THE THERMAL MANAGEMENT EXPERTS FOR CARS AND COMMERCIAL VEHICLES

Why Behr Hella Service?
Behr Hella Service - Engine Cooling and Air Conditioning for Passenger Cars and Heavy Duty Trucks

With more than 1000 quality parts, Behr Hella Service offers a wide range for European cars and Heavy Duty Trucks.

Our customers benefit from the combined expertise of BEHR and HELLA. Over 100 years of technical knowledge, quality focus and unparalleled service.

This means, an ideal combination of products and service for your business. HELLA’s Sales organization plus BEHR’s extensive OE product knowledge form Behr Hella Service.
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Important notice:
Only the use of coolant approved by the manufacturer can be used to fill the engine cooling system. Additionally if the use of a radiator-sealing compound is detected during the inspection of a complaint, the complaint will be rejected.

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Information importante:
Utiliser uniquement le liquide de refroidissement préconisé par le constructeur. De plus, s’il est avéré lors du traitement d’une garantie qu’un liquide de colmatage a été utilisé, la garantie sera refusée.

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Aviso importante:
Sólo se pueden introducir refrigerantes certificados por parte del constructor en el sistema de refrigeración. En caso de reclamación, si se detecta que se había utilizado un aditivo antifuga, quedará automáticamente rechazada la garantía.
OE CUSTOMERS
FOR PASSENGER CARS

No one in the industry has a higher concentration of original equipment thermal products for European passenger car applications in the independent aftermarket. Behr Hella Service is the global aftermarket solution for BEHR original product. Here are some of their OE customers.

AUDI • BMW • FORD • GENERAL MOTORS • LAND ROVER • MERCEDES BENZ • NISSAN • PORSCHE • VOLKSWAGEN • VOLVO
OE CUSTOMERS FOR COMMERCIAL VEHICLES

Behr Hella Service not only provides superior quality products into the automotive sector, but has a wide range of HVAC & engine cooling replacement parts for the global truck sector too. With over 200 part numbers offering OE quality and perfect fit solutions for US domestic applications available in the aftermarket, you’ve got the definition of success! Here are some of BEHR’s OE customers.

DODGE • FORD • FREIGHTLINER • MACK • NAVISTAR / INTERNATIONAL • STERLING • VOLVO
BEHR quality, exclusive from Behr Hella Service in the independent aftermarket.

BEHR — an experienced systems partner to the international automotive industry. Quality since 1905.
Through its renowned expertise as an original equipment manufacturer, BEHR has produced genuine quality products for more than 100 years, offering optimal safety through the use of cooling system products. BEHR components are matched to each other perfectly and achieve unsurpassed cooling efficiency. For instance, they not only protect the engine against costly damage caused by overheating but also ensure optimum performance, environmental sustainability and engine service life. BEHR’s many years of experience and extensive expertise guarantee the exceptional quality of all its products.

Leading research and development expertise for well-engineered system components.
BEHR’s success is founded on innovation. The far-reaching research and development form the basis of this success, enabling BEHR to develop innovative and high-quality products. The latest software during product development helps establish performance, reliability and quality as the key factors. This continues as part of extensive testing under real-life conditions that are carried out using in-house testing facilities such as an engine test station or the state-of-the-art climatic wind tunnel.

Innovative production expertise.
BEHR guarantees the ultimate quality of all its products through company-wide advanced production technologies. High-accuracy development delivers precise accuracy of fit for all BEHR components. Comprehensive quality assurance systems also ensure the durability and reliability of all products.
Testing for leaks on the finished product.

Modern manufacturing technologies.

Product testing in the climatic wind tunnel.
Behr Hella Service uses the best network for distribution

All of these locations are part of one of the world’s largest and oldest dealer organizations in the vehicle component industry. Behr Hella Service has access to this organization thanks to its strong partnership. HELLA is a globally positioned, independent family company with more than 100 locations in over 35 countries.

The continuous high availability of all parts and speed, care and reliability are aspects that appeal to aftermarket retail and garages alike. Flexible and custom delivery arrangements provide the finishing touch on the portfolio for meeting the needs of the customer and the market at all times.

The HELLA network strategy: Stronger together
HELLA uses its own special network strategy to pursue the goal of creating increased customer benefits using suitable partners and supplementary fields of expertise. This allows us to attain clear win-win solutions for partners, customers and HELLA itself. Since we began using the network strategy in the 90s, it has allowed us to develop an array of cooperations and joint ventures around the world. Together, these generate more than 2 billion euros in sales and—in the Thermal Management area—ensure far-ranging knowledge and comprehensive expertise.
1. BEHR Head Office. Troy, MI
2. Dayton, OH
3. Charleston, SC
4. Main Distribution Center. Fort Worth, TX
5. HELLA/BHS Sales Company. Peachtree City, GA
Air-conditioning circuit

The individual components of the refrigerant circuit are connected by pipes and hoses and therefore constitute a closed system.

