

Invented for life



A/C system defective? Stay cool!

Bosch components for the professional repair
of air conditioning systems



A/C components

Overview

With its extensive range of A/C service units, Bosch is already a competent and reliable partner for the workshop when it comes to maintaining A/C systems. To support workshops also in the event of repairs, Bosch offers not only A/C compressors and condensers, but also dryers and evaporators, as well as expansion valves and pressure sensors.

A/C supports driving comfort and safety

Air conditioning systems used to be reserved mainly for vehicles in the luxury class. Meanwhile they became standard equipment in most vehicles. Well-maintained air conditioning systems not only ensure pleasant temperatures and relaxed driving. They also prevent fogged windows and thus contribute to better visibility.

Reliable and long lasting

Bosch A/C components undergo stringent endurance and leak tests before being included in the program. The result are products of proven Bosch quality with high reliability and a long service life.

Thermal management know-how

The thermal management system in the vehicle ensures that components operate in the optimal temperature range and that the temperatures are comfortable for the occupants inside the cabin. In-depth knowledge of thermal systems in vehicles, decades of development and manufacturing experience as well as an extensive range of spare parts make Bosch an experienced partner in this field. As a contribution to efficient and economical mobility, Bosch is developing further thermal management products for the original equipment of hybrid and battery-electric vehicles.



Compressor and pressure sensor

Product details



	Compressor	Pressure sensor
	As the heart of the closed air conditioning circuit, the compressor ensures a well-functioning air conditioning system. Bosch A/C compressors reliably pressurize and circulate the refrigerant in the system. They are available for refrigerants commonly used on the market.	Bosch pressure sensors for A/C circuits precisely measure and regulate the refrigerant pressure in high- and low-pressure lines. This ensures optimal function of the air conditioner and protects the system from damage caused by incorrect pressure conditions.
Version	Piston compressors (variable or fixed displacement); rotary vane compressors; scroll compressors (also electric)	Mechanical; electronic; with integrated temperature measurement
Applications		
Advantages at a glance	■ Reliable performance and long service life through rigorous endurance and leak testing based on the high Bosch quality standards ■ Easy installation due to precise fit and prefilling with oil ■ Protected and safe delivery in reinforced and robust packaging ■ Comprehensive assistance during installation by multilingual service instructions	■ Precise measurement performance thanks to strict pressure and leak tests before being added to the product range, based on Bosch's high quality standards ■ Easy installation due to precise fit and delivery with O-rings ■ Suitable for the respective application, as they are available in mechanical or electronic versions, as well as with integrated temperature measurement



Workshop tip

Correct oil quantity when replacing the compressor

All Bosch compressors are pre-filled with oil. Before installing the new compressor, the oil quantity may need to be slightly adjusted, depending on the total amount of oil in the A/C system.



Scan the QR code for more information.



Accessory drive

Bosch offers a **comprehensive range of V-belts and ribbed V-belts** to drive the compressor.



Condenser and dryer

Product details

Also available for hybrid and battery-electric vehicles



	Condenser	Dryer
	The condenser is an important component of the closed air conditioning system. As so-called heat exchangers, the Bosch condensers liquefy the hot refrigerant coming under high pressure from the compressor with the help of the airstream. They are available in different designs to fit the respective vehicle.	As a filter element of the air conditioning system, the dryer protects the components of the air conditioning circuit from corrosion and damage. Bosch dryers reliably remove moisture and impurities from the refrigerant and are available in different variants.
Version	Without integrated dryer; with integrated dryer	Separate dryer; filter element for the integrated dryer
Applications		
Advantages at a glance	■ Reliable performance and weather resistance through stringent leakage and corrosion testing based on the high Bosch quality standards ■ Easy installation due to precise fitting connections for the respective application ■ Protected delivery and space-saving storage in tight and customized packaging ■ Comprehensive assistance during installation by multilingual service instructions	■ Reliable filter performance and a long service life through stringent performance and leak tests based on the high Bosch quality standards ■ Easy installation due to precise fitting connections ■ Suitable for the respective applications due to different designs ■ Comprehensive installation support by multilingual service instructions available online



Engine cooling fans

The extensive range of thermal components from Bosch also includes engine cooling fans for reliable air flow through the radiator. They **prevent the vehicle engine from overheating** – even at low speeds.



