-NL

Performance specifications

Vane Motor	Max. Power		Torque at max power		Stall torque		Min. starting torque		Max. speed of rotation
	Kw.	H.P.	Nm.	lbs.	Nm.	lbs.	Nm.	lbs.	
V2-NL	0,72	0.97	2,30	20,39 inch lbs	3,05	27 inch lbs	2,03	18 inch lbs	3000 RPM



Air quality and filtration:

Use 5 micron filtration. The air has to be dry to prevent corrosion inside the motor when it is not in use. Advisable is to use an air dryer with set point of 20 degrees Celsius below lowest ambient temperature.

- » Silencer supplied with motor.
- » Motor is reversible.
- » Maximum temperature for ATEX applications
-20°C to +60°C (-4°F to +140°F)
- » Maximum temperature for non-ATEX applications
-20°C to +80°C (-4°F to +176°F)

Maximum speed 3000 rpm | Continuous speed 2000 rpm

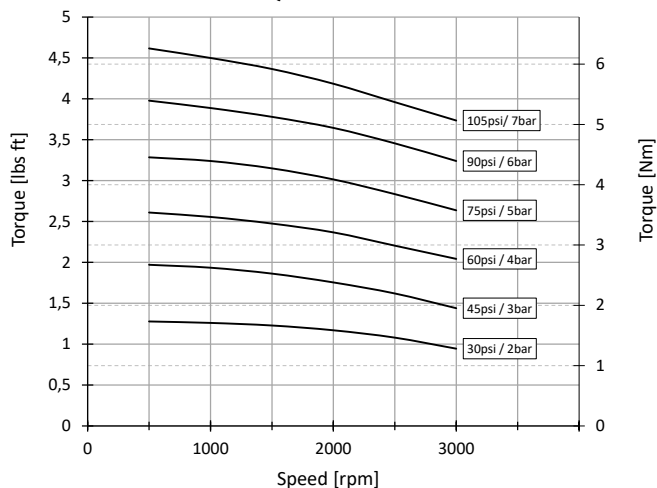
Life time depends highly on operational speed and air pressure. Continuous duty is best suited to non lubricated operation. Moisture in the air can cause corrosion problems during rest periods.

Performance V4-NL

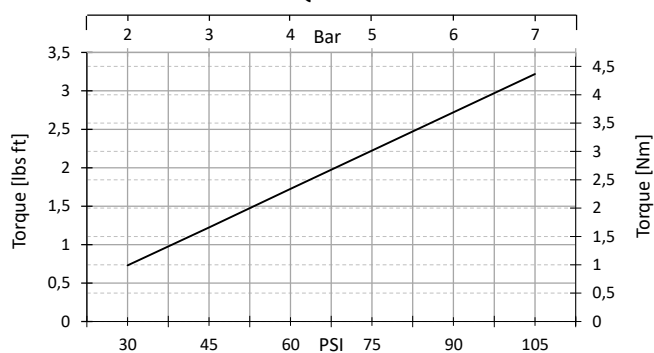
Performance specifications

Vane Motor	Max. Power		Torque at max power		Stall torque		Min. starting torque		Max. speed of rotation
	Kw.	H.P.	Nm.	lbs.	Nm.	lbs.	Nm.	lbs.	
V4-NL	1,59	2.13	5,06	4,50 ft.lbs	6,10	4,50 ft.lbs	4,27	3,22 ft.lbs	3000 RPM

