Variable Speed air compressor

Product Name: PM VSD Screw Air Compressor, Variable-speed air compressor

Gas Type: Air

Power: 5.5kw – 315kw

Air outlet diameter: DN20 – DN80

Driven method: Direct driven

Configuration: Stationary

Lubrication Style: Lubricated

Drive method: Variable Speed Drive

Weight: 250-4250kg

Warranty: 2 years

Certification: CE/ASME/ISO

Color: Optional & customization

Local Service Location: Philippines, Mexico, Russia

1. **Applications:**
   The Sollant Variable Speed Air Compressor is suitable for a diverse range of sectors, including heavy and light industries, mining, hydropower, seaport operations, engineering construction, oil and gas extraction, railways, transportation, shipbuilding, energy production, military applications, spaceflight, and various other industries.

2. Features and Advantages of the Sollant Variable Speed Air Compressor:

(1) Intelligent Control System:
The compressor features a direct display of discharge temperature, pressure, operating frequency, current, and power, along with its operational state. It allows for real-time monitoring of discharge temperature, pressure, current, and frequency fluctuations.

(2) Latest Generation High-Efficiency Permanent Motor:
Designed with an insulation grade of F and a protective grade of IP55, this motor is well-suited for challenging working conditions. The absence of a gearbox enhances transmission efficiency, as the motor and main rotor are directly connected via a coupling. It offers a wide speed regulation range and high precision with airflow control. The efficiency of the permanent magnet motor surpasses that of conventional motors by 3% to 5%, maintaining high efficiency even at reduced speeds.

(3) Advanced Super Stable Inverter:
This system ensures a constant pressure air supply, maintaining accuracy within 0.01 MPa. It typically operates at a constant temperature of 85°C, optimizing oil lubrication and preventing overheating. The design eliminates empty load conditions, resulting in a 45% reduction in energy consumption and mitigating excess pressure. For every 0.1 MPa increase in compressor pressure, energy consumption rises by 7%. The vector air supply technology enables precise calculations to meet air demand consistently.

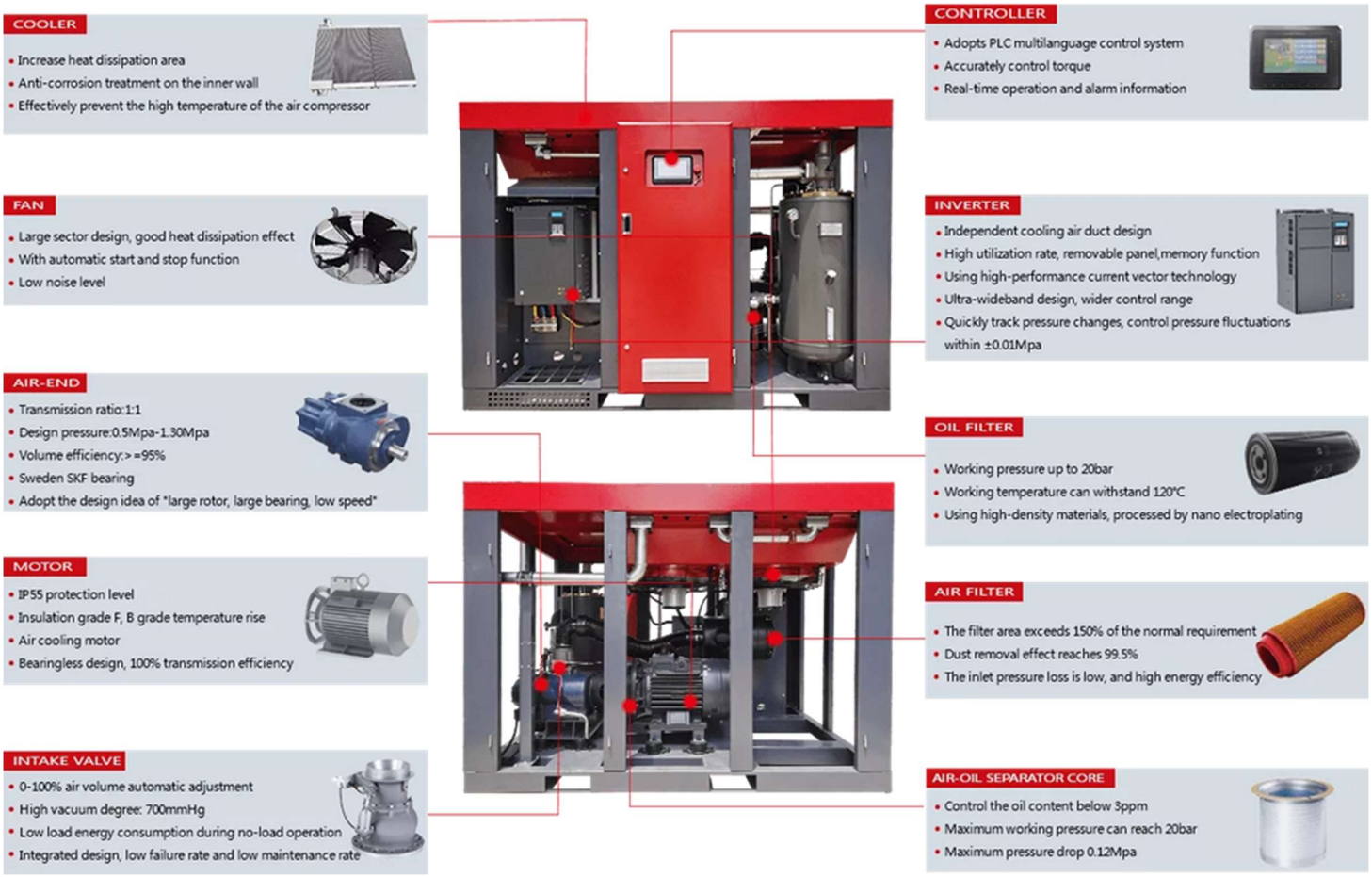
(4) Wide Working Frequency Range for Energy Savings:
The frequency conversion capability ranges from 5% to 100%. This feature is particularly beneficial in applications with significant gas fluctuations, leading to notable energy savings and reduced low-frequency operational noise, making it suitable for various environments.

