



# Screw compressors **SCR-EPM**

power range 15 - 45 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

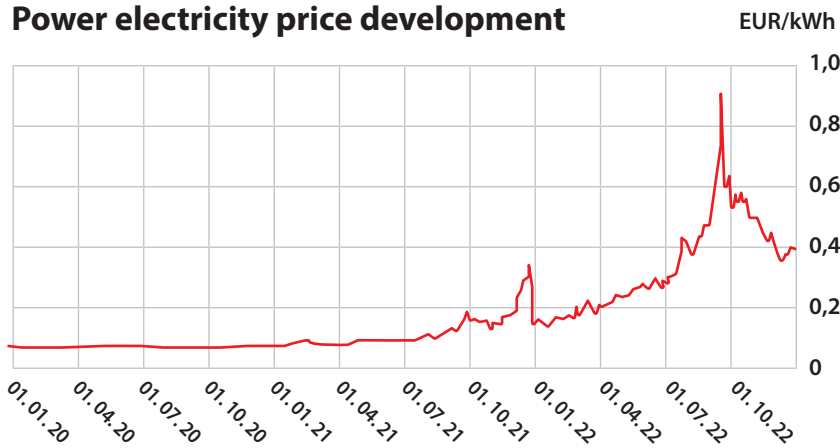
## How much does electricity cost?

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.

Currently, the price of electricity is already at the level of 0,30 to 0,40 €/kWh and is expected to grow further in the near future.

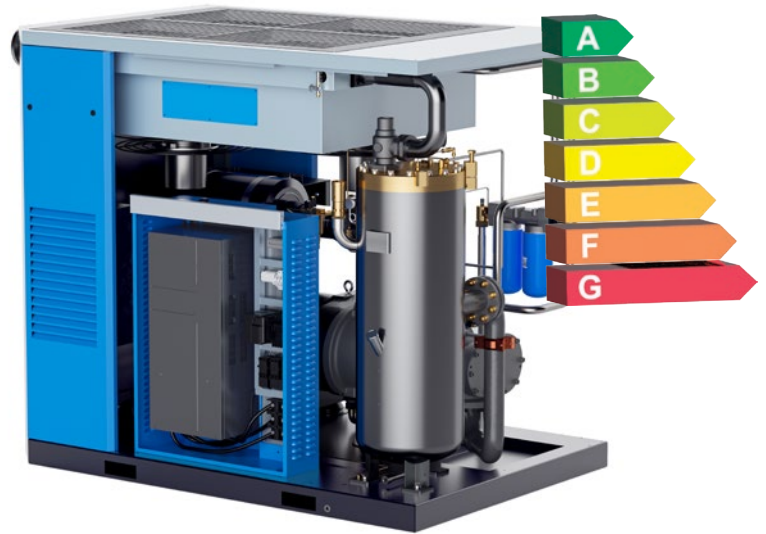
### Annual electricity costs

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	0,20	0,28	0,40	0,20	0,28	0,40	0,20	0,28	0,40
15 kW	6.000 €	8.400 €	12.000 €	12.000 €	16.800 €	24.000 €	18.000 €	25.200 €	36.000 €
18,5 kW	7.400 €	10.360 €	14.800 €	14.800 €	20.720 €	29.600 €	22.200 €	31.080 €	44.400 €
22 kW	8.800 €	12.320 €	17.600 €	17.600 €	24.640 €	35.200 €	26.400 €	36.960 €	52.800 €
30 kW	12.000 €	16.800 €	24.000 €	24.000 €	33.600 €	48.000 €	36.000 €	50.400 €	72.000 €
37 kW	14.800 €	20.720 €	29.600 €	29.600 €	41.440 €	59.200 €	44.400 €	62.160 €	88.800 €
45 kW	18.000 €	25.200 €	36.000 €	36.000 €	50.400 €	72.000 €	54.000 €	75.600 €	108.000 €

## SCR-EPM energy saving solutions

New range of SCR-EPM 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-EPM is coming to market right now, when you need to save as much as possible.



### No idling

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



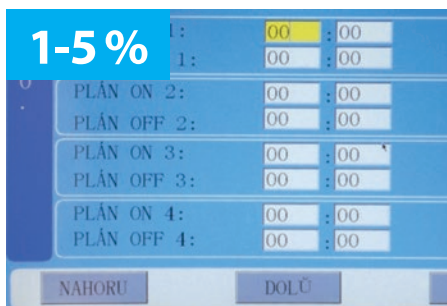
### Lossless direct drive

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



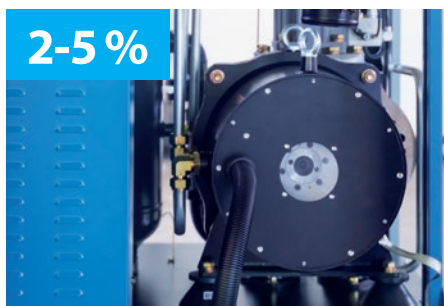
### No unnecessary pressure

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.



