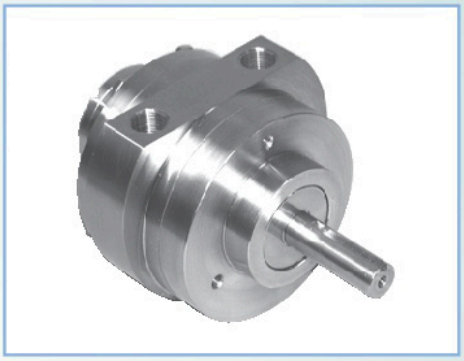
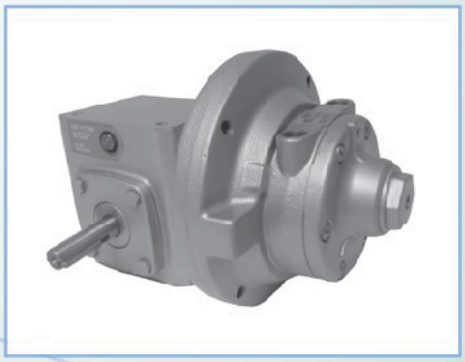
Air Motors/Gear Air Motors

Lubricated and Non-lubricated





VAC PAC

ISO 9001 Certified

Products for Almost Any Application – Worldwide

We offer an extensive and versatile line of air-moving products, including vacuum pumps, compressors, air motors, gear motors, vacuum generators, and regenerative blowers. We design and build these components for original equipment manufacturers worldwide, but we also develop complete pneumatic solutions to solve tough customer challenges.

To ensure fast, efficient delivery of products, Vac Pac has a vast network of sales representatives/distributors throughout the United States and the world. Plus, we maintain direct sales and service facilities in Europe, Hong Kong, and Shanghai, China.

Unparalleled Design Expertise

Unlike other manufacturers, who might expect you to modify your pneumatic system to fit their available product(s), VAC PAC is commited to finding the right product to meet your specific needs. If we dont have a high-quality, off-the-staff product to fit your existing application or meet your anticipated needs, we'll propose customized cost-effective design options that will serve your special requirements. We can even develop and produce your complete pneumatic system for you.

Our experienced Research and Development engineers and Product engineers work together to analyze customer needs and use computer-aided design to generate timely solutions for air-handling problems. The design team has one goal: to create problem-solving solutions that capitalize on the latest available technology, meet all application requirements, and benefit from cost-effective production methods. The end result: products and solutions that are the best value in the marketplace for our customers.

A Lasting Commitment to Quality

We invest heavily in both equipment and people to maintain the consistent quality for which our products are known worldwide, and we have done so since day one. As early as 1983, we implemented a total quality process designed to ensure the quality of our products.

European Community Directives CE

With extensive sales outside the Unated States, VAC PAC has pledged to conform to the Europen Community Derivatives. These directives contain essential requirements concerning health, safety, environment, and consumer protection for all products targeted for the European Community market. Currently, all Gast products available for sale in the European Community are in compliance with the Machinery, Low Voltage, and Electromagnetic Compatibility Directives.

Why use a VAC PAC Air Motor?

Variable Speed
You can vary air motor speed between 300 and 10,000 rpm (depending on model selection) with a simple valve put in between the air source and air motor.

Non-electrical Sparking
As a non-electrical device, the possibility of explosion from igniting flammable gases is greatly reduced.

Instantly Reversible
A four-way valve in the air line enables a VAC PAC Air Motor to be instantly reversed. A turn of the valve causes a complete reversal of rotation, even when the motor is running at full speed.

Cool Running
As the air motor turns, expanded air cools the motor. Units can be used in ambient temperatures up to 250 °F (120 °C) in a non-hazardous atmosphere.

Compact and Portable
Get maximum horsepower with minimum size and weight.

Minimum Maintenance
You can put a VAC PAC Air Motor in places where they will not get much service , because there's virtually nothing to service on a VAC PAC Air Motor, providing it is operated on a clean, dry, and lubricated air supply*.

Will Not Burn Out
VAC PAC Air motor can be stalled or overloaded for long periods without damage.

Low Price
Cost is less than other motors of equal horsepower and capabilities.

Operate in All Positions
Mount them sideways, upside-down, or in any position so long as adequate lubrication* is provided and end thrust is kept to design limits. Gear Motors will operate in almost any position, see model data.

Low-shock Starts
Because Gast Air Motors go to work with air-cushioned smoothness, they cut stress on your equipment.

