

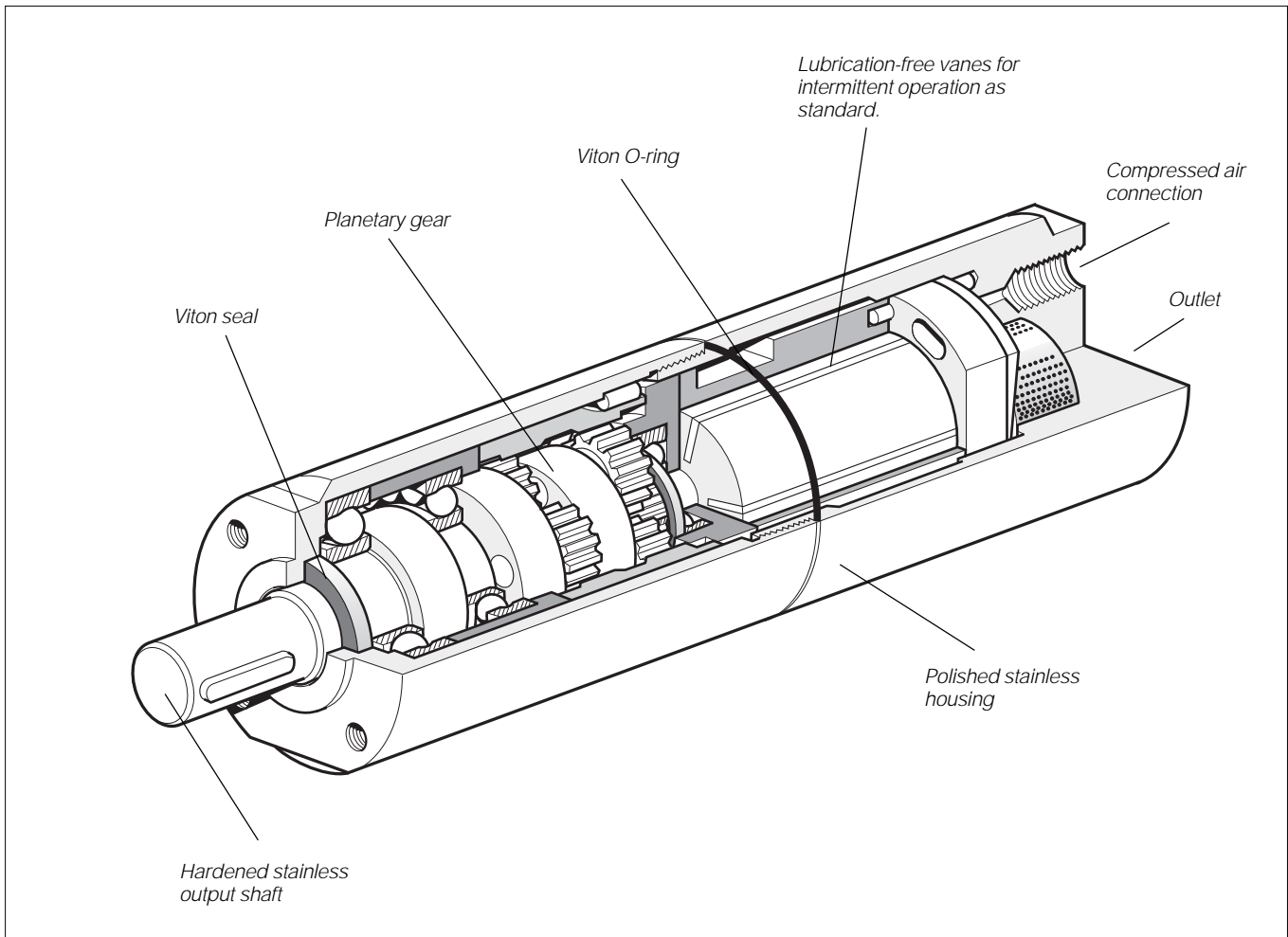


Stainless steel Air motors

Series P1V-S

Catalogue 9127007552GB-ul





Stainless steel Air motors, P1V-S Series

P1V-S is a range of air motors with all external components made of stainless steel, which means that they can be used in the foodstuffs industry, in all other applications where there is a risk of corrosion and general pneumatic applications.

The range contains five different sizes, with powers ranging from 90 to 1,200 Watts, and speeds from 50 to 22,000 rpm.

The air motor and planetary reduction gear are built into a polished, stainless steel housing, which is sealed by a Viton O-ring. The output shaft, which is made of polished stainless steel, is also sealed by a Viton seal.

Consideration for achieving a clean, hygienic design was given early on in the development of this range of air

motors. Thanks to the cylindrical shape, there are no pockets which can accumulate dirt or bacteria. Additionally, the positive external seal between the halves of the body obviates possible dirt traps.

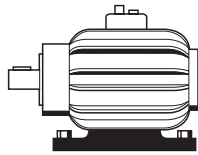
The choice of materials reflects the fact that aggressive cleaning materials are used in the foodstuffs industry.

All air motors are vane type for intermittent lubrication-free operation. For this reason, no particles of lubricant escape with the exhaust air and the service costs are reduced.

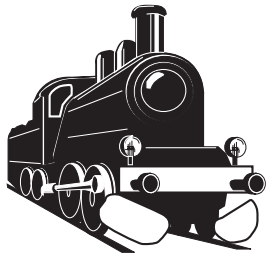
The Planetary gear, which has one or two reduction stages, is lubricated with an USDA-H1 standard grease, approved for use in the foodstuffs industry.



Products specially suitable for the food industry.



Air motors have smaller installation dimensions than corresponding electric motors.



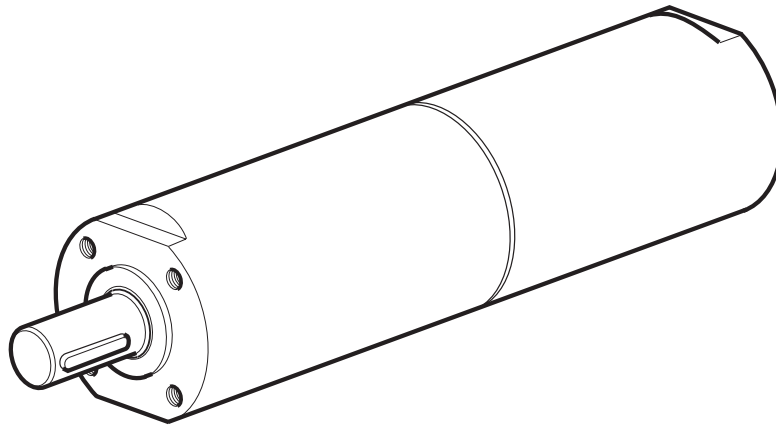
Air motors can be loaded until they stall, without damage. They are designed to be able to withstand the toughest heat, vibration, impact etc.



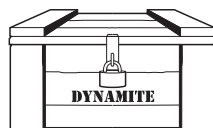
The shape, design and freedom from lubrication mean that they are especially suitable for use in the foodstuffs industry.



Air motors can be stopped and started continually without damage.



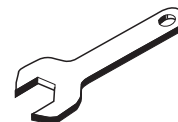
The weight of air motors is several times less than corresponding electric motors.



Air motors can be used in the harshest environments.



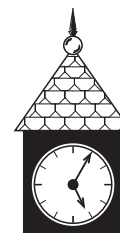
The choice of materials means that they can be used in damp and aggressive environments.



The simple design principle of air motors make them very easy to service.

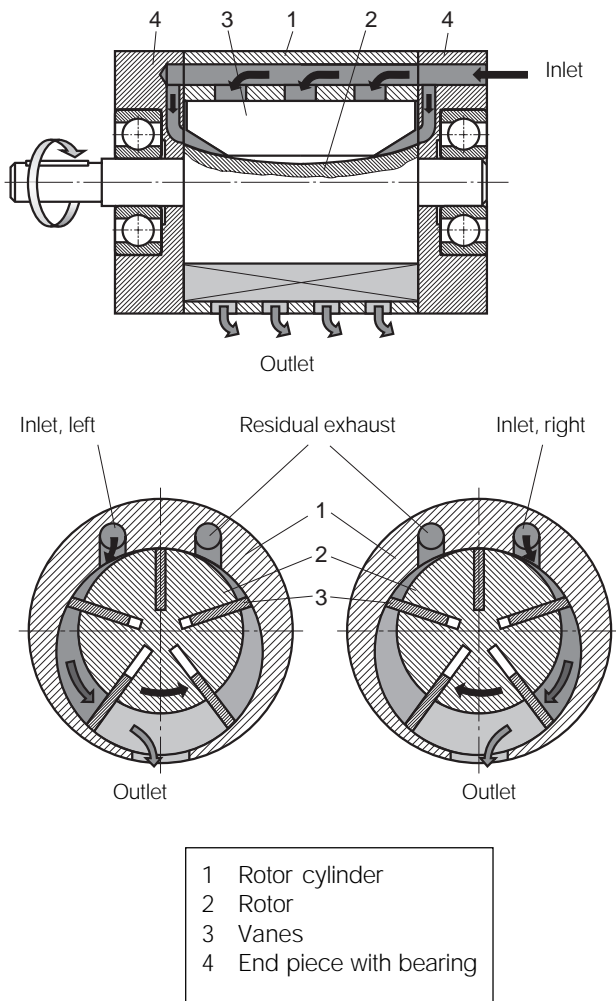


The motors can be used in reverse as standard.

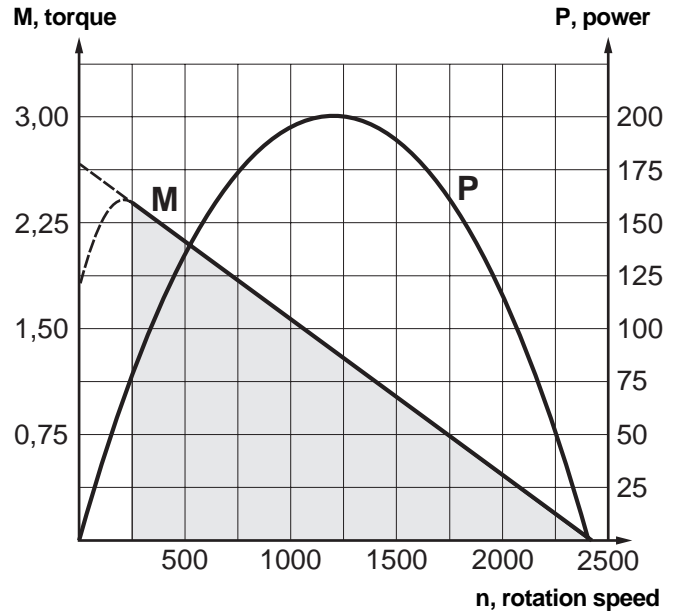


The reliability of air motors is very high, thanks to the design and the low number of moving parts.

Principles of motor operation



Torque and power graphs



There is a graph for each motor, where torque and power can be read off as functions of speed. When the motor is stationary without air and when it rotates without load on the output shaft (free speed), it does not develop any power. Maximum power is normally developed when the motor is braked to half the free speed.

At the free speed, the torque is zero, but as soon as the motor is braked the torque increases linearly until the motor stalls. Since the motor can then stop with the vanes in various positions it is not possible to specify an exact start torque but a minimum start torque is specified in all tables.

There are a number of designs of air motor. Parker Pneumatic have chosen to use the vane rotor design, because of its simple design and reliable operation. The small external dimensions of vane motors make them suitable for all applications.

The complete motor consists of a motor package which is built up into one unit together with an planetary reduction gear to give the required speed and torque on the output shaft.

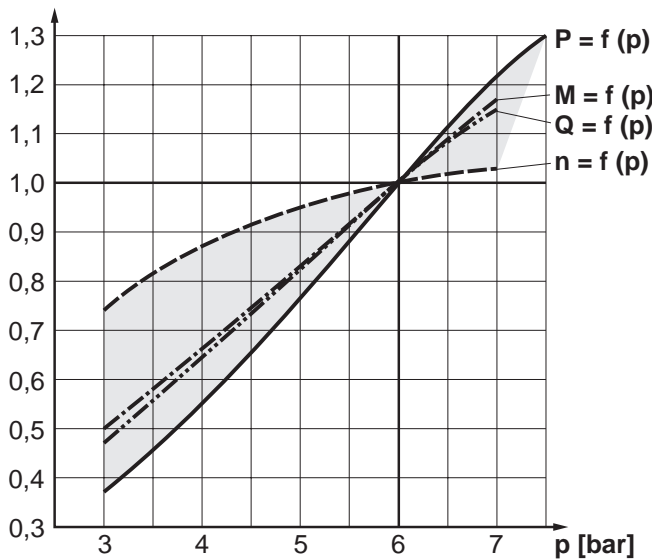
The principle of the vane motor is that a rotor with a number of vanes and is enclosed in a rotor cylinder. The motor is supplied with compressed air via the inlet port and air exhausts from holes in the rotor cylinder and vents through the exhaust port. To provide reliable starting, the inlet air enters the rotor cylinder and presses the vanes against the rotor cylinder wall prior to rotation.