### 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-EPM 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.



- |                         |                                 |                                  |
|-------------------------|---------------------------------|----------------------------------|
| <b>1</b> airend         | <b>5</b> oil receiver           | <b>9</b> electronic controller   |
| <b>2</b> electric motor | <b>6</b> air and oil cooler     | <b>10</b> frequency converter    |
| <b>3</b> air filter     | <b>7</b> cooling fan            | <b>11</b> electrical switchboard |
| <b>4</b> inlet valve    | <b>8</b> minimum pressure valve |                                  |

## Extreme performance airends

Airends are the heart of screw compressors and airends on the SCR-EPM 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-EPM series.



- ✓ low speed at 450 to 2.200 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 air end to the electric motor, the SCR-EPM series compressors operate without any energy loss in the transmission unit. Compared to compressors with V-belts, coupling or gearbox, this eliminates any maintenance.

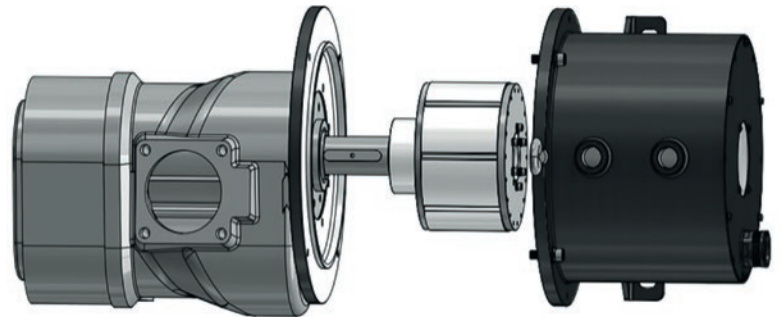


saving  
6% of energy

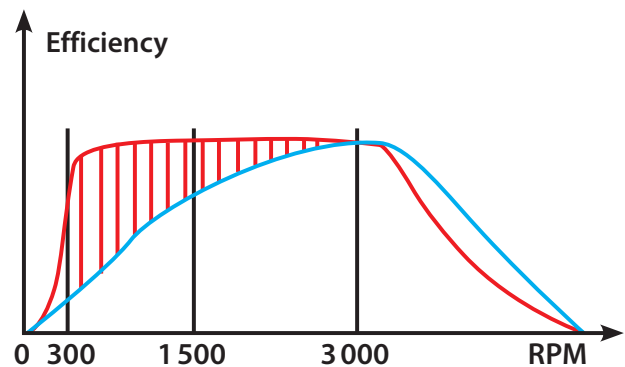
## PM motor with IE4 efficiency

The SCR-EPM compressor series uses state-of-the-art oil-lubricated permanent magnet motor technology, which, due to its design, has an extreme efficiency that exceeds the IE4 efficiency requirements of IEC EN 60034 and exceeds the conventional IE2 efficiency motors used as a standard solution for variable speed compressors by an average of 5-6 %.

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



Power kW	SCR-EPM motor	Efficiency IEC EN 60034		
		IE4	IE3	IE2
15	<b>94,8%</b>	91,2%	89,6%	88,0%
18,5	<b>94,3%</b>	91,7%	90,1%	88,6%
22	<b>94,7%</b>	92,1%	90,6%	89,1%
30	<b>95,6%</b>	92,7%	91,3%	89,8%
37	<b>95,5%</b>	93,1%	91,8%	90,3%
45	<b>95,9%</b>	93,4%	92,2%	90,7%



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-EPM 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 features

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

## Efficient technical solutions

### Efficient oil separation

SCR-EPM 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.

