

WORLD CLASS · SUPER EFFICIENT · RELIABLE · SILENT

p|m|v

ROTARY SCREW COMPRESSOR



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Kaishan Compressor Global

WORLD WIDE SUPPORT

Globally recognized industrial presence

Over the last sixty years, Kaishan has steadily grown to become a significant, diversified engineering company developing high value machinery for industries worldwide. With modern, specialized manufacturing facilities positioned in seven strategic locations, Kaishan's group of thirty-two subsidiary companies produce over 70,000

rotary screw and 250,000 reciprocating compressors annually. Kaishan is the world's third largest manufacturer of compressed air, mining and drilling equipment and supports industries in more than 60 countries including: USA, Australia, Germany, Japan, Korea, Russia, Africa and throughout Latin America.

Vertically integrated global strategy

Kaishan's global strategy of combining skilled engineering with highly efficient manufacturing allows us to provide performance proven, reliable equipment at a significant cost savings to our customers. Additionally, Kaishan's manufacturing processes are 85% vertically integrated

insuring full control of the material supply chain. This vertical approach supplies high quality components at a lower cost, and affords Kaishan the ability to respond rapidly to changing market demands.



Practiced environmental sustainability

Integral to the design and manufacture of our products is outstanding energy efficiency. Kaishan's fundamental belief in environmental sustainability drives us to produce products that maximize energy efficiency and help to preserve precious energy resources. Single and two-stage compressors that produce more compressed air per unit of power input as well as expanders that utilize waste energy to produce electricity are just two of the fundamental products in our sustainable approach.

Throughout our manufacturing processes, unused waste materials are recycled at every stage to minimise the use of raw materials. This approach translates to lower initial costs and a smaller environmental footprint that helps us all. Kaishan's commitment to environmental responsibility ensures that we will continue to develop technologies and manufacturing solutions that provide industry with machinery of exceptional value - now and well into the future.



PMV Series 'best in class' rotor assembly

AIR IS FREE, COMPRESSED AIR IS NOT!

Compressed Air is the Fourth Largest Utility for an Industry after Electricity, Gas and Water. Very few people understand the cost associated with compressed air production. Compressed air is the most expensive form of energy used in an industry.

WORLD CLASS ENGINEERING

PATENTED 'SKY' TWO-STAGE AIREND

Larger Rotor Size

To increase the rotor throughput, the Airends of our compressors are larger than usual. Our Air Compressors are built with 5/6 lobes and larger rotor size which reduces the specific power consumption and runs at slow speed.

Lower inter-lobe leakage losses

Pressure differences between two neighbouring working chambers is small due to a greater number of lobes. This reduces inter-lobe leakage losses. Hence leakage to delivery ratio decreases as the number of rotor lobes increases.

Larger wrap angle & discharge port

A greater number of lobes combined with a larger wrap angle ensures multiple rotor contact. This reduces vibrations and thus minimizes noise. Larger discharge ports decrease the discharge velocity and therefore reduce the discharge pressure losses, thereby increasing the compressor's overall efficiency.



PMV air end



ELECTRICAL CONTROL PANEL

Increased Cooling Efficiency

- Monitor and controls Key Compressor Functions.
- Current Transformer provides constant read out of operating current.
- Protection against Phase sequence changes provided.
- Provides service schedule alarm .
- External monitoring via RS 485 interface
- High current input reading triggers shutdown.

INTEGRATED MICROPROCESSOR CONTROL FOR INDUSTRY 4.0

- Ease of use due to mimic diagram and constant pressure and temperature readout.
- Selective readout of operation and maintenance parameters provided.
- Safety Shutdown Feature included.
- Automatic Start/Stop operation over 24 hour period with Lead/Lag sequencing of multiple compressors.
- Auto-Dual control: If there is no air demand during the pre-set time delay, the compressor shuts down the drive motor. The Controller will restart the motor only when pressure falls below the preselected pressure levels.
- Integrated with IoT technology which allows remote monitoring, and control over local or web networks.



COOLING FANS

Increased Cooling Efficiency

- Even air flow across the cooler face.
- Cooling air bypasses main compressor compartment resulting in minimal internal dust build up.



