FSCURTIS

EX SERIES

OILLFREE SCREW AIR COMPRESSORS

SOME COMPANIES ARE FOUNDED ON HARD WORK.
OTHERS ARE FOUNDED ON IDEALS.

FS-CURTIS WAS FOUNDED ON BOTH.

A HISTORY OF

1854	1857	1876	1897	1914	1940	1955
Curtis & Co. – Empire Saw founded in St. Louis, MO, USA	Earned Agricultural and Mechanical Fair award for excellence and quality	Named Curtis and Co. Manufacturing	Built first reciprocating air compressor that later evolved into the Master Line Series	Supported U.S. Government efforts by producing more than 2 million Howitzer shell forgings	Designed and developed mobile oxygen compressors to be used in Aerospace applications	Merged with U.S. Air Compressor Company, Central Petroleum Company, Lewis Machine Company

REAL-WORLD PEOPLE

When you're successful, we're successful.
That's why FS-Curtis listens.

Trust and dependability are the foundations of our past and the fabric of our future, so you can count on being treated with the personal touch you deserve.

More than 160 years ago, the FS-Curtis way of doing business was established through two key commitments: a dedication to building quality products and a dedication to responsive customer service.

Over the decades, the company and its products have evolved through innovation and new technologies. But those commitments to quality and service remain unchanged. Today, just as in 1854, FS-Curtis customers can depend on our products for reliable, long-term service. Equally as important, they can depend on getting the same from our people.

EXCELLENCE

1976	1979	1995	2005	2006	2010	2015	2016
Merged with Toledo Tools as Curtis-Toledo Inc.	Introduction of Challenge Air Series reciprocating air compressors	Began manufacturing and assembling Rotary Screw Air compressors	Expanded global market reach by joining forces with Fusheng Industrial	U.S. Headquarters certified as ISO9001:2000 and ISO14001:2004	Introduced next generation GSV Variable Speed Rotary Screw compressors	Introduced Nx series Fixed and Variable Speed Rotary Screw compressors	Nx Series named Plant Engineering's 2015 Product of the Year - Gold Award for Compressed Air

REAL-WORLD PRODUCTS

Take more than a century of experience building quality compressors, add in a staff that's listening to the needs of the market, and the result is a product lineup that's built for tough working conditions. No wonder so many customers around the world depend on FS-Curtis compressors day in and day out.

Unique design optimizes efficiency

Our design minimizes pressure drop, optimizes cooling effects, and minimizes unnecessary pressure loss and heat consumption.
This series of unique designs allows you to use the EX (75-120kW) series of oil-free screw air compressors to obtain greater gas production. This not only means energy savings, but also the air compressor is operating in a most reliable way.

Create the ultimate oil-free effect

Anti-corrosion test results

Carbon steel rotor + coating

Stainless rotor + coating

Ultra-thin coating

We use ultra-thin coating of international patented technology, which shows amazing adhesion and durability under the relevant test, and the light weight of the coating itself prevents the possibility of shedding.

Large capacity low pressure drop-cooler

The increased cooling area not only provides high heat exchange efficiency, but also provides sufficient allowance for the compressed air to pass through the cooler at once. The extremely low pressure drop results in higher compression efficiency.

High-strength bearing

With special anti-friction bearings, it can easily carry all loads and optimize the mechanical design, so that the bearing life is further guaranteed.

High grade gear

High-grade precision gears are used, and a unique patented seal is placed at the input end of the drive gear to prevent oil penetrating into the compression chamber, ensuring that the compressed air is completely oil-free.

Independent auxiliary pump

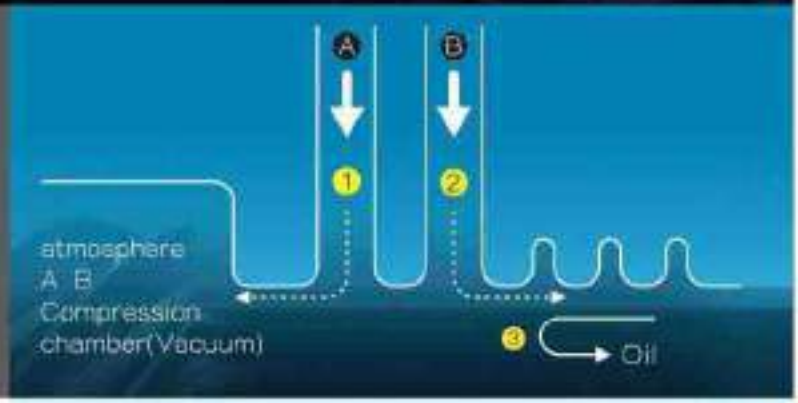
Make sure that the supply compressor has sufficient oil pressure when starting and stopping.

