

Oil-free screw compressors

RSW D / RSWF D

water-injected, with direct drive

 Made in Germany



Motor power: 18.5 to 120 kW



Water-injected screw compressors

RENNER oil-free, water-injected screw compressors are a perfect fit to all applications that require clean compressed air. There is absolutely no risk of oil contamination and resulting production downtime – 100% oil-free compressed air is one of the competitive advantages of these screw compressors.

High reliability as well as low operating and maintenance cost are essential benefits of RENNER RSW compressors.

RENNER water-injected screw compressors of the RSW and RSWF ranges, available from 18.5 to 120.0 kW, have been developed to ensure economic production of oil-free compressed air.

A special feature of these compressors protected by utility patent is reflected by the fact that compressor oil usually applied for cooling, sealing, and lubrication has been completely banished from the process of compression. The oil has been replaced by the most natural of all raw materials: water. Being an ideal heat carrier, water takes away the heat of the compression process and thus ensures low temperatures in the system. The advantage of low temperatures is a nearly isothermal compression which is extraordinarily cost-efficient at high free air delivery.



Due to the structured design all parts are easily accessible.

System water treatment

Full water treatment has been integrated into the compressor system by means of a mixed-bed ion exchanger and a water filter. This makes sure that the circulation water is always of high quality with consistent lubrication and cooling properties. There are no calcium deposits, since all free ions are bound. Continuous monitoring of water quality in water injected machines is crucial and therefore a standard procedure for a RENNER RSW range compressor.

Advantages of a RENNERtronic Plus control system

- automatic adjustment of flow rate
- evaluation and regulation of water quality via automatic conductivity measurements
- also available with real-time clock
- integrated clock with 7 channels
- digital input
- potential-free output
- evaluation of operating and load hours
- fault alarm memory

Including calculation of:

- power consumption
- network pressure within easily adjustable pressure-limits
- air end temperature
- maintenance intervals

Text display and additional LEDs for messages and warnings.



Industry 4.0 Ready

Industry 4.0

Connect your central control system via modbus with RENNER compressors and benefit from extensive possibilities of network data exchange in real time. Whether you want to focus on status monitoring, look at fault reports, or retrieve service messages, all information is available and ready to be gathered. Communication interfaces of the control systems are used between the individual RENNER compressors and secure full access as well as full control of the compressed air station.

Intelligent interconnectedness of the components enables communication between compressed air production, air treatment as well as their optimal adjustment to achieve maximum efficiency.



Cooling

- All RENNER water injected compressors of the RSW range are available both air-cooled and water-cooled.
- The external air-water-coolers can be installed spatially separated from the compressor.
- Located on the outside, these external air-water-coolers improve the efficiency of the compressor station considerably. Thanks to that flexible choice of location, space inside the compressor room is gained and expensive exhaust ducts are avoided.
- The RSW machines are simply connected to an existing cooling-water circuit.

Energy savings: Compressors with variable speed control. The RSWF series is characterized by quality and efficiency.

RENNER screw compressors with variable speed control are designed for tough industrial applications. They come with the intelligent control and monitoring system RENNERtronic Plus.

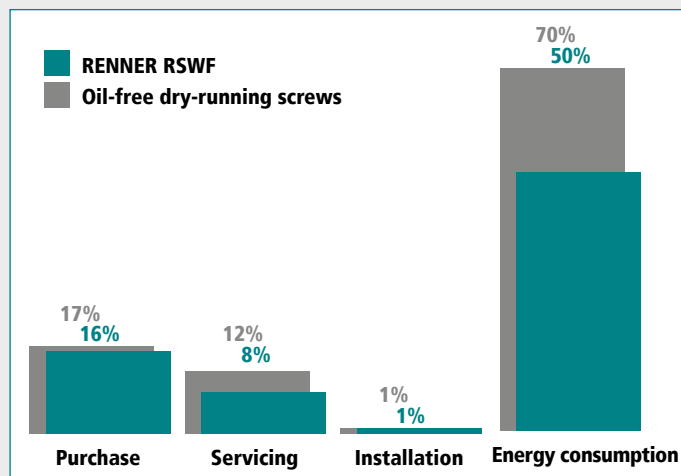
Variable speed control

Often strong fluctuations of air demand cannot be avoided. In such cases RENNER screw compressors with variable speed control guarantee a cost-efficient, steady flow of compressed air according to current demand. The compressor performance matches the actual need for compressed air thanks to variable speed control. This guarantees economic operation. The frequency converter is firmly mounted inside the switch cabinet.

