



# **Screw compressors** **SCR-EPM2**

**power range 55-160 kW**

# Sino-Japanese joint venture

## for the production of efficient compressors



### SCR - compressors for the 21st century

Shanghai Screw Compressor Co., Ltd (SCR) is a manufacturing company established in 2000, focusing on innovation, research, development, production, sales and service in the field of industrial compressors. The SCR production plant is a modern facility with more than 250 employees on an area of over 80,000 m<sup>2</sup>. More than 10% of the staff is in the engineering division with a focus on research and development.

SCR's product portfolio consists of energy-efficient screw compressors, including oil-free and two-stage solutions. SCR manufactures in accordance with ISO 9001 standards, holds CE certification for the European market, UL for the US market, Class Zero certification for oil-free machines and the performance of all machines manufactured is audited by SGS.

After more than 20 years of development, SCR has entered into strategic collaborations with many partners and its products are exported to more than 80 countries worldwide.

In 2018, SCR started a strategic cooperation in the form of a joint venture with Japanese manufacturer Anest Iwata, which implemented its quality and technology control system at SCR, helping to develop and bring new, energy-efficient solutions and even more reliable compressors to the market.



80.000

square meters  
of production area



83

countries with a  
commercial presence



50.000

compressor  
users



140.000

units of compressors  
manufactured since 2000

## How much does electricity cost?

It is well known that compressors for compressed air production in the craft, industrial and energetical sectors are among the machines with the highest power consumption ever. The current situation on the energy market, when we are registering extreme price increases, should make every compressor user think whether it is not worth investing now in improving the efficiency of compressed air production and purchasing new and more efficient compressors, thus ensuring not only cost savings, but also the competitiveness of their company and eliminating price increases of their products.

Before we look together at how SCR compressors can contribute to solve your electricity bill worries, it is first of all necessary to know how much 1 kWh of electricity costs and the annual volume of energy consumption and to deduce what the potential for savings is.

### Power electricity price development



Until 2021, the aggregate price of electricity including transmission was usually around 0,10 €/kWh in industry. However, the price of electricity is currently at a higher level and is expected to increase further in the near future.

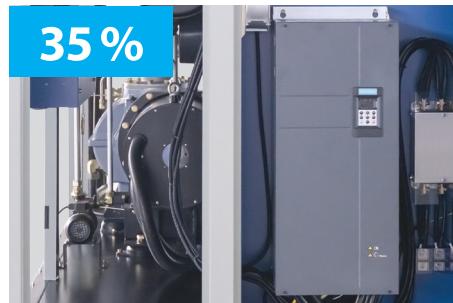
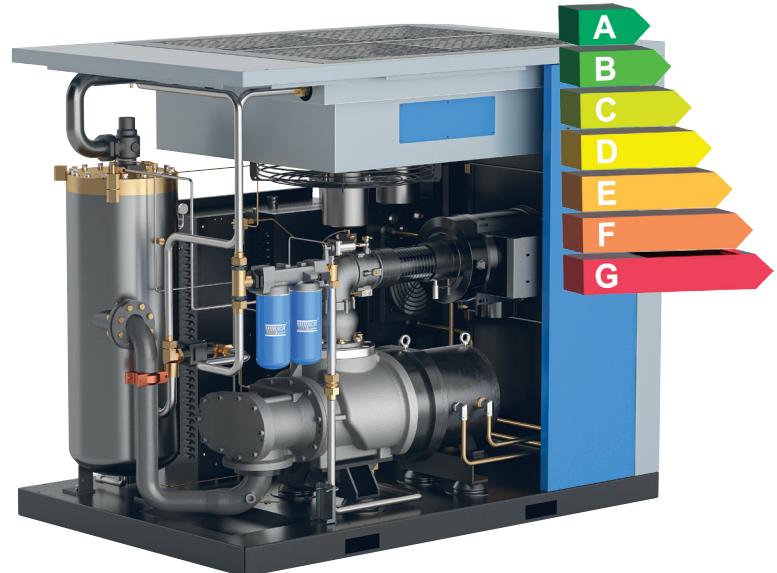
### Annual electricity costs

The table below shows the annual costs in EUR for different appliance power, types of operation and electricity.