Completely oil-free compression guarantee

Exclusive patented "2 atmospheric vent holes structure" prevents lubricating oil from entering the compressed air chamber through the shaft seals, even if unloading for a long time, the compression chamber is maintained 100% oil free.

Unload runtime

1. Air is sucked into the compression chamber through hole A.
2. Air is sucked into the labyrinth seal through hole B.
3. The air entering through hole B prevents the lubricating oil from entering the compression chamber.



Large Diameter Low Pressure Drop - Inlet Valve

Reduce pressure modulating band utilizing a pneumatic diaphragm action butterfly valve for unloading. Pressure band is decreased from 0.1MPa to 0.05MPa, eliminating unnecessary energy consumption by preventing unnecessary pressure rise.

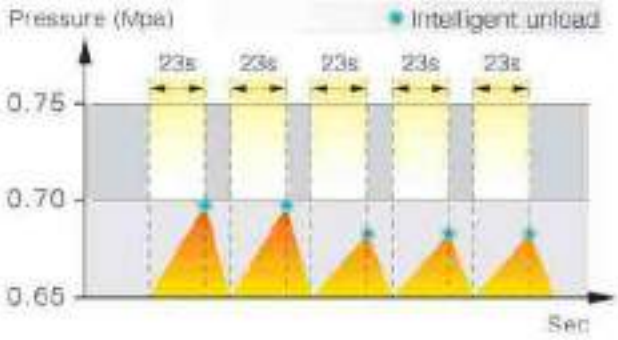
Intake duct

- The design of independent air inlet box and air inlet duct minimizes the pressure drop of the air intake, the external air inlet ensures the air inlet temperature and improves the compression efficiency.
- Air passes through a silencer channel before entering the air filter to minimize inlet noise reduction.

High quality performance

Energy saving logic optimizes operation

- Has an energy-saving logic function to force the compressor to unload after the loading time has exceeded a minimum.
- Intelligent load/unload cycle (23 Sec).
- Reduce pressure band by forced unloading to eliminate unnecessary energy consumption.



Integral structure reduces mechanical losses

- The Airend and motor of the compressor are driven by gears.
- No coupling design to reduce mechanical loss.

Condensate draining solenoid valves

- They drain condensate forcibly by timers and solenoid valves, which reduce air loss as well as ensuring condensate drainage.

Standard packaged oil mist filter

- Included in standard package, eliminates extra installation of external breather pipe.
- Over 99% high oil separation efficiency.
- Filtered oil return into the tank, avoiding oil wastage.

Low noise

- Unique noise mask and silencer eliminates noise from the source.
- The host motor and cooler assembly are housed on the same set of shock mounts and are equipped with high-efficiency shockproof pads to minimize vibration.

Easy maintenance

Simple day-to-day management by the electronic controller

- Electronic controller with large LCD Panel can simplify daily operation and management.
- Monitor various information on air compressor status, display maintenance, alarm, emergency stop information and their corresponding countermeasures, helps prevent emergency stop and rectify it quickly and effectively.

The maintenance space is convenient enough

The design of the unit's housing and the arrangement of the internal parts are in order.
It is only necessary to open the door panel to reach the maintenance point.
This makes the maintenance work easy and guarantees the continuity of production.

Cooler cleaning is convenient

- Shell-and-tube cooler. Water flowing in the duct, and the scale is easy to clean.
- Drawer design for easy maintenance and installation.

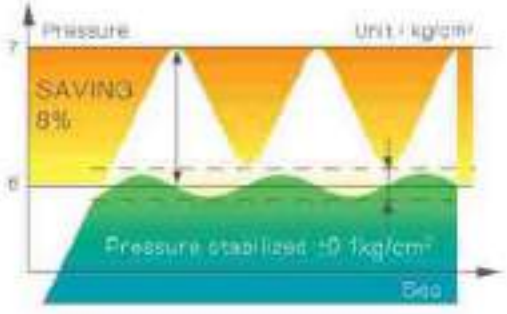
Convenient lubricating grease nozzle

- The grease can be easily filled just by opening a door.
- without touching the machine, the body does not have to extend into the chassis.

