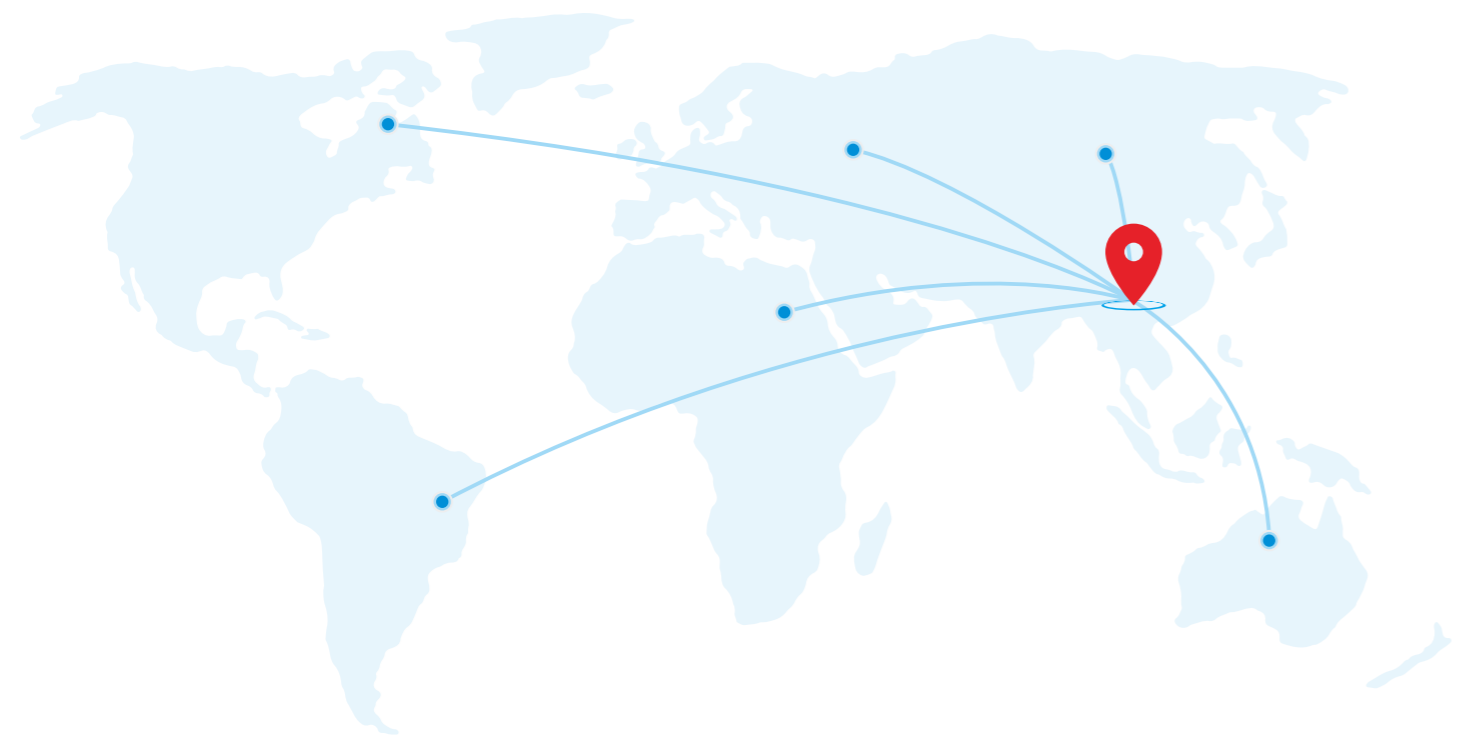




# SCREW AIR COMPRESSOR

Industrial Type Permanent Magnet VSD

2023 new arrival



Professional  
Screw Air Compressor Factory



7.5-75 kW

# Permanent Magnet Motor

## Variable Speed Screw Air Compressor

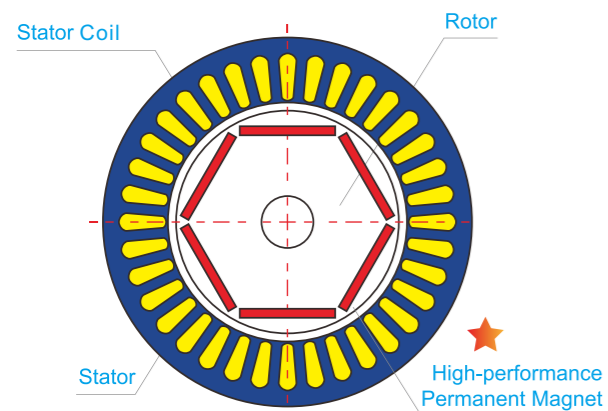


<p><b>Permanent Magnet Synchronous Motor(PM)</b> Adopts the high efficiency NdFeB permanent magnet, The service life is more than 15 years.</p>	<p><b>Stator Coil</b> Using the wire which is specialized in the inverter. Excellent insulation, longer service life.</p>	<p>When the use of air is not stable, average energy saving reaches to 35-50%.</p>
<p>Reduce the working pressure of the system. The constant voltage is more efficient.</p>	<p>No power consumption when it is unloading. No unloading. No electricity waste.</p>	<p>Permanent magnet synchronous motor for higher efficiency.</p>
<p>Wider range of the AC voltage(300V-440V). The compressor can run normally and it won't stop in this range.</p>	<p>Can adjust the discharge air volume according to the air pressure.</p>	<p><b>Colour touch screen</b> Customised smart touch screen and control module .Easy to operate.</p>

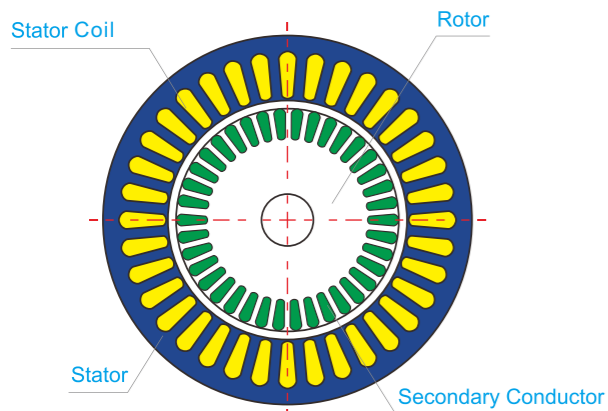
Compared with the fixed speed compressor, PM VSD compressor can save electric charge more than **74,000 degree/year.**  
**10836kw.h + 52800kw.h + 10836kw.h =74472kw.h/year**  
 (Above data is the 37kw screw air compressor Industry data, your factory actual saving value is depends on actual using condition .)

# Energy Saving Solution

### Comparison(Permanent Magnet Synchronous Motor & Normal Asynchronous Motor)



Permanent Magnet Synchronous Motor