Operation	1-shift			2-shift			3-shift		
	2 000 MH			4 000 MH			6 000 MH		
EUR/kWh	0,10	0,15	0,20	0,10	0,15	0,20	0,10	0,15	0,20
7,5 kW	1 500 €	2 250 €	3 000 €	3 000 €	4 500 €	6 000 €	4 500 €	6 750 €	9 000 €
11 kW	2 200 €	3 300 €	4 400 €	4 400 €	6 600 €	8 800 €	6 600 €	9 900 €	13 200 €
15 kW	3 000 €	4 500 €	6 000 €	6 000 €	9 000 €	12 000 €	9 000 €	13 500 €	18 000 €
18,5 kW	3 700 €	5 550 €	7 400 €	7 400 €	11 100 €	14 800 €	11 100 €	16 650 €	22 200 €
22 kW	4 400 €	6 600 €	8 800 €	8 800 €	13 200 €	17 600 €	13 200 €	19 800 €	26 400 €
30 kW	6 000 €	9 000 €	12 000 €	12 000 €	18 000 €	24 000 €	18 000 €	27 000 €	36 000 €
37 kW	7 400 €	11 100 €	14 800 €	14 800 €	22 200 €	29 600 €	22 200 €	33 300 €	44 400 €
45 kW	9 000 €	13 500 €	18 000 €	18 000 €	27 000 €	36 000 €	27 000 €	40 500 €	54 000 €
55 kW	11 000 €	16 500 €	22 000 €	22 000 €	33 000 €	44 000 €	33 000 €	49 500 €	66 000 €
75 kW	15 000 €	22 500 €	30 000 €	30 000 €	45 000 €	60 000 €	45 000 €	67 500 €	90 000 €
90 kW	18 000 €	27 000 €	36 000 €	36 000 €	54 000 €	72 000 €	54 000 €	81 000 €	108 000 €
110 kW	22 000 €	33 000 €	44 000 €	44 000 €	66 000 €	88 000 €	66 000 €	99 000 €	132 000 €
132 kW	26 400 €	39 600 €	52 800 €	52 800 €	79 200 €	105 600 €	79 200 €	118 800 €	158 400 €
160 kW	32 000 €	48 000 €	64 000 €	64 000 €	96 000 €	128 000 €	96 000 €	144 000 €	192 000 €
200 kW	40 000 €	60 000 €	80 000 €	80 000 €	120 000 €	160 000 €	120 000 €	180 000 €	240 000 €
250 kW	50 000 €	75 000 €	100 000 €	100 000 €	150 000 €	200 000 €	150 000 €	225 000 €	300 000 €
315 kW	63 000 €	94 500 €	126 000 €	126 000 €	189 000 €	252 000 €	189 000 €	283 500 €	378 000 €

# SCR-EPM2 energy saving solutions

The new range of SCR-EPM2 compressors was developed with regard to the most efficient production of compressed air in industrial plants, using the latest construction elements that provide its user with drastic reduction of financial costs associated with energy consumption. SCR-EPM2 is coming to market right now, when you need to save as much as possible.



**35 %**



**1-10 %**



**3-15 %**

## No idling

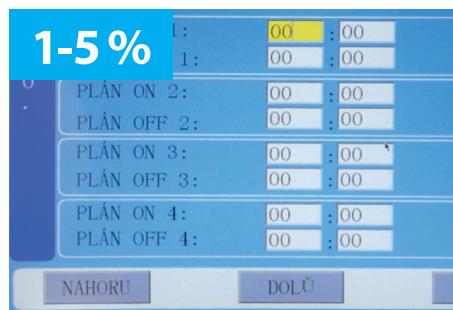
A wide speed control range using a frequency converter prevents unnecessary power consumption for no-load operation.

## Lossless direct drive

The direct connection between the airend and the motor has none of the losses found in many other types of transmissions.

## No unnecessary pressure

The SCR9000 electronic controller allows you to set only the pressure you need. 1 bar of unnecessarily high pressure corresponds to about 7% of the energy.



**1-5 %**



**2-5 %**



## Elimination of consumption leaks

The machine's software allows you to set a precise weekly schedule with scheduled downtime to avoid producing air to cover leaks, e.g. at the weekend and 4 pressure bands for precise adjustment of output pressure.

## IE4 efficient motors

The latest generation of permanent magnet electric motors reduces energy costs by several percent compared to IE2 standards.

## Modern cooling

The cooling fan is also continuously controlled for even greater savings. If it is not needed, the fan is not running and does not consume any extra energy.

## Design arrangement

Thanks to the direct connection of the airend with the electric motor, the compressors of the SCR-EPM2 series work without any energy losses in the transmission. Unlike compressors with V-belts, clutches or gearboxes, this eliminates any maintenance and in addition to energy savings, the user also saves on machine service.



- 1 airend
- 2 electric motor
- 3 air filter
- 4 inlet valve
- 5 oil receiver

- 6 air and oil cooler
- 7 oil filters
- 8 minimum pressure valve
- 9 electronic controller
- 10 frequency converter

- 11 electrical switchboard
- 12 air outlet
- 13 motor cooling pump
- 14 coolant chiller