Product characteristics

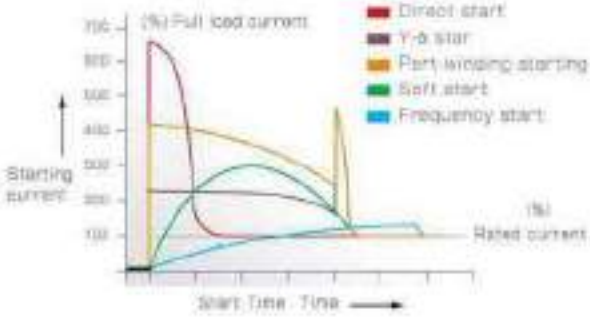
Make Stabile pressure for energy saving

- Variable frequency control instantly responds to changes in air volume used by customers. Supply air pressure fluctuations are stable below ± 0.1kg/cm², which can significantly save running electricity tariffs by up to 35%.



VFD soft start

- Variable frequency soft start, smooth linear operation, no traditional direct start or star delta startup current, reduce the impact on the circuit, power, greatly extend the life of the contactor, motor and compressor body.



Fixed frequency model

Air Cooling | Water Cooling

Product model	Power	Discharge pressure	Discharge air volume	L	W	H	Weight
Unit	kW	MPa	m^3/min	mm	mm	mm	kg
EX75CA	75	0.75	11.8	1830	1400	1783	2085
EX75CA	75	0.85	10.1	1830	1400	1783	2085
EX75A	75	0.75	12.8	2010	1500	2160	2840
EX90A	90	0.75	15.8	2010	1500	2160	3080
EX90A	90	0.85	12.8	2010	1500	2160	3080
EX100A	100	0.75	17	2010	1500	2160	3080
EX75CW	75	0.75	12	1730	1170	1683	2135
EX75CW	75	0.85	10.3	1730	1170	1683	2135
EX75CW	75	1	10.3	1730	1170	1683	2135
EX75W	75	0.75	13	2150	1335	1891	2850
EX90W	90	0.75	16	2150	1335	1891	3080
EX90W	90	0.85	14.1	2150	1335	1891	3080
EX90W	90	1	12.9	2150	1335	1891	3080
EX100W	100	0.75	17.2	2150	1335	1891	3080
EX100W	100	0.85	16	2150	1335	1891	3080
EX100W	100	1	14.1	2150	1335	1891	3080
EX110W	110	0.85	17.1	2150	1335	1891	3230
EX110W	110	1	16	2150	1335	1891	3230
EX120CW	120	1	17.1	2150	1335	1891	3300

EX series

oil-free
screw compressor
75 kW-120kW

VSD model	Air Cooling	Water Cooling

Product model	Power	Discharge pressure	Discharge air volume	L	W	H	Weight
Unit	kW	MPa	m³/min	mm	mm	mm	kg
EX75VA	75	0.75	11.6	2466	1500	2160	2976
EX75VCA	75	0.85	10.1	2385	1400	1783	2290
EX100VA	100	0.75	17	2466	1500	2160	3190
EX100VA	100	0.85	15.7	2466	1500	2160	3190
EX75VCW	75	0.85	10.3	2120	1170	1683	2310
EX75VCW	75	1	10.3	2120	1170	1683	2310
EX75VW	75	0.75	11.8	2604	1335	1891	2976
EX100VW	100	0.75	17.2	2604	1335	1891	3190
EX100VW	100	0.85	16.0	2604	1335	1891	3190
EX100VW	100	1	14.1	2604	1335	1891	3190

EX series
Air Cooled model
132KW - 275KW

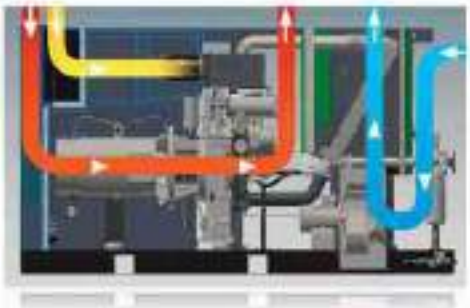
ISO08573-1 Class Zero Certified

We are proud of our 100% oil-free and energy-efficient EX(132-275 kW) next-generation models, featuring leading-edge power performance, superior reliability and durability, further technological innovation and reduced detail partial energy consumption, as well as quietness and price performance ratio, have increased dramatically.