Optimum use of energy: RENNER screw compressors with variable speed control

- use of an efficient control system for compressors
- use of heat recovery systems
- use of advanced compressed air piping systems without leakage
- regular service by factory-trained service technicians

Comparison of oil-free dry-running screws and RENNER RSWF



This diagram shows that there is a savings potential of 25% of total cost, if a RENNER RSWF compressor is used instead of an oil-free dry-running screw compressor.

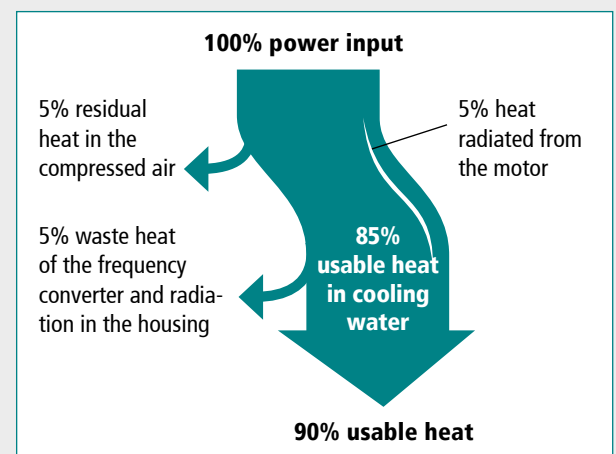


Heat recovery via integrated, highly efficient plate heat exchanger

Calculation of savings potential by using heat recovery

Model	Max. power	Potential heat recovery approx.	Fuel oil savings per year at 4000 hours per year and round 70% utilization rate	Saving per year at 0.55 €/l
	kW	kW	litres	Euro
RSWF 50.0 D	55	47	14900	8,195.–
RSWF 68.0 D	75	63	20000	11,000.–
RSWF 85.0 D	88	75	23900	13,145.–
RSWF 90.0 D	94	80	25400	13,970.–
RSWF 120.0 D	118	100	31700	17,270.–

Usable energy through heat recovery



RENNER in motion

Water-injected screw compressors work at low temperatures which results in the following advantages:

- **increased free air delivery**
- **less maintenance**
- **better efficiency**

Besides efficiency, plant operators demand high quality of compressed air according to their standards. Oil-free air production provides this quality and even represents a very cost-efficient alternative, when you take into account the risk of contamination by oil.

We can guaranty safety and reliability by using RENNER water-injected screws. Our purity requirement „100% oil-free compressed air“ is important for many of our customers in various sectors like food and beverage, research and development, pharmaceuticals and chemicals, automotive and electronics.

Many food and food packaging items come in contact with compressed air and will therefore be tested for hydrocarbons by quality control. Oil-free RENNER compressors eliminate the danger of contamination. Risk minimization and operational safety are essential, economic advantages of the RSW range.

Quality certificate SGS Institut Fresenius (excerpt)

- No additional oil vapors or oil particles were found in the exiting compressed air.
- Despite the detected input concentration of bacteria and fungi, the exiting compressed air was free of any microbiological contaminants and therefore sterile.
- The result of the measurement of the particle contamination at the intake and at the compressed air outlet confirmed that the initial particle contamination of the tested compressed air system was reduced by more than 99%.

Operating principle of RSWF screw compressors from 6-13 bar (REflex)

All RENNER compressors with variable speed control adapt in frequency and FAD flexibly and automatically to the current pressure. Thus, the compressor delivers optimum FAD within the set pressure range (6-13 bar) at all times.