## Extreme performance airen

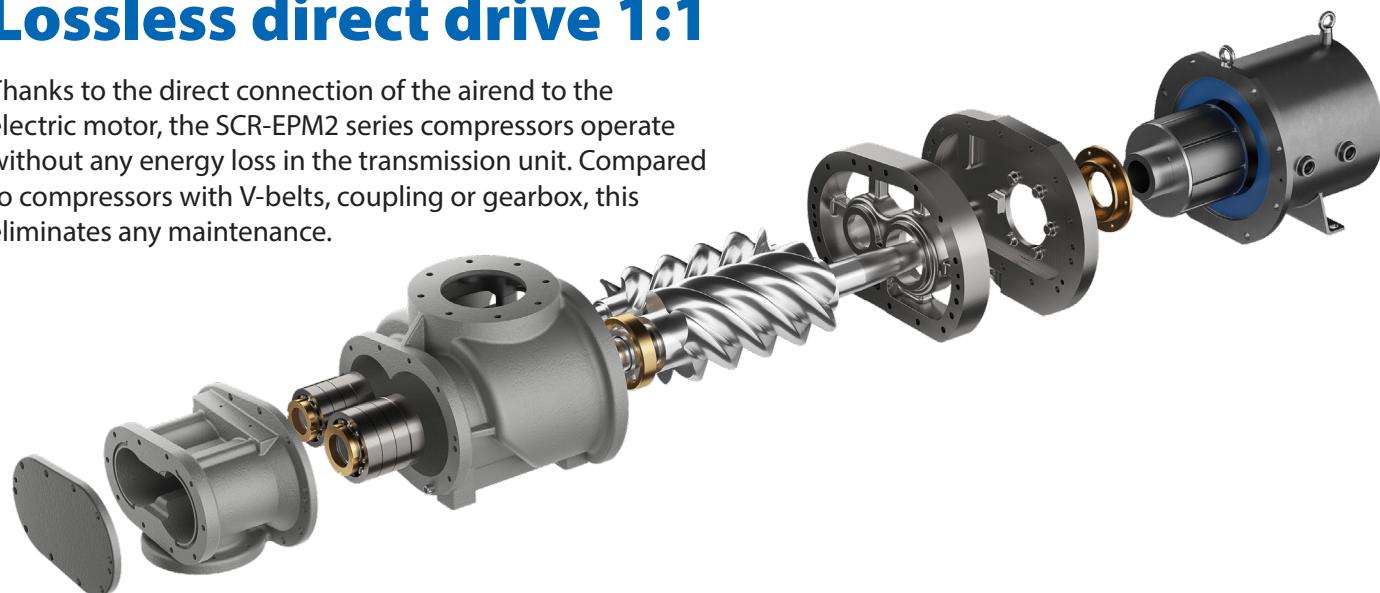
Airen are the heart of screw compressors and airen on the SCR-EPM2 series are massive and provide such a huge amount of produced air that they can very often replace compressors with a power input of one to two orders of magnitude higher. There is only a very limited number of compressors on the market that can compete with the FAD performance of the SCR-EPM2 series.



- ✓ low speed at 400 to 2.000 rpm
- ✓ huge diameters of both rotors for the maximum amount of FAD
- ✓ optimization of the airend to power input and pressure version
- ✓ precisely manufactured rotors with perfect tolerances
- ✓ use only branded bearings
- ✓ own production in SCR manufacturing plant

## Lossless direct drive 1:1

Thanks to the direct connection of the airend to the electric motor, the SCR-EPM2 series compressors operate without any energy loss in the transmission unit. Compared to compressors with V-belts, coupling or gearbox, this eliminates any maintenance.



## Liquid-cooled PM-motor IE4

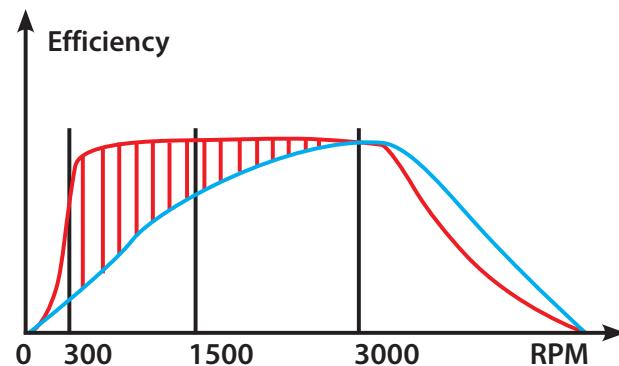
The SCR-EPM2 series compressors bring to the market a unique technology of permanent magnet motors with independent liquid cooling, which due to their design have extreme efficiency, which far exceeds the efficiency requirements of IE4 according to IEC EN 60034 standard and exceed commonly used asynchronous motors by up to 5%.



- ✓ high efficiency IE4
- ✓ service life 100.000 MH
- ✓ without bearings
- ✓ liquid cooling
- ✓ electrical protection IP65 - dust proof
- ✓ PTC temperature protection



Power kW	SCR-EPM2 main motor	Efficiency IEC EN 60034		
		IE4	IE3	IE2
55	<b>96,0 %</b>	93,7 %	92,5 %	91,0 %
75	<b>96,6 %</b>	94,2 %	93,1 %	91,6 %
90	<b>96,0 %</b>	94,4 %	93,4 %	91,9 %
110	<b>96,2 %</b>	94,7 %	93,7 %	92,3 %
132	<b>96,3 %</b>	94,9 %	94,0 %	92,6 %
160	<b>96,9 %</b>	95,1 %	94,3 %	93,0 %



High efficiency is achieved over the entire speed range, which contributes to the exceptional energy efficiency of the entire compressor.

## Modern electronic controller

The SCR-EPM2 series compressors are controlled by the modern SCR9000 electronic controller with simple operation via a 7" colour touch screen or eight navigation buttons. The SCR9000 unit has many useful features for monitoring compressor status, operating and service settings and necessary alarms.