Extremely oil free
Full performance optimization

Tilted single channel cooler

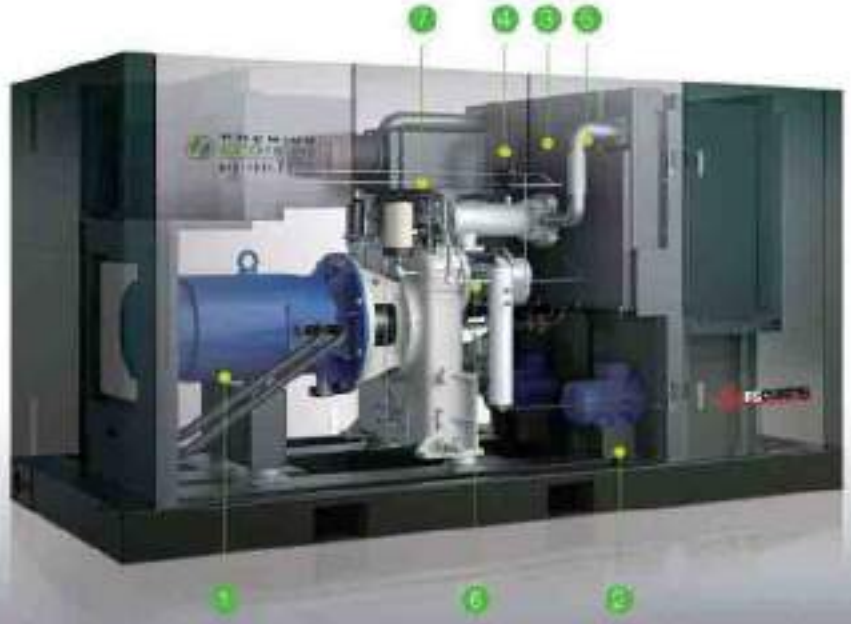
The cooler tilting mode and single-channel design ensure condensate removal, with a centrifugal fan to reduce heat and improve cooler durability.



3BOX exhaust heat structure is effectively cooled

The 3BOX structure is divided into a cooler box, a motor air box and an air air box to ensure effective cooling and high durability. It can be operated for a long time even at 45°C, and is effectively cooled internally.

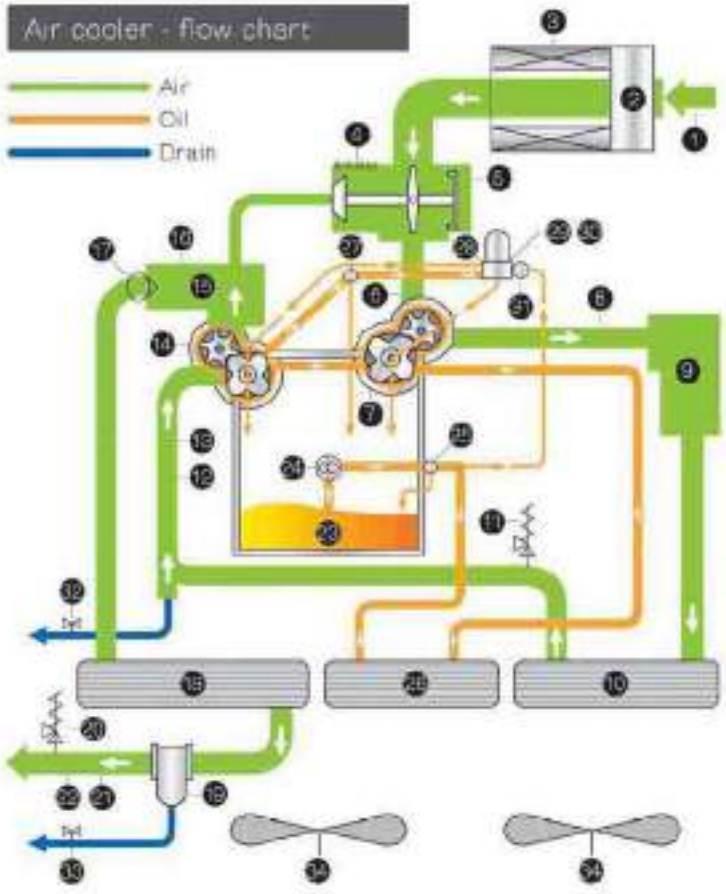
- Inlet Air suction box
- Motor cooling Air suction box
- Cooler box



Air cooler perspective

1. Motor (IPW/IE3)
2. Centrifugal fan
3. Oilcooler
4. Intercooler
5. Aftercooler
6. Discharge silencer
7. Suction silencer