The refrigerant circulates through the system and is driven by the compressor. The circuit has two sides:
- The section between the compressor and the expansion valve is the high-pressure side (yellow/red).
- The section between the expansion valve and the compressor is the low-pressure side (blue). The gaseous refrigerant is compressed in the compressor, thereby increasing its temperature significantly.

It is forced through the condenser under high pressure. This removes heat from the strongly heated refrigerant, which causes the refrigerant to condense, i.e. it changes state from gas to liquid.

The filter dryer - the next station - removes contaminants and air from the refrigerant (now a liquid). This ensures the effectiveness of the system and protects the components from damage caused by contaminants.
There, you can find an interactive design of all components and function circuits related to vehicle air conditioning and engine cooling, including visuals like images capable of being rotated 360° and exploded detailed views. There is also more detailed information on passenger cars and commercial vehicles as well as practical instructions for any malfunctions and their remedy.
The engine cooling system is designed to cool the engine by dissipating heat to the external air. The running engine also generates heat that can be used to heat the interior of the vehicle. The engine cooling system and the air-conditioning system are two separate systems, but systems that interact.

The individual components of the cooling circuit are connected to each other through hoses, forming a closed system. The coolant circulates in the system and is driven by a mechanical or electric pump. The heat generated and transferred to engine components when burning fuel is passed to the coolant.

Circulating the coolant conveys the heat to the external air, cooling off the coolant in the process. One or more fans (mechanical or electrical) can be installed in front of or behind the radiator and support the cooling process. This is especially common when driving at low speeds and when the vehicle is stationary.

The flow of coolant is controlled by a thermostat to maintain a relatively constant temperature in the coolant and engine.
1 Interior fan
2 Cabin heat exchangers
3 Electric heating valve
4 Coolant pump
5 Coolant control unit
6 Radiator fan
7 Coolant radiator
Nothing substitutes for high quality. Except even higher quality.

Not all radiators are alike. Cheap imitations may look like a good alternative, but in the complex cooling systems of modern engines, there may be great differences compared to original equipment quality radiators.

And some of them may have a dramatic impact. High-quality radiators feature sufficient power reserves in terms of flow rate and heat dissipation. Up to a certain point, they can compensate for age-related phenomena such as reduced flow caused by deposits or a drop in efficiency due to contaminated surfaces. Cheap imitations, by contrast, frequently reach their performance limits far earlier. This is due to savings in material or design flaws – turbulence inserts, for example, which are not visible from the outside but often installed in original equipment quality radiators, are often missing.

Seals

Seals are critical for avoiding a loss of coolant. High-quality radiators therefore feature durable, resistant seals.

Competitors

Poorly fitted seals result in a loss of coolant and may crack when the material becomes brittle. Both may be the result of cost savings during production.

Radiator tank

The radiator tank is the gateway to the coolant radiator. Only with premium materials can a long design life be guaranteed.

Competitors

Cheap imitations often use cheaper plastics, which tend to break and become leaky more quickly.

Side panels and bottom

A premium radiator also has a premium frame: all the components in high-quality radiators guarantee durability and stability.

Competitors

Design flaws in cheap imitations can frequently be seen not just in the materials used but also in an insufficiently accurate fit of the individual components.
Especially in “full load operation” (for example with heavy loads/high tonnage or on ascents), cheap imitations may cause the engine to overheat. The consequences then range from vehicle failure due to loss of coolant all the way to serious engine damage, which in turn is associated with complex overhauls, unnecessary downtime and high costs.

The use of “substandard” materials can lead to premature material fatigue (in the form of leaks caused by cracks, all the way to damage to the radiator tank or the coolant circulation). Unsuitable materials are also less resistant to salt water and corrode faster. If the radiator fins break away as a consequence, the inevitable result is poorer heat dissipation and the associated risk of overheating.

**Flow and heat dissipation**

Up to a certain level, high-quality radiators can even compensate for age-related phenomena (such as reduced flow caused by deposits or a drop in efficiency due to contaminated surfaces).

Cheap imitations frequently reach their performance limits far earlier. This is due to material savings and design flaws.

**Cooling fins (block)**

Premium radiator blocks feature materials which are resistant to corrosion and salt water. For durable, consistent cooling performance.

An insufficient resistance to salt water accelerates corrosion and thus the loss of radiator fins – in turn resulting in poorer heat dissipation.

**Cooling pipes**

To improve cooling performance, coils, wave-shaped bent strips or other specially developed structures made of aluminum or plastic (known as turbulence inserts), can be pushed into the pipes.