### SCR9000 benefits

- ✓ colour touch screen
- ✓ screen size 7"
- ✓ energy consumption metering
- ✓ network control of up to 16 compressors
- ✓ Modbus RS485 communication
- ✓ 4 pressure zones
- ✓ weekly scheduling
- ✓ automatic restart

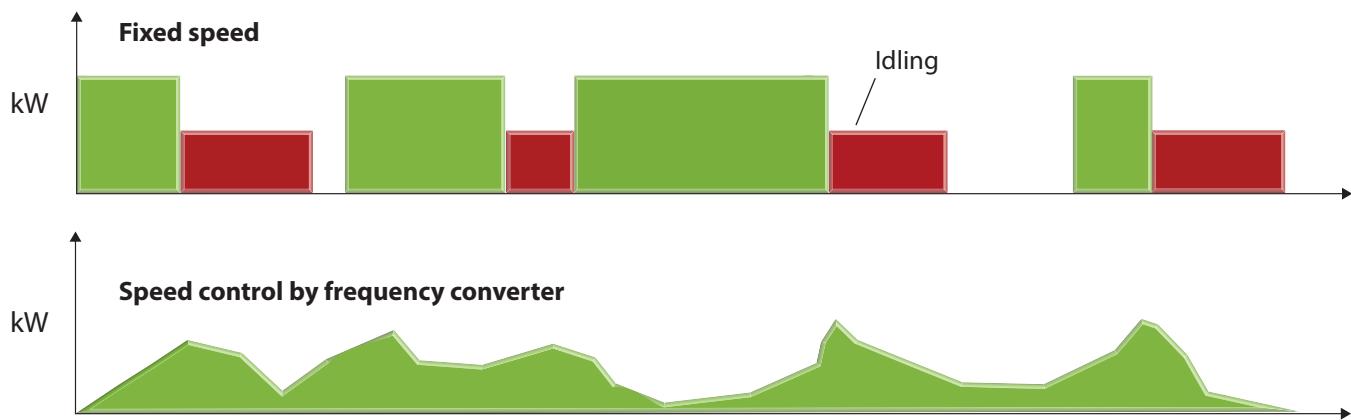
## Compressor network control

If several SCR screw compressors are installed in a compressor room, their SCR9000 controllers can be easily connected via cables to provide comprehensive control of the entire network with minimal installation costs. The software in the SCR9000 unit allows for mutual network control with up to 16 machines based on a master-slave control system, regardless of how the individual machines are controlled.



## Speed control by frequency converter

Traditional fixed-speed compressors are controlled in duty cycles, where the compressor alternates between running under load, idling or stopped. Immediately after start-up, air compression is initiated and the main engine is under load. When the required pressure is reached, the compressor switches to idle mode, where the compressor does not produce air, but the motor is still idling the airend and needs power. Idling on one side makes it easier to start the machine again, but for a few tens of seconds, unnecessary energy consumption occurs, which usually reaches tens of percent of the total energy consumed. The lower the air consumption, the more the idle ratio increases, opening up the possibility of achieving significant savings on the cost of the produced air and the operating costs associated with the compressor.



## Frequency converters with vector control

The SCR-EPM2 compressors are equipped with state-of-the-art INOVANCE frequency converters, which allow them to maintain the required output pressure and adapt the speed of the drive unit to the immediate needs of the compressed air supply. Thanks to this modern compressor control system, idling is significantly eliminated and energy savings of tens of percent are achieved. Further cost reductions can easily be achieved by quickly changing the output pressure setting and the control pressure band.

The vector-controlled converters were specially developed for screw compressors and can provide very high torque at frequencies from 0.1 Hz. Conventional converters either cannot operate at frequencies below 5 Hz or are extremely inefficient in this band..

The new generation of INOVANCE vector converters ensures very high energy efficiency over the entire speed range.



# Practical oil receiver

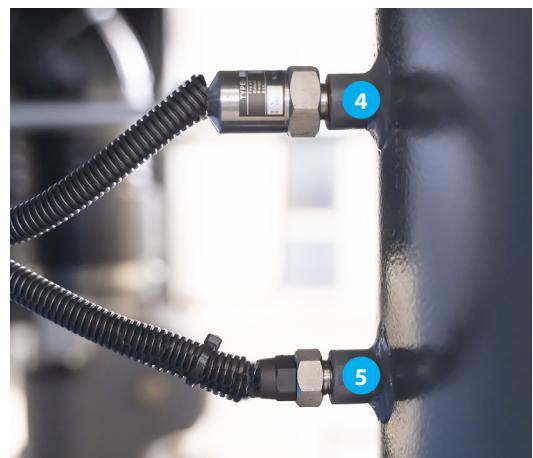
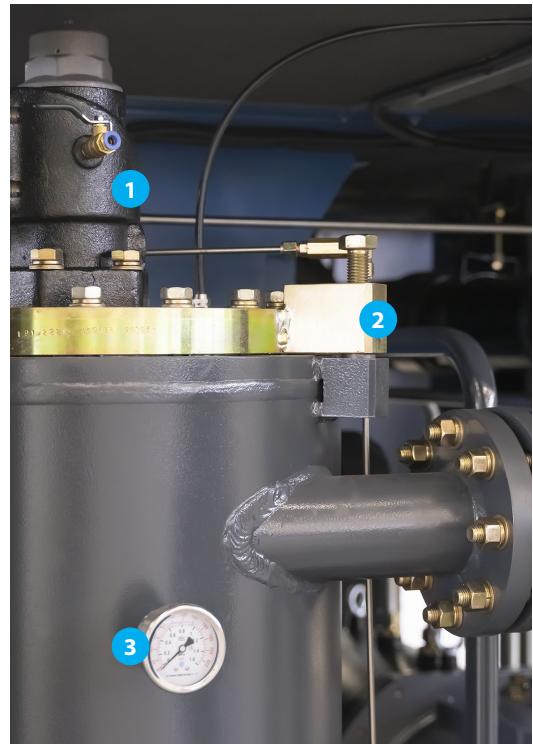
## Efficient oil separation