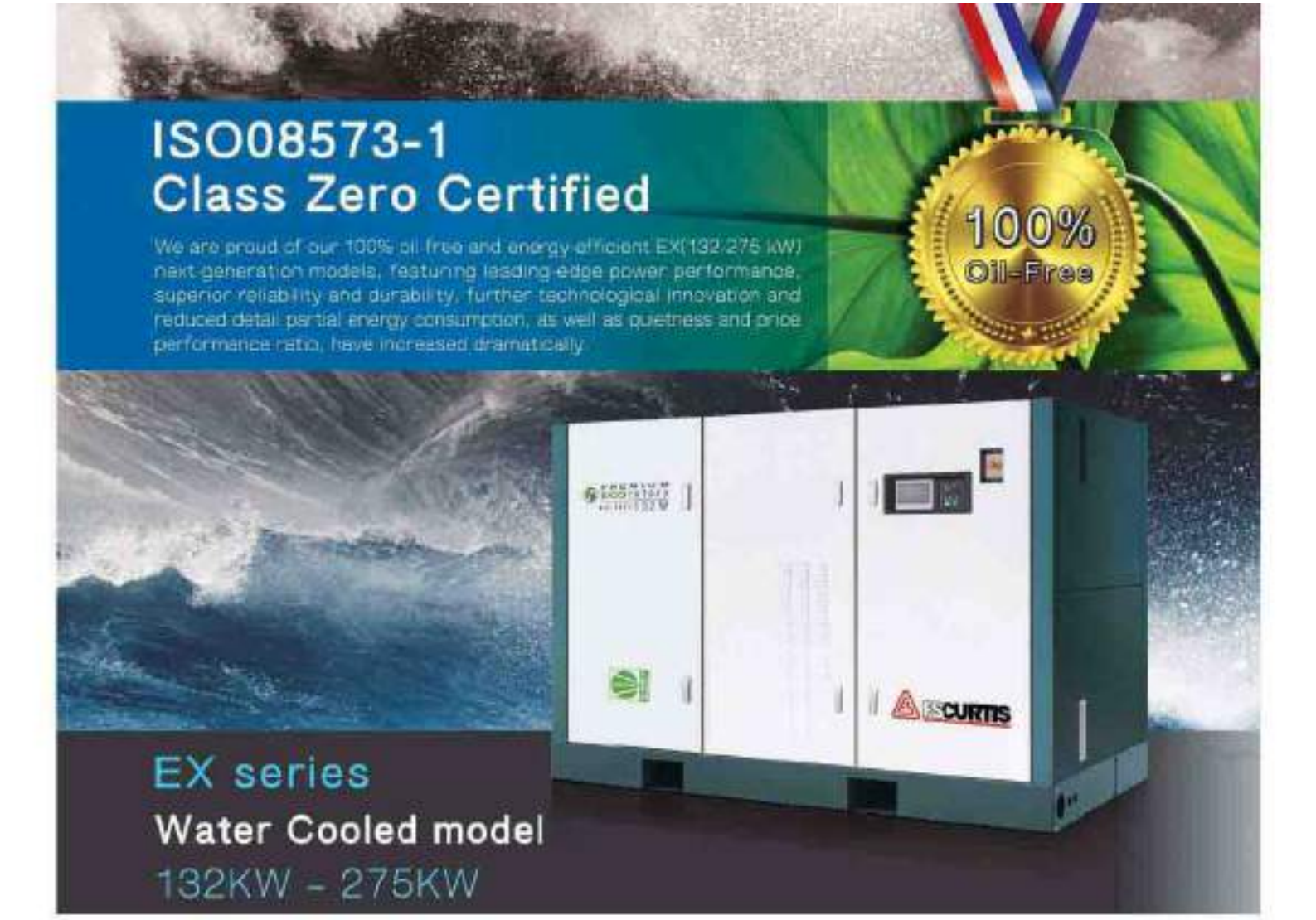
Air cooler - flow chart



1. 1st suction temperature sensor
2. 1st suction silencer
3. Suction filter
4. Bow off silencer
5. Capacity control valve
6. 1st suction pressure sensor
7. 1st stage compressor
8. 1st discharge temperature sensor
9. 1st discharge silencer
10. Intercooler
11. Safety valve 1
12. 2nd suction pressure sensor
13. 2nd suction temperature sensor
14. 2nd stage compressor
15. 2nd discharge silencer
16. 2nd discharge temperature sensor
17. Shuttle valve
18. Aftercooler
19. Drain separator
20. Safety valve 2
21. Suction pressure sensor
22. discharge temperature sensor
23. Oil tank
24. Oil pump
25. Relief valve 1
26. Oilcooler
27. Relief valve 2
28. Oil filter
29. Oil temperature sensor
30. Oil pressure sensor
31. Thermo valve
32. Two-way solenoid valve(Intercooler)
33. Two-way solenoid valve(Drain separator)
34. Cooling fan

