



# Screw Compressors **SCR-APM Mini**

power range 3–5,5 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 services in the field of industrial compressors. The SCR production plant is a modern facility employing more than 250 workers over an area of more than 80,000 m<sup>2</sup>. More than 10% of the staff are part of the engineering division, focusing 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 and holds CE certification for the European market, UL certification for the US market, Class Zero certification for oil-free machines, and the performance of all manufactured units is audited by SGS.

After more than 20 years of development, SCR has formed strategic partnerships with many collaborators, and its products are exported to over 80 countries worldwide.

In 2018, SCR started a strategic joint venture with the Japanese manufacturer Anest Iwata, which implemented its quality control and technology management system at SCR, aiding in the development and introduction of new energy-efficient and even more reliable compressors.



80,000

square meters of  
production area



83

countries with a  
commercial presence



50,000

compressor  
users



140,000

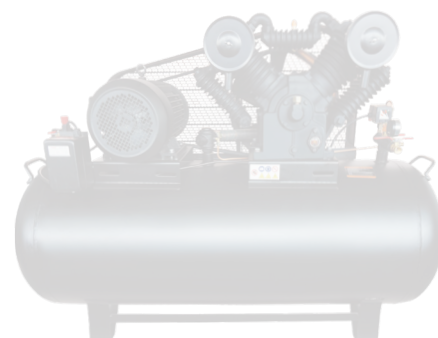
units of compressors  
manufactured since 2000

## Screw or piston compressor?

In crafts, workshops, and smaller production facilities, piston compressors typically serve as the traditional source of compressed air, mainly due to their low acquisition costs. However, in recent years, there has been significant development in modern screw compressor technologies even in lower air consumption ranges, which were previously dominated exclusively by piston compressors. With our new SCR-APM Mini series screw compressors, you can now afford machines with modern technology at attractive prices, offering many user advantages.

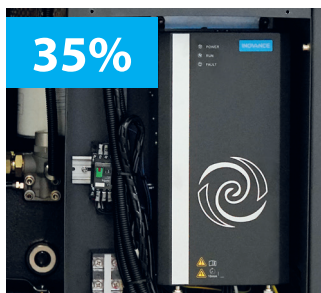


- ✓ Continuous supply of compressed air
- ✓ Higher energy efficiency
- ✓ Significantly lower noise level
- ✓ Precise control of operation
- ✓ Low oil content
- ✓ Minimum humidity of compressed air



## Modern energy-efficient solutions

The new generation of SCR-APM Mini compressors, featuring modern technologies, offers significantly lower costs for electricity consumption compared to piston compressors or older screw compressors operating at fixed speeds with V-belt transmissions. With energy prices rising, the investment in a new compressor will quickly pay off.



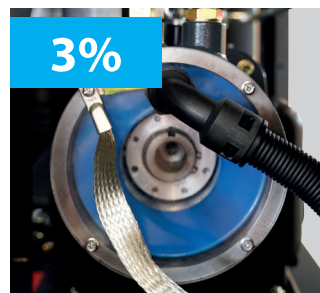
### No idling

Thanks to continuous control through a frequency converter.



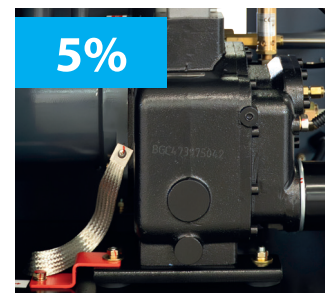
### No unnecessary pressure

Set the exact pressure you need on the IT7000 control unit.



### IE4 efficient motors

With permanent magnets having lower energy losses.



### No transmission losses

Thanks to the direct connection of the motor to the compressor aircend, as opposed to V-belts.

