

TWO-STAGE COMPRESSION DOUBLE SCREW COMPRESSOR



Won the award of **LEVEL 1 ENERGY EFFICIENCY GRADE CERTIFICATION**

Compared with Level 2 Energy Efficiency GradeSave **10%-15%**

Compared with Level 3 Energy Efficiency GradeSave **20%-30%**

Power range: 90KW - 355KW

01 Highly Efficient Separation of Oil and Gas System

Three levels of separation methods (cyclone separation, sedimentation separation, fine filtration) to export compressed air oil content of only 2ppm. The first stage adopts the cyclone separation method. The gas mixture discharged from the compressor enters the cylinder tangentially and flows along the inner wall of the cylinder. Under the action of centrifugal force, impact force and gravity, the oil droplets aggregate and rotate and settle on the inner wall to make 95% Oil is separated. The second stage using sedimentation separation method, the gas mixture on the return, after the barrier oil droplets were intercepted settlement. The third level of fine filtration, gas containing a small amount of oil mist into the separator filter, the filter on the gas in the final block of oil mist and polymerization, fine separation, the compressed air oil content $\leq 2\text{ppm}$.



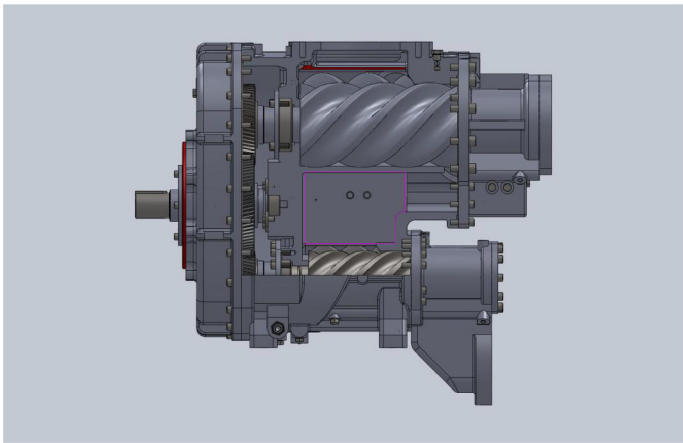
02 Low Noise Design

- a) Choose low-noise fan with large diameter and low rotation speed: Provide large air volume and effectively reduce fan noise.
- b) fully enclosed silent design, in line with international standards of working noise.



03 Control System

LCD high-definition touch display, PLC control.
User-friendly menu interface design
Can display multiple operating parameters, history.
Simple operation, query, easy maintenance



04 Air End

Compared with single-stage compression, two-stage compression tends to be the most energy-efficient isothermal compression. In principle, two-stage compression saves 5 to 8% of the energy of single-stage compression.

According to the theory of engineering thermodynamics, isothermal compression of air compressors is the most successful in compression, which can also be obtained from the P-V of Figure 1 (called the dynamometer). The area 0-1-2T-3-0 is the work required for isothermal compression. The area 0-1-2m-3-0 is the work required for variable compression (actual compression). As can be seen from the figure, the work required for isothermal compression is less than that for variable compression. Therefore, from the point of view of power consumption, it can not only reduce the work done, but also reduce the temperature of the compressed gas and make the operation of the air compressor more reliable.

The use of two compression host, is to use two sets of inconsistent size screw rotor to achieve a reasonable pressure distribution, reducing the compression ratio of each compression level compression:

- a, reduce the internal leakage, improve the volumetric efficiency.
- b, reduce the bearing load, improve the bearing life, extended host life.

The use of more excellent profile, reduce the frictional resistance of the rotor operation, significantly reduce energy consumption and vibration, reduce the leakage area, the efficiency increased by 3 to 8%, so that a greater displacement.

Main engine intake adopts axial intake to reduce intake noise.

Direct drive, transmission efficiency, vibration, low noise.

New interstage injection atomization cooling design:

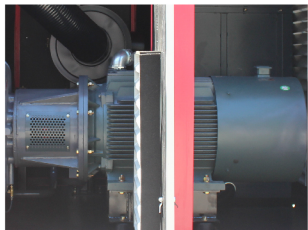
Interstage cooling lubricant in the design of the use of advanced automatic atomization lubricant technology, atomized cooling oil can quickly absorb the heat generated in the first stage of compression to ensure that the compressed air into the secondary compression is fully cooled, Greatly reduce energy loss.