During operation, the vanes are pressed outwards by centrifugal force. The air pressure always bears at right angles against the vane surface. This means that the available torque is governed by the surface area of the vanes and the air pressure. When the vane has reached its lowest point, the air is released through the rotor cylinder.

After this, the rotation continues and the trapped air is compressed. This is released through the residual outlet port. This port is the one used for air supply in the opposite direction of rotation.

Correction diagrams

Correction factor



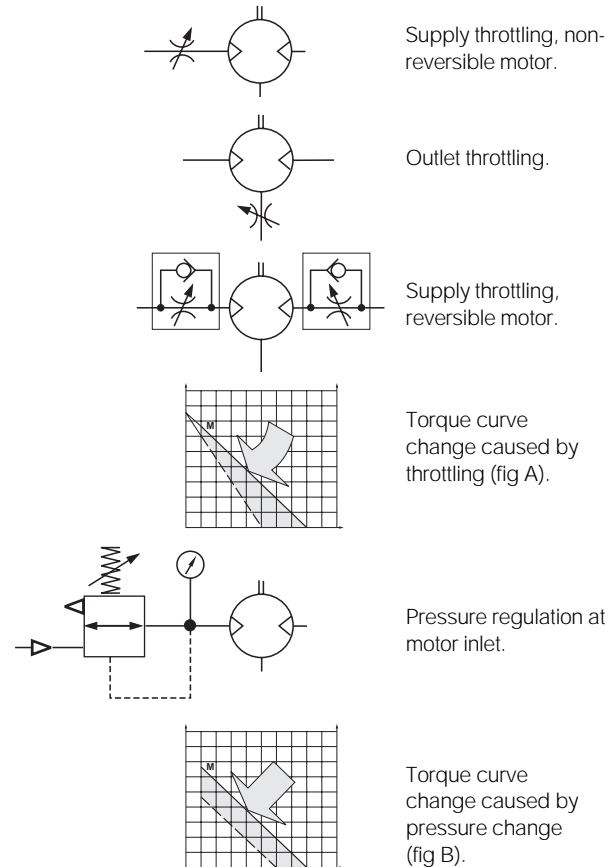
P = power
M = torque
Q = air consumption
n = speed
p = pressure

All catalogue datas and curves are specified at a supply pressure of 6 bar to the motor. This diagram shows the effect of pressure on speed, specified torque, power and air consumption. Begin on the curve at the supply air pressure used and then look up to the power, torque and air consumption lines. Read off the correction factor on the Y axis for each curve and multiply this by the specified catalogue data in the table, or datas read from the torque and power graphs.

Example: at 4 bar supply pressure the power is only 0.55 x power at 6 bar

This example shows how the power reduces if the supply pressure is reduced. Air must be supplied through suitably sized tubing to reduce any potential pressure drop in the control circuit.

Speed regulation



Throttling

The most common way to reduce the speed of an air motor is to install a flow control valve in the air inlet. When the motor is used in applications where it must reverse and is necessary to restrict the speed in both directions, flow control valves with integral non-return function should be used in both directions, since the inlet ports are also the residual exhaust ports. Restriction may also be applied to the main exhaust which will control the speed in both directions.

Supplementary throttling

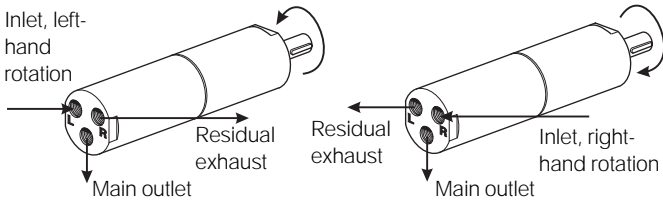
If the inlet air is restricted, the air supply is restricted and the speed of the motor falls but there is full pressure on the vanes at low speeds. This means full torque is available from the motor at low speed, despite the low air flow.

Pressure regulation

The speed and torque can also be regulated by installing a pressure regulator in the upstream supply. When the motor is constantly supplied with air at lower pressure and the motor is braked, it develops a lower torque on the output shaft.

In brief: *Supplementary throttling* produces reduced speed in one direction but maintains torque when braked. *The torque curve becomes steeper* (see fig A). A restriction in the main inlet gives reduced speed in both directions but retains torque when braked. The torque curve becomes steeper. *Pressure regulation* in the main inlet cuts torque when the motor is braked, and also reduces speed. *The torque curve is moved parallel* (see fig B).

Direction of rotation of motors

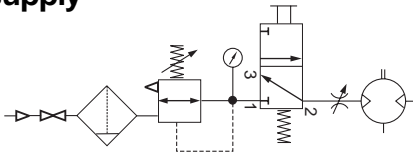


The direction of rotation of reversible motors is obtained by supplying inlet L or inlet R with compressed air. The motor can be stopped and started continually without damage occurring.

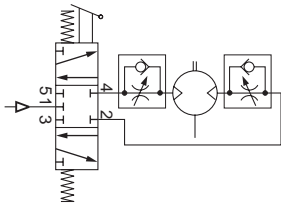
When the vanes have reached their bottom dead centre, they are in their outer position and all supplied air flows out through the main outlet.

The motor then continues to rotate, and the air trapped between the vanes is compressed during this phase. This air must be exhausted through the residual outlet (inlet for rotation in the other direction) or the motor will be braked and maximum power can not be obtained.

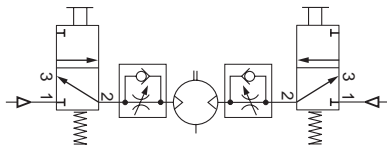
Air supply



Shut-off, filtering, pressure regulation and working valve



Reversible motor with 5/3 working valve



Reversible motor with two 3/2 working valves

The air with which the motor is supplied must be filtered and regulated to be ready for use. Directional control valves are needed to provide inlet air and to get the motor to rotate when required. Such valves may be electrically, mechanically or pneumatically actuated.

When the motor is used in a non-reversible application, it is sufficient to use a 2/2 or 3/2 valve for supply. Either a 5/3 or two 3/2 valves are needed for a reversible motor, to ensure that the motor gets its compressed air and the residual exhaust is vented.

A flow control valve can be installed in the supply pipe to regulate the motor speed if the motor is not used as a reversible motor. A flow control valve with integral non-return function is needed to regulate each direction of rotation if the motor is used as a reversible motor. The built-in non-return valve will then allow air from the residual air exhaust port to escape through the exhaust port of the control valve.

The compressed air supply must have sufficiently large pipes and valves to give the motor maximum torque. The motor needs 6 bar at the supply port all the time. A reduction of pressure to 5 bar reduces the power developed to 77%, and to 55% at 4 bar.

Choice of components for air supply

Since the supply pressure at the air motor inlet port is of considerable importance for obtaining the power, speed and torque quoted in the catalogue, the recommendations below should be observed.

The following data must be complied with:

Supply pressure: 7 bar

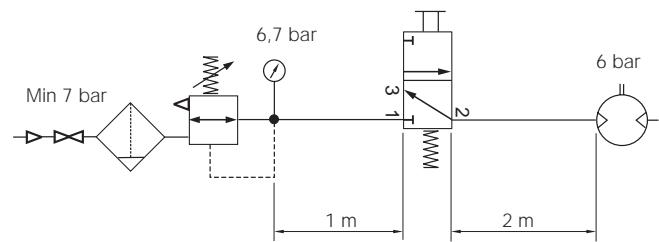
Regulator pressure setting: 6.7 bar

Pipe length between air treatment unit and valve: max. 1 m

Pipe length valve and air motor: max. 2 m

The pressure drop through the air preparation unit, pipe, valve and pipe means that 6 bar pressure is obtained at the motor supply port.

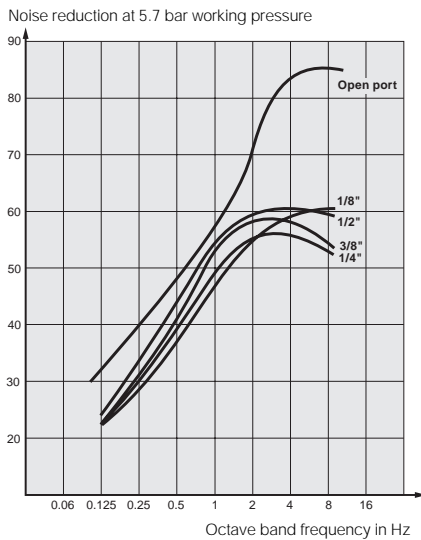
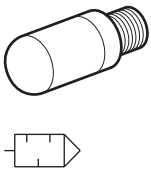
Please refer to the correction diagram on page 7, which shows what lower supply pressure means for power, speed and torque.



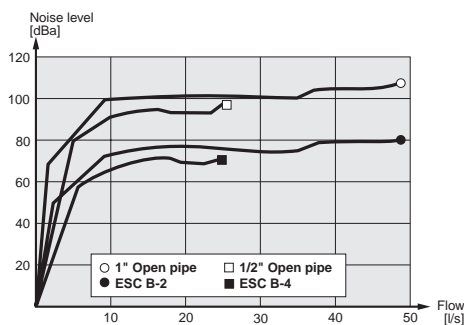
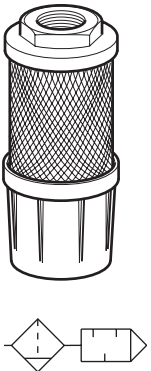
Air Motor	P1V-S012	P1V-S020	P1V-S030	P1V-S060	P1V-S120
Needed Airflow, NI/s	3.7	6.3	8.0	14.5	27
Min internal tube diameter, mm	6	10	10	12	19
Recommended Air Preparation Unit Series:					
Mini Modular G1/4					
Junior Modular G3/8					
Maxi Modular G1/2 and G3/4					
Recommended Valve Series:					
<i>Body ported valves</i>					
P2L-A					
P2L-B					
PVL-B					
PVL-C					
B3					
B4					
VE42/43					
VE82/83					
<i>Subbase mounted valves</i>					
Flowstar P2V-A					
Flowstar P2V-B					
Selectair PVN-C					
Selectair PVN-E					
Apollo size 1					
Apollo size 2					
Apollo size 3					
Flexflow VG25					
Flexflow VG35					
Flexflow VG45					
Flexflow VE45					
Everdure 1/8					
Everdure 1/4					
Everdure 3/8 and 1/2					
<i>Manually or Mecanically operated valves</i>					
P2L-A					
B53					
P2L-B					
B10					
B20					

Silencing

Exhaust silencer



Central silencer



The noise created by an air motor consists of both mechanical noise and a pulsating noise from the air exhausting from the outlet. The installation of the motor has a considerable effect on mechanical noise.

It should be installed so that no mechanical resonance effects can occur. The exhaust air creates a noise level which can be as much as 115 dB(A) if the air is allowed to exhaust freely into the atmosphere. Various types of exhaust silencers are used to reduce this level. The most common type screws directly onto the exhaust port of the motor. There are a considerable number of silencers, made of sintered metal and sintered plastics. Since the motor function causes the exhaust air to pulsate, it is a good idea to allow the air to exhaust into some kind of chamber first, which reduces the pulsation's before they reach the silencer.

The device which gives best silencing is to connect a soft plastic hose to a large central silencer which has the largest possible area, to reduce the speed of the out-flowing air as far as possible.

NOTE! Remember that a silencer which is too small or is blocked, generates back pressure on the outlet side of the motor, which reduces the motor power.

Lubrication and service life



Oil and oil mist are things which one tries to avoid, to ensure a clean working environment. In addition, purchasing, installation and maintenance of lubricators costs money and, above all, time to achieve optimum lubrication effect. All users in all industries now try to avoid using components which have to be lubricated.

The P1V-S motor is equipped with vanes for intermittent lubrication free operation as standard, which is the most common application of air motors. The motor is also available with optional hard vanes for continuous lubrication-free operation (option "C").

The P1V-S motor is equipped as standard with grease in the planetary reduction gearbox, which is approved by the foodstuffs industry. An oil which is approved by the foodstuffs industry is also available if supplementary lubrication is required.

Expected service life of P1V-S motors

Air grade

Filtering	40 µm or better
Dew point	+3 to +4°C
Air temperature	+20°C

Intermittent lubrication-free operation of P1V-S standard motors

Duty cycle	70%
Max. duration of intermittent use	15 minutes
Filtering 40 µm app.	750 hours operation
Filtering 5 µm app.	1,000 hours operation

NOTE! After 1000 hours of operation, the grease in the Planetary gearbox must be changed.

Intermittent operation of P1V-S standard motors, with lubrication

Oil volume	1 drop oil/Nm ³
Filtering 40 µm app.	1,000 hours operation
Filtering 5 µm app.	2,000 hours operation

NOTE! After 1000 hours of operation, the grease in the Planetary gearbox must be changed.