## Annual electricity costs

The table shows annual costs in EUR for different power inputs, types of operation, and electricity prices.

| Operation | 1 000 MH |         |         | 2 000 MH |         |         | 4 000 MH |         |         |
|-----------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| EUR/kWh   | 0,15     | 0,20    | 0,25    | 0,15     | 0,20    | 0,25    | 0,15     | 0,20    | 0,25    |
| 3 kW      | 450 €    | 600 €   | 750 €   | 900 €    | 1 200 € | 1 500 € | 1 800 €  | 2 400 € | 3 000 € |
| 4 kW      | 600 €    | 800 €   | 1 000 € | 1 200 €  | 1 600 € | 2 000 € | 2 400 €  | 3 200 € | 4 000 € |
| 5,5 kW    | 825 €    | 1 100 € | 1 375 € | 1 650 €  | 2 200 € | 2 750 € | 3 300 €  | 4 400 € | 5 500 € |

## Versions

The SCR-APM Mini screw compressor range is available either as a stand-alone compressor, or in a TD 3-in-1 set containing an air receiver and a refrigeration dryer, or in a FF package with the maximum possible equipment for the production and treatment of compressed air in one machine. The TD and FF sets are assembled in the production plant in Pilsen using top-quality components.



### Base version

- ✓ stand-alone compressor



### TD version

- ✓ compressor
- ✓ air receiver 200 l
- ✓ refrigeration dryer

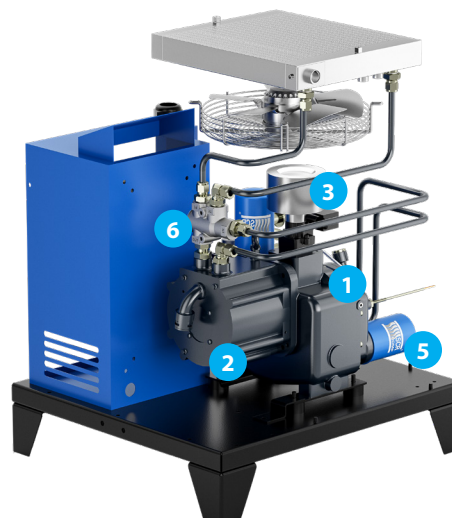
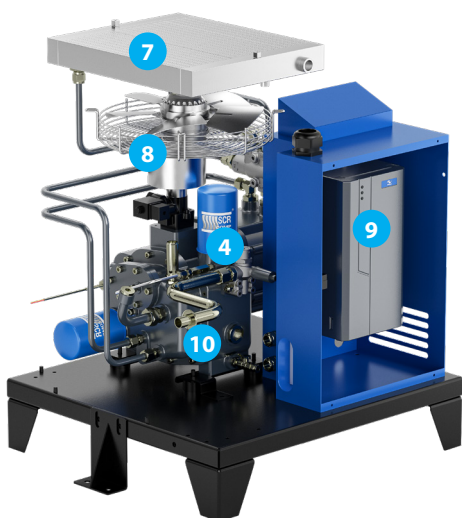


### FF version

- ✓ compressor
- ✓ air receiver 200 l
- ✓ refrigeration dryer
- ✓ pre-filter
- ✓ microfilter
- ✓ condensate drain
- ✓ water-oil separator

## Design arrangement

The structural layout of the individual parts of the SCR-APM Mini compressors is designed to make the entire machine as compact as possible and take up as little space as possible during operation, while taking into account good service access to all important components.



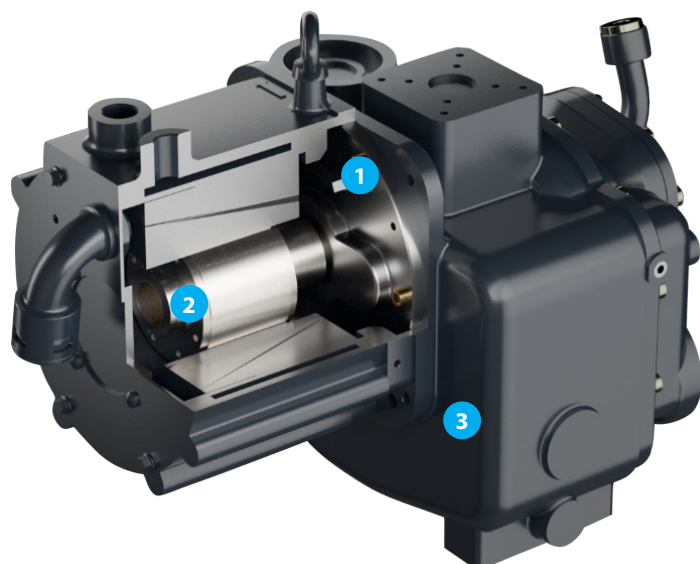
- 1 Compressor airend with oil receiver
- 2 Permanent magnet electric motor
- 3 Air filter
- 4 Oil filter