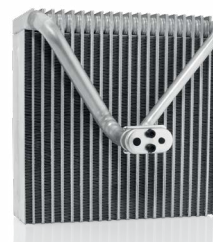
Workshop tip

After opening the air conditioning circuit, it is strongly recommended to change the dryer.

Since the dryer absorbs moisture from the ambient air when it is opened, it quickly becomes saturated and can no longer fulfill its filter function in the system.

Expansion valve and evaporator

Product details



	Expansion valve	Evaporator
	Bosch expansion valves regulate the refrigerant flow depending on the temperature and supply the required amount of refrigerant to the evaporator. The regulation element between the high and low pressure side ensures optimum cooling performance of the evaporator. Depending on the vehicle, the program includes different types of valves.	Bosch evaporators reliably provide a pleasant cooling of the vehicle interior. With their large surface area, they ensure the exchange of thermal energy between the ambient air and the refrigerant. Cold air as a result of evaporative cooling is then transported into the vehicle interior via the cabin blower.
Version	Expansion valve; orifice tube	—
Applications		
Advantages at a glance	■ Long service life and precise regulation of the refrigerant flow through leakage and tolerance testing based on the high Bosch quality standards ■ Easy installation due to precise fitting connections ■ Suitable for the respective applications due to different designs ■ Comprehensive installation support by multilingual service instructions available online	■ Reliable performance and a long service life through stringent leakage and endurance testing based on the high Bosch quality standards ■ Easy installation due to precise fitting connections for the respective application ■ Protected delivery and space-saving storage in customized packaging ■ Comprehensive installation support by multilingual service instructions available online



Cabin filters

For the best possible air quality in the vehicle interior each air conditioning service should include a **replacement of the cabin filter**. In addition, Bosch recommends changing the cabin filter once a year or every 15,000 km.