TORQUE -- SPEED

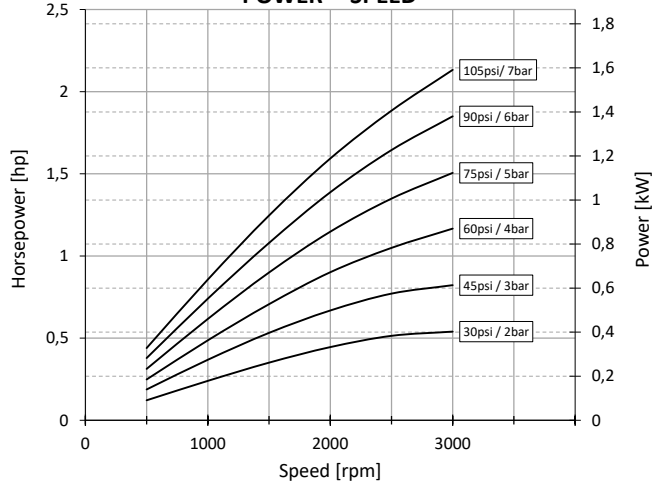


STARTING TORQUE -- PRESSURE

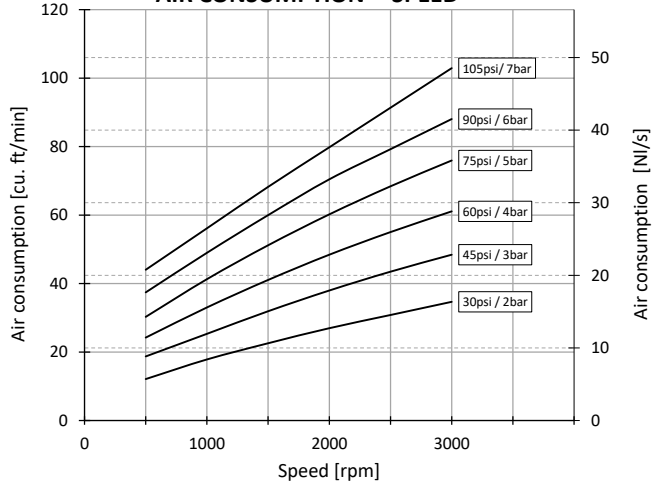


When designing for applications where the minimum start torque requirement is equal to the running torque (in hoists for example) the motor should be operated in the area below the starting torque.

POWER -- SPEED



AIR CONSUMPTION -- SPEED



Air quality and filtration:

Use 5 micron filtration. The air has to be dry to prevent corrosion inside the motor when it is not in use. Advisable is to use an air dryer with set point of 20 degrees Celsius below lowest ambient temperature.

- » Silencer supplied with motor.
- » Motor is reversible.
- » Maximum temperature for ATEX applications
-20°C to +60°C (-4°F to +140°F)
- » Maximum temperature for non-ATEX applications
-20°C to +80°C (-4°F to +176°F)