Continuous lubrication-free operation of P1V-S motors equipped with hard vanes (option "C" and "M")

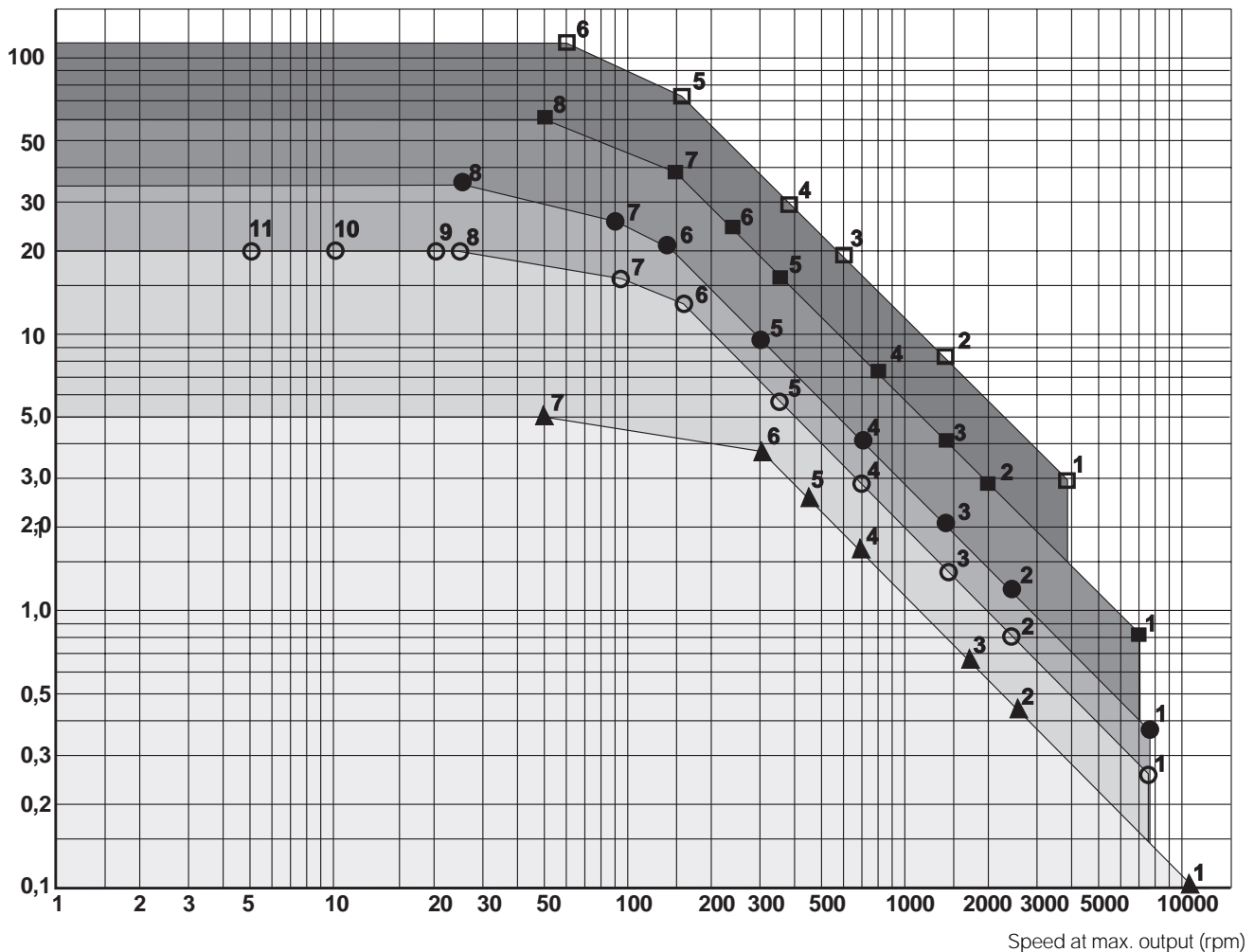
Filtering 40 µm app.	750 hours operation
Filtering 5 µm app.	1,000 hours operation

NOTE! After 1000 hours of operation, the grease in the Planetary gearbox must be changed.

Please refer to page 29 for service kits.

Choice of air motor

Torque at max. output (Nm)



To select the right air motor start with the torque needed at a specific spindle speed. In other words, to choose the right motor, you have to know the required speed and torque. Since maximum power is reached at half the motor's free speed, the motor should be chosen so that the point aimed at is as close as possible to the maximum output of the motor.

The design principle of the motor means that higher torque is generated when it is braked, which tends to increase the speed. This means that the motor has a form of speed self-regulation function built in.

Use the graph above to choose the correct motor size. The graph contains the points for the maximum torque of each motor at maximum output. Select your point on the graph and select a marked motor above and to the right of the point you need.

Then use the correct working diagram of the chosen motor to get more detailed technical data. Always select a motor whose requisite technical data are in the shaded area. Also use the correction diagram to find out what operation with different supply pressures would mean for the motor.

Tip: Select a motor which is slightly too fast and powerful, regulate its speed and torque with a pressure regulator and/or restriction to achieve the optimum working point.

Air motors in diagram

- ▲ 1 P1V-S012A0N00, P1V-S012D0N00
- ▲ 2 P1V-S012A0550, P1V-S012D0550
- ▲ 3 P1V-S012A0360, P1V-S012D0360
- ▲ 4 P1V-S012A0140, P1V-S012D1400
- ▲ 5 P1V-S012A0090, P1V-S012D0090
- ▲ 6 P1V-S012A0060, P1V-S012D0060
- ▲ 7 P1V-S012A0010, P1V-S012D0010
Please refer to page 13 for diagrams of each motor.
- 1 P1V-S020A0E50, P1V-S020D0E50
- 2 P1V-S020A0460, P1V-S020D0460
- 3 P1V-S020A0240, P1V-S020D0240
- 4 P1V-S020A0140, P1V-S020D0140
- 5 P1V-S020A0070, P1V-S020D0070
- 6 P1V-S020A0035, P1V-S020D0035
- 7 P1V-S020A0018, P1V-S020D0018
- 8 P1V-S020A0005, P1V-S020D0005
- 9 P1V-S020A0002
- 10 P1V-S020A0001
- 11 P1V-S020A00005
Please refer to page 15 for diagrams of each motor.

- 1 P1V-S030A0E50, P1V-S030D0E50
 - 2 P1V-S030A0460, P1V-S030D0460
 - 3 P1V-S030A0240, P1V-S030D0240
 - 4 P1V-S030A0140, P1V-S030D0140
 - 5 P1V-S030A0060, P1V-S030D0060
 - 6 P1V-S030A0028, P1V-S030D0028
 - 7 P1V-S030A0018, P1V-S030D0018
 - 8 P1V-S030A0005, P1V-S030D0005
- Please refer to page 17 for diagrams of each motor.

- 1 P1V-S120A0800
 - 2 P1V-S120A0270
 - 3 P1V-S120A0110
 - 4 P1V-S120A0078
 - 5 P1V-S120A0032
 - 6 P1V-S120A0012
- Please refer to page 21 for diagrams of each motor.

- 1 P1V-S060A0E00
 - 2 P1V-S060A0400
 - 3 P1V-S060A0270
 - 4 P1V-S060A0170
 - 5 P1V-S060A0072
 - 6 P1V-S060A0048
 - 7 P1V-S060A0030
 - 8 P1V-S060A0010
- Please refer to page 19 for diagrams of each motor.

Technical data

Working pressure Max 7 bar
 Working temperature -30 °C to +100 °C
 Medium 40 µm filtered, air-mist or dry air

Table and diagram data

All values are typical values, with a tolerance of ±10%

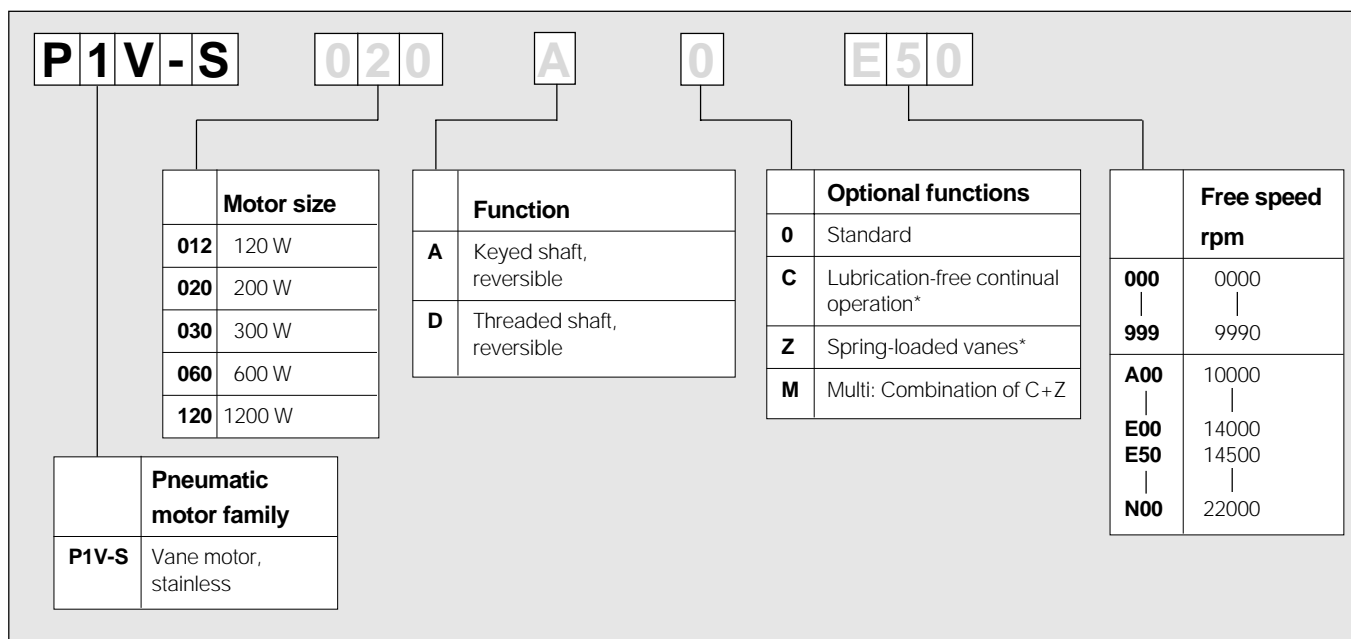
Option

Other variants on request

Material specification

Housing Stainless steel, X12CrMoS17
 Spindle Hardened stainless steel, X20Cr13
 Key Hardened stainless steel, X6CrNiMoTi17-12-2
 Outer seal Viton, FPM
 Interior steel components High-grade steel (not stainless)
 Planetary gear USDA-H1 approved
 Flange bracket Stainless steel, X12CrMoS17
 Foot bracket Stainless steel, X5CrNi18-9
 Screws for brackets Stainless steel, DIN A2

Order key

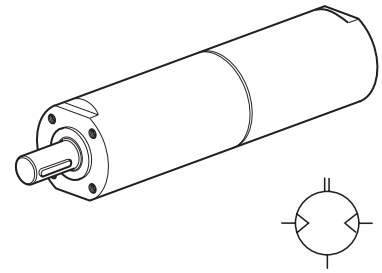


Possible combinations

Please refer to pages 12 to 20

* Please contact customer service for optional functions C, M and Z.

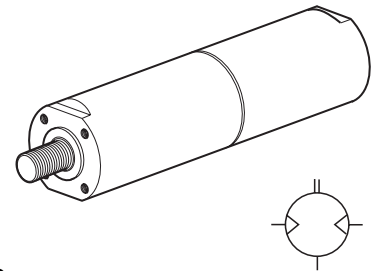
NOTE! All technical data are based on a working pressure of 6 bar.



