10 YEARS FOR OUR CUSTOMERS

Behr Hella Service was founded in late 2006 as a joint venture between Behr and HELLA: indeed a successful model which, within 10 years, was able to claim and maintain its position as a leading supplier of products for engine cooling and vehicle air-conditioning in the global independent aftermarket. Our global network of warehouse resources and logistics guarantees permanent availability and punctual delivery at all times.

Everything from a Single Source  
A vast selection of top-quality articles demonstrates our strength as a one-stop shop for thermal management supplies. Behr Hella Service thus offers a performance package that elegantly combines expert OEM proficiency with a complete product portfolio.

Confidence Secured by Service  
Our services for our customers are practical and comprehensive. They allow dealers and garages in the independent aftermarket in particular to benefit from our expert technical support and versatile sales support.
With the help of this brochure, you, in your role as a wholesaler, will be able to answer all the important questions asked regarding the subject of thermal management easily.
TABLE OF CONTENTS

CONTENTS

VISCO® 6
Why is it important to store VISCO® products in the correct way? 6

COOLING SYSTEM 7

COOLANT RADIATORS 7
Why do sometimes two different versions of a radiator exist for one vehicle model? 7
Why does a cooling system need antifreeze/additives even in the summer and can such substances be mixed together? 8

BLEEDING THE COOLING SYSTEM 8
What is the correct and professional way of bleeding the cooling system? 8

FLUSHING THE COOLING SYSTEM 8
When and how must the cooling system be flushed? 8

TIMING BELTS AND COOLANT PUMPS 9
Is it not enough to simply replace the timing belt? 9
When changing the timing belt, why does it also make sense to renew the coolant pump at the same time? 10
Can I just replace the coolant pump on its own? 10
When replacing the timing belt and the pump, do I also have to check peripheral devices? 10

CHARGE AIR COOLER 11
What must I bear in mind when replacing a charge air cooler? 11
# AIR-CONDITIONING SYSTEM

## AIR-CONDITIONING COMPRESSORS
12

- Why is it not enough to just replace the compressor? 12
- Can Behr Hella Service compressors be installed without checking the oil level? 13
- How do I check the oil level in the compressor and then how do I fill it with the right amount of oil? 13
- Why does the system have to be flushed when a compressor is replaced? 14
- How is the new compressor put into operation? 14
- Where do I find out about the oil filling quantity necessary for an air-conditioning system? 15
- Where can I find the correct oil specification for my air-conditioning system? 15
- What are the significant advantages gained by using our PAO-Oil 68? 16
- Where do I find information on replacing the compressor? 17
- Why does the compressor make noises although I have flushed the system and replaced the expansion valve and the filter dryer? 18
- How can I know if the overload safety device of a clutchless compressor has been triggered? 19
- Why run checks on the peripheral devices of the compressor drive? 19

## FILTER DRYER/ACCUMULATOR
20

- Why does the filter dryer/accumulator have to be changed? 20
- When should the filter dryer/accumulator be replaced? 21
- What do I have to pay attention to when it comes to vehicles with a condenser module (condenser and dryer form one unit)? 21

## AIR-CONDITIONING SERVICE
22

- What exactly is an air-conditioning "check" and an air-conditioning "service"? 22
Why is it important to store VISCO® products in the correct way?

➔ If these are not stored or transported as directed, there is a real risk that the silicone oil in the clutch will leak. Escaping silicone oil can lead to an inoperative clutch. Therefore we strongly recommend that the storage and transport instructions on the packaging are strictly observed.
Why do sometimes two different versions of a radiator exist for one vehicle model?

➔ It depends on the transmission of the vehicle (manual/automatic) and that is why different radiators for one vehicle model appear in our portfolio.

➔ In addition – regardless of the transmission type – sometimes there are also alternative products on offer parallel to the Behr Hella Service original parts. These make up the inexpensive alternative.
Why does a cooling system need antifreeze/additives even in the summer and can such substances be mixed together?

