

PNEUMATIC RADIAL PISTON MOTOR

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EasyDrive

Product features

- Start / stop and shift in direction of rotation under full load possible
- Maximum torque from starting available
- Overload protected
- Maintenance free
- Low noise level
- Minimised air consumption at high performance
- Ex certification compliant to RL94/9/EG (optional)
- IP67 or IP68 and stainless steel housing (optional)

Operation Principle

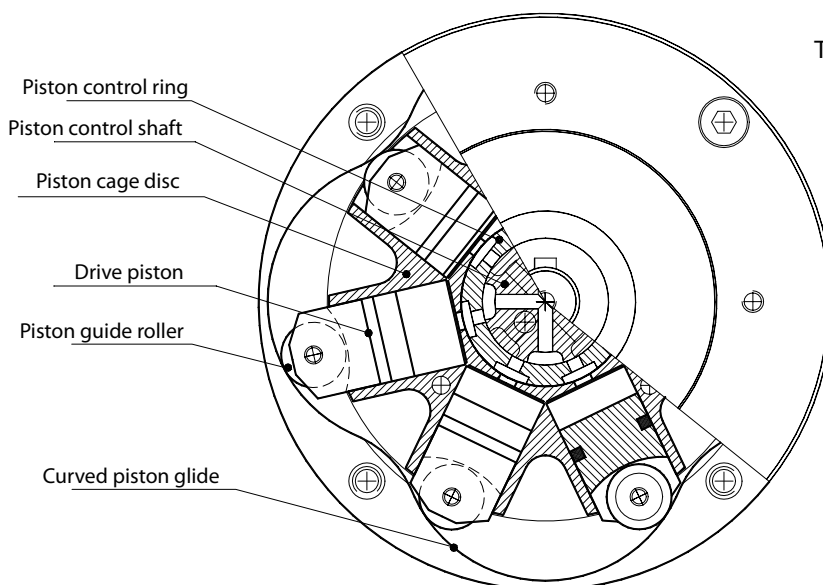
The applied radial piston principle works without crankshaft or pistonrods.

The pistons are arranged in a star pattern and glide along the innercurved surface of the housing. The compressed air is being supplied from the center through the fixed piston control shaft via the floating piston control ring to the individual pistons. This ensures automatic activation of the pistons. The piston control ring is connected to the piston

cage in a floating arrangement, which is based on double bearings on the piston control shaft. During rotation the air to the pistons will alternate between supply and exhaust.

Immediate reverse rotation can be activated through directional change of the air supply.

Three of the seven pistons are always actively engaged to generate rotation and torque of the air motor. The pistons near the highest elevation of the curve will exhaust and forced to the lowest point of the curve. This represents the cycle of a simple cylinder.

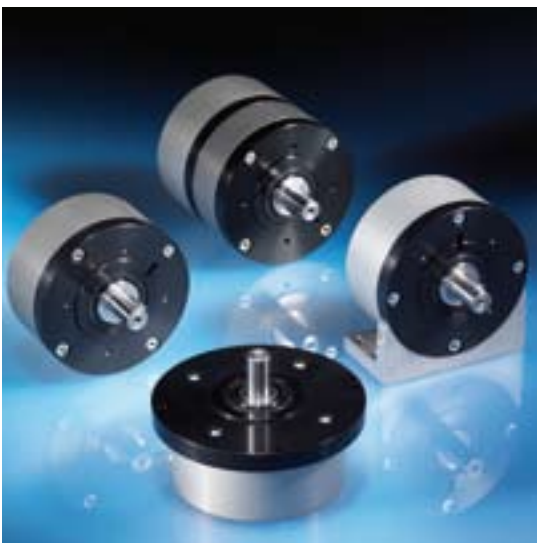


The rollers of the cylinders are fabricated of high stress plastic material and run on double bearings. This allows for low friction with minimal noise and high life expectancy. Compared to standard air motors these pneumatic motors model EasyDrive have their highest torque rating at low revolutions and minimal air consumption.