- 5 Separation filter
- 6 Combination valve
- 7 Oil cooler
- 8 Fan

- 9 Frequency converter
- 10 Air outlet

## Compressor airend and drive train

Every screw compressor's core is its drive train. In the SCR-APM Mini series, the three main components, i.e., the compressor airend, electric motor, and oil receiver, are integrated into a very compact unit, minimising overall machine dimensions.



- 1 Compressor air end
- 2 Electric motor
- 3 Oil receiver

### Low-speed compressor airend

The low-speed, high-precision, oil-lubricated compressor airend, manufactured in-house with modern profiles on both rotors, delivers large volumes of air with high efficiency, especially compared to piston compressors.

### Direct transmission - no losses and no maintenance

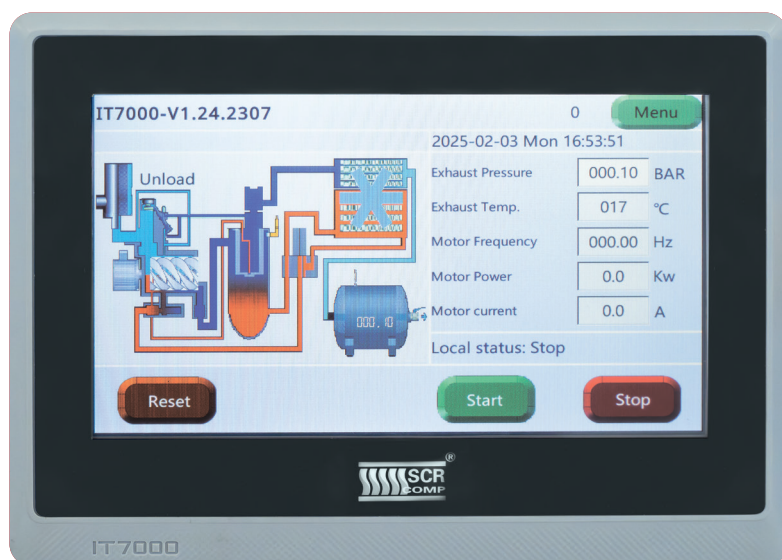
Thanks to direct connection between the compressor airend and electric motor, SCR-APM Mini compressors operate without any energy loss in the transmission. Compared to compressors with V-belts, gearboxes or elastic couplings, there is no additional maintenance required.

### Permanent magnet motors

SCR-APM Mini compressor utilizes the latest oil-lubricated permanent magnet motor technology, with efficiency exceeding IE4 requirements according to IEC EN 60034.

## Electronic control unit

Despite being the smallest product line in the SCR range, SCR-APM Mini compressors feature the state-of-the-art IT7000 control unit with simple operation via a 7" colour touch screen. The IT7000 unit offers numerous useful features for compressor status monitoring, operational and service settings, and necessary alarms.