Data for reversible air motor with keyed shaft, P1V-S012A Range

Max power	Free speed	Speed at max output	Torque at max output	Min start torque	Air consumption at max output	Con- nec- tion	Min pipe ID	Weight	Order code
kW	rpm	rpm	Nm	Nm	l/s		mm	Kg	
0,120	22000	11000	0,10	0,14	3,7	G1/8	6	0,350	P1V-S012A0N00
0,120	5500	2750	0,42	0,55	3,7	G1/8	6	0,350	P1V-S012A0550
0,120	3600	1800	0,64	0,84	3,7	G1/8	6	0,350	P1V-S012A0360
0,120	1400	700	1,64	2,14	3,7	G1/8	6	0,400	P1V-S012A0140
0,120	900	450	2,54	3,30	3,7	G1/8	6	0,400	P1V-S012A0090
0,120	600	300	3,82	5,00	3,7	G1/8	6	0,400	P1V-S012A0060
0,090	100	50	5,00*	5,00*	3,5	G1/8	6	0,450	P1V-S012A0010

* Max. permitted torque



Data for reversible air motor with threaded shaft, P1V-S012D Range

Max power	Free speed	Speed at max output	Torque at max output	Min start torque	Air consumption at max output	Con- nec- tion	Min pipe ID	Weight	Order code
kW	rpm	rpm	Nm	Nm	l/s		mm	Kg	
0,120	22000	11000	0,10	0,14	3,7	G1/8	6	0,350	P1V-S012D0N00
0,120	5500	2750	0,42	0,55	3,7	G1/8	6	0,350	P1V-S012D0550
0,120	3600	1800	0,64	0,84	3,7	G1/8	6	0,350	P1V-S012D0360
0,120	1400	700	1,64	2,14	3,7	G1/8	6	0,400	P1V-S012D0140
0,120	900	450	2,54	3,30	3,7	G1/8	6	0,400	P1V-S012D0090
0,120	600	300	3,82	5,00	3,7	G1/8	6	0,400	P1V-S012D0060
0,090	100	50	5,00*	5,00*	3,5	G1/8	6	0,450	P1V-S012D0010

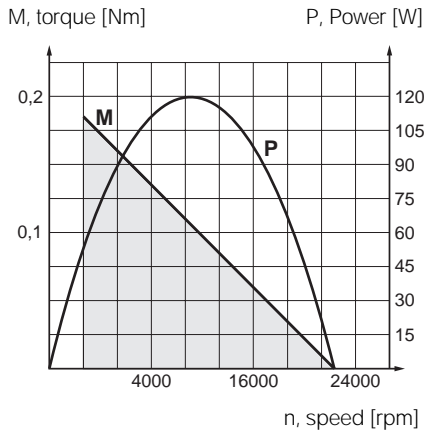
* Max. permitted torque

NOTE!

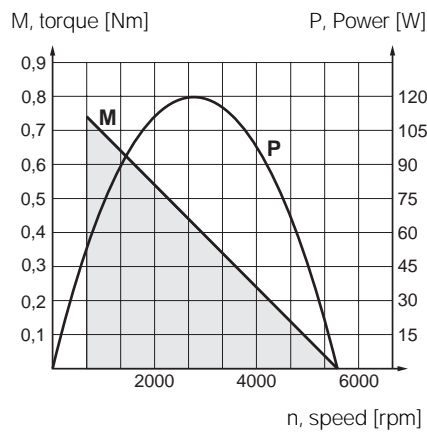
The P1V-S012D with threaded shaft can be operated in reverse, but there is a risk that the driven unit can come unscrewed during left-hand operation unless locked in some suitable manner.

Accessories, please refer to page 22
Dimensions, please refer to page 23
Permitted shaft loadings, please refer to page 28

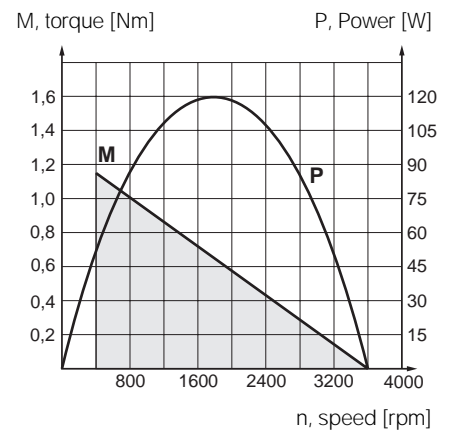
P1V-S012A0N00
P1V-S012D0N00



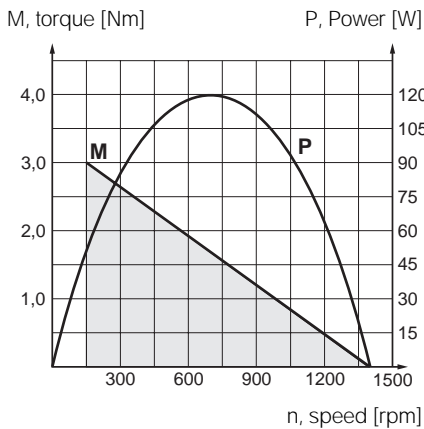
P1V-S012A0550
P1V-S012D0550



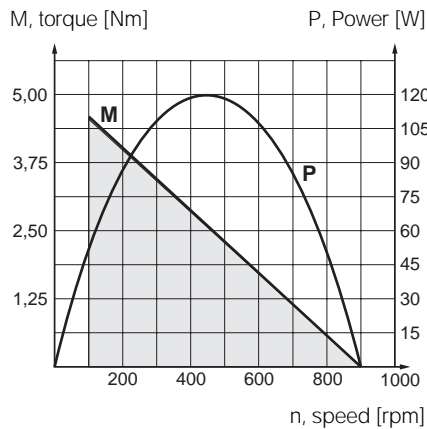
P1V-S012A0360
P1V-S012D0360



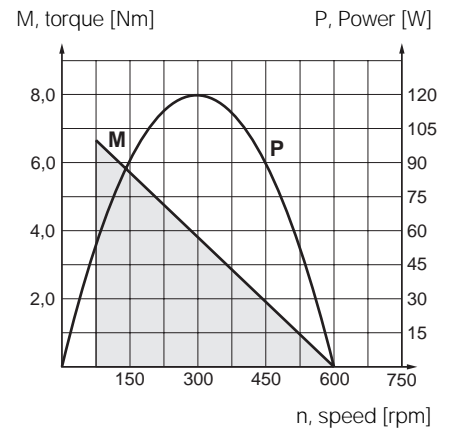
P1V-S012A0140
P1V-S012D0140



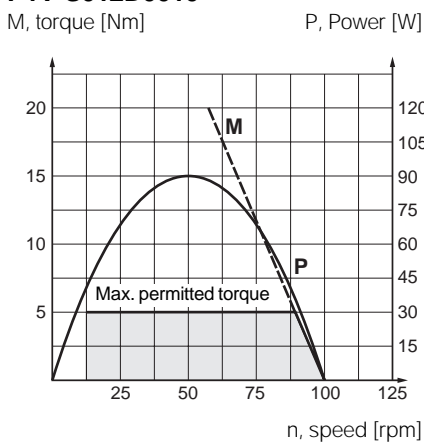
P1V-S012A0090
P1V-S012D0090



P1V-S012A0060
P1V-S012D0060

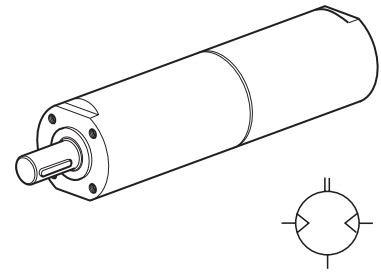


P1V-S012A0010
P1V-S012D0010



 Working range of motor

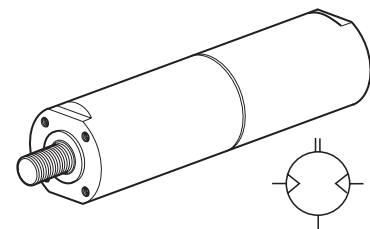
NOTE! All technical data are based on a working pressure of 6 bar.



Data for reversible air motor with keyed shaft, P1V-S020A Range

Max power	Free speed	Speed at max output	Torque at max output	Min start torque	Air consumption at max output	Con-nection	Min pipe ID	Weight	Order code
kW	rpm	rpm	Nm	Nm	l/s		mm	Kg	
0,200	14500	7500	0,26	0,34	6,3	G1/8	10	0,700	P1V-S020A0E50
0,200	4600	2400	0,80	1,10	6,3	G1/8	10	0,750	P1V-S020A0460
0,200	2400	1400	1,37	1,78	6,3	G1/8	10	0,750	P1V-S020A0240
0,200	1400	700	2,73	3,50	6,3	G1/8	10	0,850	P1V-S020A0140
0,200	700	350	5,43	7,10	6,3	G1/8	10	0,850	P1V-S020A0070
0,200	350	160	12,00	15,50	6,3	G1/8	10	0,850	P1V-S020A0035
0,080	180	90	7,50	20,00	4,5	G1/8	10	0,850	P1V-S020A0018
0,150	50	25	20,00*	20,00*	6,3	G1/8	10	0,950	P1V-S020A0005
0,150	20	-	20,00*	20,00*	6,3	G1/8	10	0,950	P1V-S020A0002
0,150	10	-	20,00*	20,00*	6,3	G1/8	10	1,050	P1V-S020A0001
0,150	5	-	20,00*	20,00*	6,3	G1/8	10	1,050	P1V-S020A00005

* Max. permitted torque



Data for reversible air motor with threaded shaft, P1V-S020D Range

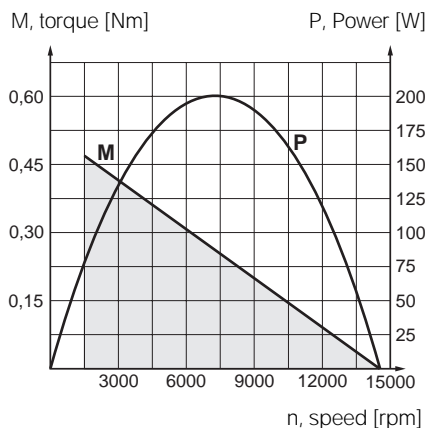
Max power	Free speed	Speed at max output	Torque at max output	Min start torque	Air consumption at max output	Con-nection	Min pipe ID	Weight	Order code
kW	rpm	rpm	Nm	Nm	l/s		mm	Kg	
0,200	14500	7500	0,26	0,34	6,3	G1/8	10	0,700	P1V-S020D0E50
0,200	4600	2400	0,80	1,10	6,3	G1/8	10	0,750	P1V-S020D0460
0,200	2400	1400	1,37	1,78	6,3	G1/8	10	0,750	P1V-S020D0240
0,200	1400	700	2,73	3,50	6,3	G1/8	10	0,850	P1V-S020D0140
0,200	700	350	5,43	7,10	6,3	G1/8	10	0,850	P1V-S020D0070
0,200	350	160	12,00	15,50	6,3	G1/8	10	0,850	P1V-S020D0035
0,080	180	90	7,50	20,00	4,5	G1/8	10	0,850	P1V-S020D0018
0,150	50	25	20,00*	20,00*	6,3	G1/8	10	0,950	P1V-S020D0005

* Max. permitted torque

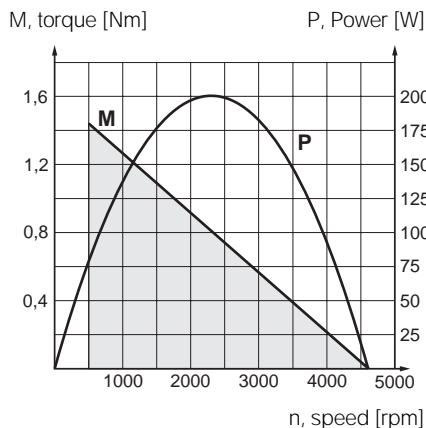
NOTE!
The P1V-S020D with threaded shaft can be operated in reverse, but there is a risk that the driven unit can come unscrewed during left-hand operation unless locked in some suitable manner.

Accessories, please refer to page 22
Dimensions, please refer to page 24
Permitted shaft loadings, please refer to page 28

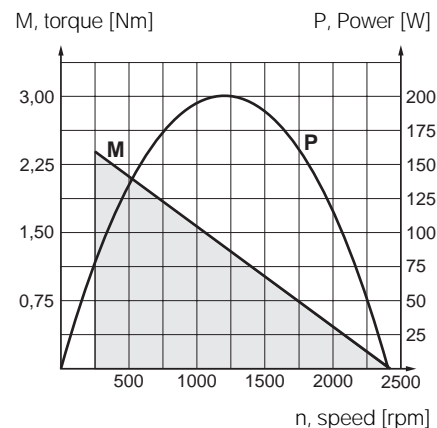
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P1V-S020D0E50



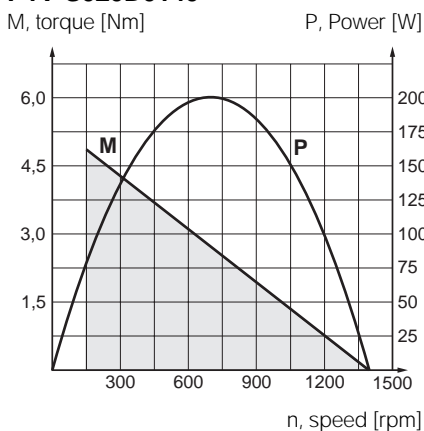
P1V-S020A0460,
P1V-S020D0460



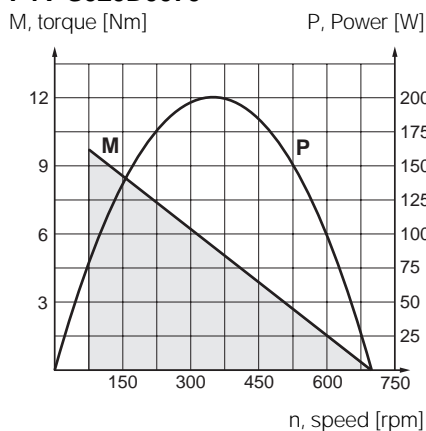
P1V-S020A0240
P1V-S020D0240



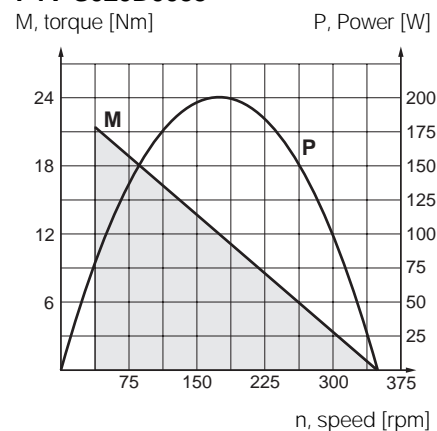
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P1V-S020D0140