Asynchronous Induction Motor

Magnetic field is the foundation of the motor to realize the electricity energy conversion. Depending on the way to establish the magnetic field, it divides into the electric excitation motor and permanent magnet motor. Compared to the electric excitation motor, the permanent magnet motor has the advantages as below,

**High Efficiency** It cancels the loss of the excitation system which improves efficiency 5%-12% . The power factor is high , the force ratio of inertia is high. The motor is in directed drive, without the speed slip loss, No need for the bearing and connection to drive, that can improve more than 3% efficiency. When in light loading, the PM motor can improve 15-35% efficiency as the same specifications of induction motor. High efficiency in light or heavy load. **At present, Olymtech is use the level 1 energy saving PM motor. (Ie3)**

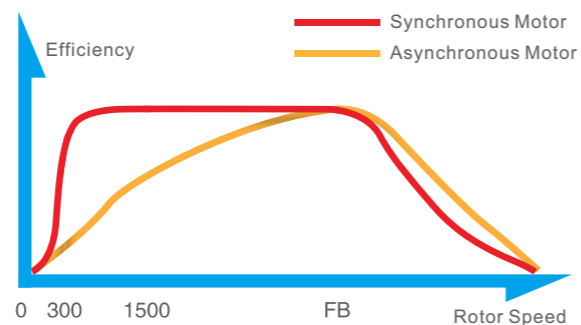
**Low Noise** With the design in magnetic field,magnetic density distribution,wider working frequency range ,lower operation noise. The air pressure is constant, open loop vector control, it can adjust a wide range of discharge air volume immediately.

**Compact Structure ,Small Size,Light Weight**

It cancels the excitation winding and the excitation power (magnetic pole core ). The structure is simple ,reliable operation and easy maintain.

**High Precision, Fast Response**

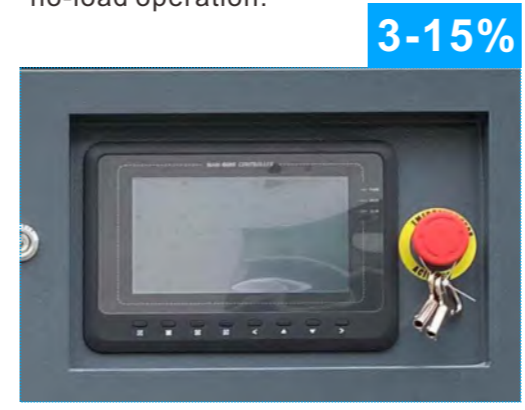
**Bigger Starting Torque**



Synchronous Motor and Asynchronous Motor Efficiency Curve



**Smart inverte**  
A wide speed control range of frequency converter prevents unnecessary power consumption for no-load operation.