ISO08573-1
Class Zero Certified

We are proud of our 100% oil free and energy efficient EX(132-275 kW) next-generation models, featuring leading-edge power performance, superior reliability and durability, further technological innovation and reduced detail partial energy consumption, as well as quietness and price performance ratio, have increased dramatically.



EX series
Water Cooled model
132KW - 275KW

Extremely oil free
Full performance optimization

Low pressure loss plate fin cooler

- Through the low pressure loss cooler, the air loss is only 1/5 of the shell and the exhaust temperature is lower than that of the EX (75-120 kW).
- Because of the lowering of the discharge temperature, it is conducive to the selection of the dryer, which can save the loss of the regeneration air volume, reduce the regeneration air volume, and improve the energy consumption of the air pipeline system.

EX (75-120 kW) exhaust temperature :
cooling water temperature + 9-15 °C

EX (132-275 kW) exhaust temperature :
cooling water temperature + below 8 °C

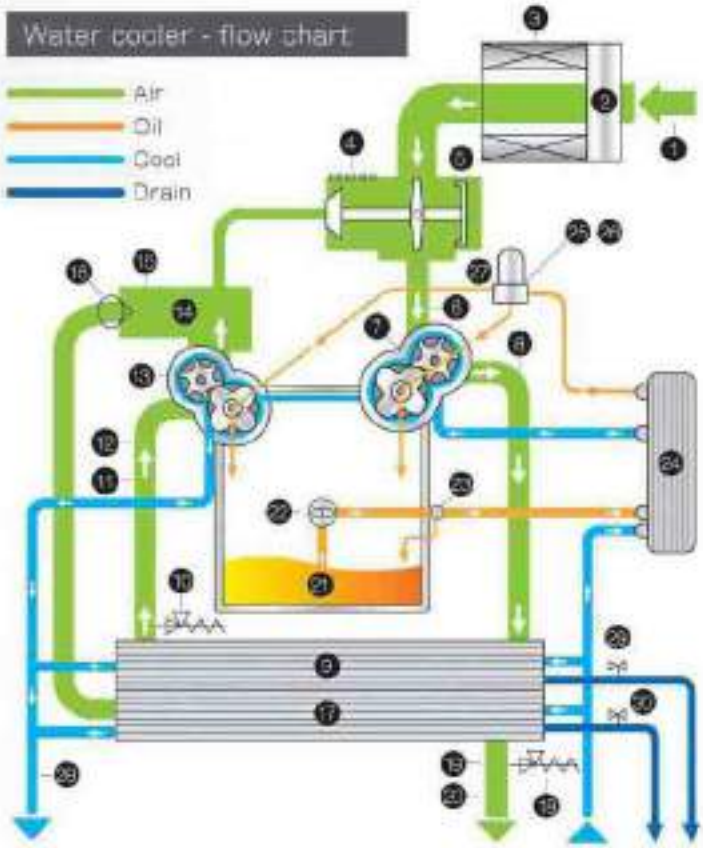
- Global design pressure vessel
(Applicable to ASME except GB and JIS)
- Even if the inlet water temperature reaches 40 °C, there is still enough headroom to continue running
- Standard stainless steel tube to ensure high corrosion resistance

Pressure loss comparison	Plate fin	Shell & tube
Intercooler	2kPa	8.5kPa
Aftercooler	2kPa	10kPa

Air cooler perspective

1. controller
2. Suction filter
3. Oil filter
4. Oilcooler
5. Intercooler
6. Aftercooler
7. Capacity control valve
8. Discharge silencer
9. Suction silencer