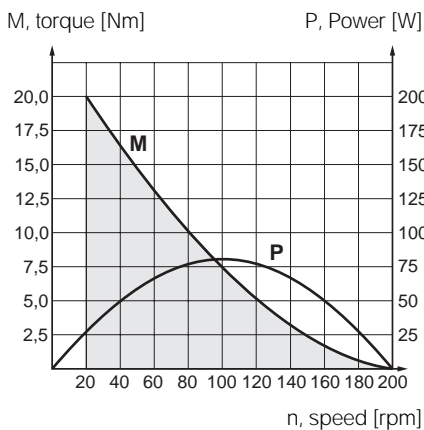
P1V-S020A0070
P1V-S020D0070



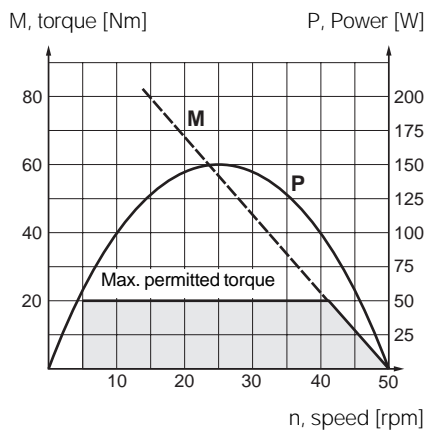
P1V-S020A0035
P1V-S020D0035



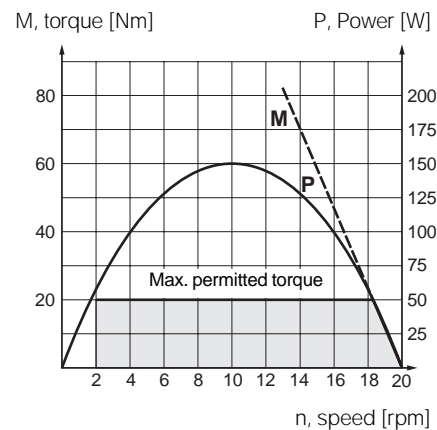
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P1V-S020D0018



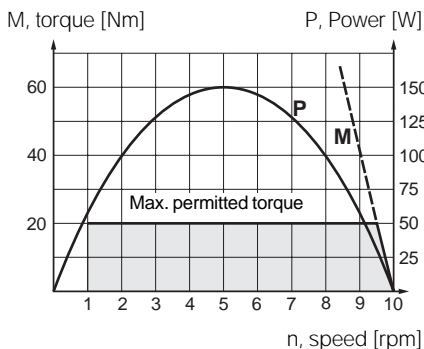
P1V-S020A0005
P1V-S020D0005



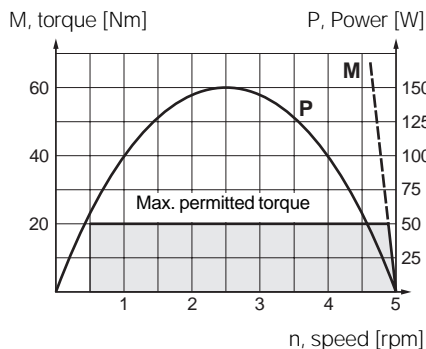
P1V-S020A0002



P1V-S020A0001

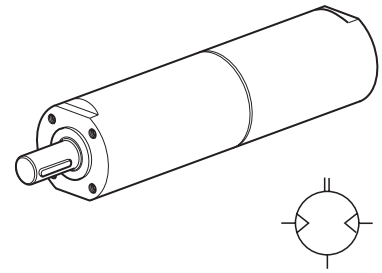


P1V-S020A00005



 Working range of motor

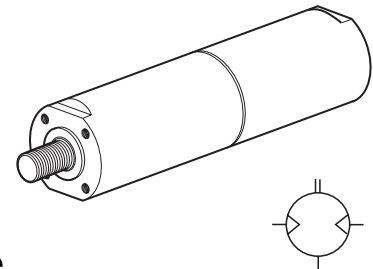
NOTE! All technical data are based on a working pressure of 6 bar.



Data for reversible air motor with keyed shaft, P1V-S030A Range

Max power	Free speed	Speed at max output	Torque at max output	Min start torque	Air consumption at max output	Con- nec- tion	Min pipe ID	Weight	Order code
kW	rpm	rpm	Nm	Nm	l/s		mm	Kg	
0,300	14500	7500	0,38	0,49	8,0	G1/4	10	1,000	P1V-S030A0E50
0,300	4600	2400	1,20	1,56	8,0	G1/4	10	1,050	P1V-S030A0460
0,300	2400	1400	2,05	2,66	8,0	G1/4	10	1,050	P1V-S030A0240
0,300	1400	700	4,10	5,30	8,0	G1/4	10	1,100	P1V-S030A0140
0,300	600	300	9,60	12,40	8,0	G1/4	10	1,150	P1V-S030A0060
0,300	280	140	20,50	26,00	8,0	G1/4	10	1,150	P1V-S030A0028
0,110	180	90	25,50	31,00	4,7	G1/4	10	1,150	P1V-S030A0018
0,240	50	25	36,00*	36,00*	8,0	G1/4	10	1,250	P1V-S030A0005

* Max. permitted torque



Data for reversible air motor with threaded shaft, P1V-S030D Range

Max power	Free speed	Speed at max output	Torque at max output	Min start torque	Air consumption at max output	Con- nec- tion	Min pipe ID	Weight	Order code
kW	rpm	rpm	Nm	Nm	l/s		mm	Kg	
0,300	14500	7500	0,38	0,49	8,0	G1/4	10	1,000	P1V-S030D0E50
0,300	4600	2400	1,20	1,56	8,0	G1/4	10	1,050	P1V-S030D0460
0,300	2400	1400	2,05	2,66	8,0	G1/4	10	1,050	P1V-S030D0240
0,300	1400	700	4,10	5,30	8,0	G1/4	10	1,100	P1V-S030D0140
0,300	600	300	9,60	12,40	8,0	G1/4	10	1,150	P1V-S030D0060
0,300	280	140	20,50	26,00	8,0	G1/4	10	1,150	P1V-S030D0028
0,110	180	90	25,50	31,00	4,7	G1/4	10	1,150	P1V-S030D0018
0,240	50	25	36,00*	36,00*	8,0	G1/4	10	1,250	P1V-S030D0005

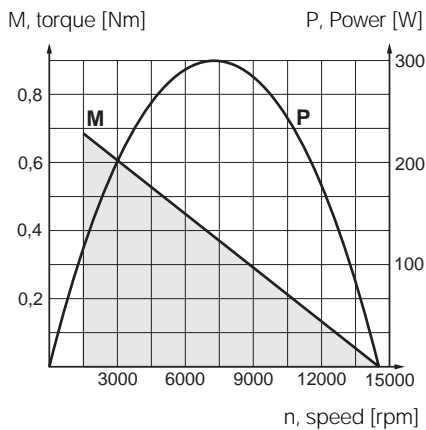
* Max. permitted torque

NOTE!

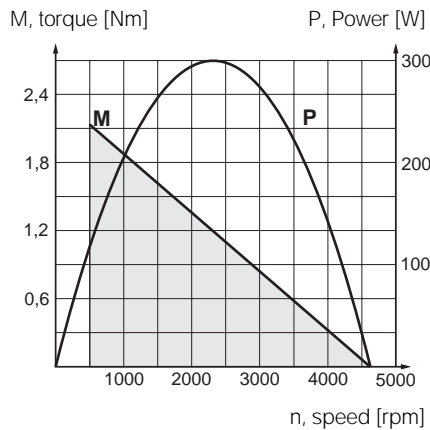
The P1V-S030D with threaded shaft can be operated in reverse, but there is a risk that the driven unit can come unscrewed during left-hand operation unless locked in some suitable manner.

Accessories, please refer to page 22
Dimensions, please refer to page 25
Permitted shaft loadings, please refer to page 28

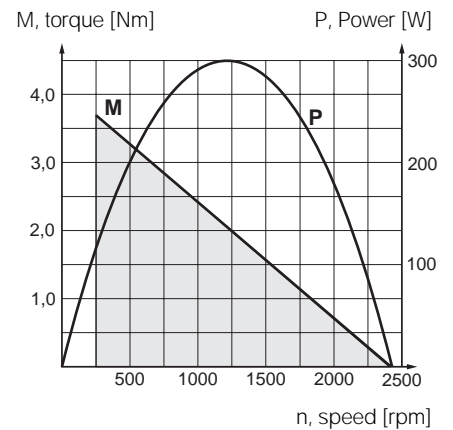
P1V-S030A0E50
P1V-S030D0E50



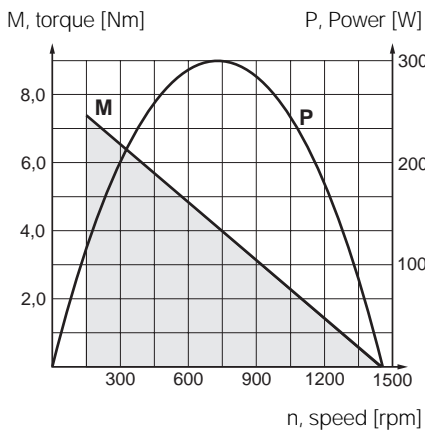
P1V-S030A0460,
P1V-S030D0460



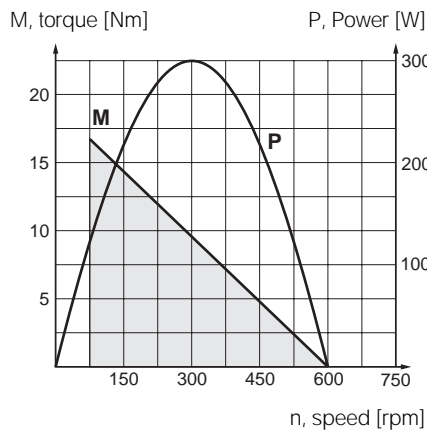
P1V-S030A0240
P1V-S030D0240



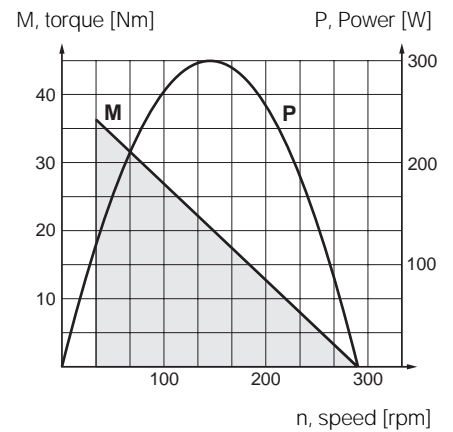
P1V-S030A0140
P1V-S030D0140



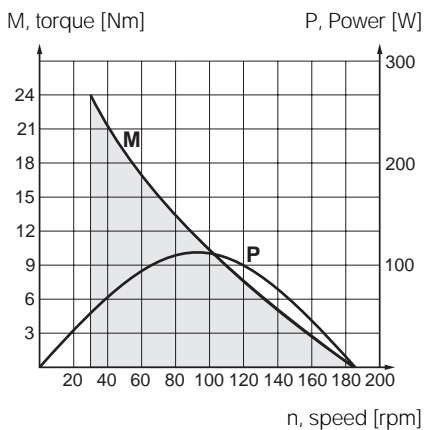
P1V-S030A0060
P1V-S030D0060



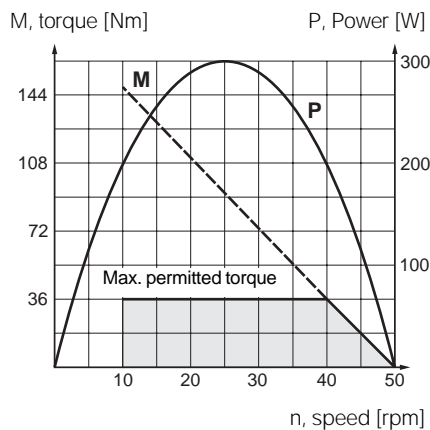
P1V-S030A0028
P1V-S030D0028



P1V-S030A0018
P1V-S030D0018

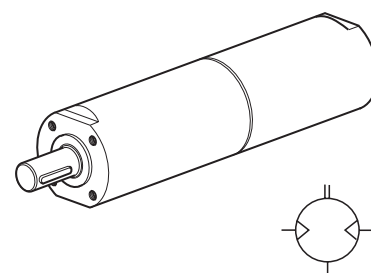


P1V-S030A0005
P1V-S030D0005



 Working range of motor

NOTE! All technical data are based on a working pressure of 6 bar.