Self-sealing Vanes
Vanes are self-sealing and automatically take up their own wear, thus ensuring constant output for thousands of hours of use.

Mounting Flexibility
Foot, hub, face, NEMA-C, or metric flange motor mountings are standard equipment for most air motor sizes.

Four-vane or Eight-vane
Four-vane units meet most requirements, but for more precise inching control and minimum blowby in applications where motor is operating in a stalled condition, specify eight-vane models.

Long-life Accessories
To ensure long life, VAC PAC offers accessories designed to extend unit life including air filters that remove water and particles down to 5 microns, and air line lubricators that supply a constant flow of lubrication automatically*. We can supply a pressure regulator that provides precise control of power and operating speed. Options like these help you get smooth performance with minimum maintenance.

*Non-lubricated series does not require a lubricator

How to Select an Air Motor

Air motors differ in many ways from other power sources. These unique operating characteristics must be considered when selecting an air motor for a particular job. It is easy to change horsepower and speed of an air motor by throttling the air inlet. Therefore, the best rule of thumb for selecting an air motor is to choose one that will provide the horsepower and torque needed using only two-thirds ($^2/_3$) of the line pressure available. The full air line pressure will then be available for overloads and starting.

Output Power vs. Speed
The output power of an air motor is relative to speed and to air line pressure.

Torque vs. Speed
1. An air motor slows down when load increases... at the same time its torque increases to a point where it matches the load. It will continue to provide increased torque all the way to the stalled condition, and it can maintain the stalled condition without any harm to the motor.
2. As the load is reduced, an air motor will increase speed and the torque will decrease to match the reduced load.
3. When the load on an air motor is either increased or decreased, speed can be controlled by increasing or decreasing air pressure.
4. Starting torque of an air motor is lower than running torque. While this provides smooth, low-shock starting, it is necessary to have additional air line pressure for starting under heavy loads.

Air Consumption vs. Speed
Air consumption increases as speed and air pressure is increased.

Air Motor/Gear Motor Performance **Overview**

Whatever your rotary air motor power requirements, chances are we have what you're looking for.

Stainless Steel and Standard Air Motors Specifications

	OPERATING DATA							MAXIMUM TORQUE		
	MAX. SPEED	OUTPUT POWER		TORQUE		MAX. AIR CONSUMPTION		MAX. SPEED		
MODEL	rpm	HP	kW	lb. in.	Nm	cfm	m^3/h	rpm	lb. in.	Nm
STAINLESS STEEL AIR MOTORS										
1AM	10,000	0.45	0,33	2.75	0,31	20.5	35,1	650	5.6	0,65
4AM	3,000	1.70	1,30	36.00	4,1	78	132,5	300	56.00	6,3
6AM	3,000	4.00	3,00	84.00	10,00	128	228	300	115.00	13,00
STANDARD AIR MOTORS										
1AM (A)	10,000	0.45	0,33	2.75	0,31	20.5	35,1	650	5.6	0,65
1UP (B)	6,000	0.45	0,33	5.25	0,58	27	47	500	6.00	0,68
2AM (A)	3,000	0.93	0,68	19.50	2,20	30	49,5	350	26.10	3,05
4AM (A)	3,000	1.70	1,30	36.00	4,1	78	132,5	300	56.00	6,3
6AM (A)	3,000	4.00	3,00	84.00	10,00	128	228	300	115.00	13,00
8AM (A)	2,500	5.25	3,90	132.00	14,40	175	293	300	185.00	21,00
16AM (A)	2,000	9.50	7,10	290.00	34,00	275	475	300	372.00	43,0