SCR-EPM2 series screw compressors are equipped with a highly efficient oil separation system that ensures perfect compressed air output quality with a peak oil content of < 3 ppm. The oil is separated by a three-stage separation system using centrifugal force, gravity effect in a vertically oriented oil receiver and a high-quality separation filter.

## Above-standard oil receiver equipment

The oil receiver has elements for better control over operating/running conditions of oil separation and for comfortable maintenance.

- 1 **The ball valve** not only provides convenient depressurization of the tank before replacing the separation filter, but it is possible to connect a hose with a blow gun via a push-in fitting and use compressed air to clean the radiator or the machine interior.
- 2 **The upper lid** of the tank is equipped with a hinge, which allows you to conveniently slide the lid to the side after removing the screws on the flange. This shortens the time to replace the separation filter and makes the whole job more comfortable.
- 3 **The pressure gauge** is filled with glycerine for a very easy and accurate reading of the pressure in the oil tank.
- 4 **The pressure sensor** is used to determine the pressure difference between the tank and the compressor outlet, which expresses the state of clogging of the separation filter. Thanks to this value, the filter is replaced so the internal pressure drop in the compressor and energy costs are reduced.
- 5 **The temperature sensor** prevents the compressor from operating at low temperatures, where solid or frozen oil can damage the machine. It also serves as a secondary protection for the compressor against high operating temperature.
- 6 **Practical oil level indicator** for easy reading of the oil level inside the separation vessel.
- 7 To drain the oil, a ball valve with a push-in fitting is installed on the underside of the tank, to which a plastic hose can be quickly attached and the oil can be drained comfortably into a prepared container.



## Efficient filtration system

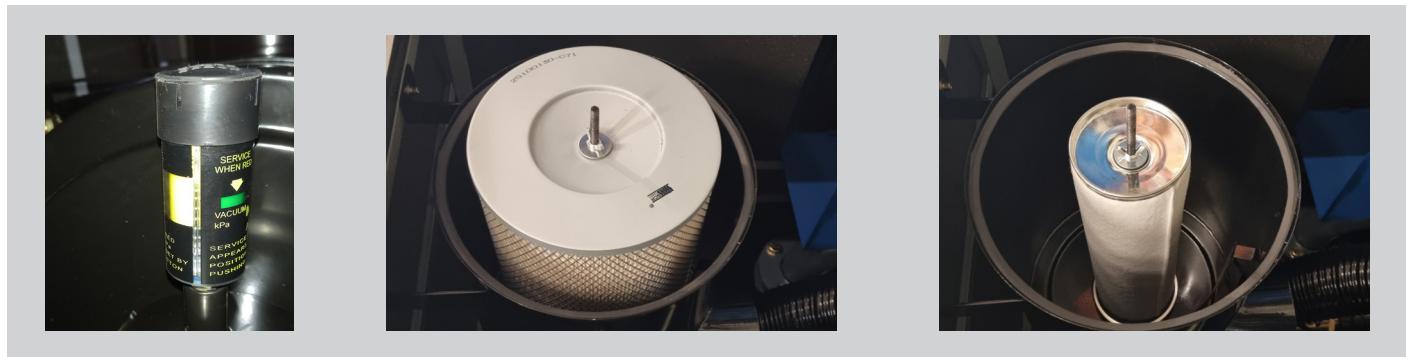


### Oil filtration

Ensuring high oil quality without impurities is a key issue for perfect compressor performance. SCR-EPM2 compressors use high-quality oil filters, which are equipped with a pressure drop switch for models from 75 kW. Based on the signal from the switch, the SCR9000 electronic controller informs the user about the need to replace the filters and keep the compressor in good operating condition.

### Air filter

SCR-EPM2 compressors are equipped with a two-stage air filter for increased protection of the airend against possible entering of solid dirt that could damage the rotors. The contamination status of the air filter can be easily verified thanks to the integrated visual pressure drop indicator.