**No unnecessary pressure**  
Constant pressure setting reduce the pressure drop, 1bar of unnecessarily high pressure correopnds to about 7% of the energy.



**Permanent magnet motor**  
High efficiency IE3 permanent magnet motor reduces energy costs.



**Lossless direct drive**  
The direct connect in between the air-end and motor has none of the transmission losses.



# DPM SERIES

## Technical Parameter

### DPM series Permanent Magnet VSD Screw Air Compressor

Model	Max Working Pressure		F.A.D		Motor Power		Connection	Net Weight kgs	Dimension (L*W*H) mm
	bar	psig	m <sup>3</sup> /min	CFM	hp	kw			
D7.5PM-8	8	116	1.02	36	10	7.5	G1/2"	125	850*600*840
D7.5PM-10	10	145	0.9	31					
D11PM-8	8	116	1.6	56	15	11	G3/4"	225	1050*750*1040
D11PM-10	10	145	1.52	53					
D15PM-8	8	116	2.3	81	20	15	G3/4"	240	1050*750*1040
D15PM-10	10	145	2.0	70					
D22PM-8	8	116	3.5	123	30	22	G1"	301	1160*800*1150
D22PM-10	10	145	3.0	106					
D30PM-8	8	116	4.24	149	40	30	G1-1/4"	430	1250*1030*1270
D30PM-10	10	145	4.0	141					
D37PM-8	8	116	6.2	219	50	37	G1-1/4"	460	1250*1030*1270
D37PM-10	10	145	5.4	190					
D45PM-8	8	116	7.47	263	60	45	G2"	840	1580*1160*1600
D45PM-10	10	145	6.8	240					
D55PM-8	8	116	10.0	353	75	55	G2"	860	1580*1160*1600
D55PM-10	10	145	7.5	265					
D75PM-8	8	116	12.5	441	100	75	G2"	930	1580*1160*1600
D75PM-10	10	145	10.0	353					

- According to the standard of GB19153-2009
- Standard power supply: 380v/50Hz/3Ph
- Please contact us for any specification that is not within the above mentioned standards.
- Compressor stage: one stage compression
- Exhaust temperature: ambient temperature +15°C



## 1 Application of Permanent Magnet Motor

- Olymtech uses the high efficiency permanent magnet synchronous motor. Compared with the normal asynchronous VSD motor, energy saving performance is more outstanding. The full load efficiency of a 37Kw PM motor is 97%, however the efficiency of same level asynchronous motor is only 92%, it may save 5% energy.
- It can save electricity about 10836 degree/year when we use the PM compressor in 37KW. When in low speed, the permanent magnet synchronous motor efficiency won't be changed, but normal asynchronous motor efficiency will be lower. **Average PM compressor can save energy 7%-11%.**
- 37KW means the shaft power of the main motor. The actual input power is (37kw x 1.15 service factor) =43KW. If the compressor works for 6000 hours per year, 60% loading rate:  
**1 year electric saving:**  
**6000h x 43kw x 60% (loading rate) x 7% = 10836kw.h**  
 Suspect electric charge USD0.2/kw.h, 1 year save money: **10836kw.h x USD0.2/kw.h = USD2167.00**

## 2 Application of VSD Technology

- When air compressor unloads, it consumes electric power approximately 50% but giving you nothing in return.
- For example a 37Kw compressor, if the loading rate is 60%, it means the unloading rate is 40%, it will waste 22kw when in unloading (full load is 37kw x 1.15 service factor x 50% =22kw). If the compressor runs 6000 hours per year, this compressor has 40% unload, it consumes 22kw power during the 2400hours, it may waste electricity in **52800kw.h**  
**6000h x 40% (unloading rate) x 22kw = 52800kw.h**
- To use Olymtech PM compressor C37PM, wastage problem is solved, you can save electric 52800kw.h/year! Because Inverter automatically adjusts the motor speed, thus to changes the air supply as the air demand floating, no unloading wastage.  
 \* Above data is the Industry data, the actual saving value depends on actual use.

## 3 Without Pressure Loss

- A compressor pressure is 0.8Mpa, it's actual unloading pressure is 0.8Mpa, and the loading pressure is 0.65Mpa, that means pressure 0.65Mpa is enough for factory using.
- Adjust C37PM pressure to 0.65Mpa, which can save electricity 11340kw.h/year.
- To reduce system pressure every 0.14barg, it can save 1% energy. This equates 7% as an example. 37KW means the shaft power of the main motor. The actual input power is (37kw x 1.15 service factor) =43KW. If the compressor works for 6000 hours per year:  
**1 year electric saving:**  
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Compared with the normal frequency compressor, PM compressor can save electric charge more than 74,000 degree/year.

**10836kw.h + 52800kw.h + 10836kw.h = 74472kw.h/year**