(5) Minimal Start-up Impact:

Utilizing a frequency conversion permanent magnet motor, the compressor achieves a smooth and gentle start-up. The starting current remains below the rated current, minimizing any impact on the power grid and significantly reducing mechanical wear, thereby extending the service life of the main screw machine.

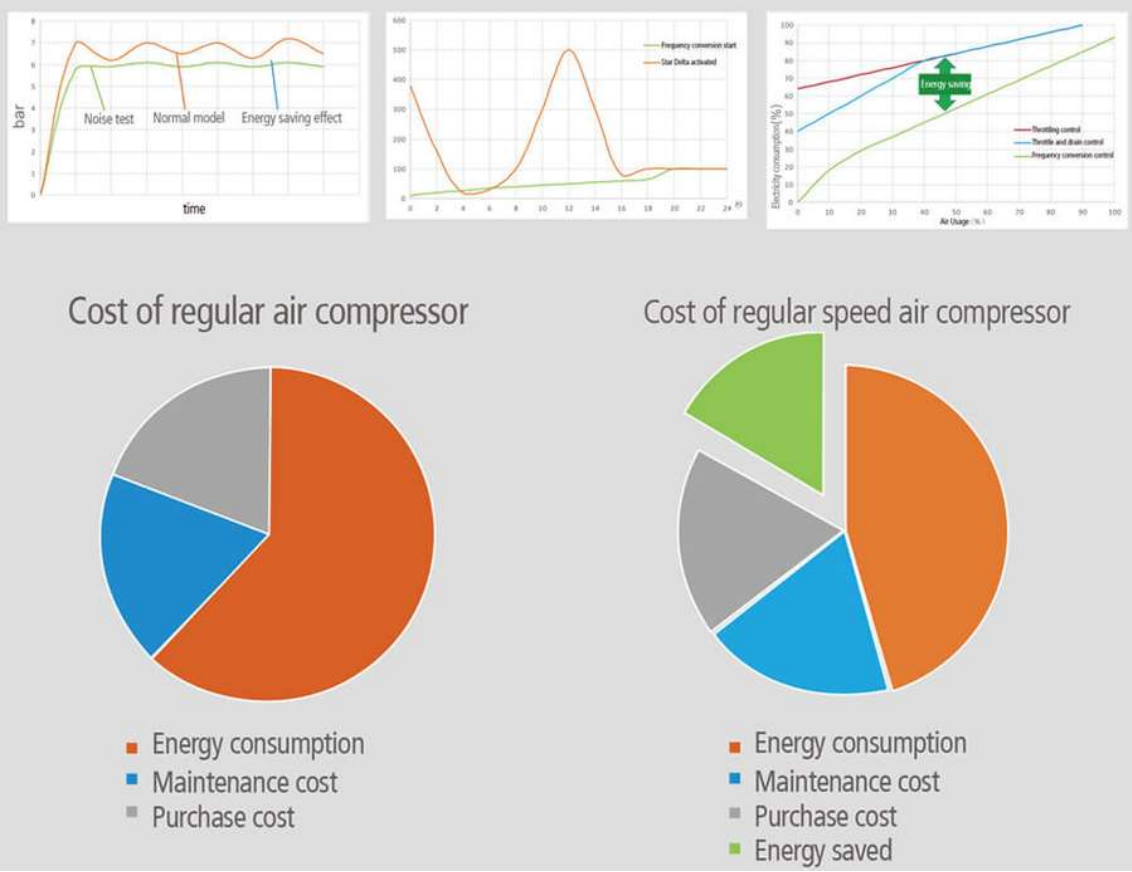
(6) Low Noise Operation:

The inverter acts as a soft start device, resulting in a minimal start-up impact and reduced noise levels during operation. Additionally, the running frequency of the PM VSD compressor is lower than that of fixed-speed compressors during stable operation, leading to significantly decreased mechanical noise.



3. Overall energy saving

Compared with power fixed speed air compressor, the variable speed air compressor has practical significance in energy saving.



3.1 The pressure control of a variable speed air compressor is highly precise. It can rapidly respond to fluctuations in pressure, adjusting the speed of the permanent magnet motor to maintain pressure variations within ±0.1 bar. This stabilization of the pipe network pressure ensures that the necessary air volume is delivered with optimal power efficiency, thereby minimizing energy loss.

3.2 The variable speed air compressor employs a frequency conversion startup method, which eliminates the peak current associated with star-delta starting, resulting in a smooth initiation. This approach reduces starting power, mitigates the impact on the power grid and equipment, and contributes to lower operational noise levels.

3.3 Variable speed control outperforms conventional throttle control by offering a wider adjustment range for flow rates. Coupled with a high-efficiency permanent magnet motor, this system significantly enhances energy savings, particularly at lower flow rates.

3.4 A substantial portion of an air compressor's lifecycle costs is attributed to its electricity consumption. The power usage of the compressor is closely linked to on-site air management. The variable speed air compressor not only ensures uninterrupted production but also generates significant electricity savings, thus creating a mutually beneficial outcome for the enterprise.