Cheap imitations frequently do without turbulence inserts – which can significantly reduce their cooling performance.
The true value is often hidden below the surface – and this is also true of thermal management. Turbulence inserts can be used in lots of different forms in coolant radiators, heat exchangers and charge air coolers. They are often invisible from the outside, because they are inserted into the pipes of a radiator and perform their work unseen. Greater motion ensures better cooling. Inside mechanically joined radiators, these turbulence inserts, e.g. coils, wave-shaped bent strips or other specially developed structures made of aluminum or plastic, are pushed into the cooling pipes. By contrast, punched aluminum strips are used in the case of soldered radiators. In both cases, the use of turbulence inserts makes the coolant “swirl” in the pipes, potentially increasing cooling performance.

The BEHR pinched tube extrusion design has distinct advantages:
- Increased cross section for additional volume
- Additional cooling surface / reduce air turbulence
- Rigid design providing additional strength
If a commercial vehicle driver notices one or more of the following issues in his vehicle, the cause may be a substandard radiator spare part:

- **Higher fuel consumption in the full-load range**
  Possible cause: due to poor cooling performance, the engine is not running in its ideal thermal range.

- **The fan starts up excessively often**
  Possible cause: relatively weak cooling performance (with noticeable impact on acoustics and fuel consumption).

- **Speed must be reduced frequently to return the engine to its normal temperature range**
  Possible cause: the cooling system is operating with reduced efficiency. Insufficient engine cooling must be compensated for with an adapted driving style.

- **Retarder switches off by step frequently or its performance is considerably reduced; the service brake is put under greater stress**
  Possible cause: coolant temperature is no longer in optimum range, the retarder oil can thus no longer perform its cooling function sufficiently.

- **Cooling performance is frequently less than ideal**
  Possible cause: installed components have reached their performance limits and reduce the efficiency of the cooling system (with potentially increased engine wear).
CUTTING EDGE INNOVATIONS

PTC Auxiliary Heater

Due to the high efficiency of modern direct injection engines, diesel and petrol, the engine waste heat is often not sufficient on cold days for quickly heating the passenger compartment. Driving safety is also impaired as the windshield may fog. To eliminate the heating deficit, BEHR is developing three kinds of auxiliary heaters: electric PTC heaters and CO2 heat pumps for spontaneous heating of the supply air and exhaust gas heat exchangers for faster heating of the coolant.

“PTC” stands for positive temperature coefficient, i.e. the electric resistance increases with the temperature of the element. However, this is not strictly true, because its resistance initially decreases with increasing temperature.

STRUCTURE AND FUNCTION

The PTC heater consists of several heating elements, an attachment frame, an insulating frame and the relays or the power electronics. The heating elements are composed of PTC ceramic stones, contact plates, connectors and aluminium corrugated ribs.

FUTURE OUTLOOKS

The new generation of PTC auxiliary heaters have been available since 2004, and they differ from their predecessors by reduced weight, reduced pressure drop (saves fan power) and reduced cost of production.

Technical features:

➔ Electric auxiliary heating; power 1 kW-2 kW

➔ Heat source: self-regulating PTC ceramic stones, max. temperature at the surface of the ceramic material 150 °C if no air is flowing through the heating system

➔ Excellent heat transmission by corrugated rib technology with low pressure loss in the supply air

➔ Stepped or linear control via relays or control electronics

➔ High spontaneity and high efficiency

➔ Construction kit system enables optimal adjustment to existing installation space in the vehicle

➔ Absolutely safe operation, no hazard to neighbouring components due to inherent temperature limitation (PTC characteristics)

➔ Just slight increase of necessary blower power due to low pressure loss

CONTROL

The PTC heater is controlled either externally by relays or by an integrated control with power electronics. In the case of relay control, the vehicle manufacturer defines which and how many stages are added. In the case of control integrated in the auxiliary heater, a distinction is made between minimal and high functionality.
If the battery cooler cannot reach the required temperature due to high outdoor temperatures, the coolant flows through a special heat exchanger. The coolant for the vehicle air conditioning system is evaporated there. In addition, heat can be transferred from the secondary circuit to the evaporating refrigerant in a very compact space and with a high power density. The coolant is also re-cooled. Thanks to the use of the special heat exchanger, the battery can be operated within the most efficient temperature window.

As one of the leading suppliers of thermal management spare parts, Behr Hella Service now has spare parts for hybrid vehicles in its product portfolio.

Range is an important criterion when using hybrid and electric vehicles. This can be increased significantly by means of a range extender. Thanks to this part, a small internal combustion engine generates the electric current required for the drive right on board.