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Product features



Five performance classes - two sizes

The modular construction of the pneumatic motors enables space-saving dimensions: They come in two sizes, the only difference being their diameters. The smaller motors have a torque of 450 or 900 Ncm while the more powerful motors achieve 1,800 Ncm, 3,600 Ncm and 7,200 Ncm.

Within the two installation sizes, in the higher performance class there is merely a deviation of 15-22 mm in the installation depth. Even when using the special EasyDrive gears, there is merely a deviation of a few centimeters in the installation depth. All other dimensions remain identical.

EasyDrive gears

Our planetary gears manufactured specifically for EasyDrive can be used as speed reductions/increases in order to adapt the rotary speed and/or torque as needed. The speed increases of 3:1 and 9:1 and a speed reduction of 1:2 are available for this. Customised gear increments are available on request.

Options

Along with the mounting holes on the engine cover, a mounting flange or a mounting bracket is optionally also available. This allows various installations of EasyDrive in the tightest space. Additional options such as the IP68 protection class or a stainless steel engine enclosure also allow installation in harsh surroundings or even under water. An Ex certificate for use in an explosive environment completes the extensive delivery programme.

Types

Materials:

- Aluminium alloy
- Hard coated and black anodised
- Steel parts C45
- Plastics in Delrin, NBR or specials

Optional types:

- with planetary gear set (conversion 3:1, 9:1 or 1:2)
- water resistant (IP 68), sea water resistant (IP 68, viton gasket)
- silicone free
- rust-proof
- complete stainless steel housing
- electronic speed control (+/- 10 % of the load changes)
- with hollow shaft (external)
- plastic version (without magnetic influence)
- with adapter for air connection G 1/8" (optionally for EasyDrive 0450 and 0900)
- customized output shafts

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Performance Data

Maximum performance, minimum consumption!

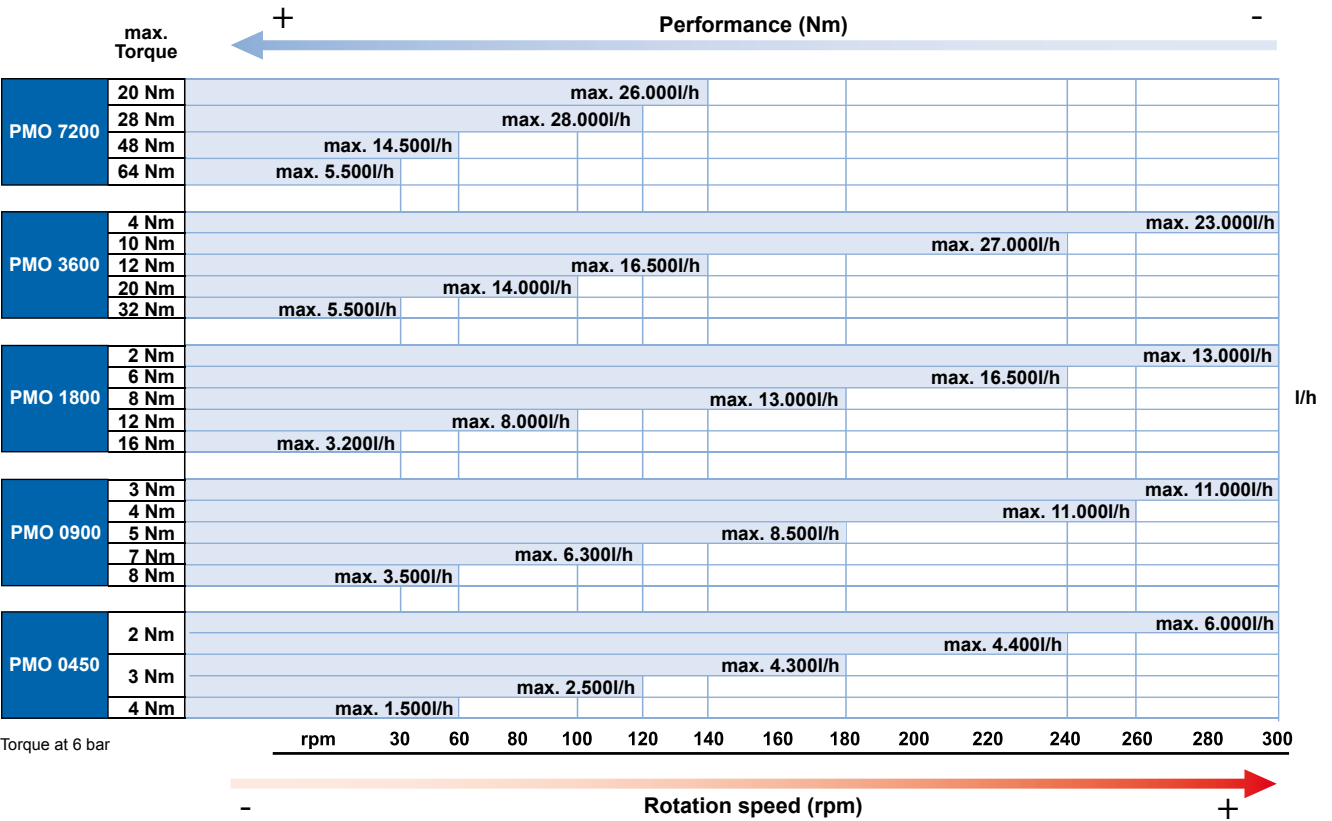
Unlike conventional compressed air motors, the EasyDrive already generates its maximum torque during start with minimum air consumption. As the speed increases, the torque