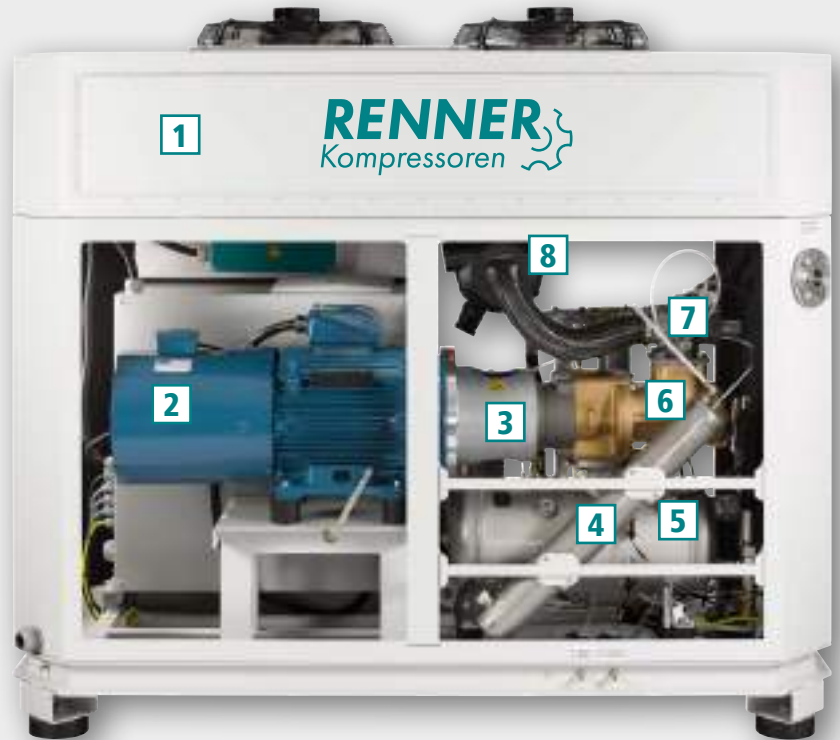
- FAD and control range automatically adapt to the current pressure.
- Speed and workload limit of the motor are observed.
- If pressure drops due to higher compressed air demand, the REflex-function releases reserves that increase FAD.
 - ▶ Thus sufficient air supply is guaranteed.
- The pressure range of 6-13 bar can be variably adjusted.



Water-injected screw compressors 18.5 – 40.0 kW, air-cooled

Water separator, water filter, and the patented system for the safe degassing of the system water ensure the best water quality. This guarantees a long service life of the compressor. The conductivity sensor continuously monitors the consistently high water quality.

- 1** Air-water-cooler
- 2** High-efficiency IE3/IE4 motor
- 3** Coupling
- 4** Slide bearings protection
- 5** Water separator
- 6** Air end
- 7** Intake control
- 8** Air filter



RSW 18.5 – 22.0 D / RSWF 26.0 – 40.0 D (air-cooled)

Model	Free air delivery ⁽¹⁾								Motor power		Compressed air outlet	Dimensions L x W x H	Weight
	6 bar		8 bar		10 bar		13 bar						
	m³/min	cfm	m³/min	cfm	m³/min	cfm	m³/min	cfm	kW	HP	inch	mm	kg
RSW 18.5 D	3.10	110	3.05	108	3.00	106	–	–	18.5	25	G1½	2171 x 942 x 1850	740
RSW 22.0 D	3.10	110	3.05	108	3.00	106	2.95	10.4	22.0	29	G1½	2171 x 942 x 1850	750
RSWF 26.0 D ⁽²⁾	1.75-4.30	62-152	2.00-4.20	71-148	2.20-3.90	78-138	–	–	26.0	35	G1½	2171 x 942 x 1850	990
RSWF 40.0 D ⁽²⁾	1.75-6.30	62-222	2.00-6.00	71-212	2.20-5.40	78-191	2.70-4.80	95-170	40.0	54	G1½	2171 x 942 x 1850	1070

⁽¹⁾ according to ISO 1217 Annex C (RSW), according to ISO 1217 Annex E (RSWF) ⁽²⁾ REflex function: pressure range continuously variable

Standard features: RENNERtronic Plus, mixed-bed ion exchanger ensures integrated water treatment, water quality is continuously monitored, preconnected water filter with DVGW-approval incl. pressure reducer for drinking water supply.

Technical changes reserved.

Water-injected screw compressors 18.5 – 40.0 kW, water-cooled

**More flexibility,
less risk!**

The water-injected RENNER screw compressors from 18.5 to 40.0 kW with water cooling have the same design as the air-cooled version on page 5, but without air-water-cooler.

A secondary cooler can optionally be connected for an air-cooled version. The external air-water-cooler WKH allows for greatest possible flexibility, since the actual cooling of the compressor can be set up in a suitable location, even outside the compressor room. It is easy to use the waste heat in winter.