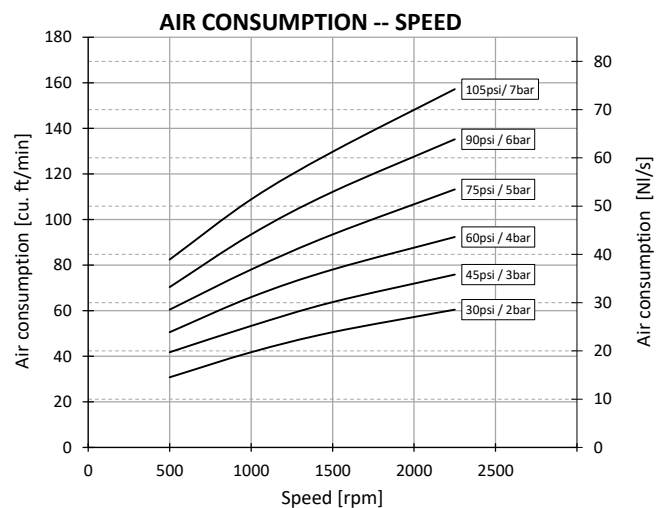
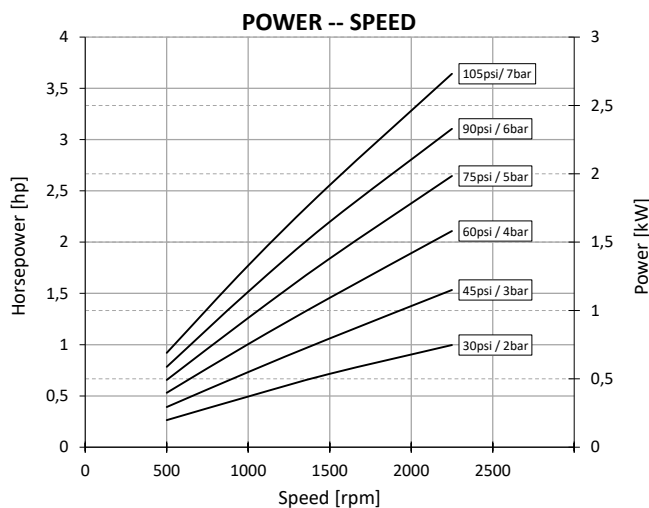
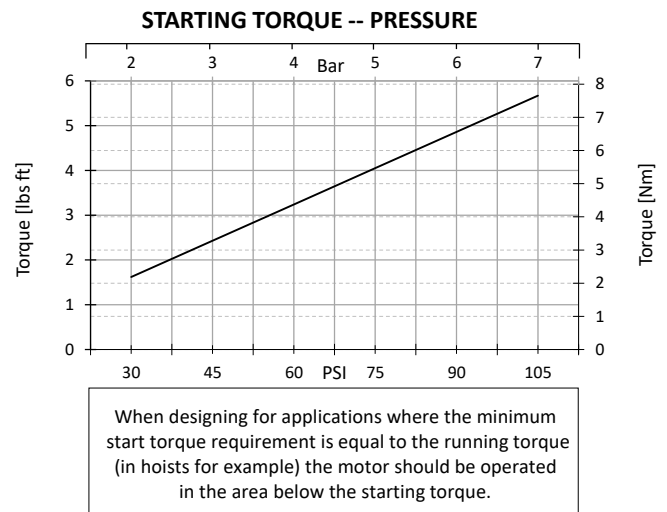
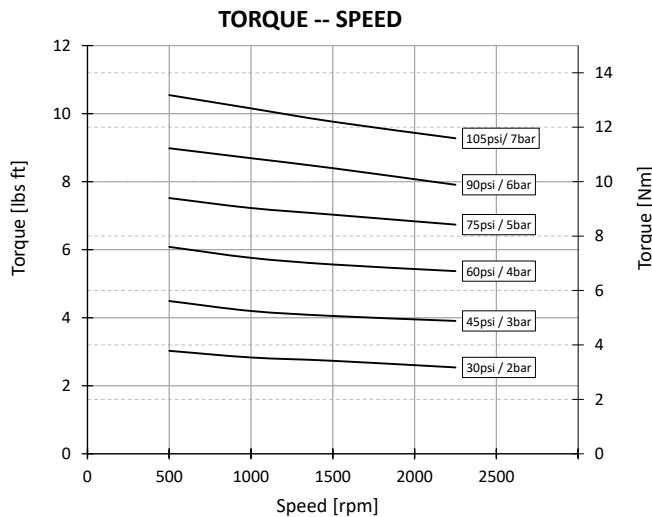
Maximum speed 3000 rpm | Continuous speed 2000 rpm

Life time depends highly on operational speed and air pressure. Continuous duty is best suited to non lubricated operation. Moisture in the air can cause corrosion problems during rest periods.

Performance V6-NL

Performance specifications

Vane Motor	Max. Power		Torque at max power		Stall torque		Min. starting torque		Max. speed of rotation
	Kw.	H.P.	Nm.	lbs.	Nm.	lbs.	Nm.	lbs.	
V6-NL	2,73	3,66	11,59	8,55 ft.lbs	12,69	9,36 ft.lbs	7,69	5,67 ft.lbs	2250 RPM



Air quality and filtration:

Use 5 micron filtration. The air has to be dry to prevent corrosion inside the motor when it is not in use. Advisable is to use an air dryer with set point of 20 degrees Celsius below lowest ambient temperature.

- » Silencer supplied with motor.
- » Motor is reversible.
- » Maximum temperature for ATEX applications
-20°C to +60°C (-4°F to +140°F)
- » Maximum temperature for non-ATEX applications
-20°C to +80°C (-4°F to +176°F)