means that the EasyDrive maximizes output while minimizing power consumption, which translates to a considerable advantage in terms of energy consumption.

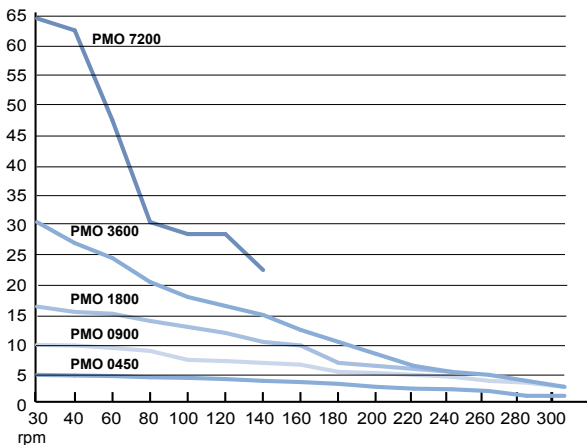
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decreases while the air consumption increases at the same time. This

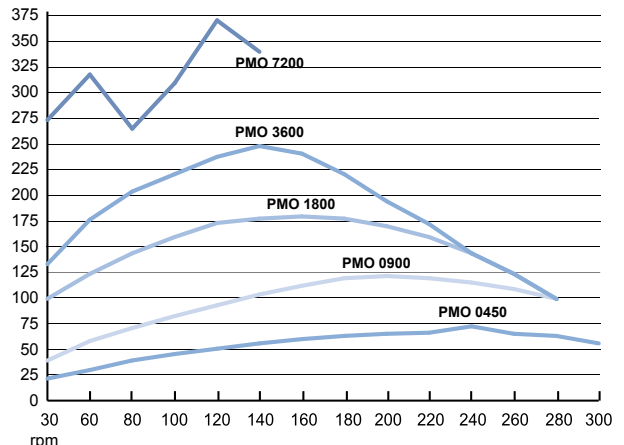
Remark: Regarding the rpm-range, the PMO 7200 is deviant to all other models and is construed for 30-140 rpm (without gear).