RENNER's reliable air end combined with a new, direct driven design

- more free air delivery due to direct drive
- more flexibility due to innovative cooling concept
- small footprint
- pressure range from 6 to 13 bar



Frequency converter WKH



Air-water-cooler WKH

RSW 18.5 – 22.0 D / RSWF 26.0 – 40.0 D (water-cooled)

Model	Free air delivery ⁽¹⁾								Motor power		Compressed air outlet	Dimensions L x W x H	Weight	Secondary cooler ⁽³⁾
	6 bar		8 bar		10 bar		13 bar							
	m³/min	cfm	m³/min	cfm	m³/min	cfm	m³/min	cfm	kW	HP	inch	mm	kg	
RSW 18.5 D	3.10	110	3.05	108	3.00	106	–	–	18.5	25	G1½	2157 x 942 x 1344	620	WKH 25
RSW 22.0 D	3.10	110	3.05	108	3.00	106	2.95	10.4	22.0	29	G1½	2157 x 942 x 1344	630	WKH 25
RSWF 26.0 D ⁽²⁾	1.75-4.30	62-152	2.00-4.20	71-148	2.20-3.90	78-138	–	–	26.0	35	G1½	2157 x 942 x 1344	860	WKH 40
RSWF 40.0 D ⁽²⁾	1.75-6.30	62-222	2.00-6.00	71-212	2.20-5.40	78-191	2.70-4.80	95-170	40.0	54	G1½	2157 x 942 x 1344	950	WKH 50

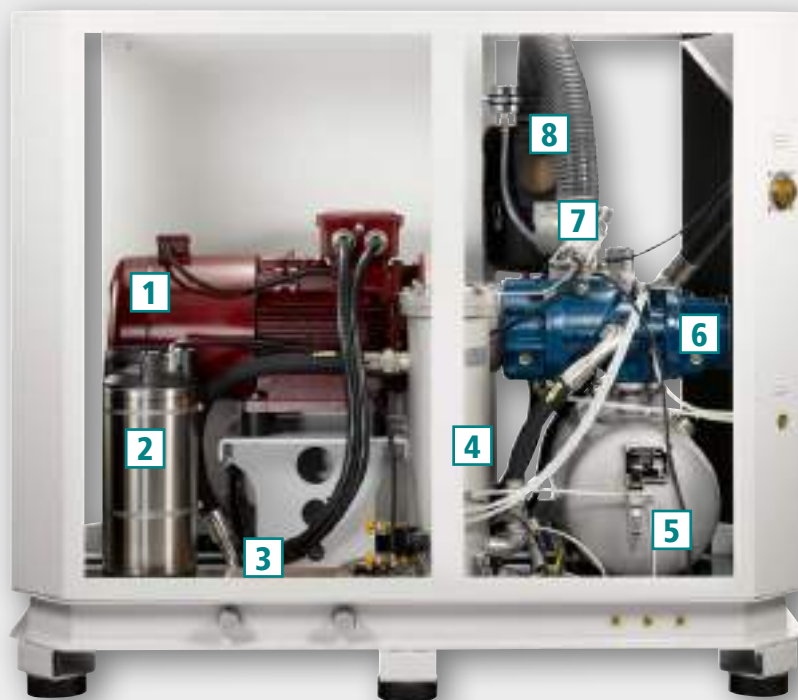
⁽¹⁾ according to ISO 1217 Annex C (RSW), according to ISO 1217 Annex E (RSWF) ⁽²⁾ Reflex function: pressure range continuously variable

⁽³⁾ not included (please order appropriate secondary coolers and pump modules for air-cooled versions)

Standard features: RENNERtronic Plus, mixed-bed ion exchanger ensures integrated water treatment, water quality is continuously monitored, preconnected water filter with DVGW-approval incl. pressure reducer for drinking water supply.

Water-injected screw compressors 37.0 – 120 kW, water-cooled

The design of RENNER RSW compressors guarantees easy access to all maintenance relevant components. The side covers are detachable to provide excellent access to all maintenance points. Furthermore the cost of maintenance is reduced by the low number of movable parts.



- 1** High-efficiency IE3/IE4 motor
- 2** Mixed-bed ion exchanger
- 3** Heat exchanger
- 4** Water filter
- 5** Water separator
- 6** Air end
- 7** Intake control
- 8** Air filter

Easy to service

- short service times, long service intervals
- low maintenance cost
- excellent accessibility
- easily detachable covers

RSW 37.0 – 90 D / RSWF 37.0 – 120 D (water-cooled)