→ Antifreeze does not only protect against frost but also against overheating. Additives, on the other hand, provide protection for the engine and cooling system components against limescale deposits and corrosion. Mixing different types of antifreeze together can cause damage in the cooling system. For this reason it is very advisable always to use the antifreeze specified by each individual vehicle manufacturer.

BLEEDING THE COOLING SYSTEM

What is the correct and professional way of bleeding the cooling system?

→ After completion of repair work, a vacuum filling unit checks the cooling system to make sure it is airtight and then refills it, also ensuring that it is free of air bubbles.

FLUSHING THE COOLING SYSTEM

When and how must the cooling system be flushed?

→ Whenever contamination is detected in the cooling system (lime, corrosion, oil, sealant), it is imperative to flush the system before any new components are installed. Depending on the level of contamination and on the specifications of the vehicle manufacturer, the cooling system is to be flushed either with water or with a chemical solution.
TIMING BELTS AND COOLANT PUMPS

Is it not enough to simply replace the timing belt?

➔ It is also necessary to renew tensioning, guiding and deflection pulleys so that the timing belt is kept under constant tension under all operating conditions.

➔ The running of all components making up the belt drive is synchronised to bring about a smooth performance. If not all the components are renewed, premature failure of the system could result and even engine damage.
When changing the timing belt, why does it also make sense to renew the coolant pump at the same time?

➔ The timing belt also often drives auxiliary units such as the coolant pump. Should the coolant pump break down after a timing belt has been changed, it would then be necessary to once again dismantle the belt drive.

➔ A coolant pump only has a limited service life. If it fails, the result is inevitable overheating of the engine. There is the danger of damage occurring to the belt drive and to the engine.

➔ The flank clearance or backlash of the gear wheel of a used coolant pump can cause excessive wear and tear on a new timing belt.

➔ Renewing a coolant pump as part of the operation to replace a timing belt is also specified by many vehicle manufacturers.

Can I just replace the coolant pump on its own?

➔ When replacing a defective coolant pump powered by a timing belt, it is not enough just to renew the pump. The timing belt with all the tensioning and guiding pulleys should also be replaced. This ensures that there will not be any premature failure of other components.

When replacing the timing belt and the pump, do I also have to check peripheral devices?

➔ All peripheral devices such as flat belts with clamping elements, alternator freewheel clutches and torsional vibration dampers should all definitely be checked. Vibration caused, for example, by “flapping” flat belts or defective vibration dampers can be transferred to the timing belt drive, a situation which can then cause premature failure.
CHARGE AIR COOLER

What must I bear in mind when replacing a charge air cooler?

➔ In the event of a mechanical defect in the turbocharger, metal chips or oil can collect in the charge air cooler. If just the turbocharger is replaced, there is a risk that chips or oil will then be sucked into the combustion chamber. This can lead to engine damage.

➔ In the course of replacing a charge air cooler and a turbocharger, it is vitally important to identify the cause of the damage. Otherwise the turbocharger could once again fail within a very short space of time.

➔ The checking / renewing of the following peripheral devices is stipulated by vehicle and component manufacturers:
   a) Air intake hose
   b) Air filter
   c) Control and change-over valves
   d) Vacuum lines
   e) Feed and return pipes for turbocharger’s oil supply
AIR-CONDITIONING SYSTEM

AIR-CONDITIONING COMPRESSORS

Why is it not enough to just replace the compressor?

➔ In addition to the compressor, it is absolutely essential that other components such as the filter dryer/the accumulator, expansion valves/throttle valves and also the O-rings are replaced. Compressor oil is also needed. When these instructions are not observed, there is no warranty on the products!

➔ Flushing is compulsory! Prior to installation, the system has to be flushed. The reasons for this are the presence of chips and possible contamination. And also the requirement specifying the correct amount of compressor oil necessary. When these instructions are not observed, there is no warranty on the products!

➔ Our tip: Fit a filter sieve in the intake pipe before installing the new compressor. This prevents any possible remains of chips or traces of contamination from entering the compressor.
Can Behr Hella Service compressors be installed without checking the oil level?