Gear Motors Specifications

		OPERATING DATA								MAXIMUM TORQUE		
		MAX. SPEED	LINE	OUTPUT POWER		TORQUE		MAX. AIR CONSUMPTION		MAX. SPEED		
MODEL	GEAR RATIO	rpm	PRES.	HP	kW	lb. in.	Nm	cfm	m^3/h	rpm	lb. in.	Nm
Gear MotorS												
1AM-NRV	15:1	350	A	0.34	0,26	62	7,1	21.0	36	30	72	8,1
1UP-NRV	15:1	400	C	0.32	0,23	49	5,5	2	36	30	71	8,0
2AM-43A	20:1	150	C	0.26	0,39	110	12,4	18	30,6	60	145	16,4
2AM-43A	20:1	150	A	0.58	0,43	240	27,1	42	71,4	60	270	30,5
4AM-RV	10:1	300	B	1.26	0,94	274	31,0	57.5	98	30	425	48,0
4AM-RV	15:1	200	B	1.25	0,90	400	45,2	60.0	102	20	640	72,0
4AM-70C	20:1	150	A	1.17	0,87	487	55,0	71.0	120	15	740	83,6
4AM-70C	40:1	75	A	0.95	0,71	800	90,4	71.0	120	7	1255	141,8
4AM-70C	60:1	50	A	0.82	0,61	1040	117,5	71.0	120	5	1640	185,3
6AM-22A	10:1	300	A	3.40	2,54	720	81,4	130.0	221	30	950	107,4
6AM-22A	20:1	150	A	2.65	1,98	1100	124,3	130.0	221	15	1550	175,6
6AM-22A	40:1	75	A	2.10	1,57	1725	194,9	135.0	230	8	2500	282,5
8AM-32A	20:1	125	A	3.70	2,76	1850	209,1	177.0	301	15	2550	288,2
16AM-13	20:1	100	A	6.50	4,85	4175	471,8	275.0	468	15	5175	584,8

A – 100 psig and 7,0 bar line pressure for imperial and metric data, respectively.
B – 80 psig and 5,5 bar line pressure for imperial and metric data, respectively.
C – 60 psig and 4,1 bar line pressure for imperial and metric data, respectively.

Catalog Performance **Specifications**

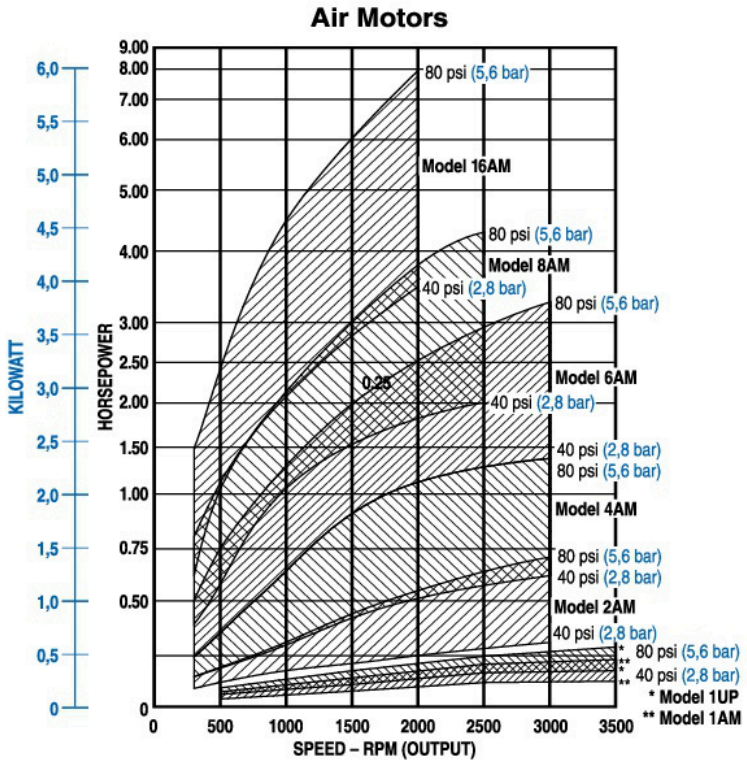
The specifications listed are that of a unit at sea level with an ambient temperature of 70 °F (21 °C), operating with normal electrical current conditions. The figures stated in this catalog are nominal approximations for models without accessories. Intake filters and exhaust mufflers, and the accumulation of contaminants in them during operation, will decrease the flow of air as well as the achievable pressure.

The units that we list in this catalog are a small portion of what we actually make. Those listed are considered "standard units" and are normally available from stock in small quantities. Variations are produced for many customers and by providing to us the application specifications we might find an existing unit that fits your requirement. If we don't and the quantity is sufficient, we will design a "special unit" for the application.

Pictorial and dimensional data is subject to change without notice.

The information presented in this catalog is based on technical data and test results of nominal units. It is believed to be accurate and is offered as an aid in the section of VAC PAC products. It is the user's responsibility to determine suitability of the product for intended use and the user assumes all risk and liability whatsoever in connection therewith.

The chart below shows general performance ranges of our lubricated Air Motors.
See if we have the right offering for your application.