Model	Free air delivery (REflex) ⁽¹⁾								Motor power		Com-pressed air outlet	Dimensions L x W x H	Weight	Secondary cooler ⁽³⁾
	6 bar		8 bar		10 bar		13 bar							
	m³/min	cfm	m³/min	cfm	m³/min	cfm	m³/min	cfm	kW	HP	inch	mm	kg	
RSW 37.0 D	5.80	205	5.65	200	5.60	198	–	–	37.0	49	G2	2074 x 1307 x 1754	1520	WKH 40
RSW 45.0 D	5.80	205	5.65	200	5.60	198	5.40	191	45.0	60	G2	2074 x 1307 x 1754	1550	WKH 50
RSW 90 D	12.32	435	12.12	428	11.90	420	11.34	400	75/90 ⁽⁴⁾	100	G2½	2561 x 1632 x 1853	2050	2x WKH 40
RSWF 37.0 D ⁽²⁾	1.55-7.10	55-251	1.55-6.49	55-229	1.55-5.54	55-196	1.55-4.77	55-168	37.0	49	G2	2074 x 1307 x 1754	1580	WKH 40
RSWF 45.0 D ⁽²⁾	1.55-8.00	55-283	1.55-7.74	55-273	1.55-6.58	55-233	1.55-5.65	55-200	45.0	60	G2	2074 x 1307 x 1754	1650	WKH 50
RSWF 50.0 D ⁽²⁾	1.55-10.30	55-381	1.55-9.60	55-339	1.55-8.00	55-282	–	–	50.0	67	G2	2074 x 1307 x 1754	1650	WKH 50
RSWF 68.0 D ⁽²⁾	1.55-11.25	55-397	1.55-11.20	55-396	1.55-10.25	55-362	–	–	68.0	91	G2	2074 x 1307 x 1754	1650	2x WKH 40
RSWF 85 D – 6-8 bar ⁽²⁾	1.55-12.40	55-438	1.55-12.36	55-436	–	–	–	–	85	114	G2	2074 x 1307 x 1754	1750	2x WKH 50
RSWF 85 D – 8-13 bar ⁽²⁾⁽⁵⁾	–	–	1.55-11.43	55-404	1.55-11.43	55-404	1.55-10.12	55-357	85	114	G2	2074 x 1307 x 1754	1750	2x WKH 50
RSWF 90 D ⁽²⁾	7.60-17.52	268-619	9.60-15.85	339-560	9.40-14.20	332-501	–	–	90	120	G2½	2561 x 1632 x 1853	2280	2x WKH 50
RSWF 120 D ⁽²⁾	7.60-22.55	268-796	9.60-20.68	339-730	9.40-18.68	332-660	11.09-15.40	392-544	120	161	G2½	2561 x 1632 x 1853	2390	3x WKH 50

⁽¹⁾ according to ISO 1217 Annex C (RSW), according to ISO 1217 Annex E (RSWF) ⁽²⁾ REflex function: pressure range continuously variable

⁽³⁾ not included (please order appropriate secondary coolers and pump modules for air-cooled versions)

⁽⁴⁾ depending on final pressure ⁽⁵⁾ Permanent magnet motor (PM-motor)

Standard features: RENNERtronic Plus, mixed-bed ion exchanger ensures integrated water treatment, water quality is continuously monitored, preconnected water filter with DVGW-approval incl. pressure reducer for drinking water supply.

COMPRESSED AIR FOR ALL APPLICATIONS



RENNER GmbH Kompressoren, a family run business established in 1994, develops and assembles economical and energy-efficient compressors. A broad range of compressed air accessories are also part of the product portfolio. The structure and size of the company ensure flexible decisions and short lead times, thus providing optimal focus on the requirements of the customers.

THE RENNER MANUFACTURING AND SUPPLY PROGRAMME:

We can supply you with the right compressor for any application – guaranteed.

SCREW COMPRESSORS:

- From 2.2 to 355 kW
- Up to 40 bar, e.g. for manufacture of PET bottles
- Compact systems with air receiver, refrigeration dryer, and variable speed control
- Heat exchanger integrated or as an external box
- Special applications: gas compression, operation of drilling devices, rail, and special-purpose vehicles
- Customized models designed to customer specifications

OIL-FREE COMPRESSORS:

- SCROLL compressors for oil-free compressed air from 1.5 to 30.0 kW
- Water-injected screw compressors for oil-free compressed air in breathing air quality from 18.5 to 120 kW



PISTON COMPRESSORS:

- From 1.5 to 11.0 kW
- Stationary or mobile, with or without sound insulation

CONTROL SYSTEMS:

- Compressor control systems
- Superordinate control systems
- State-of-the-art web server monitoring



COMPRESSED AIR ACCESSORIES:

- Air filters, air receivers, refrigeration dryers, adsorption dryers, condensate drains, and oil-water-separators

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DIN EN ISO 9001
REG.-NR. Q1 0205013