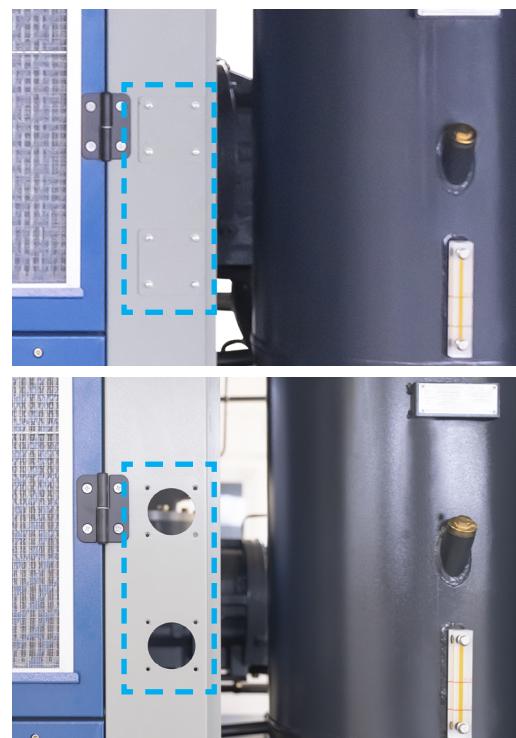
## Preparation for heat recovery

### Use of heat from the compressor

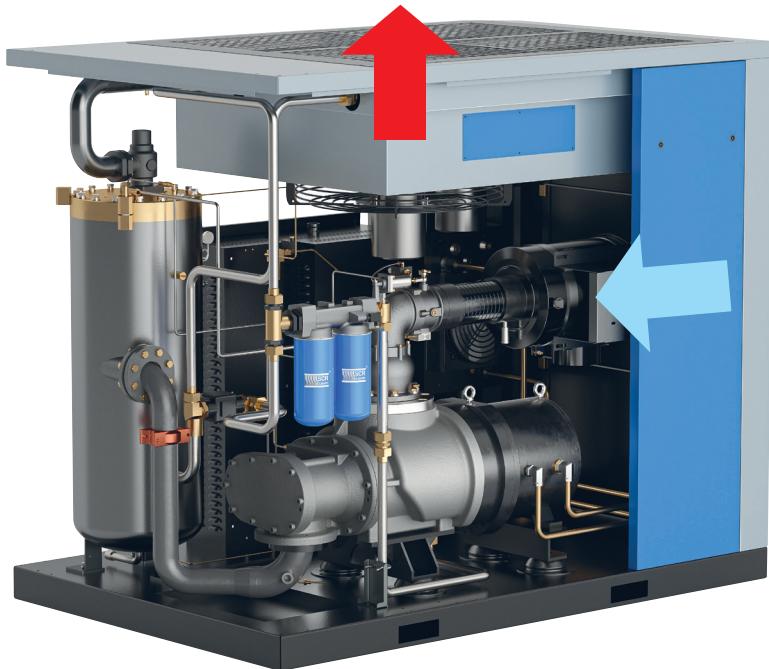
When compressing air, only a fraction of the energy supplied to the compressor is used for kinetic energy, while over 94% of the energy is converted into heat. Thanks to the heat recovery system, much of this heat can be used for domestic water heating, central heating, process heating or showers and can save an extreme amount of heating money, which is increasingly important due to rising fuel and energy prices.

SCR-EPM2 compressors are structurally prepared for the integration of the recuperation system. Removable plugs and holes are available in the machine canopy for possible continuous installation of pipes to the exchanger. The heat recovery system can be integrated either in the machine or as an external unit.

In case of interest, we will be happy to provide professional installation or delivery of the machine with already installed heat recovery ready for connection to the water circuit.



## Generous machine cooling



### Optimal operation up to +45 °C

Large space inside the compressor, optimized airflow, strategic placement of the individual components and generously sized coolers help ensure perfect cooling.

SCR-EPM2 compressors can be operated in a wide temperature range from 0 to +45 °C.

The cooling solution is also responsible for the very low outlet air temperature, which is only up to 10°C above the compressor inlet air temperature.

## Speed controlled fans

To ensure efficient cooling, speed controlled fans are installed with their own frequency converter.

Fan motors typically consume about 5% of the energy supplied to the compressor. Electronic fan control according to the actual cooling needs of the machine contributes to the exceptional energy efficiency and modern concept of SCR-EPM2 compressors.



## Pipes instead of hoses

All necessary fluid connections are made with metal tubing instead of traditional rubber hoses. Thanks to this design change, there is no need to worry about any oil leaks, no risk of downtime due to hose bursting and, in addition, the internal pressure gradient is reduced due to the better flow of the medium through the smoother surface.

## Low maintenance costs

The concept of SCR-EPM2 compressors allows a significant reduction in the cost of regular maintenance. Compared to traditional compressors on the market, many service tasks such as replacing and tensioning V-belts, replacing rubber hoses, maintaining bearings on the main electric motor or the entire gear train are eliminated.

This eliminates the cost of unnecessary replacement parts, and when you add less technician work to the overall low cost of spare parts and SCOil 46M oil, you get really significant savings on SCR-EPM2 compressor maintenance.

- ✓ eliminates replacements and tensioning of V-belts
- ✓ without cracked and leaking hoses
- ✓ no motor bearing replacements
- ✓ without coupling or gearbox maintenance



Maintenance and service technicians will appreciate a number of useful features for high work comfort, such as a visor through the oil mark panel to read the oil level without exposing the machine or a very practical handle for convenient panel handling.

## Quality original parts & available service

To ensure that the compressor achieves continuous peak performance and to minimise the risk of failure throughout the lifetime of the machine, the compressor must be maintained at prescribed intervals and only with genuine spare parts and lubricants.