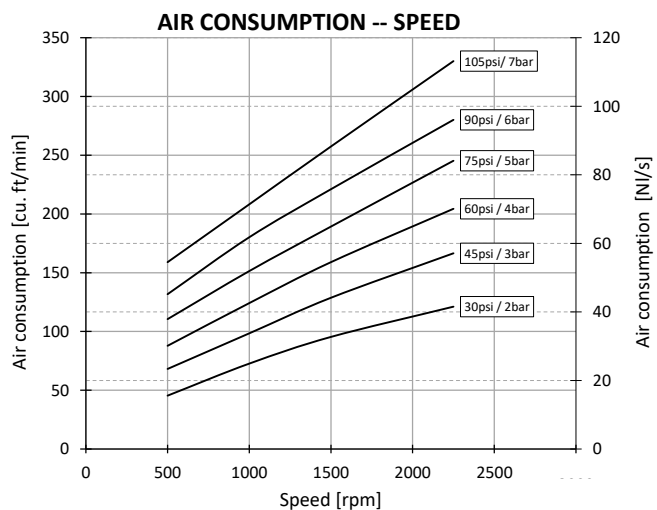
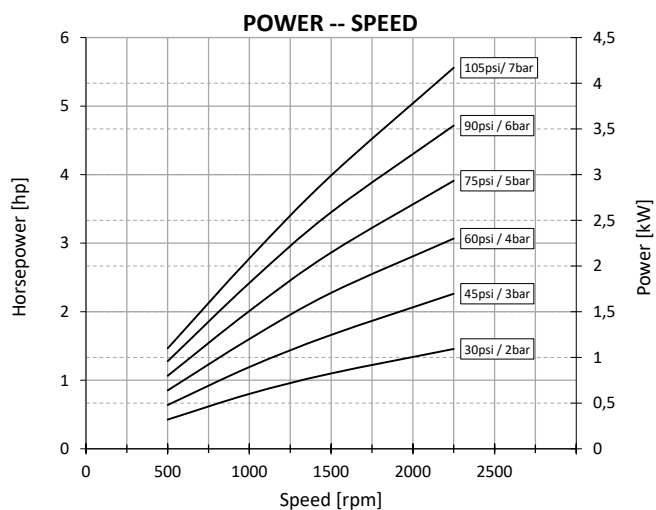
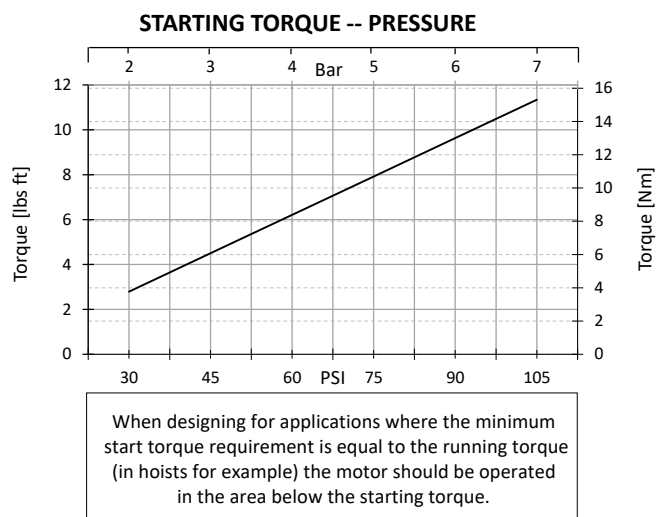
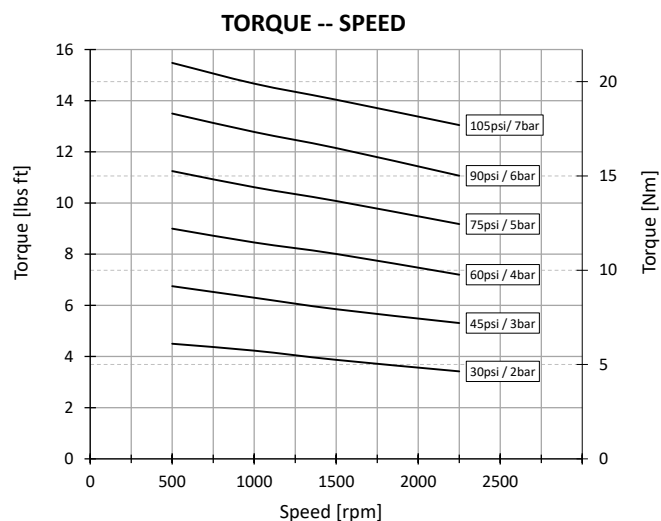
Maximum speed 2250 rpm | Continuous speed 1500 rpm

Life time depends highly on operational speed and air pressure. Continuous duty is best suited to non lubricated operation. Moisture in the air can cause corrosion problems during rest periods.