WORLD CLASS

'ULTRAWEB' AIR INTAKE FILTERS

Increased Filtration Efficiency

- Full airflow, low restriction, nanofiber technology
- Deep bed media ensures excellent dust capture
- Increased free air delivery for further savings in energy and running costs



SINGLE PASS OIL & AFTER COOLERS

Long Life / Easily Accessible

- Minimize thermal stress
- Cooler designed for 50°C ambient temperature.
- Low oil carryover increases bearing life
- Low cooling air velocity reduces dust build up

3 STAGE AIR OIL SEPARATION

Lower Pressure Drop / Lower Absorbed Power

- Excellent oil mechanical pre-separation/ reduced direct oil impingement onto separator element
- Lower dust contact resulting in lower pressure drop / longer element life /lower energy consumption
- Residual oil carryover limited to 1 - 3 ppm

DIRECT DRIVE - 1:1 DRIVE RATIO NO GEARBOX

Maximum Air Output/Reduced Energy Usage

- Large, low speed airend
- Eliminates transmission energy losses
- Increases bearing life
- Flexible coupling with easily removable coupling elements

LAMINAR FLOW INLET VALVE

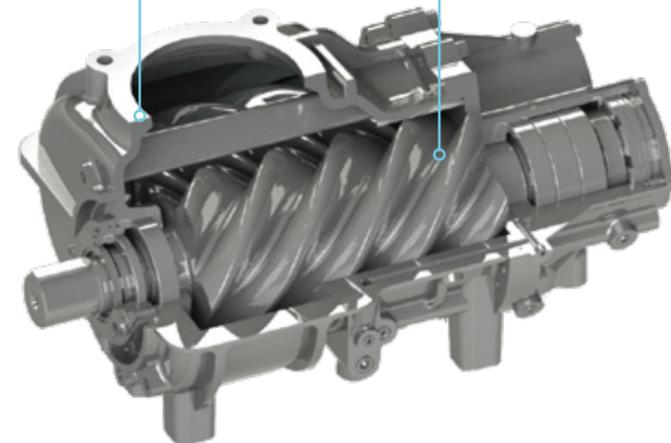
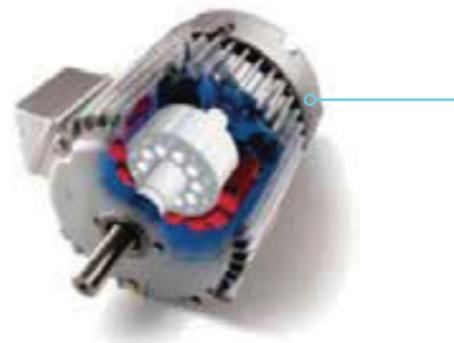
Minimum Pressure Drop / Increased Output

- Laminar flow inlet valve results in lower pressure drop at intake, resulting in increased output and saving energy

REAR EARTH MAGNET TECHNOLOGY

Rear earth magnet technology gives the permanent magnet motor superior energy efficiency compared to conventional induction motors. PM synchronous torque motors provide faster acceleration and deceleration, a great advantage in compressor applications as they can more rapidly vary output to match application demands.

- Energy efficient over a wide speed range
- Variable speed in constant and variable torque applications
- Lower routine and long term maintenance



'SKY' SERIES AIR END

Maximum Output with Less Energy Usage

- Asymmetric 5 / 6 rotor profile with SKF bearings
- KAPP Grinder rotor technology for tighter clearances and world class efficiency and performance
- Precision machined bell housing to maintain rigid alignment

Permanent Magnet Variable Frequency Rotary Screw Air Compressors



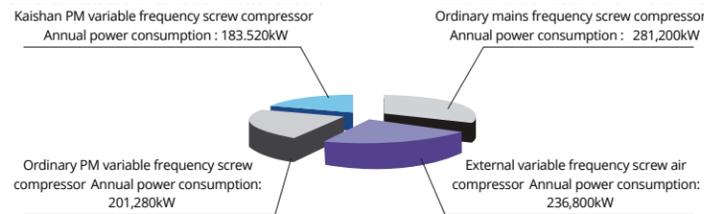
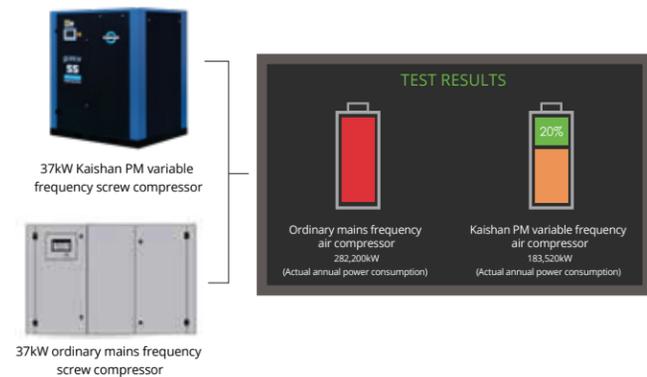
Precision engineered integrated compressor unit

The new range of PMVF compressors integrate the highest quality and most effective components into a compact unit to provide maximum output with minimum energy usage. These highly advanced air compressors provide world class efficiency and performance and yet they are heavy duty units developed to ensure superior durability and reliability. Precision engineering utilising latest technologies has achieved energy standards exceeding international expectations.