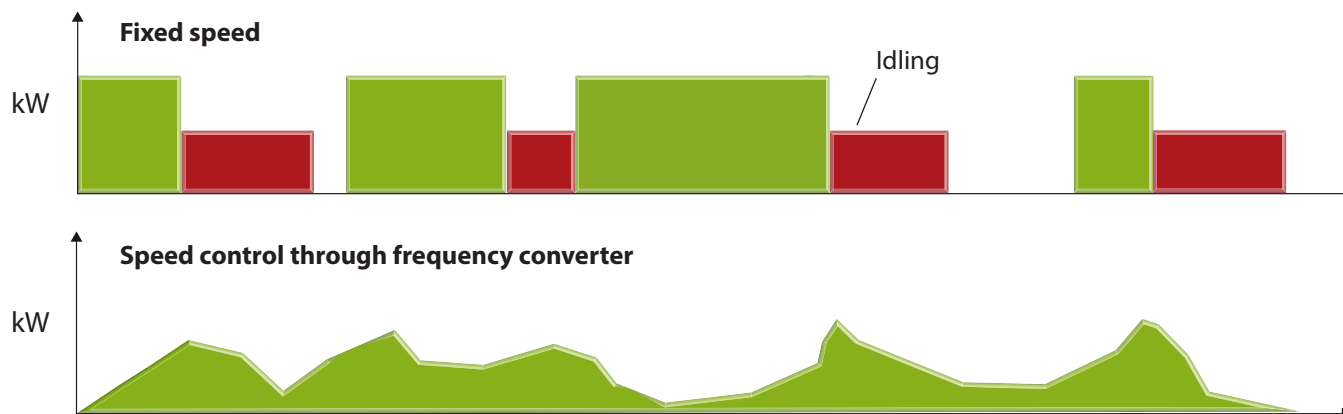


### IT7000 unit features

- ✓ Colour touch screen
- ✓ Czech and Slovak menu
- ✓ 7" display
- ✓ Parameter display and setting
- ✓ Weekly machine schedule
- ✓ Error messages archive
- ✓ Automatic restart

## Speed control through frequency converter

Traditional fixed speed compressors are controlled in working cycles, where the compressor alternates between running under load, running idle, or being stopped. Immediately after start-up, air compression begins and the main motor operates under load. Upon reaching the desired pressure, the compressor switches to idle, where the compressor air end is still rotated by the motor but no air is produced, resulting in energy consumption without output. Although idling facilitates machine restart on one hand, it causes unnecessary energy consumption for several tens of seconds on the other hand, typically amounting to tens of percent of total energy used. Lower air consumption increases idle ratio, presenting opportunities for significant cost savings on produced air and operating expenses.



## Vector-controlled frequency converters

The SCR-APM Mini compressors are equipped with advanced INOVANCE frequency converters, enabling maintenance of required output pressure and adapting drive train speed instantly to compressed air demand. Thanks to this modern compressor control system, idling is significantly reduced, resulting in energy savings of up to tens of percent. Further cost reductions can be achieved by quickly adjusting output pressure and control pressure zone.

The vector-controlled converters used have been developed specifically for screw compressors, offering very high torque at frequencies as low as 0.1 Hz. Conventional frequency converters cannot operate below 5 Hz or are extremely inefficient in this range.

The new generation of INOVANCE vector-controlled converters delivers very high energy efficiency throughout the speed range.



## Operating status indication



The SCR-APM Mini screw compressors feature a clear indication of operating status through bright front panel lighting.

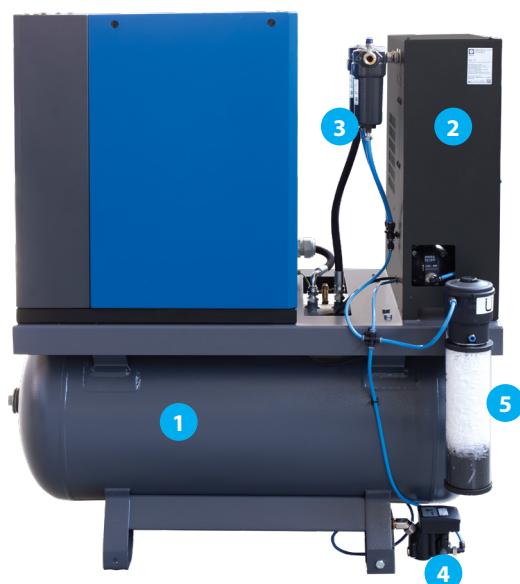
This practical solution allows for instant recognition whether the compressor is under load and producing compressed air or stopped/in relief and not producing air.

- ☒ Compressor is under load and producing air
- ☐ The compressor is stopped or in relief

## TD/FF sets

We offer the SCR-APM Mini series of screw compressors not only in a stand-alone version, but also in practical sets. You can choose either the traditional TD version, which is equipped with an air receiver and a refrigeration dryer, or the FF version, which provides a complete solution for air production and treatment, including condensate management. The set concept makes installation as easy as possible, saves space and provides high-quality air for the supplied equipment and technologies.