Torque in Nm



Watt



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Technical Data

Torque

	Without gear		Reduction 3:1		Reduction 9:1		Ratio 1:2	
	min. 30 rpm	max. 300 rpm	min. 10 rpm	max. 100 rpm	min. 3.3 rpm	max. 33 rpm	min. 60 rpm	max. 600 rpm
PMO 0450	4 Nm	2 Nm	12 Nm	6 Nm	36 Nm	18 Nm	2 Nm	1 Nm
PMO 0900	8 Nm	3 Nm	24 Nm	9 Nm	72 Nm	27 Nm	4 Nm	1.5 Nm
PMO 1800	16 Nm	2 Nm	48 Nm	6 Nm	144 Nm	18 Nm	8 Nm	1 Nm
PMO 3600	32 Nm	3 Nm	96 Nm	9 Nm	288 Nm	27 Nm	16 Nm	1.5 Nm
PMO 7200	64 Nm	20 Nm (at 140 rpm)	180 Nm	60 Nm (at 45 rpm)	540 Nm	180 Nm (at 15 rpm)	32 Nm	10 Nm (at 280 rpm)

Custom gearboxes on request.

Loads

	Max. load axial	Radial dyn. C	Radial stat. C0	Max. allow. Md
PMO 0450	100 N	750 N	400 N	5 Nm
PMO 0900	100 N	750 N	400 N	5 Nm
PMO 1800	200 N	1500 N	800 N	10 Nm
PMO 3600	200 N	1500 N	800 N	10 Nm
PMO 7200	200 N	1500 N	800 N	10 Nm

Weights

	Without gear	With 3:1 gear	With 9:1 gear	With 1:2 gear
PMO 0450	1.1 kg	2.0 kg	2.8 kg	2.1 kg
PMO 0900	1.3 kg	2.2 kg	3.0 kg	2.3 kg
PMO 1800	3.4 kg	6.1 kg	7.9 kg	5.9 kg
PMO 3600	4.0 kg	6.7 kg	8.5 kg	6.5 kg
PMO 7200	6.4 kg	9.1 kg	10.9 kg	8.9 kg

Technical Information

Notes:

Flow control valve on the inlet side give best results in the reference of life time, smooth running and air consumption
Flow control valve on the outlet side reduces the life time and increases the air consumption.

Simply with the air flow control, either through pressure regulator and / or flow control valve, it is possible to setup continuous the motor for each application.

The compressibility of the compressed air steps in all areas, so the EasyDrive can be started any time also under load.
Different assembly possibilities are available by use of bigger flange plates or mounting bracket.

Caution:

Do not lock the M5 exhaust port of the motor housing! This exhaust is needed for possible over pressure.

Fitting position:

Any position

Temperature application range:

-10° C to +80° C

Operating medium:

Unoiled compressed air filtered to ≤ 5 μ is mandatory

Operating pressure:

6 bar / range 2 - 8 bar

Rotation direction:

CW or CCW, very short reversing time

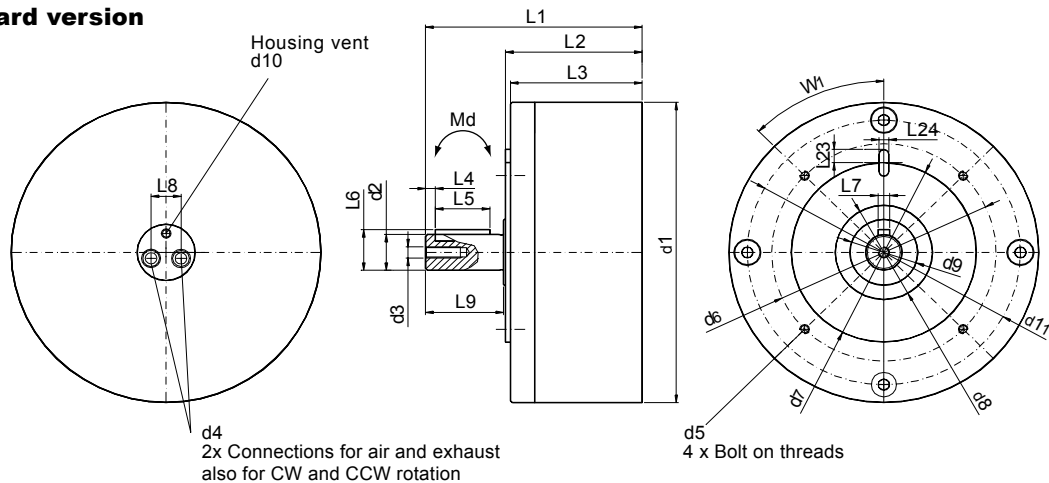
Maintenance:

Not required.