Performance V8-NL

Performance specifications

Vane Motor	Max. Power		Torque at max power		Stall torque		Min. starting torque		Max. speed of rotation
	Kw.	H.P.	Nm.	lbs.	Nm.	lbs.	Nm.	lbs.	
V8-NL	4,17	5.59	17,7	13.5 ft lbs	20,14	14.85 ft lbs	15,38	11,34 ft lbs	2250 RPM



Air quality and filtration:

Use 5 micron filtration. The air has to be dry to prevent corrosion inside the motor when it is not in use. Advisable is to use an air dryer with set point of 20 degrees Celsius below lowest ambient temperature.

- » Silencer supplied with motor.
- » Motor is reversible.
- » Maximum temperature for ATEX applications
-20°C to +60°C (-4°F to +140°F)
- » Maximum temperature for non-ATEX applications
-20°C to +80°C (-4°F to +176°F)

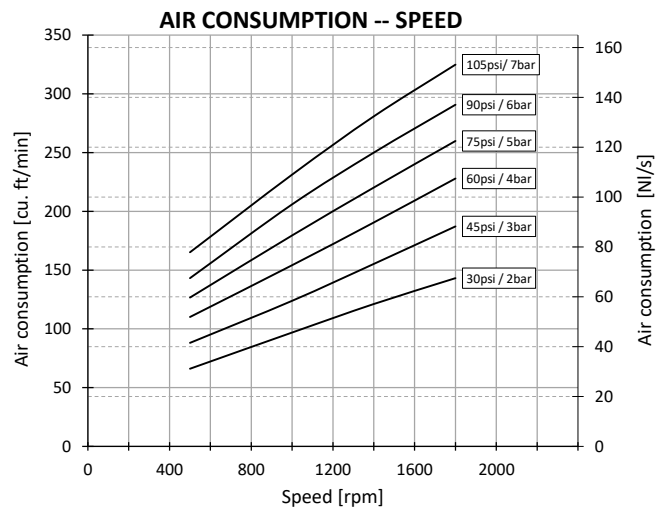
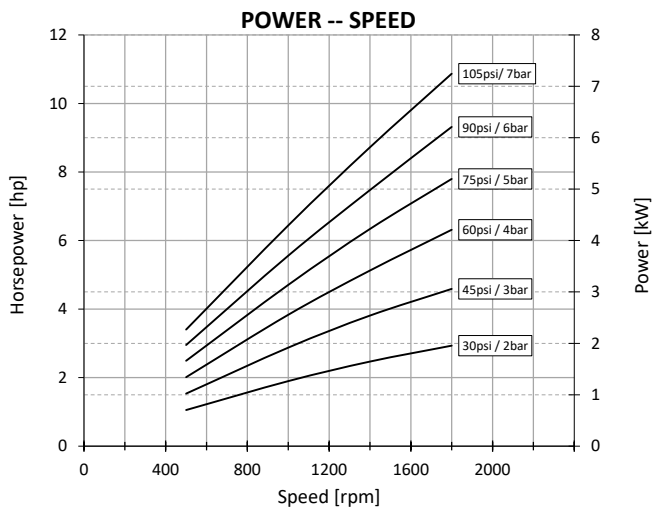
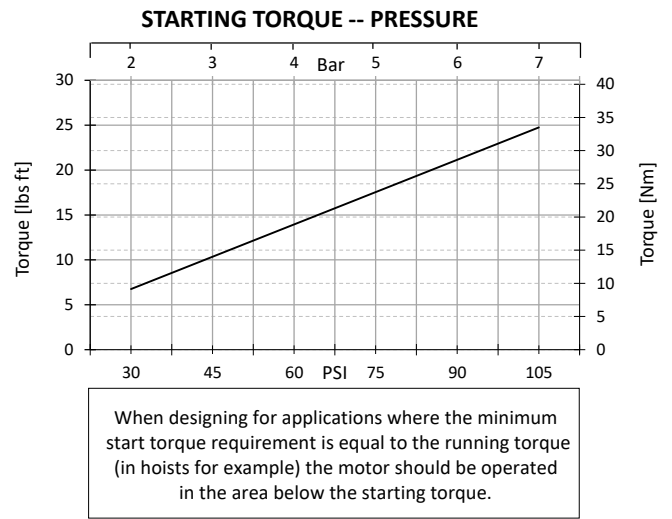
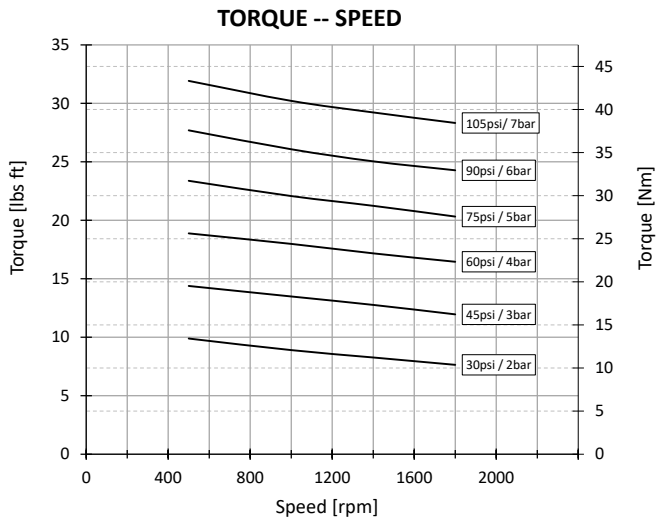
Maximum speed 2250 rpm | Continuous speed 1500 rpm