All necessary spare parts are available for each SCR-EPM2 compressor and can be easily selected according to the documentation provided or according to their marking directly on the part inside the machine.

SCR-EPM2 compressors are maintained and serviced by an extensive network of service partners to ensure that all necessary services are readily and quickly available without unnecessary technician call-out costs.



## Extended 5-year warranty

We are confident in the quality of the technical design of the SCR-EPM2 series compressors, the components used and our quality system of production. Therefore we offer to all customers the option of extending the standard warranty period to 5 years as a surcharge for the machine. Our extended warranty concept is not limited by the number of operating hours, does not require signing service contracts or shortening preventive maintenance intervals.



# Rent a compressor for 5 years!

Thanks to our SCRent program, you no longer have to invest large financial amount into the purchase of a new energysaving compressor. In cooperation with Raiffeisenbank, we offer a modern way of financing by means of a long-term rental of the machine for 5 years and its repayment in monthly fees.

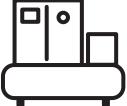
## Why SCRent rental?

- you can get a **new compressor immediately** and without the need to release large financial amount for investment
- monthly lease payments are a **direct company expense** and are not subject to depreciation in accounting
- **clear costs for 5 years** - all compressor costs except energy are "all inclusive" in the SCRent monthly fee
- and especially thanks to the modern and economical machine **YOU SAVE ON ENERGY IMMEDIATELY**



## What's included in the monthly fee?

SCRent is a comprehensive financial service that covers all costs associated with the operation of the compressor and compressed air treatment technology. The only thing the customer pays for himself is the electricity consumed. **The monthly fee payment is not just the price of the machine multiplied by 60 payments, but SCRent includes everything you expect to pay over the 5 years of the compressor's operation:**

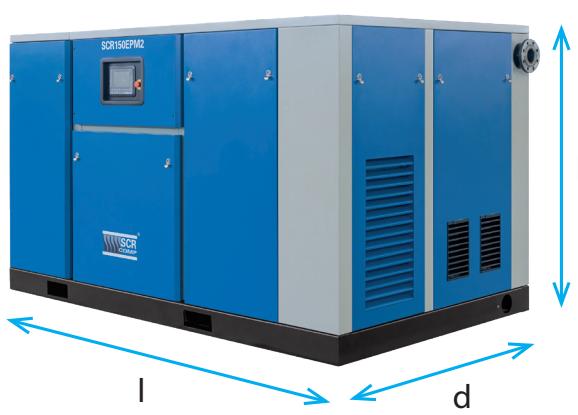
	price of the selected model <b>of SCR screw compressor</b>		regular maintenance throughout the rental period is already included in the price without limitation of the number of operating hours
	price of selected types <b>air treatment equipment</b>		we will take care of free <b>ecological disposal</b> of oils and filter cartridges
	attractive <b>discounts</b> on purchased equipment, <b>spare parts and oil</b> are included in the lease		the rental also includes the necessary <b>pressure vessel inspections</b>
	the price includes <b>transport of</b> all equipment to the installation site		all <b>breakdown</b> costs during the rental period are our responsibility; emergency service is included in the rental
	all compressors and air treatment equipment are professionally <b>installed</b>		compressors and air treatment equipment are <b>insured</b> against damage or theft at all times
	<b>we will train</b> the operators to ensure proper operation and basic maintenance of the technology		... and <b>after 5 years you can buy the compressor</b> at the residual price

## Technical data

Order No.	Power (kW)	Max. pressure (bar)	FAD output (Nm <sup>3</sup> /h)		Output	Air ventilation (m <sup>3</sup> /h)	Noise level db(A)
			min.	max.			
SCR-55/7EPM2	55	7	210	750	2"	15 600	76
SCR-55/8EPM2		8	180	690			
SCR-55/10EPM2		10	156	630			
SCR-63/7EPM2	63	7	240	840	2"	15 600	77
SCR-63/8EPM2		8	216	780			
SCR-63/10EPM2		10	192	720			
SCR-75/7EPM2	75	7	228	978	DN65	17 500	78
SCR-75/8EPM2		8	216	960			
SCR-75/10EPM2		10	174	822			
SCR-90/7EPM2	90	7	306	1 200	DN65	17 500	78
SCR-90/8EPM2		8	300	1 140			
SCR-90/10EPM2		10	240	990			
SCR-110/7EPM2	110	7	444	1 470	DN80	20 000	78
SCR-110/8EPM2		8	432	1 440			
SCR-110/10EPM2		10	378	1 260			
SCR-132/7EPM2	132	7	498	1 800	DN80	25 000	79
SCR-132/8EPM2		8	450	1 680			
SCR-132/10EPM2		10	390	1 380			
SCR-160/7EPM2	160	7	558	2 010	DN80	30 000	79
SCR-160/8EPM2		8	528	1 860			
SCR-160/10EPM2		10	456	1 620			