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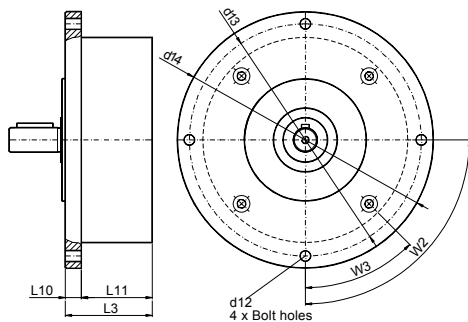
Dimensions

Standard version



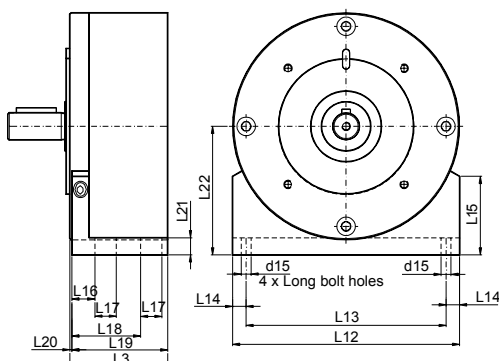
	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	L1	L2	L3	L4	L5	L6	L7	L8	L9	L23	L24	W1
PMO 0450	99	14 h6	M 4x12	M 6x0.75x8	M 4x9	67	55 h6	40	28	M 5x5	87	78	52	50.5	3	18	16	5 N9	10,6	25	6	4 N9	45°
PMO 0900	99	14 h6	M 4x12	M 6x0.75x8	M 4x9	67	55 h6	40	28	M 5x5	87	92.5	66.5	65	3	18	16	5 N9	10,6	25	6	4 N9	45°
PMO 1800	159	19 h6	M 6x18	R1/8x9	M 6x10	115	95 h6	50	35	M 5x5	140	111	70	67.5	5	28	21.5	6 N9	15.3	40	7	5 N9	45°
PMO 3600	159	19 h6	M 6x18	R1/8x9	M 6x10	115	95 h6	50	35	M 5x5	140	133	92	89.5	5	28	21.5	6 N9	15.3	40	7	5 N9	45°
PMO 7200	159	19 h6	M 6x18	R1/8x9	M 6x10	115	95 h6	50	35	M 5x5	140	194	153	150.5	5	25	21.5	6 N9	15.3	40	7	5N9	45°

Version with flange



	d12	d13	d14	W2	W3	L3	L10	L11
PMO 0450	5.4	110	120	90°	45°	50.5	11.5	39
PMO 0900	5.4	110	120	90°	45°	65	11.5	53.5
PMO 1800	8.5	180	199	90°	45°	67.5	12.5	55
PMO 3600	8.5	180	199	90°	45°	89.5	12.5	77
PMO 7200	8.5	180	199	90°	45°	150.5	12.5	138

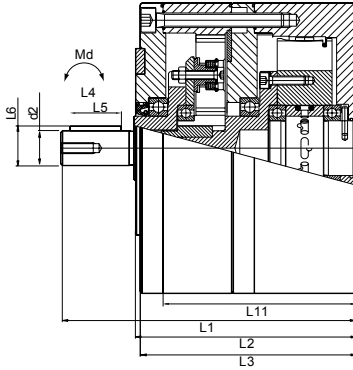
Version with installation bracket



	d15	L3	L12	L13	L14	L15	L16	L17	L18	L19	L20	L21	L22
PMO 0450	5	50.5	99	89	5	40	14.5	10	36.5	50	0.5	10	58
PMO 0900	5	65	99	89	5	40	14.5	10	36.5	50	0.5	10	58
PMO 1800	7	67.5	159	140	9.5	55	16	15	48	67	0.5	12	90
PMO 3600	7	89.5	159	140	9.5	55	16	15	48	67	0.5	12	90
PMO 7200	7	150.5	159	140	9.5	55	16	15	48	67	0.5	12	90