But additional parts are not the only factor that can affect the efficiency and range of a vehicle. The performance capability of the battery and the efficiency of all electrical loads—consequently including the air conditioning system—also play a role. As a result, the efficiency of the air conditioning system will be further optimized in the future, resulting in successive increases to the vehicle’s range.

Sustained demand for this type of mobility can only be achieved when all the components in the vehicle, that is partially or completely driven by electricity, function in perfect harmony.

Additional information is available online at www.hella.com.
A vehicle, like many sophisticated pieces of machinery, must be viewed as a system. Specifically, a change in one component can impact a related component or even cause the overall system to be unstable. To guarantee that a flawless thermal system has been designed for a specific application, the OEM supplier must be able to combine the performance of each component – radiator, condenser, CAC, fan, oil cooler and others – to guarantee that the vehicle will perform as it should though a wide span of operating conditions. This can be carried out by using performance simulation tools such as a climatic wind tunnel, which allows the engineer to exercise various components in a theoretical environment until a flawless solution is achieved.

In the aftermarket industry, it is common to replace an OEM part with a replacement part that is not tuned to match the specifications of the OE part. Once this happens, the system is no longer stable.
VIDEO: Find out why Behr Hella Service are Thermal Experts
Behr Hella Service Premium Range

Introducing the Behr Hella Service Premium Range.

Cooling Performance
The PREMIUM RANGE has a somewhat higher performance reserve to manage extreme conditions (midsummer heat, mountainous terrain, fully loaded). Fuel consumption may decrease slightly as fan support may start up later under extreme conditions.

Durability
While Behr Hella Service always uses high quality parts, the PREMIUM RANGE has parts that are designed to last for the entire lifecycle of the vehicle.

Number of Products
The PREMIUM RANGE has optimum coverage for all requirements with OE competence.

Services
With Behr Hella Service all key services like sales support and technical service are guaranteed. For example, Behr Hella Service offers competent technical service and attractive sales support around the clock.
The "PREMIUM LINE" hologram will be integrated into the box label (neutral packaging remains unchanged).
Data Sources Aces / PIES

HINC currently supports more than 20 customer websites by providing updated hi-resolution product images, complete product data and updated product pricing.

Because each customer has different requirements, the challenge to properly convert existing data and images to meet their specific requirements is never-ending. By providing this updated and expanded range of data, including ACES/PIES, the customers are seeing sales growth with HELLA products and in some cases are selling lines of HELLA products that they have never investigated in the past. This allows HINC to expand its product range with existing customers with less effort than in the past, resulting in higher sales across the entire HINC range.
ACES
ACES (Aftermarket Catalog Exchange Standard) is the North American industry standard for the management and exchange of automotive catalog applications data. Using identifiers common to the industry and your own fitment notes, an ACES file communicates the vehicles your parts fit. Other than vehicle information, the ACES record includes a Part Type, and may also include and additional manufacturer Label or diagram.

PIES
The Product Information Exchange Standard (PIES) is the best practice for the management and exchange of product attribute information in the vehicle auto care industry. The PIES structure allows for multiple product descriptions, prices, package dimensions, digital assets, and more.
GET FREE TECHNICAL TRAINING

HELLA TECH WORLD

Prepare your automobile garage for the future. At HELLA TECH WORLD you will find all our technical expert knowledge in the fields of lighting, electrical, electronic, thermal management, brake systems and vehicle diagnostics. And best of all this content is available 24/7 for you and your customers for FREE!

Register today and start to acquire the knowledge that will give you a real advantage and competitive edge for greater success!

Visit: www.hella.com/techworld

KEY FEATURES:

Vehicle-specific Repair Information
We support automotive garages with vehicle-specific diagnostic and repair information related to a variety of fault symptoms – and covering all of HELLA's core competency areas!

Technical Product Information
Prepared by experienced technicians: we have collected our technical information on HELLA products and specific vehicle systems right here for you.

Practical Knowledge
Practical information from the expert: installation instructions, technical brochures, filling capacity manuals, technical videos and much more – expertise for your garage.

HELLA's Online Training
Expand your knowledge with our interactive tutorial. Learn at your own pace about HELLA core fields of expertise.

Technical Literature
To assist you, HELLA has compiled a number of practical manuals containing comprehensive basic know-how and solutions to damage problems, right down to explaining the functionality.

Technical Videos
As assistance or training for your day-to-day work, in these short videos our experts show you in detail all the necessary steps for correctly repairing systems from HELLA’s core competency areas.

Know-How Tool
Discover the comprehensive possibilities of our know-how tools – technical expertise combined with realistic 3-D representations.

REGISTER TODAY FOR FREE!
Multiple tools available:

- **Know-how Tool**
- **Technical Information**

**24/7**

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**CURRENT**

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**HELLA Online Training**