Water cooler - flow chart



1. 1st suction temperatura sensor
2. 1st suction silencer
3. Suction filter
4. Bow off silencer
5. Capacity control valve
6. 1st suction pressure sensor
7. 1st stage compressor
8. 1st discharge temperature sensor
9. Intercooler
10. Safety valve 1
11. 2nd suction temperature sensor
12. 2nd suction pressure sensor
13. 2nd stage compressor
14. 2nd discharge silencer
15. 2nd discharge temperature sensor
16. Shuttle valve
17. Aftercooler
18. Safety valve 2
19. Suction pressure sensor
20. Discharge temperature sensor
21. Oil tank
22. Oil pump
23. Relief valve
24. Oilcooler
25. Oil temperature sensor
26. Oil pressure sensor
27. Oil filter
28. Flow Switch
29. Two-way solenoid valve (Intercooler)
30. Two-way solenoid valve (Aftercooler)

EX (132-275 kW) series oil-free screw compressor

Product features

Achieve superior low energy consumption

In crease in specific power 3-4%

The new generation of EX (132-275 kW) is based on standards for the development of the airend, the whole machine, and the goal of improving performance.

A new type of airend that pursues high efficiency

Performance improvement 2-3%

- Optimize intermediate pressure to minimize energy consumption.
- Optimized airend clearance through surface coating and improved shaft seal structure
- Reduce the air leakage of the shaft seal

Machine design that effectively reduces losses

Performance improvement 1%

Low energy consumption is effectively achieved by reducing pressure loss and auxiliary power, as well as loading IPM motors or IE3 motors, centrifugal fans and other high-efficiency components.

In addition, by optimizing the cooler design, the exhaust gas temperature is reduced, and subsequent components are miniaturized to further save energy.

Higher quietness

Noise value reduced by 7-10%

Through the complete noise countermeasures, the noise-free noise is reduced, and the average value of 9 points around the equipment is measured with strict noise value, which is greatly reduced compared with the original organic type, achieving a quiet and comfortable working environment.

- **High quality noise-proof cabinet structure**

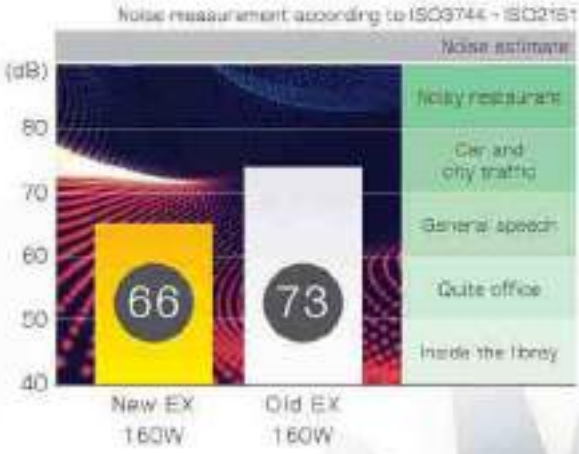
  The air inlets of the cabinet are concentrated in one place to reduce the noise source, and at the same time, the air inlets are provided with staggered baffles to further reduce noise.

- **Enclosures**

  Install a sound-insulating cotton that removes harsh frequencies and a highly airtight seal structure to effectively suppress noise leakage.

- **Silencer**

  Effectively soundproofed from the noise source through the newly developed intake and exhaust silencer.



Main parts

Controller

- Easy new controllers can easily confirm the status of air compressors.
- 7 inch touch panel helps check and set.
- Complete protection function.
- Data preservation and recording.

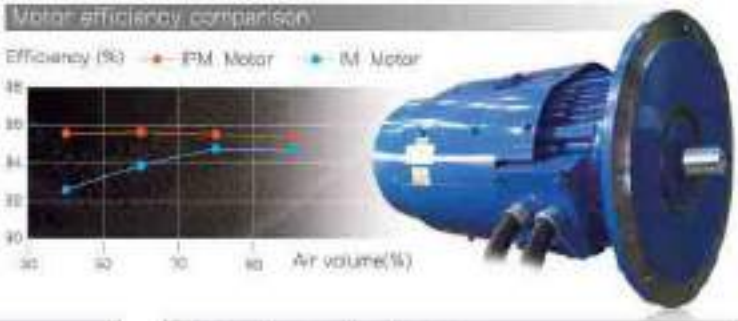
Motor

- **Permanent magnet motor (IPM)**

  Control all load changes by speed control, even if low load heat loss is rare.

- **IE3 motor (IM)**

  As a standard load/unload control, the basic load machine for multiple joint control is the best motor.



Oil pump

The oil pump is built into the gearbox and is driven by a highly efficient main motor to reduce power consumption. This reduces the risk of oil leakage due to fewer piping connections.