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Version with gear

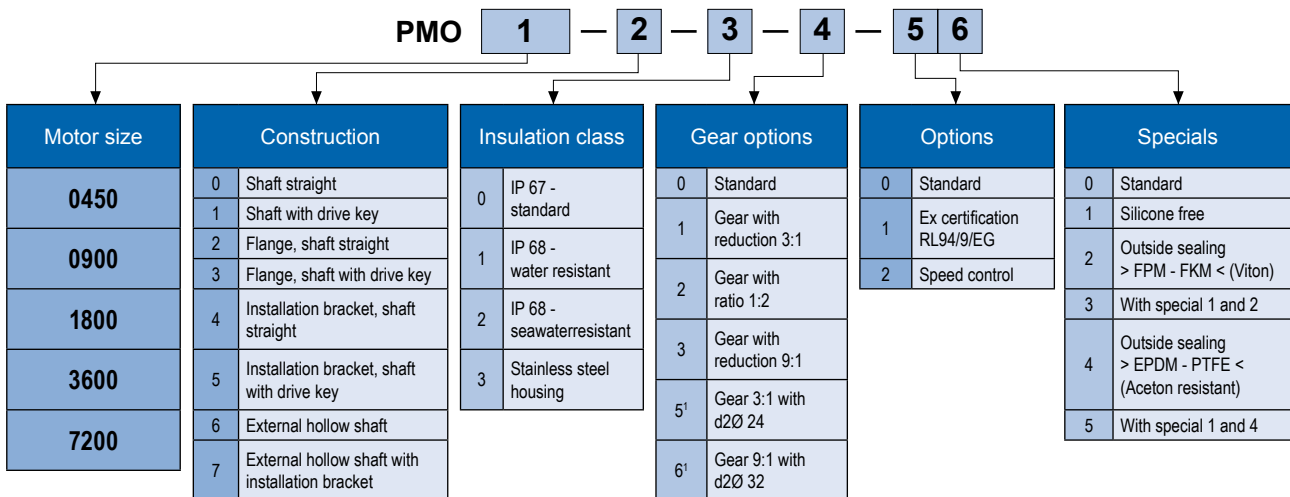


	gear	L1	L2	L3	L4	L5	L6	L7	L11	d2
PMO 0450	3:1	120	94	92.5	3	18	16	5 N9	81	14 h6
	9:1	146	120	118.5	3	18	16	5 N9	107	14 h6
PMO 0900	3:1	134.5	108.5	107	3	18	16	5 N9	95.5	14 h6
	9:1	160.5	134.5	133	3	18	16	5 N9	121.5	14 h6
PMO 1800	3:1	161	120	117.5	2	38	27	8N9	105	24 h6
	9:1	192.5	151.5	149	2	38	27	8N9	131.5	32 h6
PMO 3600	3:1	183	142	139.5	2	38	33	8N9	127	24 h6
	9:1	214.5	173.5	171	2	38	33	8N9	158.5	32 h6
PMO 7200	3:1	244	203	200.5	2	38	27	8N9	188	24 h6
	9:1	275.5	234.5	232	2	38	35	8N9	219.5	32 h6

Version with Jacket Va rust-proof

	d1 Va	d13 Va	d14 Va	L1 Va	L2 Va	L3 Va	L11 Va
PMO 0450	104	115	124	81	55	53.5	42
PMO 0900	104	115	124	95.5	69.5	68	56.5
PMO 1800	164	180	199	115	74	71.5	59
PMO 3600	164	180	199	137	96	93.5	81
PMO 7200	164	180	199	198	157	154.5	142

Order Code



¹ only at EasyDrive 1800 / 3600 / 7200

Example Order Code EasyDrive



PMO 3600 - 5 - 0 - 0 - 12

Pneumatic motor, EasyDrive 3600, installation bracket, shaft with drive key, IP67 - Standard, Ex certification, Viton seal