Life time depends highly on operational speed and air pressure. Continuous duty is best suited to non lubricated operation. Moisture in the air can cause corrosion problems during rest periods.

Performance V10-NL

Performance specifications

Vane Motor	Max. Power		Torque at max power		Stall torque		Min. starting torque		Max. speed of rotation
	Kw.	H.P.	Nm.	lbs.	Nm.	lbs.	Nm.	lbs.	
V10-NL	7,25	9.72	38,44	28.35 ft lbs	41.49	30.60 ft lbs	33,56	24,75 ft lbs	1600 RPM



Air quality and filtration:

Use 5 micron filtration. The air has to be dry to prevent corrosion inside the motor when it is not in use. Advisable is to use an air dryer with set point of 20 degrees Celsius below lowest ambient temperature.

- » Silencer supplied with motor.
- » Motor is reversible.
- » Maximum temperature for ATEX applications
-20°C to +60°C (-4°F to +140°F)
- » Maximum temperature for non-ATEX applications
-20°C to +80°C (-4°F to +176°F)

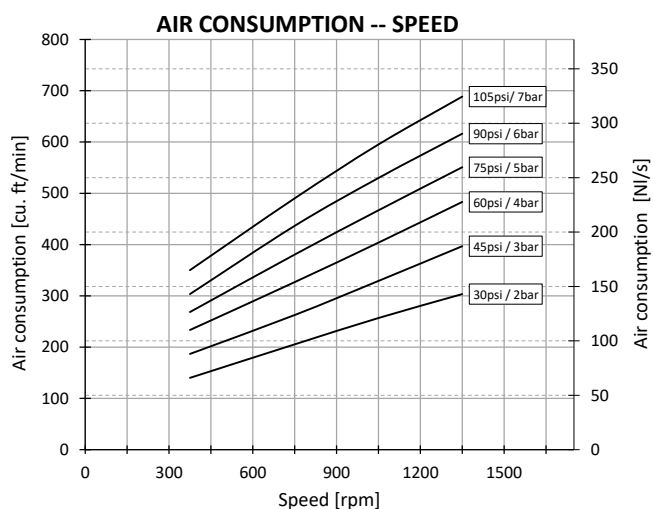
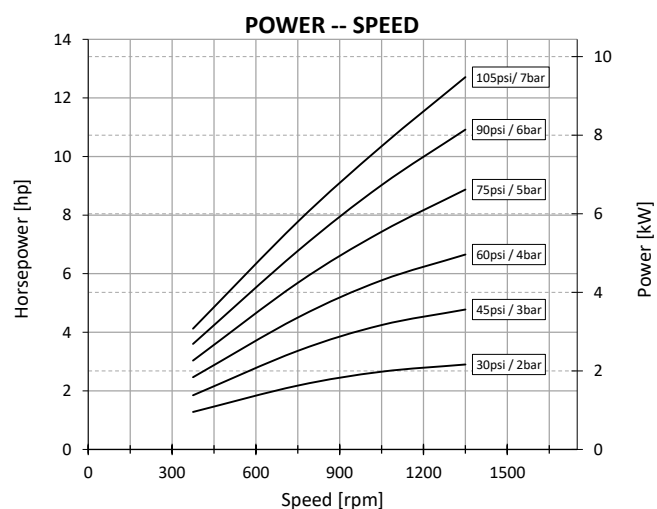
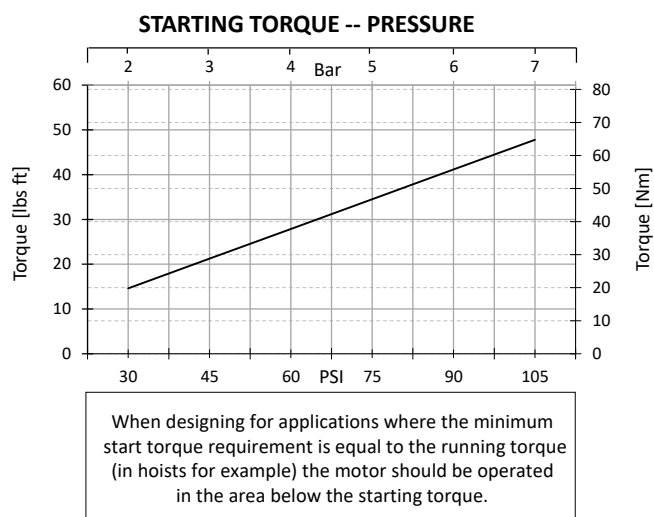
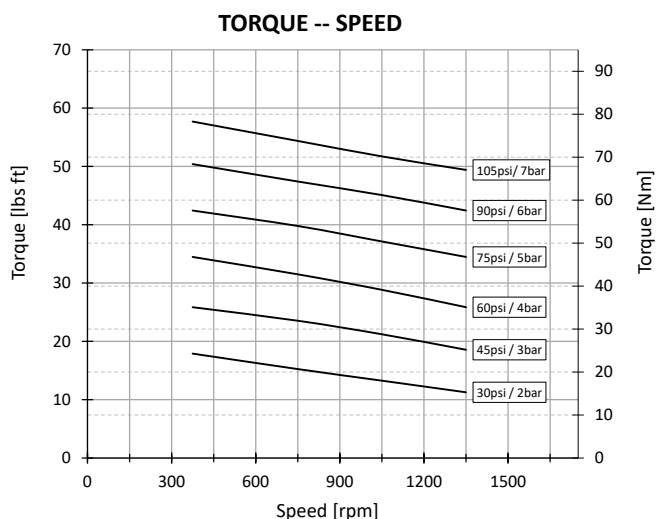
Maximum speed 1800 rpm | Contineous speed 1200 rpm

Life time depends highly on operational speed and air pressure. Continuous duty is best suited to non lubricated operation. Moisture in the air can cause corrosion problems during rest periods.

Performance V12-NL

Performance specifications

Vane Motor	Max. Power		Torque at max power		Stall torque		Min. starting torque		Max. speed of rotation
	Kw.	H.P.	Nm.	lbs.	Nm.	lbs.	Nm.	lbs.	
V12-NL	9,48	12.71	67,05	49,45 ft.lbs	98,85	72,90 ft.lbs.	64,80	47,79 ft.lbs	1350 RPM



Air quality and filtration:

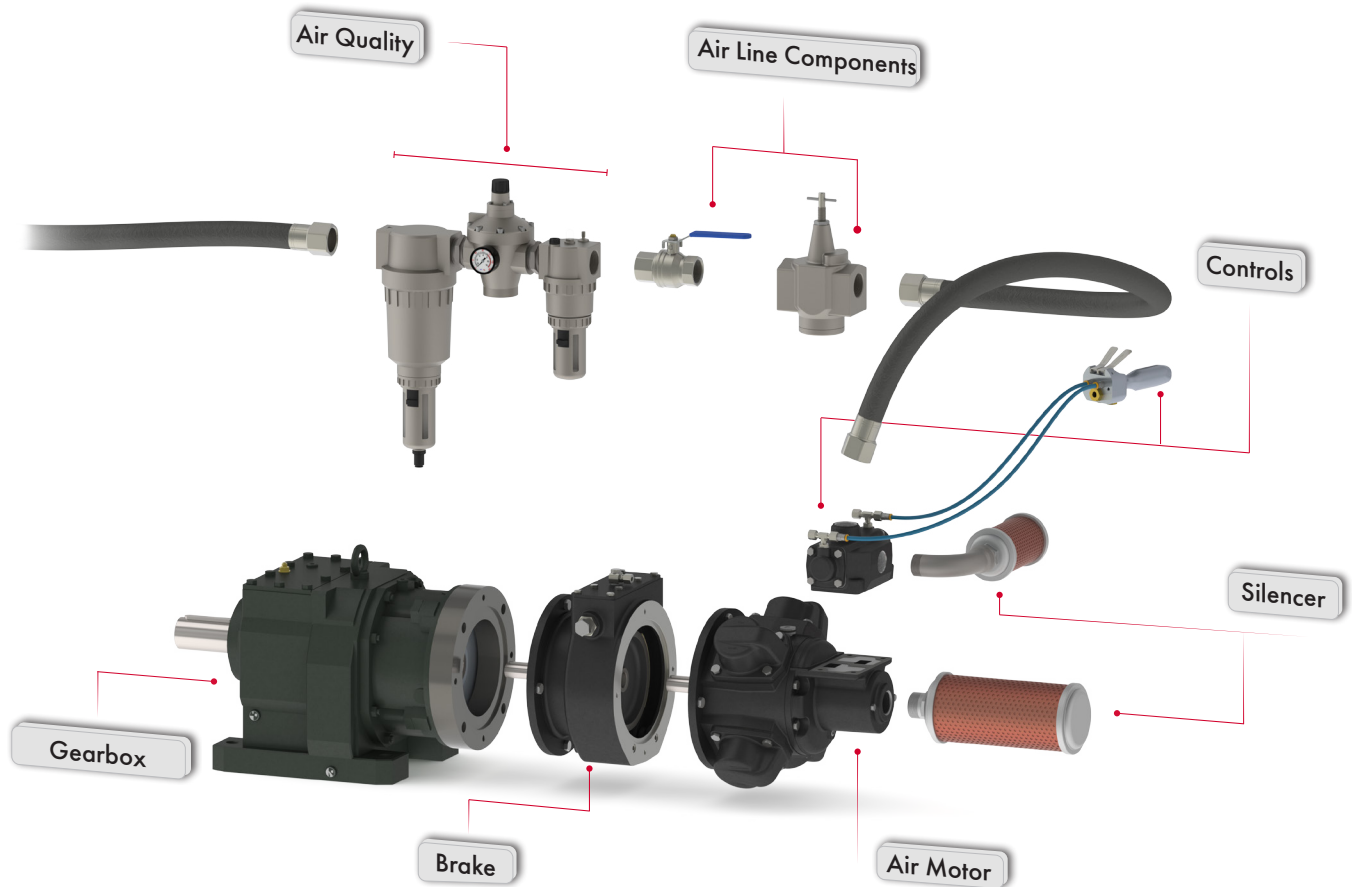
Use 5 micron filtration. The air has to be dry to prevent corrosion inside the motor when it is not in use. Advisable is to use an air dryer with set point of 20 degrees Celsius below lowest ambient temperature.

- » Silencer supplied with motor.
- » Motor is reversible.
- » Maximum temperature for ATEX applications
-20°C to +60°C (-4°F to +140°F)
- » Maximum temperature for non-ATEX applications
-20°C to +80°C (-4°F to +176°F)

Maximum speed 1350 rpm | Contineous speed 950 rpm

Life time depends highly on operational speed and air pressure. Continuous duty is best suited to non lubricated operation. Moisture in the air can cause corrosion problems during rest periods.

Options & Accessories



Gearboxes



Type	Mounting
Worm	Foot, Flange & Angle Gear
Coaxial	Foot & Flange
Planetary	Foot, Flange & Angle Gear

The GLOBE gearboxes

Our gearboxes are mounted directly onto our air motors, enabling you with more torque at lower speeds and more precision. We can supply all our air motors with a gearbox suitable for every application. Also available in Stainless Steel or with ATEX Certificate.

Silencers



Type	For air motor type	Port size
High flow silencer	All	1/4" till 2"
Stainless Steel (INOX)	All	1/8" till 1"

FRL Units (Air Quality)



Type	For air motor type	Port size
FRL	All	3/8" till 2"
Portable FRL	All	1/4" till 2"

Controls



Type	For air motor type	Port size
RCV	All	1/4" till 2"
HCV	All	1/4" till 2"
Pendant controller	All	2, 4 & 6 signals
Lever controller	All	2 signals

Service Kits



Type	For air motor type
-	All