*PM VSD Screw Air Compressor specification

SLT-V SLT-V series permanent magnetic screw air compressor	Working pressure		Capacity		Power		Noise	Air outlet pipe diameter	Net weight	Dimensions(mm)		
	bar	psig	(m3/min)	cfm	kW	hp	dB		kg	Length	Width	Height
SLT-7V	8	116	0.2-1.2	7-42	7.5	10	60±3	G3/4"	225	700	690	933
	10	145	0.2-1.1	7-39	7.5	10	60±3	G3/4"	225	700	690	933
	13	189	0.2-0.8	7-28	7.5	10	60±3	G3/4"	225	700	690	933
	16	232	0.1-0.5	4-18	7.5	10	60±3	G3/4"	225	700	690	933
SLT-11V	8	116	0.4-1.9	14-67	11	15	62±3	G3/4"	245	700	690	933
	10	145	0.3-1.6	11-57	11	15	62±3	G3/4"	245	700	690	933
	13	189	0.3-1.2	11-42	11	15	62±3	G3/4"	245	700	690	933
	16	232	0.2-0.9	7-32	11	15	62±3	G3/4"	245	700	690	933
SLT-15V	8	116	0.5-2.4	18-85	15	20	62±3	G3/4"	280	880	820	1153
	10	145	0.4-2.2	14-78	15	20	62±3	G3/4"	280	880	820	1153
	13	189	0.3-1.8	11-64	15	20	62±3	G3/4"	280	880	820	1153
	16	232	0.3-1.6	11-57	15	20	62±3	G3/4"	280	880	820	1153
SLT-22V	8	116	0.8-3.8	28-134	22	30	64±3	G1 1/4"	375	880	820	1153
	10	145	0.7-3.3	23-117	22	30	64±3	G1 1/4"	375	880	820	1153
	13	189	0.5-2.9	18-102	22	30	64±3	G1 1/4"	375	880	820	1153
	16	232	0.5-2.4	18-85	22	30	64±3	G1 1/4"	375	880	820	1153
SLT-30V	8	116	2.3-5.5	81-194	30	40	65±3	G1 1/4"	680	1475	1060	1330
	10	145	1.9-4.9	67-173	30	40	65±3	G1 1/4"	680	1475	1060	1330
	13	189	1.6-3.9	57-138	30	40	65±3	G1 1/4"	680	1475	1060	1330
SLT-37V	8	116	2.7-6.8	95-240	37	50	65±3	G1 1/4"	710	1475	1060	1330
	10	145	2.3-6.1	81-215	37	50	65±3	G1 1/4"	710	1475	1060	1330
	13	189	1.7-4.3	61-152	37	50	65±3	G1 1/4"	710	1475	1060	1330
SLT-45V	8	116	3.2-8.1	113-286	45	60	68±3	G1 1/2"	880	1475	1060	1330
	10	145	2.8-7.0	99-247	45	60	68±3	G1 1/2"	880	1475	1060	1330
	13	189	2.2-5.6	79-198	45	60	68±3	G1 1/2"	880	1475	1060	1330
SLT-55V	8	116	4.1-10.2	144-360	55	75	68±3	G 2"	1200	1800	1170	1400
	10	145	3.5-8.8	124-311	55	75	68±3	G 2"	1200	1800	1170	1400
	13	189	3.0-7.7	106-242	55	75	68±3	G 2"	1200	1800	1170	1400
SLT-75V	8	116	5.6-13.3	198-470	75	100	72±3	G 2"	1750	1800	1170	1400
	10	145	4.8-12.1	171-427	75	100	72±3	G 2"	1750	1800	1170	1400
	13	189	4.0-9.9	140-350	75	100	72±3	G 2"	1750	1800	1170	1400
SLT-90V	8	116	6.4-16.0	226-565	90	120	72±3	G 2"	1900	2200	1400	1580
	10	145	5.5-13.8	195-487	90	120	72±3	G 2"	1900	2200	1400	1580
	13	189	5.0-12.5	177-441	90	120	72 3	G 2"	1900	2200	1400	1580
SLT-110V	8	116	8.1-20.3	287-717	110	150	74±3	G2 1/2"	2300	2200	1400	1580
	10	145	7.0-17.6	249-622	110	150	74±3	G2 1/2"	2300	2200	1400	1580
	13	189	6.2-15.4	218-544	110	150	74±3	G2 1/2"	2300	2200	1400	1580
SLT-132V	8	116	9.6-23.6	339-833	132	175	74±3	G2 1/2"	2800	2200	1400	1580
	10	145	8.4-21.0	297-742	132	175	74±3	G2 1/2"	2800	2200	1400	1580
	13	189	6.7-16.7	236-590	132	175	74±3	G2 1/2"	2800	2200	1400	1580
SLT-160V	8	116	11.3-28.3	400-999	160	215	77±3	DN80	3300	2650	1488	1900
	10	145	10.0-25.0	353-883	160	215	77±3	DN80	3300	2650	1488	1900
	13	189	8.4-21.1	298-745	160	215	77±3	DN80	3300	2650	1488	1900
SLT-185V	8	116	12.8-31.9	451-1127	185	250	77±3	DN80	4000	2650	1488	1900
	10	145	11.4-28.5	403-1006	185	250	77±3	DN80	4000	2650	1488	1900
	13	189	9.9-24.8	350-876	185	250	77±3	DN80	4000	2650	1488	1900
SLT-200V	8	116	13.7-34.7	484-1225	200	270	77±3	DN80	4400	2650	1488	1900
	10	145	13.0-32.6	461-1151	200	270	77±3	DN80	4400	2650	1488	1900
	13	189	11.2-28.0	396-989	200	270	77±3	DN80	4400	2650	1488	1900
SLT-250V	8	116	18.1-44.1	639-1557	250	350	78±3	DN100	4700	3000	1740	2100
	10	145	14.6-36.5	516-1289	250	350	78±3	DN100	4700	3000	1740	2100
	13	189	13.5-34.0	477-1201	250	350	78±3	DN100	4700	3000	1740	2100