### 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.

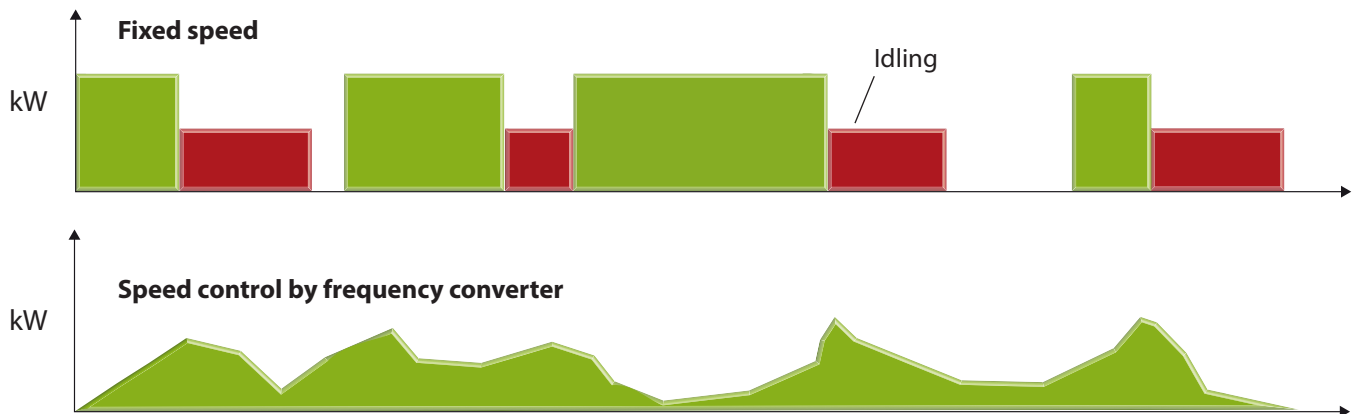
### Generous machine cooling

A generously sized combined cooler is used to cool the oil and the outlet air, perfectly cooled by an efficient fan with infinitely variable speed control. Thanks to the cooling system used, the compressor can be operated at very high temperatures of up 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 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 air end 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-EPM 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.





## Quality original parts & affordable 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-EPM compressor and can be easily selected according to the documentation provided or by their marking directly on the part inside the machine.

SCR-EPM 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.



## Low maintenance costs

The concept of SCR-EPM 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 SCO parts and oils, you get really significant savings on SCR-EPM compressor maintenance.

### CHEAPER MAINTENANCE

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

## Extended 5-year warranty

We are confident in the quality of the technical design of the SCR-EPM 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.



## Technical data

Order No.	Power	Max. pressure	FAD output (Nm <sup>3</sup> /h)		Output	Air ventilation	Noise level
	(kW)	(bar)	min.	max.		(m <sup>3</sup> /h)	dB(A)
SCR-15/7EPM	15	7	45	180	1"	5 400	66
SCR-15/8EPM		8	44	174			
SCR-15/10EPM		10	35	138			
SCR-18/7EPM	18,5	7	78	222	1"	5 400	66
SCR-18/8EPM		8	66	210			
SCR-18/10EPM		10	60	174			
SCR-22/7EPM	22	7	90	246	1"	5 400	66
SCR-22/8EPM		8	84	240			
SCR-22/10EPM		10	66	210			
SCR-30/7EPM	30	7	126	372	1 1/2"	6 400	68
SCR-30/8EPM		8	108	366			
SCR-30/10EPM		10	90	312			
SCR-37/7EPM	37	7	99	444	1 1/2"	9 000	70
SCR-37/8EPM		8	96	441			
SCR-37/10EPM		10	138	390			
SCR-45/7EPM	45	7	150	570	1 1/2"	9 000	72
SCR-45/8EPM		8	144	564			
SCR-45/10EPM		10	180	480			

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)
<b>15</b>	1 200	800	1 100	480
<b>18,5</b>	1 200	800	1 100	480
<b>22</b>	1 200	800	1 100	560
<b>30</b>	1 400	1 000	1 370	830
<b>37</b>	1 530	1 100	1 370	850
<b>45</b>	1 530	1 100	1 500	890

## 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 **of SCR screw compressor**



**regular maintenance** throughout the rental period is already included in the price without limitation of the number of operating hours



price of selected types **air treatment equipment**



we will take care of free **ecological disposal** of oils and filter cartridges



attractive **discounts** on purchased equipment, **spare parts and oil** are included in the lease



the rental also includes the necessary **pressure vessel inspections**



the price includes **transport** of all equipment to the installation site



all **breakdown** costs during the rental period are our responsibility; emergency service is included in the rental



all compressors and air treatment equipment are professionally **installed**



compressors and air treatment equipment are **insured** against damage or theft at all times



**we will train** the operators to ensure proper operation and basic maintenance of the technology



... and **after 5 years you can buy the compressor** at the residual price



Distributor of SCR compressors  
for the Czech and Slovak Republics:



**VSK Profi, s.r.o.**  
**Hřbitovní 1324/27a**  
**312 00 Plzeň - Doubravka**

**Phone** +420 377 152 230  
+420 377 152 211  
**E-mail** [info@scr-kompresory.cz](mailto:info@scr-kompresory.cz)  
**Website** [www.scr-kompresory.cz](http://www.scr-kompresory.cz)

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