Capacity control valve

Energy-saving logic control, pneumatic capacity control valve with excellent reactivity and durability. Built-in exhaust silencer to reduce piping design.

Centrifugal fan

A large air volume centrifugal fan ensures efficient cooling. (for air cooling)

Discharge silencer

The combination of the expansion type and the multi-hole plate type silencer can better exert the noise prevention effect in a wider frequency band, and can also effectively respond to the noise variation caused by the inverter number control.

Fixed frequency model

Air Cooling | Water Cooling

Product model	Power	Discharge pressure	Discharge air volume	L	W	H	Weight
Unit	kW	MPa	m³/min	mm	mm	mm	kg
EX132A	132	0.75	23.8	3730	1700	1995	4700
EX132A	132	0.85	20.9	3730	1700	1995	4600
EX132A	132	1	19.2	3730	1700	1995	4600
EX145A	145	0.75	25.6	3730	1700	1995	4700
EX145A	145	0.85	23.8	3730	1700	1995	4700
EX145A	145	1	20.7	3730	1700	1995	4700
EX160A	160	0.75	28.2	3730	1700	1995	4700
EX160A	160	0.85	25.6	3730	1700	1995	4700
EX160A	160	1	23.8	3730	1700	1995	4700
EX200A	200	0.75	35.4	4300	1900	2180	6200
EX200A	200	0.85	33.0	4300	1900	2180	6200
EX200A	200	1	29.8	4300	1900	2180	6200
EX250A	250	0.75	44.0	4300	1900	2180	6200
EX250A	250	0.85	40.5	4300	1900	2180	6200
EX250A	250	1	37.3	4300	1900	2180	6200
EX275A	275	0.75	47.6	4300	1900	2180	6250
EX275A	275	0.85	44.0	4300	1900	2180	6250
EX275A	275	1	40.4	4300	1900	2180	6250
EX132W	132	0.75	24.8	2705	1545	1845	4100
EX132W	132	0.85	21.8	2705	1545	1845	4100
EX132W	132	1	19.9	2705	1545	1845	4100
EX145W	145	0.75	26.5	2705	1545	1845	4200
EX145W	145	0.85	24.8	2705	1545	1845	4200
EX145W	145	1	21.5	2705	1545	1845	4200

Product model	Power	Discharge pressure	Discharge air volume	L	W	H	Weight
Unit	kW	MPa	m³/min	mm	mm	mm	kg
EX160W	160	0.75	29.2	2705	1545	1845	4200
EX160W	160	0.85	26.5	2705	1545	1845	4200
EX160W	160	1	24.7	2705	1545	1845	4200
EX200W	200	0.75	37.4	3150	1600	2180	5950
EX200W	200	0.85	33.7	3150	1600	2180	5950
EX200W	200	1	30.3	3150	1600	2180	5950
EX250W	250	0.75	45.0	3150	1600	2180	5950
EX250W	250	0.85	41.4	3150	1600	2180	5950
EX250W	250	1	38.1	3150	1600	2180	5950
EX275W	275	0.75	48.6	3150	1600	2180	6000
EX275W	275	0.85	45.0	3150	1600	2180	6000
EX275W	275	1	41.3	3150	1600	2180	6000

VSD model

Air Cooling | Water Cooling

Product model	Power	Discharge pressure	Discharge air volume	L	W	H	Weight
Unit	kW	MPa	m³/min	mm	mm	mm	kg
EX132VA	132	0.75	24.0	3730	1700	1995	4300
EX132VA	132	0.85	21.1	3730	1700	1995	4200
EX160VA	160	0.75	28.3	3730	1700	1995	4300
EX160VA	160	0.85	25.8	3730	1700	1995	4300
EX250VA	250	0.75	44.4	4300	1900	2180	5600
EX250VA	250	0.85	40.8	4300	1900	2180	5600
EX132VW	132	0.75	24.8	2705	1545	1845	3700
EX132VW	132	0.85	22.0	2705	1545	1845	3700
EX132VW	132	1	19.6	2705	1545	1845	3700
EX160VW	160	0.75	29.3	2705	1545	1845	3800
EX160VW	160	0.85	26.8	2705	1545	1845	3800
EX160VW	160	1	24.8	2705	1545	1845	3800
EX250VW	250	0.75	45.4	3150	1600	2180	5350
EX250VW	250	0.85	41.7	3150	1600	2180	5350
EX250VW	250	1	38.5	3150	1600	2180	5350