Developed by Kaishan Engineers, these revolutionary rotary screw air compressors bring together an integrated systematic optimisation of the compressor unit; an advanced permanent magnet motor and Kaishan SKY technology to achieve

outstanding energy efficiency. This unique integrated combination, all the way down to 15 kW, is a game changer in compressed air industry offering unsurpassed efficiency.

Rare earth material technology gives higher possible rotating speeds, wider operating parameters and increased energy efficiency to the permanent-magnet synchronised motors. Within their wide operating speed range the Permanent Magnet Variable Frequency rotary screw air compressors are able to maintain extremely high motor efficiency compared to those using conventional drive motors.



Kaishan's Permanent Magnet Variable Frequency Rotary Screw Air Compressors operate at peak efficiency even with 80% reduction in air output. It also offers far greater integrated control precision through an advanced PID control algorithm that helps generate highly stable supply pressure.

By regulating the volume of air output, the compressor can maintain maximum efficiency under all usage demands from 15% to 100%. Particularly in applications with widely fluctuating

demand, Kaishan's Permanent Magnet Variable Frequency type air compressors demonstrate a remarkable energy saving capability over conventional types.

Motor angular position sensors are not required, simplifying the system and improving both stability and reliability. Torque can be compensated at any angle within 360° to achieve perfect torque control and the utilisation of bus voltage is greater than 93%, which is much greater than conventional inverters.

BENEFITS

- Complete control of air output to meet operating demand
- Lower energy input for required air generation
- Excessive part load energy consumption is significantly reduced.
- Gradual increase in motor speed eliminates starting spikes and cost penalties
- A steady system pressure is maintained, lowering system stress and overall air demand
- Reduced artificial demand due to lower operating pressures
- Reduced maintenance time and cost
- Significantly lower noise levels

PMV SERIES SPECIFICATIONS

Single Stage

MODEL PMV	CAPACITY m³/min	Power kW	FULLLOAD bar	Maximum bar	Noise dBA Rating at 1 meter	Dimension			Weight KG
						L	mm W	H	
PMV-15	2.48	15	8	8.5	68	1200	830	1240	380
PMV-22	3.62	22	8	8.5	68	1200	830	1290	480
PMV-37	6.10	37	8	8.5	69	1400	1000	1540	710
PMV-55	10.00	55	8	8.5	70	1500	1160	1700	990

2 - Stage

MODEL PMV	CAPACITY m³/min	Power kW	FULLLOAD bar	Maximum bar	Noise dBA Rating at 1 meter	Dimension			Weight KG
						L	mm W	H	
PMV2-22	4.25	22	8	8.5	68	1650	900	1110	550
PMV2-37	7.15	37	8	8.5	69	1820	1000	1140	740
PMV2-55	10.4	55	8	8.5	70	2100	1200	1330	1100
PMV2-75	14.3	75	8	8.5	70	2160	1220	1580	1450
PMV2-90	22	90	6	6.5	72	3110	1780	2020	3600
	21		7	7.5					
	19.2		8	8.5					
	17		10	10.5					
PMV2-110	25.8	110	6	6.5	73	3110	1890	2060	4450
	25.7		7	7.5					
	23.8		8	8.5					
	19.5		10	10.5					
PMV2-132	34	132	6	6.5	74	3440	1930	2260	5100
	31		7	7.5					
	28		8	8.5		3100	1890	2060	4450
	24		10	10.5					
PMV2-160	40	160	6	6.5	75	4160	2260	2280	6100
	38		7	7.5					
	34		8	8.5					
	31		10	10.5					
PMV2-185	44	185	6	6.5	76	4160	2260	2280	6200
	42		7	7.5					
	38		8	8.5					
	34		10	10.5					
PMV2-200	48	200	6	6.5	76	4160	2260	2280	6450
	46		7	7.5					
	43		8	8.5		4160	2260	2280	6300
	40		10	10.5					
PMV2-220	55	220	6	6.5	78	4160	2260	2350	8920
	53		7	7.5					
	47		8	8.5					
	43		10	10.5					
PMV2-250	60	250	6	6.5	78	4260	2410	2350	9420
	57		7	7.5					
	54		8	8.5		4160	2260	2350	9220
	47		10	10.5					

Note:

- Technical Specifications of compressor are subject to change without notice
- Flow as per ISO 1217 Annexure C
- Maximum Pressure can be 0.5 bar(g) higher than discharge pressure
- For any special combination of pressure & flow, kindly Consult Factory (CF)