- ✓ Installation area of only 0,82 m<sup>2</sup>
- ✓ Extremely fast commissioning
- ✓ Minimal installation costs
- ✓ No costs for certification of the air receiver set
- ✓ Perfect compressed air quality



| Equipment                  | TD | FF |
|----------------------------|----|----|
| 1 Air receiver             | ✓  | ✓  |
| 2 Refrigeration dryer      | ✓  | ✓  |
| 3 pre-filter + microfilter |    | ✓  |
| 4 condensate drain         |    | ✓  |
| 5 water-oil separator      |    | ✓  |

## Dryer

When air is compressed, water vapor contained in the air sucked from the atmosphere into the compressor condenses, forming a liquid emulsion called condensate. Condensate causes corrosion of pipes, parts of pneumatic tools, valves and pistons on production lines and machines, and can also damage final products.

Both versions of the SCR-APM Mini screw compressor assemblies are equipped with RDL condensation dryers with modern ecological refrigerant R513a, ensuring a pressure dew point of +5 °C, to eliminate humidity.



RDL dryers are equipped with their own electronic control unit with a segment display designed for operation control and signaling of operation and alarms.



## Filtration system



The FF version with extended air treatment equipment is equipped with a two-stage filtration system that effectively removes solid impurities and oil from the compressed air.

Thanks to the AAFM pre-filter located between the compressor and the dryer and the AAFS microfilter installed at the machine outlet, the compressor delivers perfectly clean air of class 1-4-1 according to ISO 8573-1 under reference conditions.

## Condensate drainage and separation

The condensate produced during air compression is drained from both filters and the dryer in the FF version using float drains. The condensate drain from the air tank is ensured by an electronic LD drain. The condensate drain is fully automatic and without any loss of produced air.

To drastically reduce the costs of condensate disposal, the FF version of the SCR-APM Mini compressor is equipped with an ecological WOSM separator, which separates oil from water from the condensate. The residual water can therefore be disposed of and the condensate does not need to be disposed of in an expensive manner from an oil management perspective.





## Rent a compressor for 5 years!

Thanks to the SCRent program, you no longer need to invest large sums in purchasing a new energy-efficient compressor. In cooperation with Raiffeisenbank, we offer a modern financing option through a 5-year long-term lease of the machine, with repayment made via monthly instalments.

### Why choose SCRent?

- You can get a **new compressor right away** without having to allocate large sums of money for investment.
- Monthly lease payments are treated as **direct business expenses** and are not depreciated for accounting purposes.
- **Transparent costs for 5 years** - SCRent instalment is "all inclusive" of all compressor expenses except energy.
- And above all, thanks to the modern and energy-efficient machine, **YOU START SAVING ON ENERGY RIGHT AWAY.**



### What does the lease payment cover?

SCRent is a comprehensive financial service that includes all costs related to the operation of the compressor and compressed air treatment technology. The only expense the customer is responsible for is the electricity consumed. **The monthly lease payment is not simply the price of the machine multiplied by 60 instalments; SCRent covers everything you will incur during 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