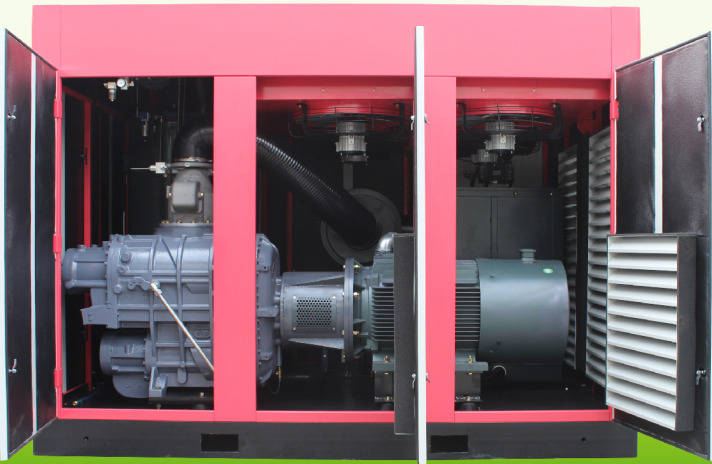
05 Air Inlet System

- a) butterfly valve mechanism automatically adjusts the flow function (in the high-tech called fuzzy control technology).
- b) stepless adjustment system range up to 0-100%; Royal set no vent, effectively reduce energy consumption, gas control, safe and reliable.
- c) Imported imported MANN heavy-duty air filter: high filtration precision and large filtration area, effectively reducing the aspiration resistance: increased safety filter and cyclone filter mechanism; under severe dust conditions, the safety factor and filtration efficiency are effectively improved ; Extend the life of air filter, reduce the cost of maintaining the machine to ensure the life of the machine.

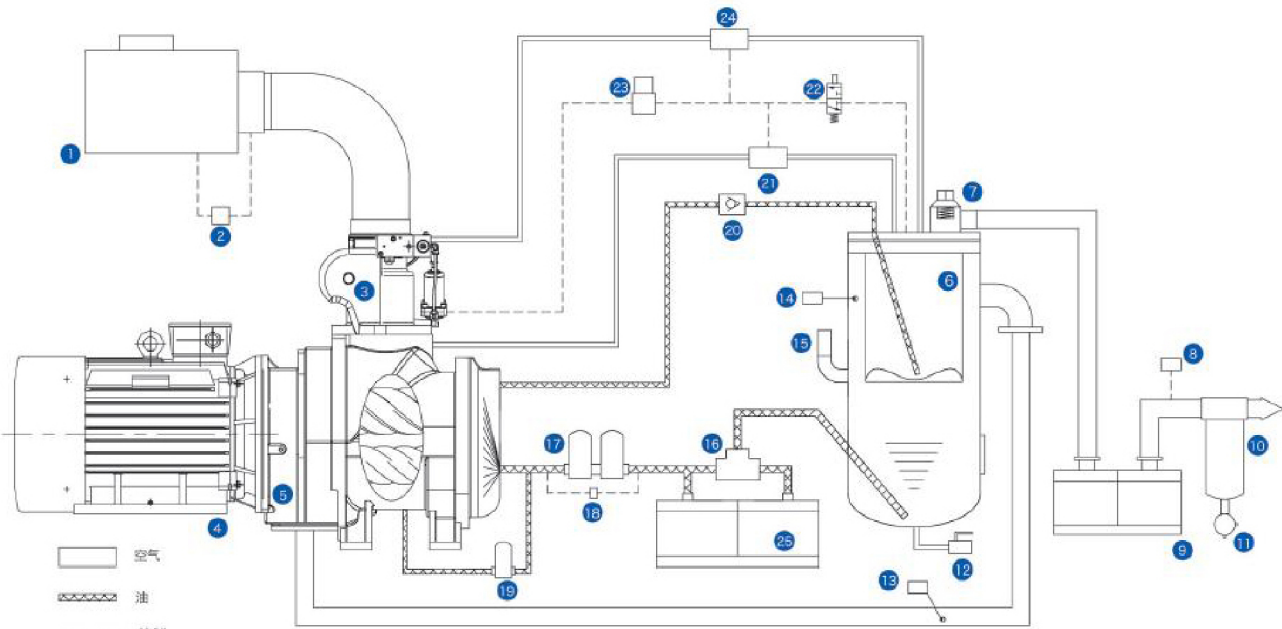
06 Motor

The use of energy-efficient motors, F-class insulation level, high protection motor, with imported SKF bearings.
Increased motor capacity by 1.2 to ensure that it can withstand continuous full-load, trouble-free operation under various adverse weather conditions.