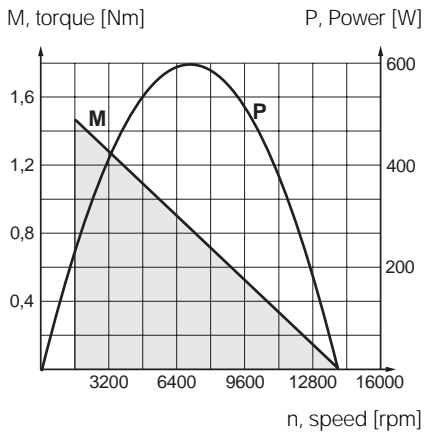
Data for reversible air motor with keyed shaft, P1V-S060A Range

Max power	Free speed	Speed at max output	Torque at max output	Min start torque	Air consumption at max output	Con- nec- tion	Min pipe ID	Weight	Order code
kW	rpm	rpm	Nm	Nm	l/s		mm	Kg	
0,600	14000	7000	0,82	1,23	14,5	G3/8	12	2,000	P1V-S060A0E00
0,600	4000	2000	2,90	3,70	14,5	G3/8	12	2,100	P1V-S060A0400
0,600	2700	1400	4,10	5,30	14,5	G3/8	12	2,100	P1V-S060A0270
0,600	1700	800	7,20	9,30	14,5	G3/8	12	2,100	P1V-S060A0170
0,600	720	360	15,90	20,50	14,5	G3/8	12	2,200	P1V-S060A0072
0,600	480	240	23,90	31,00	14,5	G3/8	12	2,200	P1V-S060A0048
0,600	300	150	38,20	48,00	14,5	G3/8	12	2,300	P1V-S060A0030
0,450	100	50	60,00*	60,00*	13	G3/8	12	2,300	P1V-S060A0010

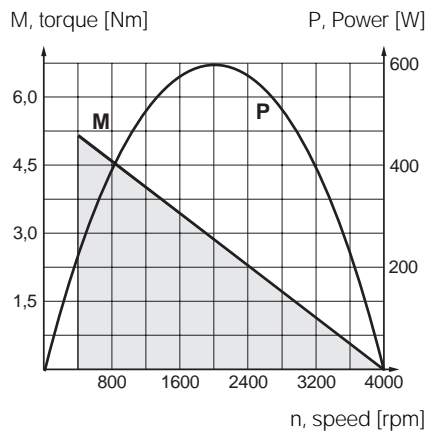
* Max. permitted torque

Accessories, please refer to page 22
 Dimensions, please refer to page 26
 Permitted shaft loadings, please refer to page 28

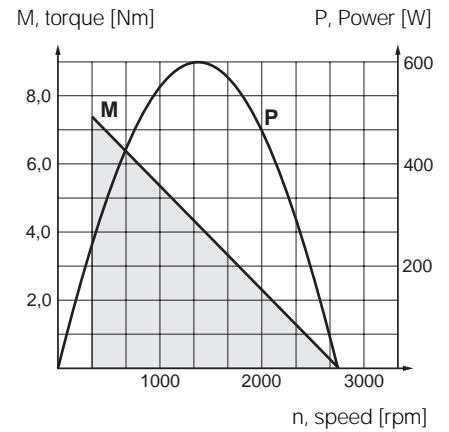
P1V-S060A0E00,



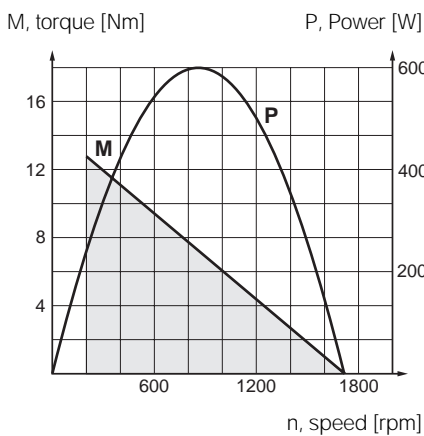
P1V-S060A0400



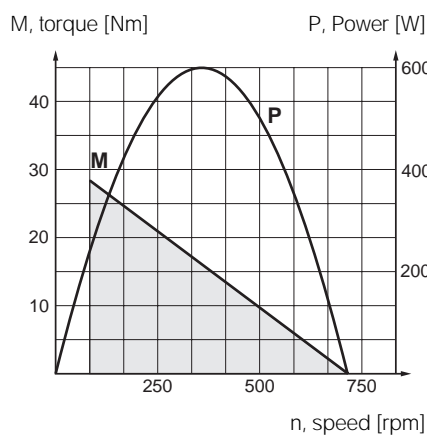
P1V-S060A0270



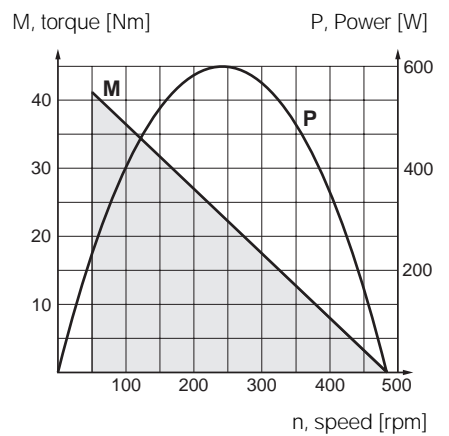
P1V-S060A0170,



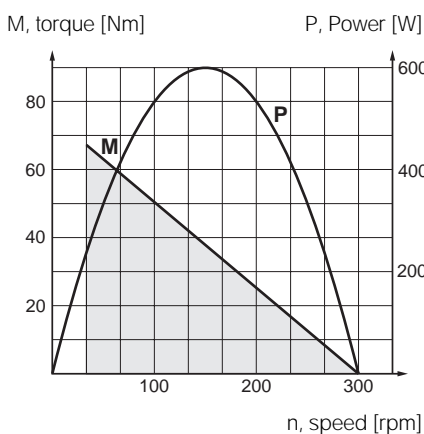
P1V-S060A0072



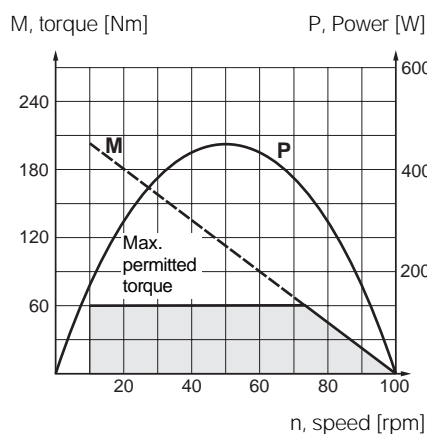
P1V-S060A0048



P1V-S060A0030

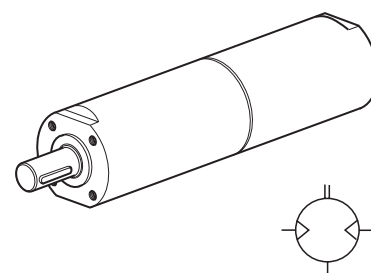


P1V-S060A0010



 Working range of motor

NOTE! All technical data are based on a working pressure of 6 bar.



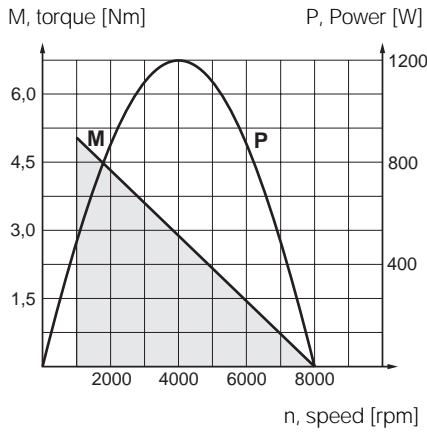
Data for reversible air motor with keyed shaft, P1V-S120A Range

Max power	Free speed	Speed at max output	Torque at max output	Min start torque	Air consumption at max output	Con- nec- tion	Min pipe ID	Weight	Order code
kW	rpm	rpm	Nm	Nm	l/s		mm	Kg	
1,200	8000	4000	2,90	3,70	27	G3/4	19	5,5	P1V-S120A0800
1,200	2700	1400	8,20	10,60	27	G3/4	19	5,5	P1V-S120A0270
1,200	1100	600	19,10	24,60	27	G3/4	19	5,5	P1V-S120A0110
1,200	780	390	29,40	38,20	27	G3/4	19	5,6	P1V-S120A0078
1,200	320	160	71,60	88,00	27	G3/4	19	5,6	P1V-S120A0032
0,850	120	60	110,00*	110,00*	19	G3/4	19	5,6	P1V-S120A0012

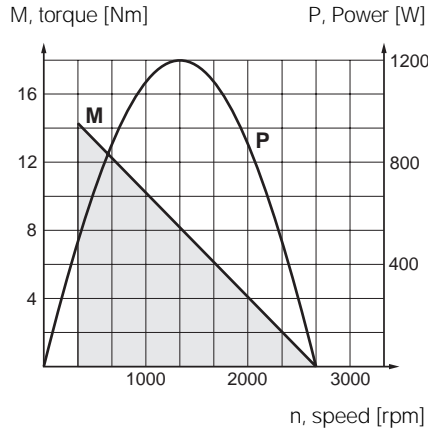
* Max. permitted torque

Accessories, please refer to page 22
 Dimensions, please refer to page 27
 Permitted shaft loadings, please refer to page 28

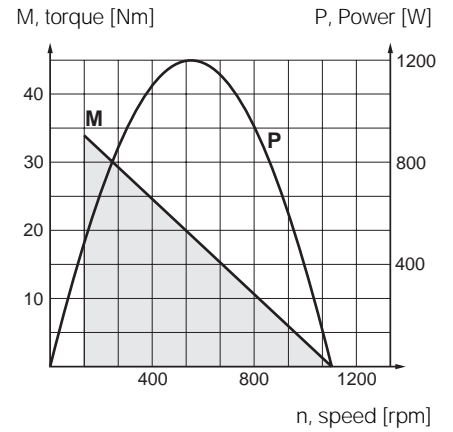
P1V-S120A0800



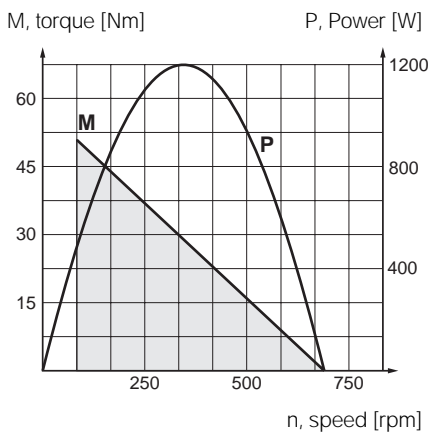
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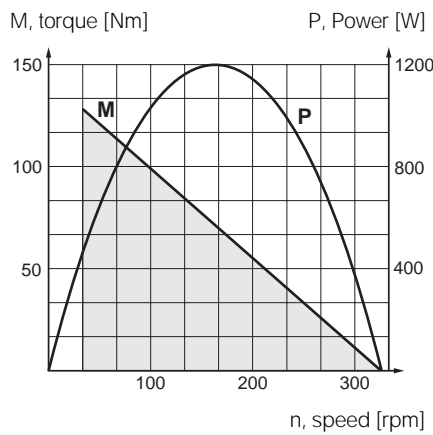
P1V-S120A0110



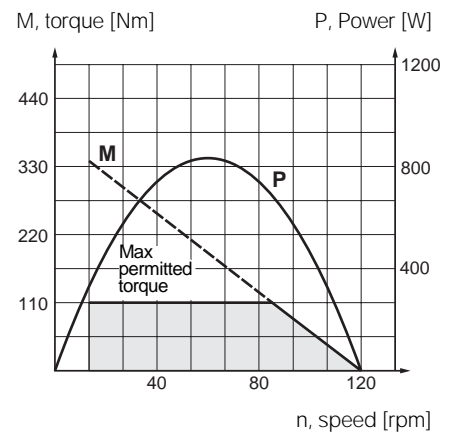
P1V-S120A0078



P1V-S120A0032



P1V-S120A0012

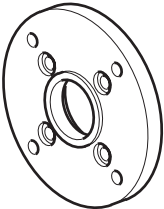
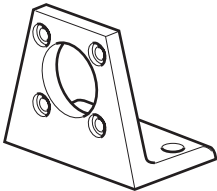