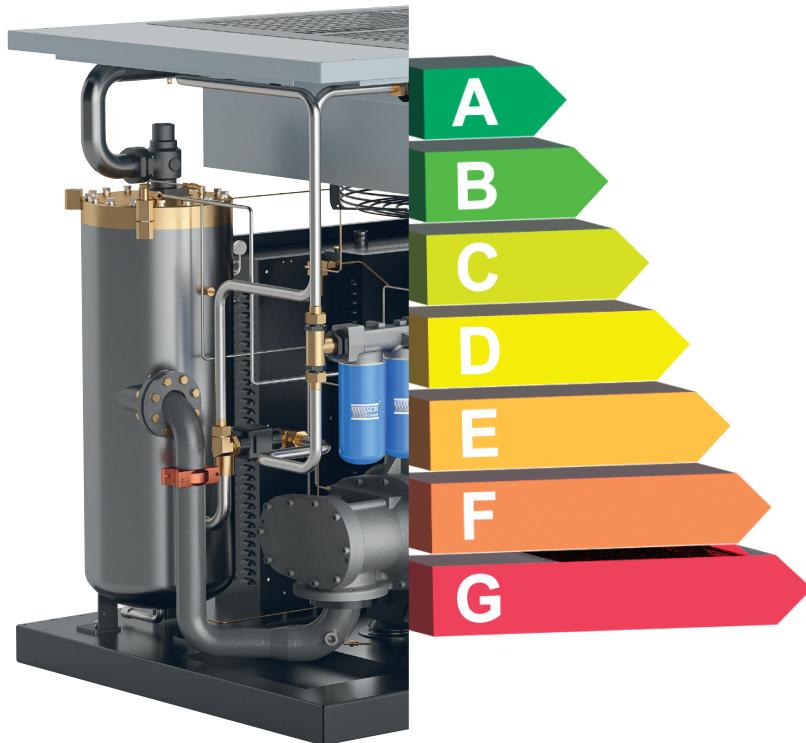
FAD performance is measured according to ISO 1217 and is listed for the maximum pressure of the model; additional FAD performance values at different frequencies and pressures can be found in the technical data sheets on request. The noise level is indicated at a distance of 1 m from the machine.

### Dimensions and weights



Power (kW)	Length (mm)	Depth (mm)	Height (mm)	Weight (kg)
55	1 900	1 350	1 650	1 550
63				1 600
75	2 280	1 500	2 100	2 010
90				2 050
110	3 000	1 750	1 690	2 900
132	2 700	1 650	2 150	3 050
160				3 150

## SCR AUDIT - find out how much you can save!



If you need help to achieve energy savings and are not sure what the optimal solution is, contact our company.

We have a lot of experiences with compressor room design and energy cost optimization in existing compressor rooms, based on which we have prepared a concept for the assessment of the current situation in the form of an SCR AUDIT.

If you decide to use SCR AUDIT, we will visit your facility and conduct an audit as part of the process:

- comprehensive assessment of the current state of compressors
- assessment of the air treatment system
- measurement of compressed air consumption
- detection and quantification of air leaks

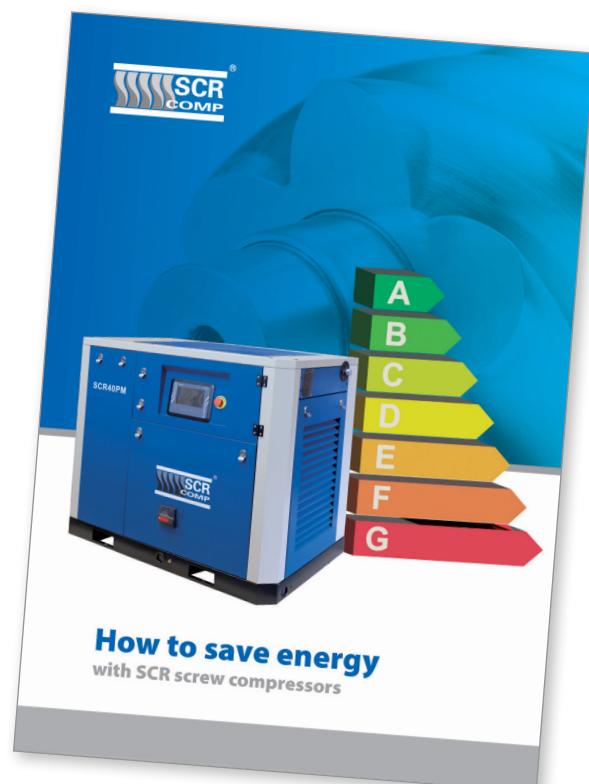
Based on the data and measurement results, we will prepare a final report that will include a description of the existing solution, a balance of the data, an evaluation of the savings potential and suggestions for individual solutions for your compressed air production, treatment and distribution system. Based on the results of the SCR AUDIT, you can then implement effective steps and measures to achieve the necessary savings.

## How to save energy?

If you want to learn more about how to save on compressed air with the SCR compressor program, we are here for you!

We have extensive knowledge of production, treatment, distribution and consumption of compressed air, which we are always happy to share with our clients.

Visit our website [www.scr-kompresory.cz](http://www.scr-kompresory.cz), where you can read a lot of interesting information about savings opportunities and download the necessary information materials.





Distributor of SCR compressors  
for the Czech and Slovak Republics:



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