Two-stage Compression Double Screw Compressor Series



Two-stage compression flow chart

1. Air filter

2. Air filter differential pressure

3. Air intake valve

4. Motor

5. Two stage air end

6. Oil gas tank

7. Minimum pressure valve

8. Pressure sensor

9. After cooler
10. Moisture separator

11. Drain valve

12. Drain valve

13. Temperature sensor

14. Pressure sensor

15. Safety valve

16. Thermostat valve

17. Oil filter

18. Oil filter differential pressure
19. Precise oil filter

20. One way valve

21. Often open globe valve

22. Solenoid valve

23. Empty valve

24. Oil cooler

25. Oil cooler

ELANG PM+VSD+two-stage Air Compressor VS other Models in Energy Saving

Pm+VSD+2-stage VS noraml type

Comparison point	PM+VSD+2-stage	Normal type	Result
Air end efficiency	2-pair screw compressing	1-pair screw compressing	2-stage air end:equal temperature and equal ratio compressing, 12~17% higher efficiency than 1-stage air end
No-load power cost	No	45% of full load power cost	If no-load rate is 30%,PM+VSD can save 13.5% power cost
Excess pressure power cost	No	7% more power cost when 1 bar pressure higher	VSD can save 7% power cost
Motor efficiency	94~96%	87~89%	PM can save 5% power cost
Other advantages	Constant pressure output	Pressure is fluctuating	Constant pressure output secures production quality

Total saving: PM+VSD+2-stage type can save 40% more than normal type in average

Pm+VSD+2-stage VS noraml VSD type

Comparison point	PM+VSD+2-stage	Normal VSD type	Result
Air end efficiency	2-pair screw compressing	1-pair screw compressing	2-stage air end:equal temperature and equal ratio compressing, 12~17% higher efficiency than 1-stage air end
Motor rated efficiency	94~97%	87~90%	PM can save 5% power cost
Motor efficiency change when motor speed is going down	No	Motor efficiency reduce by 5~10%	PM can save 5~10% power cost
VSD range	25~100%	50~100%	when air output less than 50%,normal VSD can not work

Total saving: PM+VSD+2-stage type can save 25% more than normal VSD type in average

SPECIFICATIONS

Motor Efficiency Class: IE3/IE2 as per your required
Type of Driving: Belt driven

Motor Protection Class: IP23/IP54/IP55 as per your required
Type of Cooling: Air Cooling/Water Cooling

Model	Working Pressure		Air Delivery		Motor Power	Dimension(mm)			Weight(kg)	Output pipe Diameter
	psig	bar	cfm	m³/min		L	W	H		
ERC-10SA	100	7	38.8	1.1	7.5/10	850	640	880	350	3/4"
	116	8	35.3	1.0						
	145	10	30.0	0.85						
	181	13	24.7	0.7						
ERC-15SA	100	7	63.6	1.8	11/15	1150	750	1180	450	1"
	116	8	58.3	1.65						
	145	10	53.0	1.5						
	181	13	45.9	1.3						
ERC-20SA	100	7	84.7	2.4	15/20	1150	750	1180	460	1"
	116	8	77.7	2.2						
	145	10	74.2	2.1						
	181	13	63.6	1.8						
ERC-25SA	100	7	109.5	3.1	18.5/25	1200	880	1450	620	1"
	116	8	102.4	2.9						
	145	10	95.4	2.7						
	181	13	81.2	2.3						

Certification: CE/ISO9001/TUV/UL/SGS/ASME
Voltage: 380V/3PH/50HZ/60HZ 220V/3PH/50HZ/60HZ 400V/3PH/50HZ/60HZ 440V/3PH/50HZ/60HZ 415V/3PH/50HZ/60HZ 230V/3PH/50HZ/60HZ