 Working range of motor

Order key

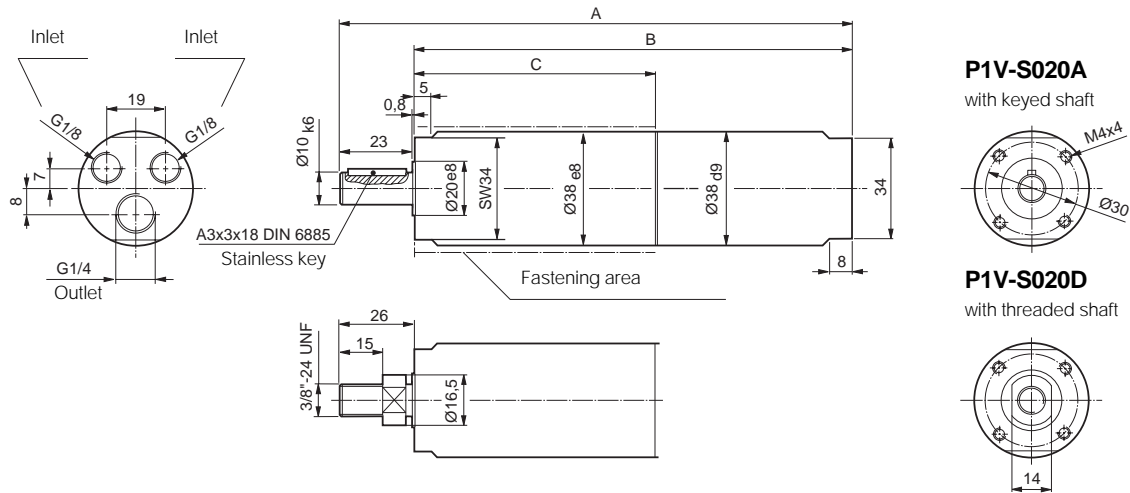
P1V-S		4	012	B	
Pneumatic motor family		Accessories		Bracket	
P1V-S	Vane motor, stainless	4	Brackets	012	120 W
				020	200 W
				030	300 W
				060	600 W
				120	1200 W
				B	Flange bracket
				F	Foot bracket

Brackets for P1V-S

Type	For motor	Weight Kg	Order code
Flange bracket			
	P1V-S012	0,05	P1V-S4012B
	P1V-S020	0,09	P1V-S4020B
	P1V-S030	0,12	P1V-S4030B
	P1V-S060	0,25	P1V-S4060B
	P1V-S120	0,60	P1V-S4120B
Foot bracket			
	P1V-S012	0,09	P1V-S4012F
	P1V-S020	0,11	P1V-S4020F
	P1V-S030	0,11	P1V-S4030F
	P1V-S060	0,30	P1V-S4060F
	P1V-S120	0,80	P1V-S4120F

All brackets are supplied with attachment screws.

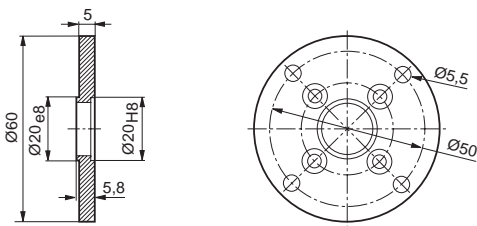
Motor P1V-S020



Type	A	B	C
P1V-S020A0E50, P1V-S020D0E50	151	127	63,5
P1V-S020A0460, P1V-S020D0460	151	127	63,5
P1V-S020A0240, P1V-S020D0240	151	127	63,5
P1V-S020A0140, P1V-S020D0140	167	143	79,5
P1V-S020A0070, P1V-S020D0070	167	143	79,5
P1V-S020A0035, P1V-S020D0035	167	143	79,5
P1V-S020A0018, P1V-S020D0018	167	143	79,5
P1V-S020A0005, P1V-S020D0005	183	159	95,5
P1V-S020A0002	183	159	95,5
P1V-S020A0001	199	175	111,5
P1V-S020A00005	199	175	111,5

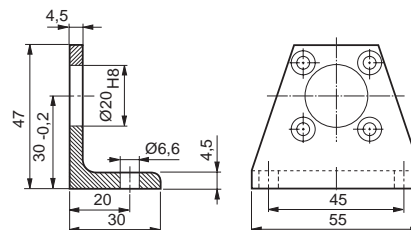
Flange bracket for motor P1V-S020

P1V-S4020B

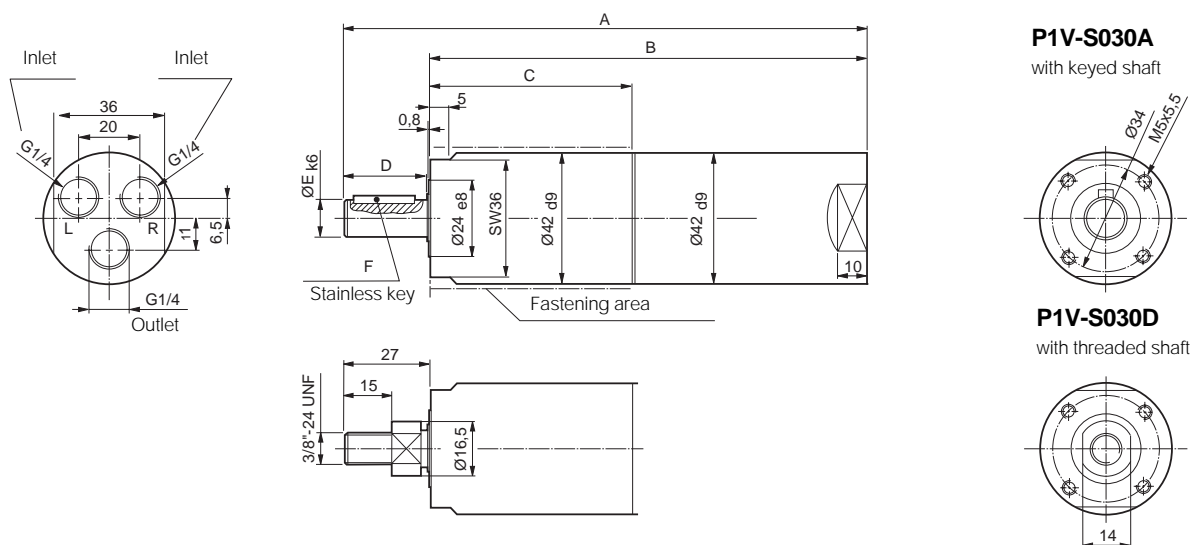


Foot bracket for motor P1V-S020

P1V-S4020F



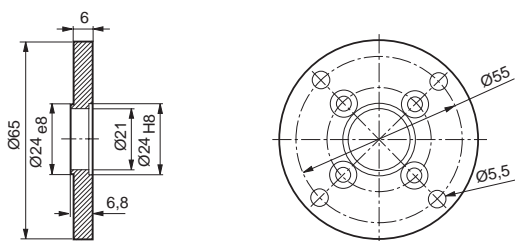
Motor P1V-S030



Type	A	B	C	D	E	F
P1V-S030A0E50, P1V-S030D0E50	171,5	143	66	27	12	A4x4x20 DIN 6885
P1V-S030A0460, P1V-S030D0460	171,5	143	66	27	12	A4x4x20 DIN 6885
P1V-S030A0240, P1V-S030D0240	171,5	143	66	27	12	A4x4x20 DIN 6885
P1V-S030A0140, P1V-S030D0140	187,5	159	82	27	12	A4x4x20 DIN 6885
P1V-S030A0060, P1V-S030D0060	191,0	159	82	30	14	A5x5x20 DIN 6885
P1V-S030A0028, P1V-S030D0028	191,0	159	82	30	14	A5x5x20 DIN 6885
P1V-S030A0018, P1V-S030D0018	191,0	159	82	30	14	A5x5x20 DIN 6885
P1V-S030A0005, P1V-S030D0005	196,0	164	87	30	14	A5x5x20 DIN 6885

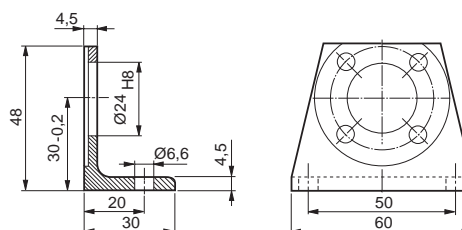
Flange bracket for motor P1V-S030

P1V-S4030B

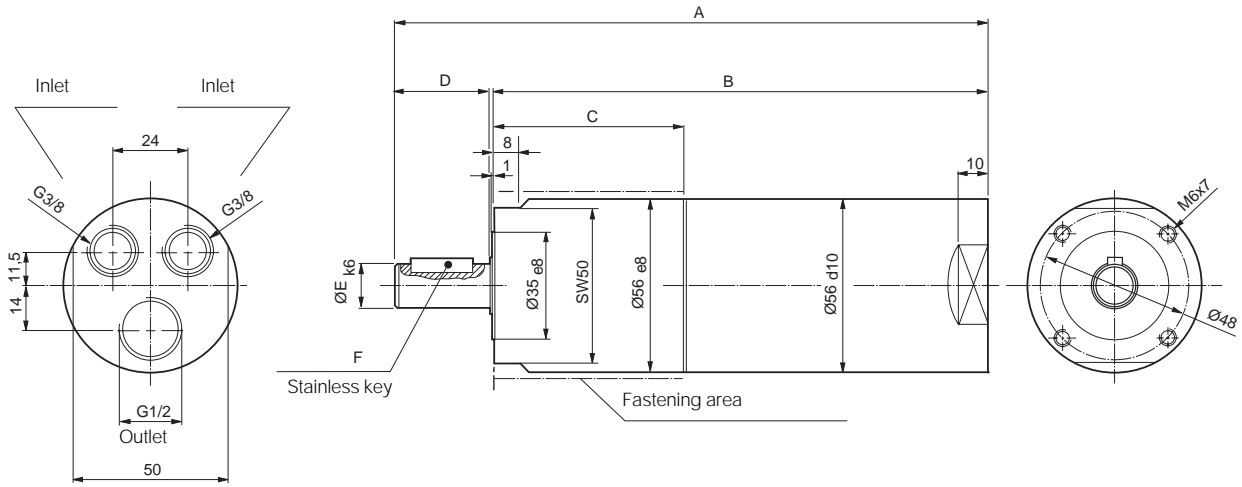


Foot bracket for motor P1V-S030

P1V-S4030F



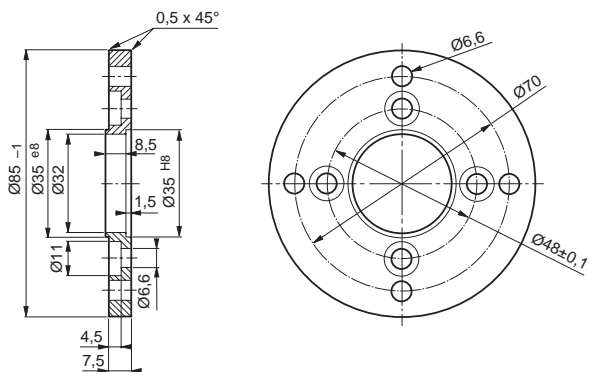
Motor P1V-S060



Type	A	B	C	D	E	F
P1V-S060A0E00	194	162	62,4	30	14	A5x5x20 DIN 6885
P1V-S060A0400	194	162	62,4	30	14	A5x5x20 DIN 6885
P1V-S060A0270	194	162	62,4	30	14	A5x5x20 DIN 6885
P1V-S060A0170	194	162	62,4	30	14	A5x5x20 DIN 6885
P1V-S060A0072	212	180	62,4	30	14	A5x5x20 DIN 6885
P1V-S060A0048	212	180	80,4	30	19	A6x6x22 DIN 6885
P1V-S060A0030	217	180	80,4	35	19	A6x6x22 DIN 6885
P1V-S060A0010	217	180	80,4	35	19	A6x6x22 DIN 6885