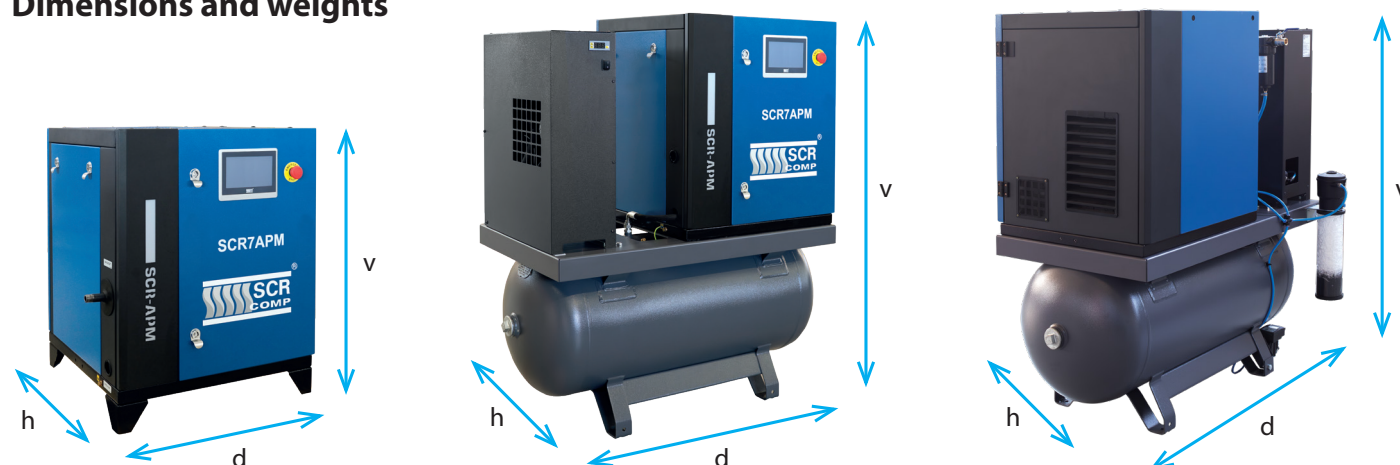
... and **after 5 years you can buy the compressor** at the residual price

## Technical data

### Basic information

| Model       | Power | Max. pressure | FAD output (Nm <sup>3</sup> /h) |      | Output | Ventilation         | Noise level |
|-------------|-------|---------------|---------------------------------|------|--------|---------------------|-------------|
|             | (kW)  | (bar)         | min.                            | max. |        | (m <sup>3</sup> /h) | dB(A)       |
| SCR 3 APM   | 3,6   | 10            | 7,8                             | 19,2 | 1/2"   | 1 600               | 65 ± 3      |
| SCR 4 APM   | 4,7   | 10            | 12,0                            | 30,6 | 1/2"   | 1 600               | 65 ± 3      |
| SCR 5,5 APM | 5,8   | 10            | 16,8                            | 41,4 | 1/2"   | 1 600               | 65 ± 3      |

### Dimensions and weights



| Version | Model       | Tank (l) | Length (mm) | Depth (mm) | Height (mm) | Weight (kg) |
|---------|-------------|----------|-------------|------------|-------------|-------------|
| Base    | SCR 3 APM   | -        | 650         | 600        | 860         | 180         |
|         | SCR 4 APM   | -        | 650         | 600        | 860         | 180         |
|         | SCR 5,5 APM | -        | 650         | 600        | 860         | 180         |
| TD      | SCR 3 APM   | 200      | 1 257       | 655        | 1 364       | 278         |
|         | SCR 4 APM   | 200      | 1 257       | 655        | 1 364       | 280         |
|         | SCR 5,5 APM | 200      | 1 257       | 655        | 1 364       | 280         |
| FF      | SCR 3 APM   | 200      | 1 257       | 781        | 1 364       | 289         |
|         | SCR 4 APM   | 200      | 1 257       | 781        | 1 364       | 291         |
|         | SCR 5,5 APM | 200      | 1 257       | 781        | 1 364       | 291         |

### Other data

|                            |                                                                                                                                        |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Electrical voltage:        | compressor 400V/50Hz/3ph, dryer and condensate drain 230V/50Hz/1ph                                                                     |
| Dryer power:               | SCR 3 APM - 130 W, SCR 4 APM a SCR 5,5 APM - 250 W<br>power is not included in the power in the table for individual compressor models |
| Pressure dew point:        | +5 °C (only for TD and FF versions)                                                                                                    |
| Outlet air quality:        | TD version - class x-4-x, FF version - class 1-4-1 according to ISO 8573-1 under reference conditions                                  |
| Oil content in condensate: | < 20 ppm (FF version only)                                                                                                             |

FAD performance is measured in accordance with ISO 1217 and specified for the maximum pressure of the respective model; further FAD performance values at various frequencies and pressures are available in the technical data-sheets upon request. Noise level is given at 1 meter from the machine.



**www.scr-kompresory.cz**

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