Use of Air Motors in Hazardous Atmospheres

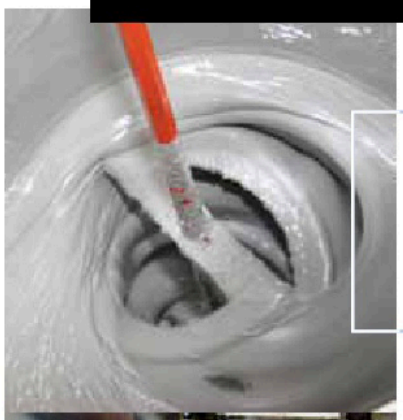
Most of the VAC PAC Air Motors and some of the Gear Motors in this catalog meet the requirements of the EC directive 94/9EC (ATEX 100a). They may be used in zones 1 and 2 where explosive atmospheres of gas or dust are likely to occur. These are marked with Ex II 2 G D c T4 in the catalogue and on the product. This indicates the air motor is Group II, Category 2, Gas and Dust Atmospheres, and a maximum surface temperature of 275 °F/135 °C. Check that the product driven by the air motor meets ATEX directive.

There are several points regarding the safety of air motors. Our air motors are not a source of electric sparks. However, it is possible that an article which is not part of the air motor (e.g., wrenches, hammers, etc.) could create a spark by sharply impacting a cast iron or aluminum case or the steel shaft of the air motor. [Note that electric motor enclosures for both class I and II hazardous locations can be made of "...iron, steel, copper, bronze, or aluminum..." (UL 674, Electric Motors and Generators - Hazardous Locations, June 23, 1989; paragraph 4.2, page 6)].

VAC PAC Air Motors are designed to be operated by compressed air, the expansion of which creates a cooling effect. As a result, the outside surface temperature of the air motor will not reach ignition temperature and a maximum surface temperature of 275 °F/135 °C. Operation of the air motor with compressed air purges a flammable mixture from the inside of the air motor. **To prevent static electricity from being an ignition source electrically ground the metal air motor.**

We do not guarantee the safety of any application, but to ensure the safe operation of an air motor in your application, always follow the product operation manual, follow ATEX 100a when operating in a hazardous atmosphere and consult with a qualified engineer.

Performance, Features and Typical Applications

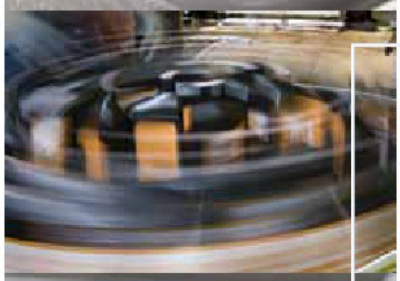


Performance

Up to 9.5 HP (7,1 kW)

Variable speeds to 10,000 rpm

Gear motor maximum torque to 5200 lb. in. (587 Nm)



Features

Variable speed

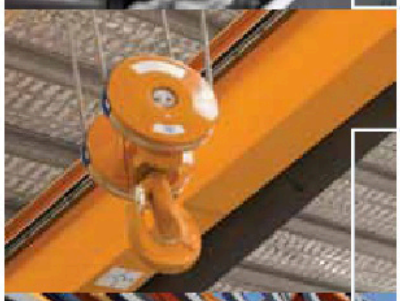
Non-electrical sparking

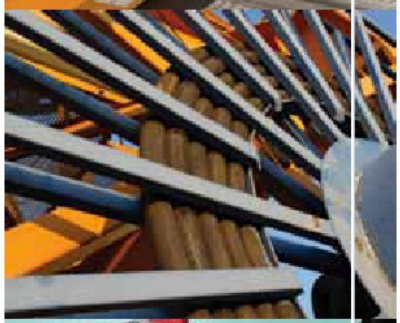
Cool running

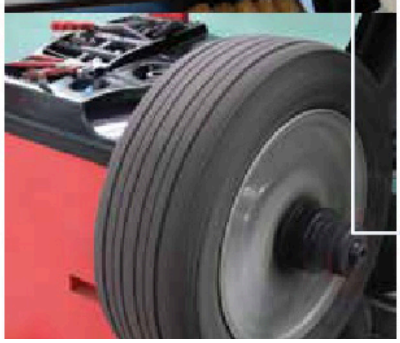
Compact and portable

Operate in all positions

Mounting flexibility







Typical Applications

Mixing equipment

Conveyor drives

Pump drives

Food packaging

Pharmaceutical packaging

Hoists and winches

Hose reels

Fiberglass choppers

Tension devices

Turntables

Tire/wheel balancers

VAC PAC