Irrespective of the delivery state of the compressors, the oil filling level must be checked for every compressor before installation in the vehicle and, if necessary, corrected according to the manufacturer’s specifications and enclosed documentation. The reason for this is that it is not only possible to use many types of compressors in just the one vehicle but also in a wide range of different vehicles and vehicle models. The appropriate oil quantity must then be adapted accordingly.

Vehicles fitted with two evaporators instead of one often use the same air-conditioning compressor but they need more oil in the refrigerant circuit. The oil level has to be adjusted to suit the intended use.

How do I check the oil level in the compressor and then how do I fill it with the right amount of oil?

The oil in the new compressor is to be emptied via the opening of the previously removed drain or filling screw. To this end, the compressor shaft must be turned multiple times. The compressor is then refilled with the complete oil filling amount for the system as specified by the vehicle manufacturer. At the same time, care is to be taken to select the correct oil viscosity. The compressor shaft should be turned several times to ensure even distribution of the oil. Finally the drain/filling connection on the compressor is to be closed again. The individual specifications of the documentation accompanying the compressor are to be observed separately.

Important
In the case of compressors without a drain/filling screw, the oil must be drained using the high and low pressure connection on the compressor and filled using the low pressure connection. Here, too, the compressor shaft has to be turned.
Why does the system have to be flushed when a compressor is replaced?

→ Since system contamination (abrasion, chips, contaminated oil) must always be assumed in the case of a compressor fault, it is absolutely essential that the system be flushed. Contaminants are thus removed and the risk of a renewed compressor fault reduced.

→ In addition to this, flushing results in all oil being removed from the remaining components (lines, evaporator, condenser). Only in this way can the correct quantity of system oil be reset when installing the new compressor.

How is the new compressor put into operation?

→ In order to avoid damage, the new compressor should be put into operation in the following way:
  • Let the motor run for at least 2 minutes with the air-conditioning system switched off
  • Set the air distribution to "centre vents" and open vents
  • Set the switch for the fresh air fan to medium
  • Set the temperature to maximum cooling
  • Turn on the air-conditioning system at idle speed for approximately 10 seconds
  • Switch the air-conditioning system off for approximately 10 seconds
  • Repeat switching on and off at least 5 times
  • Check system pressures and exhaust temperature of air being blown out according to the specifications of the vehicle manufacturer
Where do I find out about the oil filling quantity necessary for an air-conditioning system?

➔ Information on the oil filling amount required for the system can be found in the following places:
  • Technical documentation provided by the vehicle manufacturer
  • Behr Hella Service “Filling Quantity Manual”
  • Technical documentation issued by data providers (e.g. Hella Gutmann, Autodata)
  • “Compressor App” from Behr Hella Service

Where can I find the correct oil specification for my air-conditioning system?

➔ The information on the correct oil specification for your air-conditioning system can be found in the following places:
  • Technical documentation provided by the vehicle manufacturer
  • Behr Hella Service “Filling Quantity Manual”
  • Technical documentation issued by data providers
  • Service organisation of the vehicle manufacturer
  • “Compressor App” from Behr Hella Service
  • Catalogue documentation of Behr Hella Service (print version)
  • TecDoc (under Product Information)
  • Behr Hella Service / HELLA online catalog
What are the significant advantages gained by using our PAO-Oil 68?

➔ PAO-Oil 68 is not hygroscopic, i.e. unlike other oils, it does not absorb moisture from the ambient air. => Opened containers (as long as they are once again closed tight) can be kept and used for a longer time. There is less waste.

➔ PAO-Oil 68 can be used as an alternative to the various PAG oils that are on offer for R134a. As a result, in most cases you only need to stock one type of oil instead of three different PAG oils. Furthermore, the risk of filling the wrong PAG oil with the wrong viscosity in the air-conditioning system becomes much slighter. PAO-Oil 68 has proven itself over more than 10 years’ practical use and contributes to increased air-conditioning performance.

➔ Because PAO-Oil 68 only minimally combines with the refrigerant, just a small part of the oil circulates through the system. The rest stays where the oil is actually needed – in the compressor.
Where do I find information on replacing the compressor?