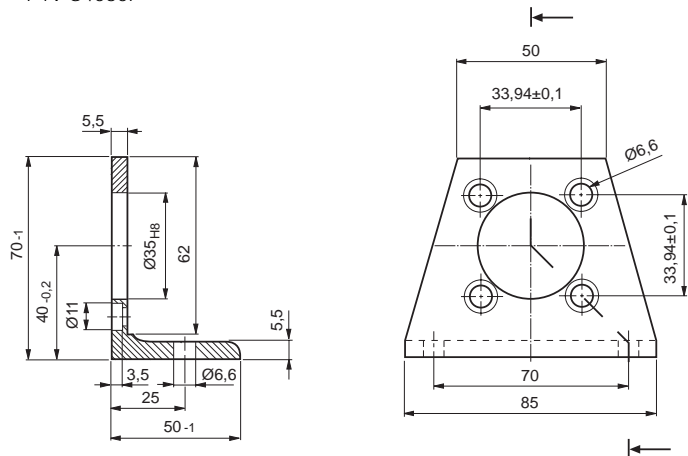
Flange bracket for motor P1V-S060

P1V-S4060B

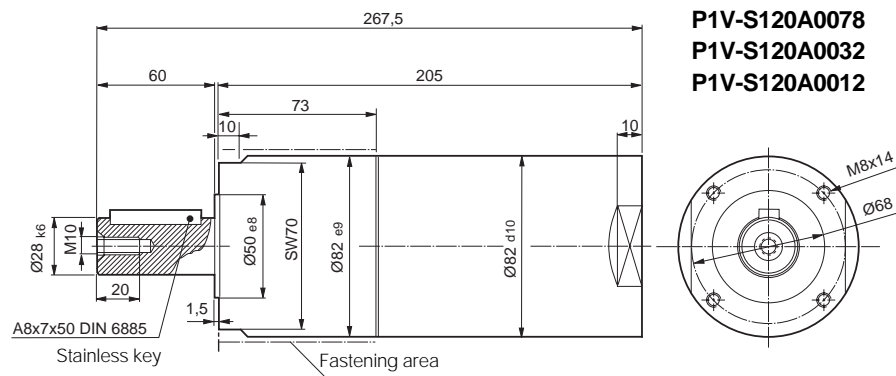
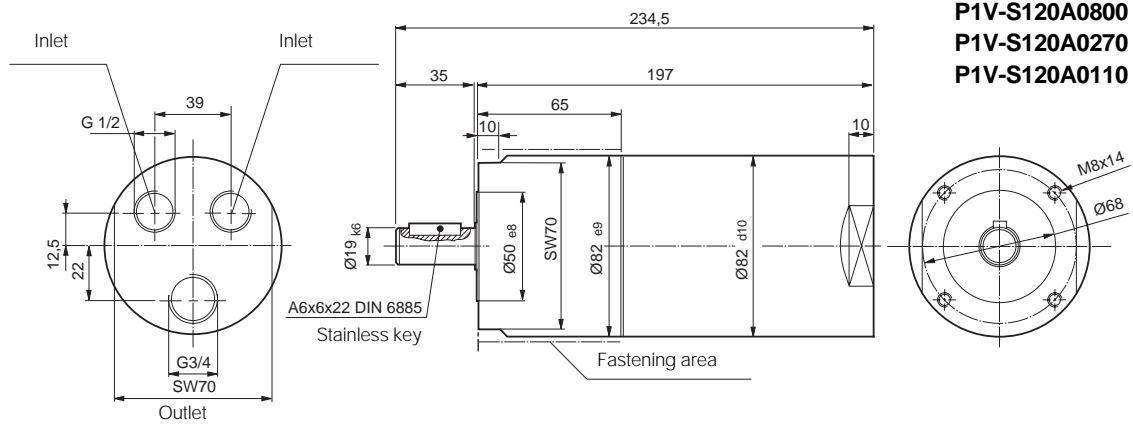


Foot bracket for motor P1V-S060

P1V-S4060F

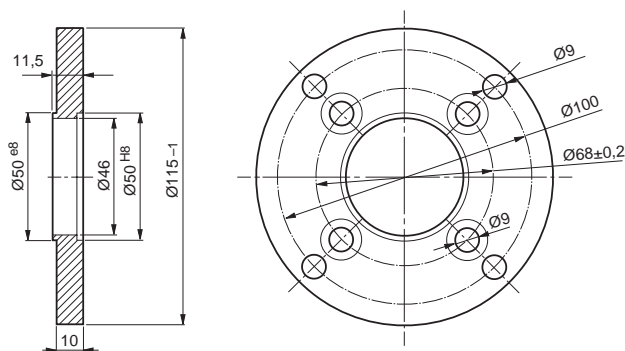


Motor P1V-S120



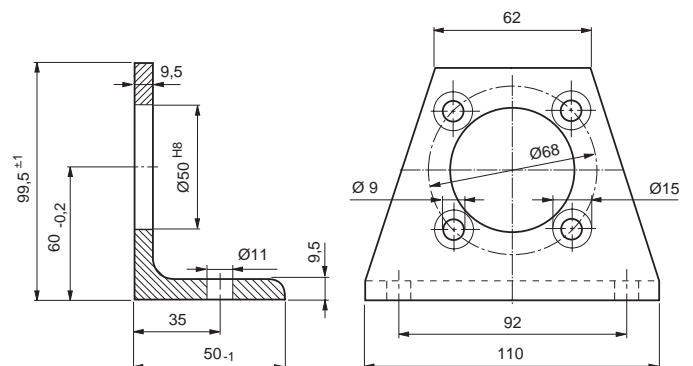
Flange bracket for motor P1V-S120

P1V-S4120B



Foot bracket for motor P1V-S120

P1V-S4120F



Permitted shaft loadings

Basic motors

Max permitted load on output shaft for basic motors (based on 10,000,000 revolutions of the output shaft, with 90% probable service life for ball bearings).

Keyed shaft

Order code	F _{ax} [N]	F _{rad} [N]	a [mm]
P1V-S012A	380	740	9
P1V-S020A	580	1230	12
P1V-S030A0E50	580	1230	14
P1V-S030A0460	580	1230	14
P1V-S030A0240	580	1230	14
P1V-S030A0140	580	1230	14
P1V-S030A0060	580	1460	15
P1V-S030A0028	580	1460	15
P1V-S030A0018	580	1460	15
P1V-S030A0005	580	1460	15
P1V-S060A0E00	940	1580	15
P1V-S060A0400	940	1580	15
P1V-S060A0270	940	1580	15
P1V-S060A0170	940	1580	15
P1V-S060A0072	940	1580	15
P1V-S060A0048	1260	2230	18
P1V-S060A0030	1260	2230	18
P1V-S060A0010	1260	2230	18
P1V-S120A0800	2320	3000	18
P1V-S120A0270	2320	3000	18
P1V-S120A0110	2320	3000	18
P1V-S120A0078	2320	3000	30
P1V-S120A0032	2320	3000	30
P1V-S120A0012	2320	3000	30

Threaded shaft

Order code	F _{ax} [N]	F _{rad} [N]
P1V-S012D	380	740
P1V-S020D	580	130
P1V-S030D	580	130

F_{rad} = Radial loading (N)

F_{ax} = Axial loading (N)

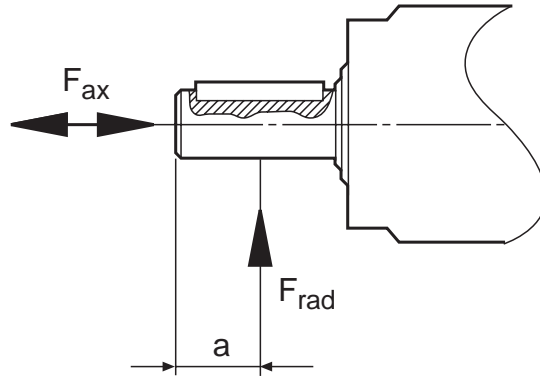


Fig. 1: Loading on keyed output shaft

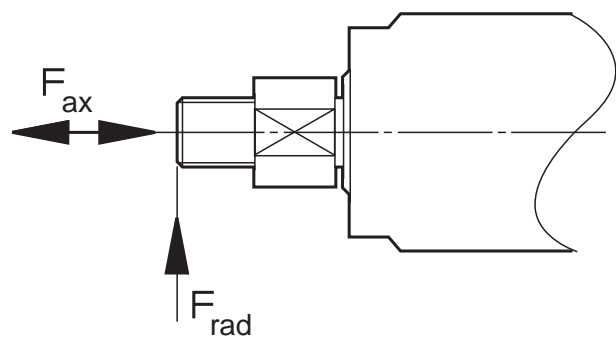
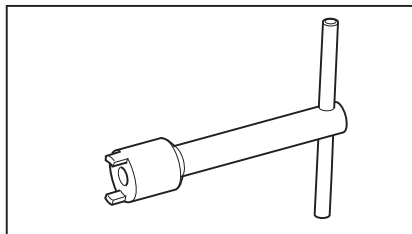


Fig. 2: Loading on threaded output shaft

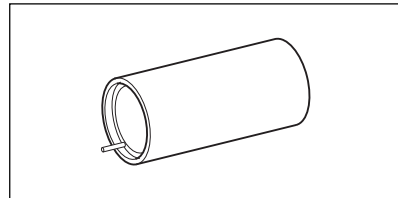
Service kits for P1V-S motors

The following kits are available for the basic motors, consisting of vanes, (springs), silencer, O-rings, seal-ring(s) and 50 g grease (USDA-H1 approved):

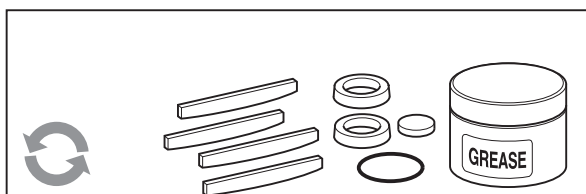
Assembly tools



For motor	Order code
P1V-S012	8204160049



For motor	Order code
P1V-S020, P1V-S030	8204160112



Service kit, vanes for intermittent lubrication-free operation

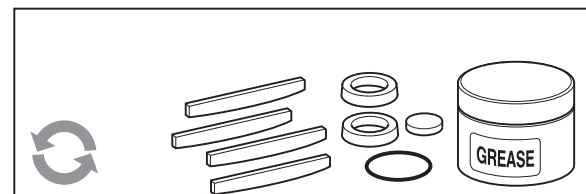
For motor	Order code
P1V-S012A/D0	9121720601
P1V-S020A/D0	9121720602
P1V-S030A/D0	9121720603

P1V-S060A0E00	9121720604
P1V-S060A0400	9121720604
P1V-S060A0270	9121720604
P1V-S060A0170	9121720604
P1V-S060A0072	9121720604

P1V-S060A0048	9121720605
P1V-S060A0030	9121720605
P1V-S060A0010	9121720605

P1V-S120A0800	9121720606
P1V-S120A0270	9121720606
P1V-S120A0110	9121720606

P1V-S120A0078	9121720607
P1V-S120A0032	9121720607
P1V-S120A0012	9121720607



Service kit, vanes for continuous lubrication-free operation, option "C"

For motor	Order code
P1V-S012A/DC	9121720608
P1V-S020A/DC	9121720609
P1V-S030A/DC	9121720610

P1V-S060ACE00	9121720611
P1V-S060AC400	9121720611
P1V-S060AC270	9121720611
P1V-S060AC170	9121720611
P1V-S060AC072	9121720611

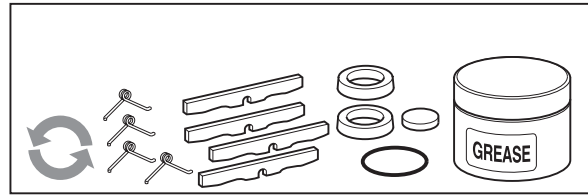
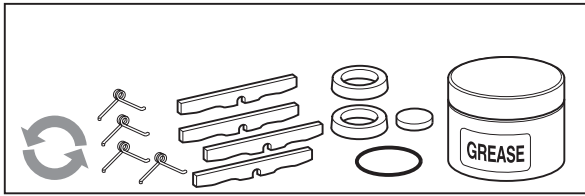
P1V-S060AC048	9121720612
P1V-S060AC030	9121720612
P1V-S060AC010	9121720612

P1V-S120AC800	9121720613
P1V-S120AC270	9121720613
P1V-S120AC110	9121720613

P1V-S120AC078	9121720614
P1V-S120AC032	9121720614
P1V-S120AC012	9121720614

Service kits for P1V-S motors

The following kits are available for the basic motors, consisting of vanes, (springs), silencer, O-rings, seal-ring(s) and 50 g grease (USDA-H1 approved):



Service kit, spring loaded vanes for intermittent lubrication-free operation, option "Z"

For motor	Order code
P1V-S012A/DZ	9121720615
P1V-S020A/DZ	9121720616
P1V-S030A/DZ	9121720617
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P1V-S060AZE00	9121720618
P1V-S060AZ400	9121720618
P1V-S060AZ270	9121720618
P1V-S060AZ170	9121720618
P1V-S060AZ072	9121720618
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P1V-S060AZ048	9121720619
P1V-S060AZ030	9121720619
P1V-S060AZ010	9121720619
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P1V-S120AZ800	9121720620
P1V-S120AZ270	9121720620
P1V-S120AZ110	9121720620
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P1V-S120AZ078	9121720621
P1V-S120AZ032	9121720621
P1V-S120AZ012	9121720621

Service kit, spring loaded vanes for continuous lubrication-free operation, option "M"

For motor	Order code
P1V-S012A/DM	9121720622
P1V-S020A/DM	9121720623
P1V-S030A/DM	9121720624
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P1V-S060AME00	9121720625
P1V-S060AM400	9121720625
P1V-S060AM270	9121720625
P1V-S060AM170	9121720625
P1V-S060AM072	9121720625
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P1V-S060AM048	9121720626
P1V-S060AM030	9121720626
P1V-S060AM010	9121720626
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P1V-S120AM078	9121720628
P1V-S120AM032	9121720628
P1V-S120AM012	9121720628