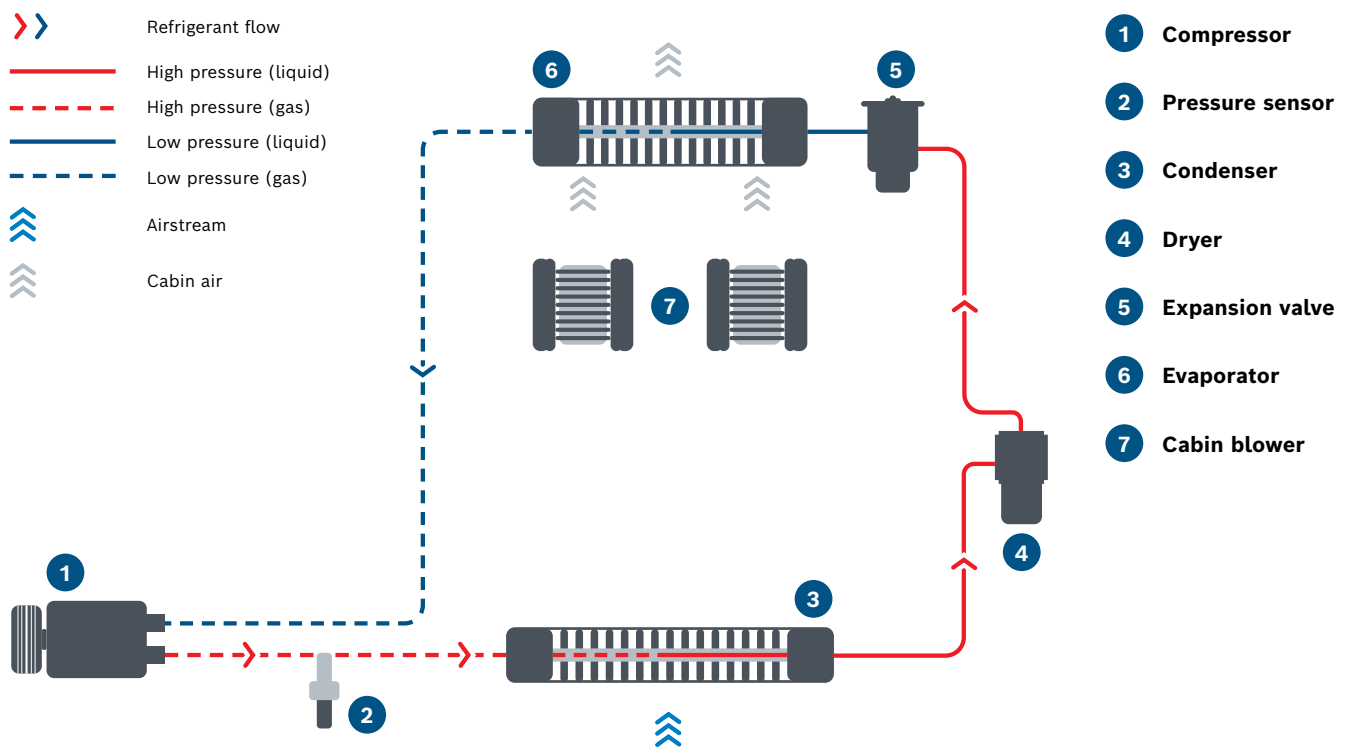


Cabin blower

As a supplement to thermal management, Bosch cabin blowers ensure **reliable ventilation** of the vehicle interior.



Air conditioning Technology



Function of the air conditioning system

When the air conditioning system is activated while the engine is running, the belt-driven **compressor (1)** starts compressing the gaseous refrigerant within the closed air conditioning loop.

Monitored by the **pressure sensor (2)**, which ensures the correct operating pressure, the gas heats up and enters the **condenser (3)** under high pressure. There, it is cooled by the passing outside air and condenses.

Any water or impurities introduced into the liquid refrigerant are then removed in the **dryer (4)**.

From the dryer, the liquid refrigerant, which is under high pressure, is injected through a narrow **expansion valve (5)** into the **evaporator (6)**. Here it expands and starts to evaporate already at low temperatures.

The heat required for the evaporation process is extracted from the passing air and cools it down. Since cold air can bind less moisture than warm air, condensation forms on the fins of the evaporator, which is conducted to the outside through a hose. This explains puddles of condensation water under parked vehicles.

The **cabin blower (7)** then conveys the cold air into the interior of the vehicle. The compressor sucks in the gaseous refrigerant again and the cycle starts all over again.



Workshop tip

If the compressor fails, flushing the air conditioning system is the first thing to do. This removes foreign particles from the system that could impair efficient operation. For this purpose, Bosch offers a flushing kit in its accessory program that was developed together with the most important vehicle manufacturers.



A/C service units

Product details

Air conditioning systems in vehicles require regular maintenance. Thanks to Bosch A/C service units with up to 99 % recovery rate, servicing R1234yf and R134a air conditioning systems is easy and efficient. The fully automatic devices are suitable for both passenger cars and commercial vehicles and are compatible with hybrid and battery-electric vehicles.



Advantages at a glance:

- **Quick and easy access** to all internal parts thanks to the maintenance-friendly design
- **Can be retrofitted as required** thanks to the various optional retrofit kits and accessories, such as the flushing kit
- **High safety and reduction of the risk of overpressure** due to the electronic control of the internal foreign gas outlet
- **Always up to date** thanks to regular database updates



Comprehensive range of accessories

For a professional air conditioning service Bosch offers an extensive range of accessories. These include, among others:

- O-ring kits
- Adapter kits
- Leak detection kits
- Flushing kits
- Valve sets
- Different oils



What drives you, drives us

Bosch technologies are used in most vehicles worldwide.
People, and assuring their mobility, is what we are focused on.

Therefore, we have dedicated over 130 years of pioneering spirit
and expertise in research and manufacturing to achieving this.

We provide the aftermarket and workshops worldwide with modern diagnostic and workshop
equipment and a wide range of spare parts for passenger cars and commercial vehicles:

- solutions for efficient vehicle repairs
- innovative workshop equipment and software
- one of the world's most comprehensive ranges of new and exchange parts
- large network of wholesale customers, for quick and reliable parts supply
- competent hotline support
- comprehensive educational and training offers
- targeted sales and marketing support

Find out more at:
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