→ Information on replacing the compressor can be found in the following places:
  • A print version of the package leaflet is included with every compressor
  • TecDoc (under Documents/Service Information)
  • Behr Hella Service catalogue / HELLA online catalog (under Documents/Service Information)
  • HELLA service hotline
  • Hella TechWorld (www.hella.com/techworld)
Why does the compressor make noises although I have flushed the system and replaced the expansion valve and the filter dryer?

There can be a number of causes for the noises.

A) Excessive system pressure in the refrigerant circuit caused by
   • a defective radiator fan / condenser fan or its control system
   • a blocked or insufficient air flow/cooling of the condenser (dirt, malfunctioning fins, internal blockages)
   • a damaged hose / damaged pipes
   • overfilling/underfilling of the system with oil
   • overfilling/underfilling of the system with refrigerant

B) Damaged compressor fastening caused, for example, by
   • a broken or warped bracket
   • missing or loose fixing screws
   • the use of the wrong or inadequate tightening torque for the fixing screws, which can also cause noise

C) Transmission of noise from the belt drive (generally a consistent noise) caused, for example, by
   • antiquated and/or damaged V-belts
   • defective tensioner pulleys, deflection rollers or clamping devices

D) Transmission of noise from the tube or hose lines to the vehicle chassis and/or other components as a result of incorrect laying

Important
In the case of compressors without a drain/filling screw, the oil must be drained using the high and low pressure connection on the compressor and filled using the low pressure connection. Here, too, the compressor shaft has to be turned.
How can I know if the overload safety device of a clutchless compressor has been triggered?

➔ No frictional connection between the pulley and the compressor shaft

➔ Check the pulley unit for any damage:
  a) Rubber components distorted/torn off
  b) Driver plate deformed/damaged
  c) Rivets/screws sheared

Why run checks on the peripheral devices of the compressor drive?

➔ Defective peripheral devices such as a clamping arm, tensioner pulleys, torsional vibration dampers or an alternator freewheel clutch can be the cause of a compressor failure. Therefore when a compressor is being replaced, these parts, too, have to be checked and then renewed where appropriate.
FILTER DRYER/ACCUMULATOR

Why does the filter dryer/accumulator have to be changed?

➔ The dryer/accumulator draws out moisture and particles of dirt from the air-conditioning system as a means of protecting it from any damage and of guaranteeing optimal cooling capacity.

➔ The absorbing capacity of the desiccant material in the filter/accumulator is limited. If this becomes saturated, the high water content in the system leads to the start of corrosion. Excessive wear and mechanical damage are then inevitable. There is the danger of the expansion valve becoming iced up. The presence of too much moisture negatively affects the power and performance of the air-conditioning system.
When should the filter dryer/accumulator be replaced?

➔ The dryer/accumulator always has to be renewed when the system is opened (replacement of components).

➔ If accidental damage has occurred to the air-conditioning system or if the system starts to leak, then, in such situations, the dryer also has to be replaced as part of the repair work.

➔ Even in the case of an intact air-conditioning system, the saturation level of the dryer/accumulator is usually reached after 2 years. Consequently it should be replaced at 2-yearly intervals.

What do I have to pay attention to when it comes to vehicles with a condenser module (condenser and dryer form one unit)?

➔ When replacing the dryer element, it has to be ensured that no refrigerant is any longer in the system (danger of accident).

➔ In some modules the dryer cannot be replaced as a separate entity. In such cases it is only possible to replace the complete condenser with its integrated dryer.
What exactly is an air-conditioning "check" and an air-conditioning "service"?

- An air-conditioning "check" or air-conditioning "test" ought to be carried out on a passenger car every year. It includes the checking of certain fixed parameters (high pressure, low pressure, exhaust air temperature) and also a visual inspection of the air-conditioning components. Depending on the extent of the inspection, the "check"/"test" can also involve the replacing of the cabin filter and the disinfecting of the cabin.

- An air-conditioning "service" or air-conditioning "maintenance" should be carried out on a passenger car every 2 years. As well as the points making up the air-conditioning "check", this service also covers the replacing of the refrigerant, the cabin filter and, if necessary, the dryer/accumulator. Furthermore, a leakage test is performed and, where appropriate, the cabin is disinfected.